7TH INTERNATIONAL SCIENTIFIC CONFERENCE
EMAN 2023

EMAN 2023 – Economics & Management: How to Cope with Disrupted Times

CONFERENCE PROCEEDINGS

Ljubljana, Slovenia
March 23, 2023 (hybrid)

7th International Scientific Conference EMAN
Economics & Management: How to Cope with Disrupted Times

ISSN 2683-4510

Conference Proceedings (part of EMAN conference collection)

Editor:
Vuk BEVANDA
PhD, Associate Professor, Faculty of Social Sciences, Belgrade, Serbia

Associate Editor:
Rui DIAS
PhD, Associate Professor, Polytechnic Institute of Setúbal, School of Business Administration;
University of Évora (CEFAGE) – Portugal

Published by:
Association of Economists and Managers
of the Balkans – **UdEkoM Balkan**
Ustanicka 179/2 St. 11000 Belgrade, Serbia
office@udekom.org.rs
+381 62 8125 779

Conference partner institutions:
Faculty of Management Koper, University of Primorska, Slovenia
Faculty of Economics, Administration and Business, "Stefan cel Mare" University of Suceava - Romania
Faculty of Economics in Osijek, Josip Juraj Strossmayer University of Osijek - Croatia
School of Economics and Business, University of Sarajevo (SEBS) - Bosnia and Herzegovina

Printed by: SKRIPTA International, Belgrade

Print circulation: 100 copies

Belgrade, 2023

ISBN 978-86-80194-69-1

ISSN 2683-4510

DOI: https://doi.org/10.31410/EMAN.2023

Contents

Index of Authors . . . . **IX**

Index . . . . **XI**

Preface . . . . **XV**

EMAN 2023 Participants' Affiliation . . . . **XVII**

The Impact of the Pandemic
on the Innovation Performance of European Countries **1**
Julianna Csugány
Tamás Tánczos

Business Performance during Crisis:
A Case Study of Albania in the Period of COVID-19. . . . . **11**
Armela Anamali
Bitila Shosha
Romeo Mano

Effects of COVID-19 Stringency Measures
on Business Indicators in the European Union **19**
Armin Kovači

Impacts of GDP per Capita According to PPS
and Health Care Expenditure on Basic Indicators in C5 Countries **27**
Jaroslav Škrabal
Jarmila Duháček Šebestová
Ingrid Majerová

Comparison of the Evaluation of the European Structural
and Investment Funds in Slovakia and the Czech Republic **35**
Kristína Jánošková

Foreign Direct Investment – State and Performance **45**
Nerma Čolaković-Prguda

Inflation under a Currency Board: The Bulgarian Experience **51**
Ivan Todorov
Tsvetomir Tsvetkov

Is the Fiscalization Process a Sustainable Tool to Reduce
the Informal Economy? The Effects and Challenges after
the Implementation Compared with the Region Countries **65**
Jonada Mamo
Rovena Vangjel

Opportunistic Behavior and the Impact
on Audit Quality in Albania **75**
Shyqyri Llaci
Blanka Xhani

Rebalancing Portfolios in Periods of Stress
in the Global Economy: Capital Markets vs. WTI, XAU, XAG, XPT **87**
Nicole Horta
Mariana Chambino
Rui Dias

Interconnections between Clean Energy
and Traditional Commodities: Analysis of Energy Fuels, S&P Global Clean Energy Index, and Is-
hares Global Clean Energy ETF Compared to Oil, Gold, and Natural Gas Prices. **101**
Nicole Horta
Mariana Chambino
Rui Dias

Investment in Unmanned Aerial Systems in Agriculture
and Economic Growth: G(7) **117**
Vesna Jablanovic

BAT Techniques in Agribusiness through the Prism of Sustainable Development in the Republic of Serbia ... 123
Milena Milojević
Suzana Knežević
Jelena Ignjatović

A European Perspective on Engaging and Supporting Civil Society Organisations in Local Territorial Development ... 129
George Mihael Manea

Significance of Financial Valuation of Brands in Agribusiness in Serbia ... 141
Jelena Ignjatović
Ivana Vladimirović
Borislav Kolarić

Management of Land Consolidation Projects ... 149
Žarko Nestorović
Milan Trifković
Miroslav Kuburić
Bogdan Bojović

Multi-Criteria Decision Analysis and Land Consolidation Projects Ranking ... 155
Goran Marinković
Žarko Nestorović
Zoran Ilić
Marko Božić

Analysis of the Number of People Employed in Research and Development in the Countries of the European Union in the Period 2011 – 2020 ... 159
Ľubica Hurbánková

Quality of Employment: Statistical Review on Safety and Ethics at Work in Serbia ... 165
Koviljka Banjević
Dragana Gardašević

Selected Aspects of Education Transformation ... 177
Vojtech Kollár
Silvia Matúšová

Comparison of Selected Indicators of Higher Education Financing in Slovakia in Disruptive Times ... 189
Dana Országhová
Mária Farkašová

Students Return after COVID-19 Crisis ... 197
Man Carmen Mihaela
Slave Camelia

Application of the Internet in Teaching about the Environment ... 203
Jasmina Kurpejović
Ibro Skenderović
Suada Aljković-Kadrić

People with Schizophrenia Out of Social Isolation: A Didactic Perspective to Increase the New Well-Being ... 213
Barbara Galbusera

Consequences of the Pandemic COVID-19 on Transport and Tourism ... 221
Marija Lakićević
Danijela Pantović
Milica Žarevac Bošković

Support for Tourism Development in the Balkan Region after the Pandemic 229
Teodora Rizova

The Positive Impact of the COVID-19 Pandemic on Tourism:
A Case Study of the Ribnica Destination 237
Gašper Krže
Anton Vorina

Natural Tourism Resources in Gabrovo District (Bulgaria) 243
Vanya Vasileva
Dora Kabakchieva

Sustainable Tourism Actions
from the National to the Local Level 249
Éva Erdélyi

Emergence of Wine Destinations and Wine Products:
For a Few Wine Experiences More 257
Patrik Kubát

The Advantages and Disadvantages of Virtual Travel 263
Anton Vorina
Gašper Krže

The Use of GIS Technologies
in the Monitoring Grapevine Plantation 271
Slave Camelia
Man Carmen Mihaela

Food Waste on Restaurant – A Circular Economy Approach 277
Jelena Jevtić
Mirjana Antonijević Nikolić
Dragana Ilić Udovičić

"Starry" Gastronomy.
Michelin Stars 285
Man Carmen Mihaela
Slave Camelia

The Success of the Informed Consent
in the Context of the Negotiations 291
Lyubov Ivanova

Climate Change Legal Setup, EU Acquis, Implementation
and Interaction with Water, Environment,
and Cross-Cutting Sectors in Albania 299
Erjola Keci

Nove informacijske tehnologije za podršku razvoju
kružne ekonomije u okviru Industrije 5.0
New Information Technologies to Support the Development
of the Circular Economy in the Framework of Industry 5.0 311
Sandra Lovrenčić
Iva Gregurec

Konvergira li državna potrošnja na zdravstvo u EU?
Is There Convergence in Government Expenditures
on Health in the EU? 323
Paola Macanović
Lena Malešević Perović

Uticaj personalnih novčanih doznaka na poboljšanje socijalnog stanja
stanovništva i privrede zemalja primalaca
The Influence of Personal Money Remittances
on the Improvement of the Social Condition of the Population
and the Economy of the Recipient Countries 331
Rade Kovač
Namik Čolaković

Demografska struktura Europske Unije
Demographic Structure of the European Union **341**
Sandra Mrvica Mađarac
Svetlana Šibila
Lana Gubić Kučan

Uvođenje eura 2023. godine i mogući utjecaji na turizam u Republici Hrvatskoj
Introduction of the Euro in 2023 and Possible Effects on Tourism in the Republic of Croatia **347**
Elvis Mujačević
Zrinka Martić

Poslovno okruženje u Bosni i Hercegovini
u kontekstu privlačenja direktnih stranih ulaganja
Business Environment in Bosnia and Herzegovina in the Context
of Attracting Foreign Direct Investments **361**
Stevan Petković
Dalibor Misirača
Slobodan Stanić
Dragan Gnjatić

Utjecaj doživljene poduzetničke samoefikasnosti
na sklonost primjene efektualne logike
The Influence of Experienced Entrepreneurial Self-Efficiency
on the Tendency to Apply Effective Logic **371**
Marina Stanić
Ana Jakopec
Sara Delač Marković

Stavovi i znanje mladih osoba prema kreditu
Attitudes and Knowledge of Young People Towards Credit **379**
Goran Karanović
Elvis Mujačević
Emma Superina

Utjecaj radne klime na zadovoljstvo zaposlenika
Influence of Work Climate on Employee Satisfaction **387**
Mirjana Nedović
Tatjana Andraković

Fitnes kao niša sportskog turizma u Europskoj uniji s osvrtom na Republiku Hrvatsku
Fitness as a Sports Tourism Niche in the European Union
with a Reference to the Republic of Croatia **393**
Andreja Rudančić
Mirna Šoštar
Sandra Šokčević

Interesne skupine i veličina javnog sektora: Postoji li veza?
Interest Groups and the Size of the Public Sector: Is There a Relationship? **401**
Silvia Golem

Neoliberalna ekonomija u sudaru sa pravoslavnom eklisiologijom
Neoliberal Economy in Collision with Orthodox Ecclesiology. **407**
Nenad D. Dugalić

Nastava usmjerena na učenika
Student-Centered Teaching **411**
Jasmina Kurpejović
Marinko Savić
Ibro Skenderović
Suada Aljković Kadrić

Rešitve iz narave kot izziv in priložnost za podjetje Dorssen
Solutions from Nature as a Challenge and Opportunity for Dorssen Business **417**
Robert Harb
Maja Harb
Darja Harb

Index of Authors

A

Ana Jakopec, 371
Andreja Rudančić, 393
Anton Vorina, 237; 263
Armela Anamali, 11
Armin Kovači, 19

B

Barbara Galbusera, 213
Bitila Shosha, 11
Blanka Xhani, 75
Bogdan Bojović, 149
Borislav Kolarić, 141

D

Dalibor Misirača, 361
Dana Országhová, 189
Danijela Pantović, 221
Darja Harb, 417
Dora Kabakchieva, 243
Dragana Gardašević, 165
Dragana Ilić Udovičić, 277
Dragan Gnjatić, 361

E

Elvis Mujačević, 347; 379
Emma Superina, 379
Erjola Keci, 299
Éva Erdélyi, 249

G

Gašper Krže, 237; 263
George Mihael Manea, 129
Goran Karanović, 379
Goran Marinković, 155

I

Ibro Skenderović, 203; 411
Ingrid Majerová, 27
Iva Gregurec, 311
Ivana Vladimirović, 141
Ivan Todorov, 51

J

Jarmila Duháček Šebestová, 27
Jaroslav Škrabal, 27
Jasmina Kurpejović, 203; 411
Jelena Ignjatović, 123; 141
Jelena Jevtić, 277
Jonada Mamo, 65
Julianna Csugány, 1

K

Koviljka Banjević, 165
Kristína Jánošková, 35

L

Lana Gubić Kučan, 341
Lena Malešević Perović, 323
Ľubica Hurbánková, 159
Lyubov Ivanova, 291

M

Maja Harb, 417
Man Carmen Mihaela, 197; 271; 285
Mária Farkašová, 189
Mariana Chambino, 87; 101
Marija Lakićević, 221
Marina Stanić, 371
Marinko Savić, 411
Marko Božić, 155
Milan Trifković, 149
Milena Milojević, 123
Milica Žarevac Bošković, 221
Mirjana Antonijević Nikolić, 277
Mirjana Nedović, 387
Mirna Šoštar, 393
Miroslav Kuburić, 149

N

Namik Čolaković, 331
Nenad D. Dugalić, 407
Nerma Čolaković-Prguda, 45
Nicole Horta, 87; 101

P

Paola Macanović, 323
Patrik Kubát, 257

R

Rade Kovač, 331
Robert Harb, 417
Romeo Mano, 11
Rovena Vangjel, 65
Rui Dias, 87; 101

S

Sandra Lovrenčić, 311
Sandra Mrvica Mađarac, 341
Sandra Šokčević, 393
Sara Delač Marković, 371
Shyqyri Llaci, 75
Silvia Golem, 401
Silvia Matúšová, 177
Slave Camelia, 197; 271; 285
Slobodan Stanić, 361
Stevan Petković, 361
Suada Aljković Kadrić, 411; 203
Suzana Knežević, 123
Svetlana Šibila, 341

T

Tamás Tánczos, 1
Tatjana Andraković, 387
Teodora Rizova, 229
Tsvetomir Tsvetkov, 51

V

Vanya Vasileva, 243
Vesna Jablanovic, 117
Vojtech Kollár, 177

Z

Zoran Ilić, 155
Zrinka Martić, 347

Ž

Žarko Nestorović, 149; 155

Index

#

3D virtual reality, 263
2020 and 2022 events, 101

A

Active teaching, 411
Agribusiness, 123; 141
Agriculture, 117; 129; 271
Aktivna nastava, 411
Albania, 11
Anketa, 379
Artificial intelligence, 311
Attitudes, 379
Audit firms, 75
Auditors, 75
Average wage, 189

B

BAT, 123
Big 4, 75
Bionics, 418
Bionika, 417
Bosnia and Herzegovina, 45
Brand, 141
Budgeting, 155
Bulgaria, 51
Businesses Performance, 11
Business indicators, 19
Business negotiation, 291
Business obstacles, 361
Business policy, 19

C

Capacity Building, 129
Capital markets, 87
Case study, 249
Central bank of Bosnia and Herzegovina, 361
Centralna banka Bosne i Hercegovine, 361
Chaos, 117
Children, 203
Circular economy, 277; 311
Classification, 285
Clean energy, 101
Client Importance, 75
Climate Change, 299
Collective intelligence – swarm intelligence, 418
Commodities, 87
Communication, 291; 418
Co-movements, 101
Competency, 177
Competing projects, 155
Competition, 407
Complex process, 155
Computer, 203
Concept measurement, 401
Concordance, 407
Contribution method, 159
Convergence, 323
Correlation analysis, 27
Countries of the European Union, 159
COVID-19, 11; 213
COVID-19 pandemic, 1; 221; 229
COVID–19 pandemics, 237
Credit, 379
Credit knowledge, 379
Crisis, 197
Currency board, 51

D

Decision making, 149; 371
Demografska struktura, 341
Demographic structure, 341
Destination attributes, 257
Development, 257
Digitalization, 11
Digitization of education, 177
Discrimination, 165
Diversification of portfolios, 101
Doznake, 331
Država, 407
Državna potrošnja na zdravstvo, 323

E

Economic consequences, 221; 229
Economic growth, 117
Economic reasons for emigration, 331
Economies, 27
Education, 213
Education management, 177
Education transformation, 177
Efektuacija, 371
Effectuation, 371
Ekonomski razlozi iseljavanja, 331
Eksperiment, 371
Emigration, 331
Employee satisfaction, 387
Environment, 149; 203
Equal opportunities, 165
EU, 323
EU Regulations, 299
Euro, 347
Euroizacija, 347
Euroization, 347
European exchange rate mechanism, 347
European Innovation Scoreboard, 1
European Structural and Investment Funds, 35
European Union, 341; 347; 393
Europska unija, 341; 347; 393
Europski tečajni mehanizam, 347
Eurostat, 27; 341
Evaluation, 35
Experiment, 371

F

Financial integration, 87
Financial valuation, 141
FIPA, 45
Fiscalization process, 65
Fitnes, 393
Fitness, 393
Food, 285
Food waste, 277
Foreign investors, 361

G

Gastronomy, 285
Governance, 129
Government expenditures on health, 323
Guide, 285

H

Healthcare expenditure, 27
Higher education financing, 189
Hortobágy, 249
Hungary, 249

I

Impacts, 35
Implementation of the EU acquis, 299
Improvement of the organizational structure in the Dorssen company, 418
Inclusion, 213
Indicators, 27
Industrija 5.0, 311
Industry 5.0, 311
Inflation, 51
Informality, 65
Information, 291
Informed consent, 291
Innovation, 177
Innovation performance, 1
Institutional framework, 45
Internet, 203
Investment in Unmanned Aerial Systems, 117
Iseljavanje, 331
Izboljšanje organizacijske strukture v podjetju Dorssen, 417

J

Javni sektor, 401

K

Kolektivna inteligenca – inteligenca roja, 417
Komunikacija, 417
Konkurencija, 407
Konvergencija, 323
Krediti, 379
Kružna ekonomija, 311

A

Leader, 149
Leadership, 418
Lobbying, 401
Lobiranje, 401

M

Maastricht criteria, 347
Maastrichtski kriteriji, 347
Management, 271; 277; 387
Manager, 149
Menadžment, 387
Mental health, 165
Mjerenje koncepta, 401
Mlade odrasle osobe, 379

N

Nastava, 411
Negative consequences, 347
Negativne posljedice, 347
Neizvjesnost, 371
Neoliberal economy, 407
Neoliberalna ekonomija, 407
New forms of tourism, 221; 229
Number of people employed, 159

O

Odlučivanje, 371
Održivost, 311
Organizacijska kultura, 387
Organization, 418
Organizational culture, 387
Organiziranje, 417
Orthodoxy, 407

P

Pandemic, 197
Paris Agreement, 299
Pay gap, 165
Percepcija građana, 347
Perception of citizens, 347
Personality type, 75
Physical health, 165
Plantation, 271
Portfolio diversification, 87
Positive consequences, 347
Poslovne prepreke, 361
Poverty, 331
Pozitivne posljedice, 347
Pravoslavlje, 407
Precision, 271
Projects ranking, 155
Protected territories, 243
Public sector, 401

R

Radna klima, 387
Region, 65
Remittances, 331
Republic of Croatia, 393
Republika Hrvatska, 393
Research approach, 203
Restaurant, 277
Restaurants, 285
Ribnica, 237
Roadmap, 129

S

Sabornost, 407
Schizophrenia, 213
Serbia, 123; 141
Siromaštvo, 331
Sportski turizam, 393
Sports tourism, 393
State, 407
Stavovi, 379
Strani investitori, 361
Stringency measures, 19
Student, 411
Students, 197
Survey, 379
Suslov´s structural similarity coefficient, 159
Sustainability, 263; 311
Sustainable development, 123; 243
Sustainable Development Goals, 129

T

Tax regulations, 45
Teaching, 411
Techniques, 123
Technological gap, 1
Time Budget Pressure, 75
Time series analysis, 189
Tourism, 221; 229; 237; 263; 347
Tourism development policy, 249
Transformacija lokalnih zajednica, 331
Transformation of local communities, 331
Transport, 221; 229
Travel, 263
Turizam, 347
Turnover Intention, 75

U

Učenik, 411
Umjetna inteligencija, 311
Uncertainty, 371
Unethical behavior, 75
University, 189; 197

V

Valorization, 243
Virtual travel, 263
Vodenje, 417

W

Well-being, 213
Wine, 271
Winescape, 257
Wine tourism, 257
Work climate, 387
Working Capital Management, 11

Y

Young adults, 379

Z

Zadovoljstvo zaposlenika, 387
Znanje o kreditima, 379

Preface

The purpose of the annual EMAN conference is to support the power of scientific research and dissemination of the research results with the objective to enhance society by advancing knowledge; policy-making change, lives, and ultimately, the world. Our objective is to continue to be the foremost annual conference on cutting-edge theory and practice of economics and management through encouraging advancement via excellence, and interaction.

EMAN conference aims to bring together the international academic community (experts, scientists, engineers, researchers, students, and others) and enable interactive discussions and other forms of interpersonal exchange of experiences and popularization of science and personal and collective affirmation.

The annual EMAN conference is committed to the highest standards of publishing integrity and academic honesty ensuring ethics in all its publications. Conformance to standards of ethical behavior is therefore expected of all parties involved: authors, editors, reviewers, and the publisher. The conference organizer follows the Committee on Publication Ethics (COPE) guidelines on how to deal with potential acts of misconduct.

All received full papers prior peer review process are subject to plagiarism check with iThenticate by Turnitin software. Any identified plagiarism automatically disqualifies a paper. Afterward, all full papers are double-blind peer-reviewed by the reviewers drawn from the editorial committee or external reviewers depending on the topic, title, and subject matter of the paper. Peer reviewers provide a critical assessment of the paper and may recommend improvements. Although the author may choose not to take this advice, editors highly recommend that the author address any issues, explaining why their research process or conclusions are correct.

Association of Economists and Managers of the Balkans headquartered in Belgrade – Serbia along with the partner institutions, namely the Faculty of Management Koper, University of Primorska, Slovenia; Faculty of Economics, Administration and Business, "Stefan cel Mare" University of Suceava – Romania; Faculty of Economics in Osijek, Josip Juraj Strossmayer University of Osijek - Croatia and the School of Economics and Business, University of Sarajevo (SEBS) - Bosnia and Herzegovina organized Seventh International Scientific Conference on Economics and Management: How to Cope with Disrupted Times - EMAN 2023. Conference was held in Ljubljana, Slovenia (online/virtually/in-person) at the Faculty of Public Administration, University of Ljubljana, Slovenia, Gosarjeva ulica 5, Ljubljana, Slovenia.

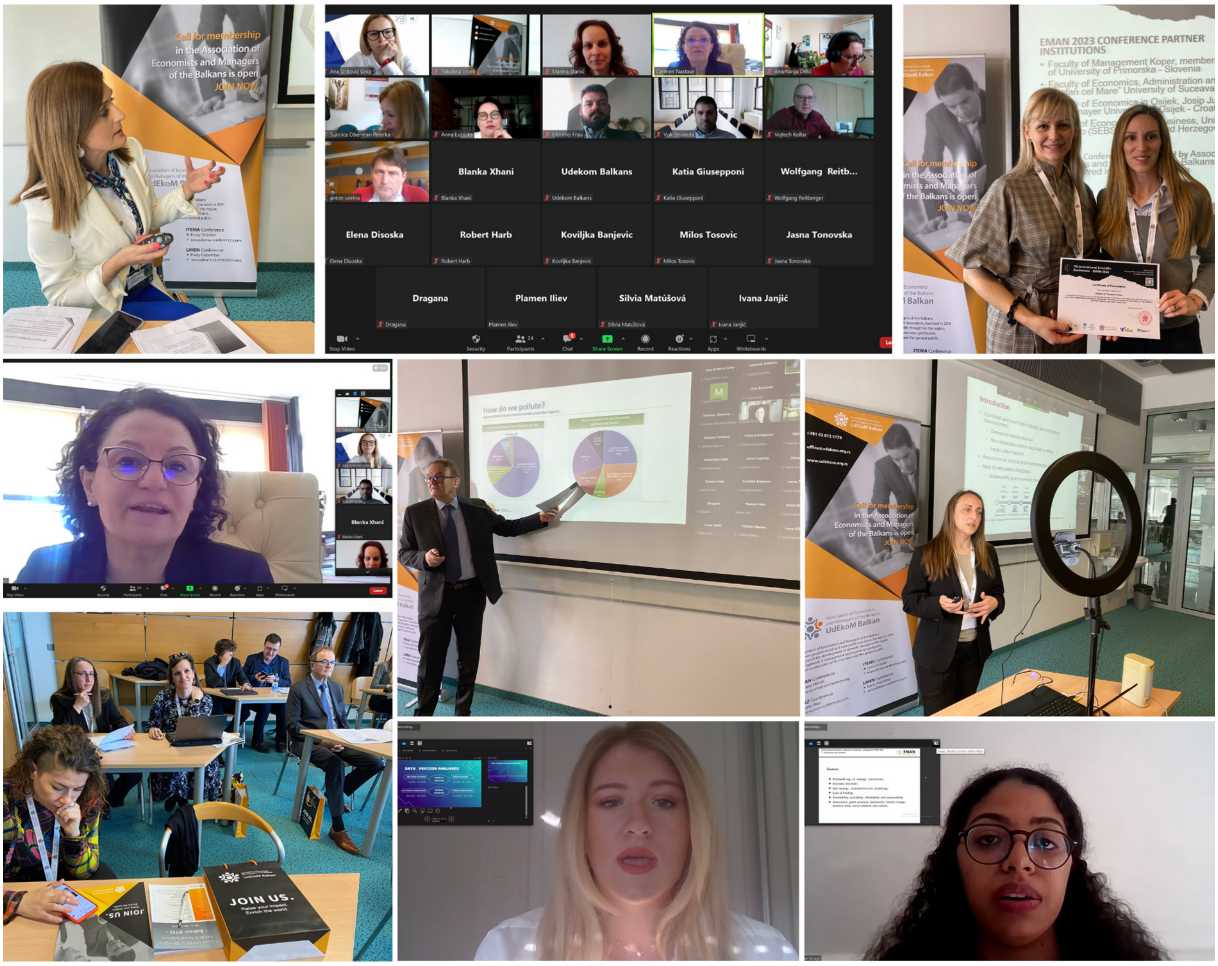
EMAN 2023 keynote speaker was Moreno Frau from the Corvinus University of Budapest, Marie Curie Research Fellow, Institute of Marketing and Communication Sciences, Department of Marketing Management, Hungary with the topic "*Digital Transformation, Agility, and Environmental Sustainability in the Agri-Food Industry*".

Within publications from the EMAN 2023 conference:

- **20 double peer-reviewed papers** have been published in the *EMAN 2023 – Economics & Management: How to Cope with Disrupted Times – Selected Papers* (in English),
- **50 double peer-reviewed papers** have been published in the *EMAN 2023 – Economics & Management: How to Cope with Disrupted Times – Conference Proceedings* (in English, Croatian, Bosnian, Serbian and Slovenian), and
- **111 abstracts** have been published in the *EMAN 2023 – Book of Abstracts* (in English).

Altogether EMAN 2023 publications have **more than 700 pages**. All full papers have DOI numbers and ORCID iD integration.

Participation in the conference took nearly **200 researchers** representing **26 different countries** from different universities, eminent faculties, scientific institutes, colleges, various ministries, local governments, public and private enterprises, multinational companies, associations, etc.



EMAN 2023 Participants' Affiliation

Albania
- "Aleksander Moisiu" University, Department of Economics, Kampusi i Ri Universitar, Rr. Miqesia, Spitallë, Durrës
- "Aleksander Moisiu" University, Faculty of Professional Studies, Currila Street, 2001, Durres
- "Aleksander Moisiu" University, Street "Miqësia" University Campus, Durrës
- University "Eqrem Çabej" Gjirokastër, Street Studenti 30, Gjirokastër
- University of Tirana, Faculty of Economics, Str. "Arben Broci", Tirana

Algeria
- Ain Temouchent University, Belhadj Bouchaib University Centre of Maghnia, 46000 Ain Temouchent
- University Centre of Maghnia, Maghnia 13001, Tlemcen

Austria
- FH Burgenland, Campus 1, A-7000 Eisenstadt
- University of Applied Sciences Kufstein Tirol, Finance, Accounting & Auditing, Andreas Hofer Str. 7, 6330 Kufstein

Bosnia and Herzegovina
- Public Health Institute of the Republic of Srpska, Jovana Dučića 2, Banja Luka
- Service for Foreigner's Affairs of Bosnia and Herzegovina
- Union of Education, Science and Culture of Republic of Srpska, Srpska 32, Banja Luka
- University of Džemal Bijedić Mostar, Faculty of Law, Sjeverni logor bb, 88104, Mostar
- University of Modern Sciences-CKM, Zalik bb, Mostar
- University of Sarajevo, Faculty of Economics and Business, Trg oslobođenja - Alija Izetbegović 1, 71000 Sarajevo

Bulgaria
- Konstantin Preslavsky University of Shumen, 115 Universitetska str.
- New Bulgarian University - Department "Economics", Sofia
- Sofia University "St. Kliment Ohridski", Faculty of Philosophy, bul. "Tsar Osvoboditel" 15, 1504, Sofia
- South-West University Neofit Rilski, Faculty of Economics, 60, Ivan Mihaylov Str., 2700 Blagoevgrad
- University of National and World Economy, Student District, No. 19 December 8th St., 1700 Sofia

Croatia
- Croatian Health Insurance Fund, Ul. kralja Zvonimira 1B, Osijek
- FIT MODUS, Zagreb
- High School of Economics, Dr. Franje Tuđmana 2, 31550 Valpovo
- Hospitality and Tourism School Osijek, Ul. M. Gupca 61, Osijek
- Infobip d.o.o., Istarska 157, 52215 Vodnjan
- Institute for Migration and Ethnic Studies,10000 Zagreb
- Institute for Tourism, Vrhovec 5, 10000 Zagreb
- J. J. Strossmayer University of Osijek, Faculty of Economics in Osijek, Trg Ljudevita Gaja 7, Osijek
- Libertas International University, Zagreb
- Meixner d.o.o., Hermanova 16/G, 10000 Zagreb
- Polytechnic Lavoslav Ružička Vukovar, Županijska 50, Vukovar
- Polytechnic of Rijeka, Trpimirova 2/V, 51000 Rijeka
- University North, Trg dr. Žarka Dolinara 1, 48000 Koprivnica
- University of Osijek, Faculty of Humanities and Social Sciences, Ul. Lorenza Jagera 10, 31000 Osijek
- University of Rijeka, Faculty of Tourism and Hospitality Management, Primorska 46, 51410 Opatija
- University of Split, Faculty of Economics, Business and Tourism, Cvite Fiskovića 5, 21 000 Split
- University of the North, Jurja Križanića 31b, Varaždin
- University of Zagreb, Faculty of Organization and Informatics, Pavlinska 2, Varaždin
- Zagreb Business School, Ulica gr. Vukovara 68, Zagreb
- Zagreb School of Economics and Management, Filipa Vukasovića 1, 10000 Zagreb

Czech Republic
- AMBIS College, a.s., Lindnerova 575/1, 180 00 Prague
- Grafton Recruitment s.r.o., Palladium, Na Poříčí 1079/3a, 110 00, Prague 1
- Mendel University in Brno, Faculty of Business and Economics, Department of Marketing and Trade
- Moravian Business College Olomouc, Institute of Business Economics and Entrepreneurship, Kosmonautu 1288/1, 779 00 Olomouc
- Moravian Business College Olomouc, Institute of Innovation in Healthcare, Kosmonautu 1288/1, 779 00 Olomouc
- Moravian Business College Olomouc, Institute of Management, Kosmonautu 1288/1, 779 00 Olomouc
- University of New York in Prague, Londynska 41, 120 00 Prague 2

Ethiopia
- Addis Ababa University, Addis Ababa

Greece
- National Technical University of Athens, School of Electrical & Computer Engineering, Decision Support Systems Laboratory, 9, Iroon Polytechniou str., 15780, Zografou, Athens
- University of the Aegean

Hungary
- Budapest Business University, More Innovation Talent Orientation Research Group, Markó utca 29-31, H-1055 Budapest
- Eszterházy Károly Catholic University, Egészségház utca 4., HU-3300 Eger

Italy
- ASST Lecco, Via Eremo 9/11, Lecco
- EURICSE Trento, Trento
- Giustino Fortunato University, Avenue Raffaele Delcogliano 12
- University of Bari Aldo Moro, Largo Abbazia Santa Scolastica 53, 70124 Bari
- University of Brescia, Department of Law, via San Faustino, 41, 25122 Brescia (BS)
- University of Macerata – Department of Education, Cultural Heritage and Tourism, P.le Bertelli 1, c.da Vallebona, 62100 Macerata

Kuwait
- Australian University

Montenegro
- Cattaro Audit Doo, Dobrota 51, Kotor

Morocco
- Ibn Tofail University Kenitra

North Macedonia
- Macedonian Academy of Sciences and Arts, Bul. Krste Petkov Misirkov 2, 1000 Skopje
- Ss. Cyril and Methodius University – Skopje, Faculty of Computer Science & Engineering, Ruger Boshkovikj 16, 1000 Skopje
- Ss. Cyril and Methodius University in Skopje, Faculty of Economics – Skopje

Poland
- Poznan University of Economics and Business, Al Niepodleglosci 10, 61-875 Poznan
- University of Szczecin, ul. Mickiewicza 64, 71-101 Szczecin

Portugal
- ESCE, Polytechnic Institute of Setúbal
- Higher Institute of Administration and Management, Campus de Salazares/Ramalde, R. de Salazares 842, 4100-442 Porto
- University of Évora, Center for Studies and Advanced Training in Management and Economics (CEFAGE)

Romania
- Babeș – Boyai University, Faculty of Economics and Business Administration, Department of Business Administration – Reșița
- Polytechnic University of Bucharest, 313 Splaiul Independentei, 060032, Bucharest
- University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest
- University of Bucharest

Serbia
- Academy of Applied Studies Šabac, Unit for Agricultural Business Studies and Tourism, Vojvode Putnika 56, 15000 Šabac
- Academy of Professional Studies Sumadija, Department in Kragujevac, Kosovska 8, 34 000 Kragujevac
- Academy of Professional Studies Šabac, Department of Medical and Business-Technological Studies, Šabac
- Academy of Technical and Educational Vocational Studies, Aleksandra Medvedeva 20, 18000 Nis
- ATSSB, Department of Belgrade Polytechnic, Katarine Ambrozić 3, Belgrade
- College “Academy of Business Economics”, Bulevar Vuka Karadžića 5, Čačak
- Faculty of Civil Engineering, Subotica
- Higher Business School of Vocational Studies, Gradski park 2, 11080 Belgrade
- Institute of Economic Sciences, Zmaj Jovina 12, Belgrade
- International University of Novi Pazar
- Metropoliten University, Tadeuša Košćuška 63, 11000 Belgrade
- Public Company of Electricity Production – EPS, Branch “Djerdap”, Kladovo
- The Academy of Applied Technical Studies Belgrade
- Toplica Academy of Applied Studies - Department of Business Studies Blace, Kralja Petra I Karađorđevića 1, 18420 Blace
- University of Belgrade, Faculty of Agriculture, Nemanjina 6, 11081 Belgrade
- University of Belgrade, Faculty of Mining and Geology, Djusina 7, 11000 Belgrade
- University of Belgrade, Faculty of Security Studies, Gospodara Vucica 50, 11000 Belgrade
- University of Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja, Vojvođanska 5a, 36210 Vrnjačka Banja
- University of Niš, Innovation center, Niš
- University of Novi Sad, Faculty of Technical Sciences, 21000 Novi Sad

Slovak Republic
- Academy of the Police Force in Bratislava, Sklabinská 1, 835 17 Bratislava
- Bratislava University of Economics and Management, Furdekova 16, 851 04 Bratislava
- Comenius University in Bratislava, Faculty of Law, Šafárikovo nám. 6, 810 00 Bratislava
- Comenius University, Faculty of Management, Odbojárov 10, 820 05 Bratislava
- Slovak University of Agriculture in Nitra, Faculty of Economics and Management, Institute of Economics and Management, Tr. A. Hlinku č.2, 949 76 Nitra
- University of Economics in Bratislava, Faculty of Commerce, Department of Tourism, Dolnozemská cesta 1, 852 35 Bratislava

Slovenia
- Doba Business School, Prešernova Ulica 1, Maribor
- Erudio School of Sustainable Tourism, Litostrojska cesta 40, 1000 Ljubljana
- Faculty of Information Studies in Novo mesto, Ljubljanska cesta 31a, 8000 Novo mesto
- Higher Vocational College, Celje School of Economics, Mariborska 2, 3000 Celje
- Rudolfovo – Science and Technology Centre Novo mesto, Podbreznik 15, 8000 Novo mesto
- School of Advanced Social Studies in Nova Gorica, Gregorčičeva 19, 5000 Nova Gorica
- University of Ljubljana, Faculty of Public Administration; Gosarjeva ulica 5, 1000 Ljubljana
- University of Ptuj

Spain
- University of Santiago de Compostela, Praza do Obradoiro, 0, 15705 Santiago de Compostela, A Coruña

Tunisia
- University of Sousse Tunisia, Street Khalifa El Karoui, Sahloul 4, Sousse

United Arab Emirates
- Higher Colleges of Technology, Faculty of Applied Media, FWC

Ukraine
- O. M. Beketov National University of Urban Economy in Kharkiv, 17 Marshal Bazhanov Street, 61002 Kharkiv
- V. N. Karazin Kharkiv National University, 4 Svobody Sq., 61022 Kharkiv

United States
- Columbia University, 500 W 120th St #510, New York, NY 10027

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.1

The Impact of the Pandemic on the Innovation Performance of European Countries

Julianna Csugány[1]
Tamás Tánczos[2]

Received: April 30, 2023
Accepted: September 11, 2023
Published: October 30, 2023

Keywords:
Innovation performance;
COVID-19 pandemic;
Technological gap;
European Innovation Scoreboard

Abstract: *In the last few years, the COVID-19 pandemic has changed our lives and the operation of the whole economy. The technological possibilities in the era of Industry 4.0 were already given, but the spread of digital solutions accelerated due to the pandemic, which was the catalyst of technological progress. The adaptation of new technologies was faster, and the length of the digital transition has been shortened. The impact of the pandemic prevails in both technological leader and follower countries, and because of this, the technological gap between developed and developing countries may decrease. The technological follower countries can converge to leaders mainly in digital infrastructure which is the essential condition of the new technological era but some constraints remain that prevent them from taking advantage of technological progress. This technological revolution requires promoting the use, adoption, and adaptation of new technologies in all countries regardless of the level of technological development. This research aims to analyse the changes in European countries' innovation performance in the last years when the COVID-19 pandemic prevailed with data from European Innovation Scoreboard. Using simple and multivariate statistical methods, the similarities and differences in technological progress in times of pandemic can be highlighted between the technological leader and follower countries in the European Union.*

1. INTRODUCTION

In the last few years, the COVID-19 pandemic dominated the world economy with severe economic and social consequences. Technological progress may offer solutions to many of the challenges due to the crisis. The widespread adaptation of new technologies accelerated, and the length of the digital transition has shortened during the time of the pandemic. The new technological wave, the Fourth Industrial Revolution based on digitalization generates skill-biased technological changes, in which developed countries have a competitive advantage. The adaption of new technologies requires adequate digital infrastructure and a well-skilled labour force not only in the technological leader but also in technological follower countries. As Schwab and Zahidi (2020) pointed out, the combined health and economic shocks due to the COVID pandemic have accelerated the effects of the Fourth Industrial Revolution on trade, skills, digitization, competition, and employment. Analysing the first tendencies during the time of the pandemic, one of the key findings of the Global Competitiveness Report 2020 was that, the COVID-19 crisis has accelerated digitalization in advanced economies and made catching up more difficult for countries or regions that were lagging before the crisis despite the significant expansions of ICT access and use. Renu (2021) also emphasized the advantages the of COVID-19 pandemic crisis in technological leader countries that can develop new technologies to react to new challenges in economics. In contrast, it is assumed that the pandemic crisis enforced technological adaptation to the changed economic environment in all countries regardless of the level of technological development which can lead to slow convergence between the technological leader and follower countries in the long run because the digital infrastructural conditions have already given to further development.

[1] Eszterházy Károly Catholic University, Egészségház utca 4., HU-3300, Eger, Hungary
[2] Eszterházy Károly Catholic University, Egészségház utca 4., HU-3300, Eger, Hungary

This study uses the European Innovation Scoreboard to analyse the changes in European countries' innovation performance in the last years when the COVID-19 pandemic prevailed. The different fields of innovation will be compared in innovation performance groups created by the Summary Innovation Index with various statistical methods to highlight the similarities and differences in technological progress in times of pandemic. Two hypotheses are formulated related to our analysis.

Hypothesis One: Comparing the overall innovation performance of the European Union member states, we assume that there is a moderate rearrangement in innovation ranking because of an improvement in the field of innovation in less innovative countries enforced by the pandemic.

Hypothesis Two: The convergence of less innovative countries can be observed mainly in the physical infrastructure and financing because in these fields the improvement is realised more rapidly, in contrast, human conditions and innovative behaviour are difficult to change.

2. DATABASE AND METHODOLOGY

The current 27 member states of the European Union were involved in the analysis which are classified into innovation performance groups based on the Summary Innovation Index (SII) calculated from the European Innovation Scoreboard. Based on SII, countries are classified into four innovation performance groups: innovation leaders, strong innovators, moderate innovators, and emerging innovators. According to EIS (2022), EU 27 countries can be grouped as follows (the order fits for innovation performance):

- *Innovation leaders (5)*: Sweden, Finland, Denmark, Netherlands, Belgium,
- *Strong Innovators (6)*: Ireland, Luxembourg, Austria, Germany, Cyprus, France
- *Moderate Innovators (9)*: Estonia, Slovenia, Czechia, Italy, Spain, Portugal, Malta, Lithuania, Greece
- *Emerging Innovators (7)*: Hungary, Croatia, Slovakia, Poland, Latvia, Bulgaria, Romania

Firstly, we examine how the overall innovation performance of the European countries changed during the pandemic crisis, then we analyse changes in different fields of innovation in detail. Using parametric and non-parametric tests, the innovation performance in different fields is compared to highlight the significant differences between EU member states grouped by innovation performance. Firstly, the normal distribution of variables is tested using the Kolmogorov-Smirnov test. If a variable has a normal distribution, ANOVA is used to compare means of innovation performance groups, in contrast, in the lack of normal distribution, the Kruskal-Wallis test can be run. Another prerequisite of the ANOVA is homoscedasticity which is tested by Levene's test. If equal variances are not assumed, Welch's test is used to compare means instead of the classical F test. Using these methods, we got a comprehensive picture of significant differences between innovation performance groups.

3. EMPIRICAL RESULTS

Firstly, the overall innovation performance of European countries was compared between 2019 and 2022, so before and after the COVID-19 pandemic. In 2019, the classification of the innovation performance groups was different, but we classified countries in the same way to compare their innovation performance. In 2019, the worst-performing group was called modest innovators, it included only two countries, Bulgaria and Romania whose SII was below 50% of the

EU average. Based on the new classification innovation leaders are all countries with a relative performance in 2022 above 125% of the EU average, strong innovators' relative performance is between 100% and 125% of the EU average, moderate innovators' relative performance is between 70% and 100% of the EU average while emerging innovators are all countries with a relative performance in 2022 below 70% of the EU average in 2022 (EIS 2022). *Figure 1* shows the changes in the innovation performance of the European Union member states using the innovation ranking based on the Summary Innovation Index.

Innovation performance ranking in 2019			Innovation performance ranking in 2022			*The direction of change in position*	*Percentage change (%) from 2019 to 2022*
INNOVATION LEADERS	Sweden	0,700	INNOVATION LEADERS	Sweden	0,735		5,056
	Netherlands	**0,693**		**Finland**	**0,735**	↑	9,308
	Denmark	0,683		Denmark	0,731		6,964
	Finland	**0,672**		**Netherlands**	**0,701**	↓	1,217
STRONG INNOVATORS	**Luxembourg**	**0,656**		**Belgium**	**0,698**	↑	11,280
	Austria	**0,632**	STRONG INNOVATORS	**Ireland**	**0,645**	↑	4,020
	Belgium	**0,627**		**Luxembourg**	**0,643**	↓	-1,971
	Ireland	**0,620**		**Austria**	**0,641**	↓	1,431
	Germany	0,608		Germany	0,637		4,800
	France	**0,578**		**Cyprus**	**0,579**	↑	39,592
	Estonia	**0,488**		**France**	**0,571**	↓	-1,085
MODERATE INNOVATORS	**Malta**	**0,487**	MODERATE INNOVATORS	**Estonia**	**0,542**	↓	10,969
	Portugal	**0,479**		**Slovenia**	**0,507**	↑	9,952
	Spain	**0,471**		**Czechia**	**0,502**	↑	17,165
	Slovenia	**0,461**		**Italy**	**0,497**	↑	10,725
	Italy	**0,448**		**Spain**	**0,481**	↓	2,134
	Czechia	**0,428**		**Portugal**	**0,465**	↓	-2,976
	Cyprus	**0,415**		**Malta**	**0,459**	↓	-5,729
	Lithuania	0,414		Lithuania	0,454		9,438
	Greece	0,368		Greece	0,435		18,111
EMERGING INNOVATORS	Hungary	0,340	EMERGING INNOVATORS	Hungary	0,378		11,292
	Slovakia	**0,333**		**Croatia**	**0,360**	↑	17,659
	Croatia	**0,306**		**Slovakia**	**0,349**	↓	4,659
	Poland	0,294		Poland	0,328		11,630
	Latvia	0,267		Latvia	0,275		2,946
	Bulgaria	0,239		Bulgaria	0,245		2,369
	Romania	0,166		Romania	0,177		6,642

Figure 1. Changes in innovation performance between 2019 and 2022

Source: Authors based on EC (2022)

There was a rearrangement in the innovation performance ranking during the time of the pandemic. Sweden preserved the leading role in the EU in the field of innovation, but Finland catches-up and the SII values of these countries were equal in 2022. Belgium's relative innovation performance exceeded 125% of the EU average in 2022 and became an innovation leader. Before the pandemic, there were only four countries that belonged to the innovation leaders group, but after the pandemic, there were five countries whose innovation performance is dominant in the EU. Cyprus realized the most significant improvement in innovation performance during the time of the pandemic, the SII was higher at 39,592% in 2022 than in 2019, and because of this, it became a strong innovator from a moderate one. The SII of Luxembourg and France became lower after the pandemic so they fell behind in the ranking. Despite the around 10% improvement in innovation performance, Estonia became a moderate innovator from a strong one. From 2019 to 2022, the innovation performance of Portugal and Malta became worse, because of this they also fell behind in the ranking. The SII of Lithuania and Greece improved significantly, despite this, there was no change in their ranking between 2019 and 2022. In the emerging innovators' group, Croatia's performance was better significantly, and because of this, it changed places with Slovakia in the ranking. Analysing the changes in innovation performance ranking, we can conclude that the pandemic crisis created possibilities for improving innovation activities. Some less innovative countries took advantage of the enforced technological development while technological leaders preserved their leading role in innovation. Because of this, a moderate rearrangement is shown but there is no significant convergence between technological leader and follower countries.

Figure 2 shows a level and trend analysis related to the Summary Innovation index comparing its actual value and its changes during the time of the pandemic. Cyprus realized an extremely high improvement while Malta suffered a serious decline in innovation performance from 2019 to 2022. Most of the emerging and moderate innovator countries, as well as innovation leaders, improved their performance at a higher level than the EU average while strong innovators' change was below the EU average, and in the case of the two countries, there was a negative tendency. Analysing the trends, we can conclude that the technological gap between technological leader and follower countries remains but a slow convergence can be seen between strong and moderate innovators.

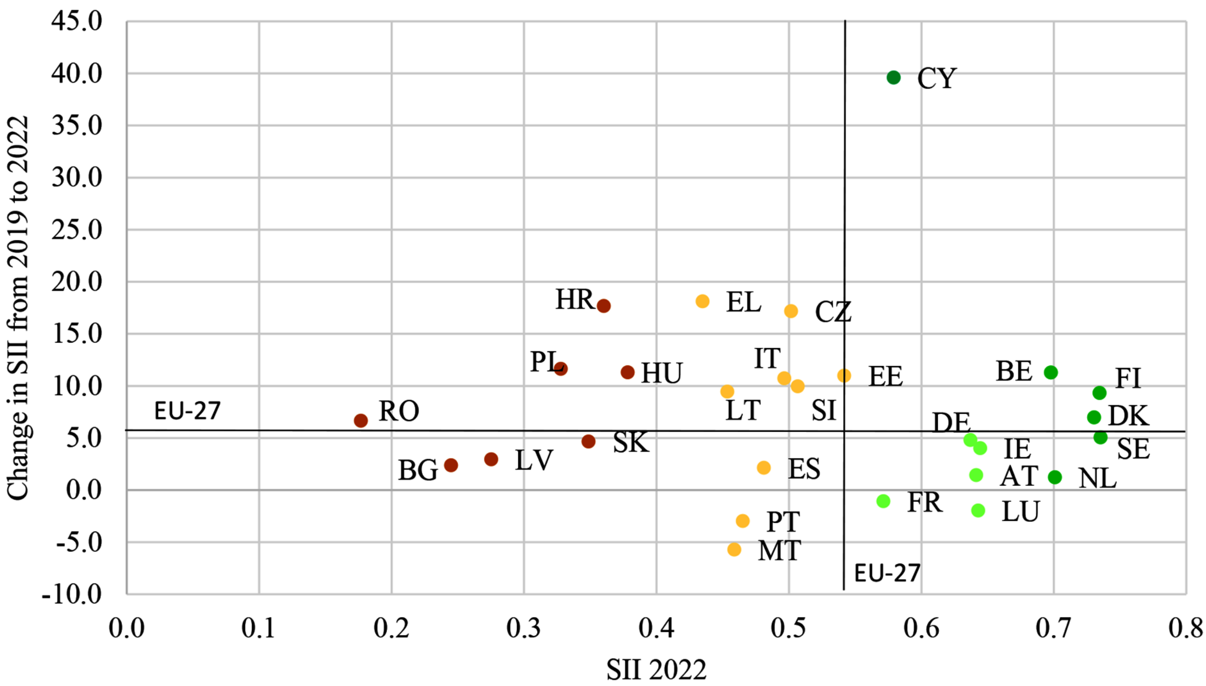


Figure 2. The value of the Summary Innovation Index in 2022
and its change from 2019 to 2022

Source: Authors based on EC (2022)

In the next step of the analysis, the innovation performance of European countries by groups is compared in detail with multivariate statistical methods using the 32 indicators from EIS. Based on the Kolmogorov-Smirnov test, there is no normal distribution (P value < 0.05) in the case of seven variables, namely international scientific co-publications per million population, direct government funding, and government tax support for business R&D, R&D expenditure in the business sector, public-private co-publications, PCT patent applications, trademark applications, and air emissions by fine particulates in Industry (see the results of the Kolmogorov-Smirnov test in Appendix 1). In these cases, the Kruskal-Wallis test can be run to compare the means of innovation performance groups. As *Table 1* shows, there is no significant difference between innovation performance groups in the case of direct government funding and government tax support for business R&D and air emissions by fine particulates in Industry based on the Kruskal-Wallis test.

Table 1. The results of the Kruskal-Wallis test

Variable	Chi-square test statistic	Sig.
International scientific co-publications per million population	20,329	0.000
Direct government funding and government tax support for business R&D	*4,977*	*0.173*
R&D expenditure in the business sector	12,320	0.006
Public-private co-publications	17,821	0.000
PCT patent applications	16,122	0.001
Trademark applications	7,798	0.050
Air emissions by fine particulates in industry	*6,581*	*0.087*

Source: Authors based on EC (2022)

In the case when the variables have a normal distribution, ANOVA can be run if there is homoscedasticity of variables. Based on the Levene test, there is no homoscedasticity in the case of ICT specialists and employment in knowledge-intensive activities. In these cases, Welch's test can be run instead of the F test to compare means between innovation performance groups. As *Table 2* shows, based on ANOVA we can conclude that there is no significant difference between innovation performance groups in these variables: non-R&D innovation expenditures, job-to-job mobility of Human Resources in Science & Technology, medium and high-tech product exports, sales of new or improved products ('product innovations'), and resource productivity. At a 10% significant level, the significant difference is shown in the case of design applications per billion GDP and the development of environment-related technologies.

Analysing the means plots related to ANOVA some interesting tendencies are seen. The general consequence is that innovation leaders realize the highest value of the most indicators but there are some exceptions. Percentage population aged 25-34 having completed tertiary education, the job-to-job mobility of Human Resources in Science & Technology, the medium and high technology product export and resource productivity are higher in strong innovators than in innovation leaders. In the case of employment impacts, the values of innovation leaders and strong innovators are quite similar. The most interesting thing is that non-R&D innovation expenditures are the highest in moderate innovators. The broadband penetration is higher in moderate innovators than in strong innovators. The innovation leaders and moderate innovators realize quite the same value, while strong innovators lag. We can conclude that there are some fields of innovation where technological followers are not far behind significantly.

Table 2. The results of ANOVA

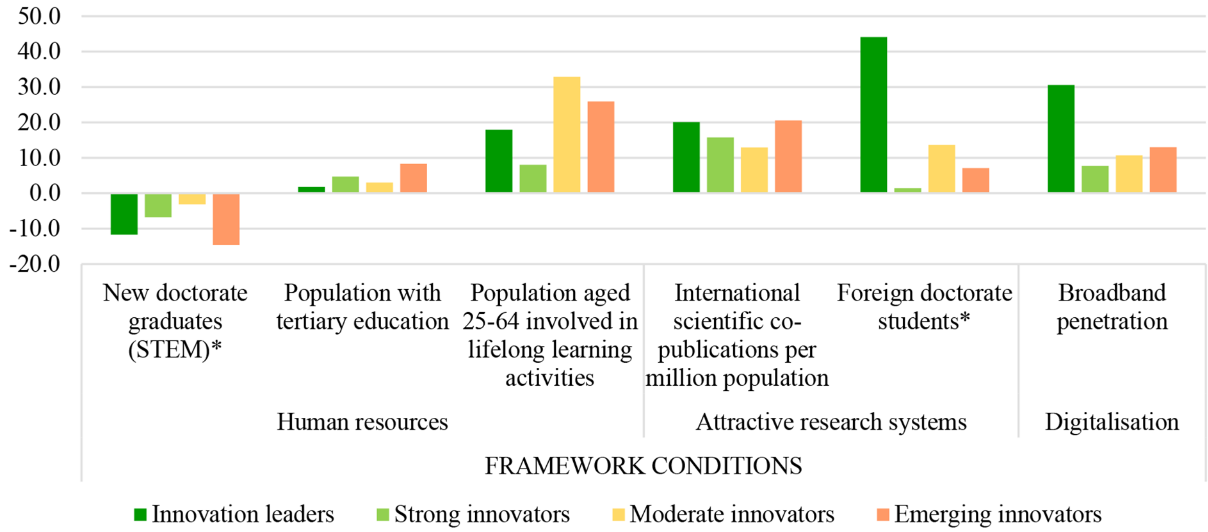
Variable	F test	Sig.
New doctorate graduates (STEM) per 1000 population aged 25-34	11,172	,000
Population with tertiary education (% share)	4,056	,019
Population aged 25-64 involved in lifelong learning activities (%-shares)	13,641	,000
Top 10% most cited publications (% share)	25,650	,000
Foreign doctorate students (% share)	9,149	,000
Broadband penetration (% share)	5,124	,007
Individuals who have above basic overall digital skills (% share)	6,384	,003
R&D expenditures public sector (% of GDP)	6,983	,002
Venture capital expenditures (% of GDP)	9,784	,000
Non-R&D innovation expenditures (% of turnover)	*,647*	*,593*
Innovation expenditure per person employed	9,343	,000
Enterprises providing training to develop or upgrade the ICT skills of their personnel (% share)	8,900	,000
SMEs with product innovations (% share)	5,633	,005
SMEs with business process innovations (% share)	10,420	,000
Innovative SMEs collaborating with others (% share)	9,523	,000
Job-to-job mobility of Human Resources in Science & Technology (% share)	*1,990*	*,144*
Design applications per billion GDP (in PPS)	*2,547*	*,081*
Employment in innovative enterprises (% share)	9,606	,000
Medium and high-tech product exports (% share)	*,314*	*,815*
Knowledge-intensive services exports (% share)	10,418	,000
Sales of new or improved products ('product innovations') (% of turnover)	*2,017*	*,140*
Resource productivity (measured as domestic material consumption (DMC) about GDP)	*2,068*	*,132*
Development of environment-related technologies	*2,530*	*,082*
Variable	**Welch's test**	**Sig.**
Employed ICT specialists	14,637	,000
Employment in knowledge-intensive activities	14,186	,000

Source: Authors based on EC (2022)

Finally, we analyse the changes in each variable differentiated by innovation performance groups to highlight whether innovation followers converge to innovation leaders during the time of the pandemic. The impact of the COVID-19 pandemic cannot be measured in some cases because the latest data is from 2019. In the digitalisation pillar, the variables are available for 2020 and 2021, in the case of individuals who have above basic overall digital skills there is only data for 2021. In other cases, the most recent year for which data are available is 2020 so we can analyse the change from 2019 to 2020 (marked with *).

Figure 3 shows the changes in framework conditions including human resources, the attractive research system, and digitalization. There is a decrease in new doctorate students in STEM in all groups; the reduction is highest in emerging innovators (-14.58%) followed by innovation leaders (-11.67%). There is good improvement in the tertiary educated population and participation in lifelong-learning activities in the worst-performing innovation group. We can conclude that in the field of human resources, there is a moderate convergence. In attractive research systems and digitalisation, the innovation leaders' performance improves significantly mainly in the number of foreign doctorate students and broadband penetration so surprisingly a divergence is observed between technological leaders and followers.

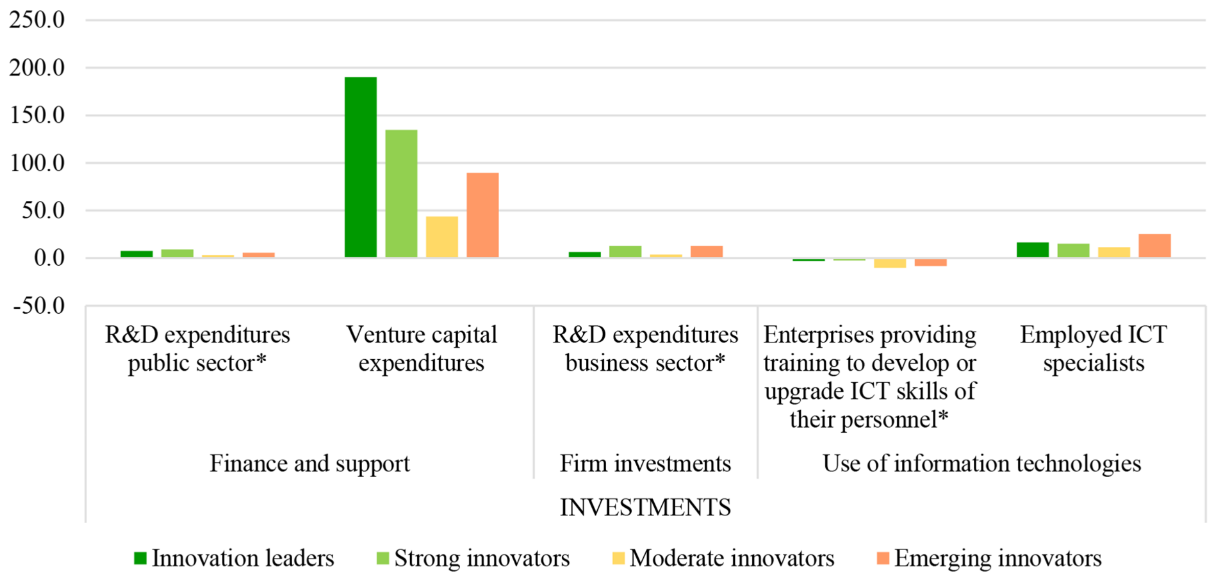
Figure 4 shows the changes in investments including finance and support, firm investments, and the use of ICT. There is no significant change at the time of the pandemic in R&D expenditures in the public and business sectors and the number of enterprises providing training to develop or upgrade the ICT skills of their personnel. The venture capital expenditures increased significantly in each group mainly in technological leader countries and surprisingly in the worst-performing group. The number of employed ICT specialists increased the most in emerging innovators (25.34%). We can conclude that there is no convergence in the field of investments between technological leaders and followers.



Note: the change in the top 10% of most cited publications and individuals who have above-basic overall digital skills cannot be measured because of the data availability.

Figure 3. Changes in framework conditions differentiated by innovation performance groups during the time of the pandemic

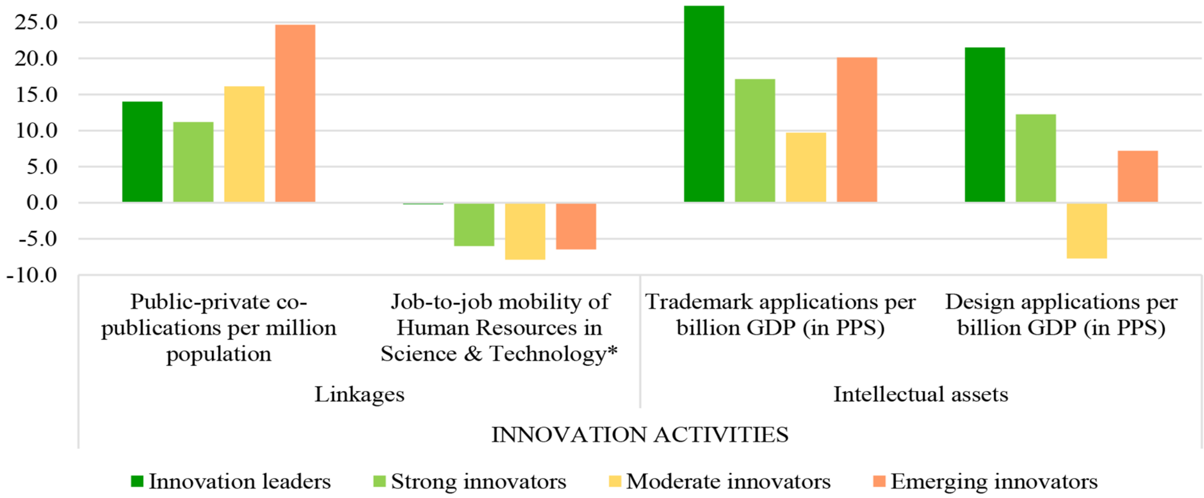
Source: Authors based on EC (2022)



Note: the change in direct government funding and government tax support for business R&D, non-R&D innovation expenditures, and innovation expenditure per person employed cannot be measured because of the data availability.

Figure 4. Changes in investments differentiated by innovation performance groups during the time of the pandemic

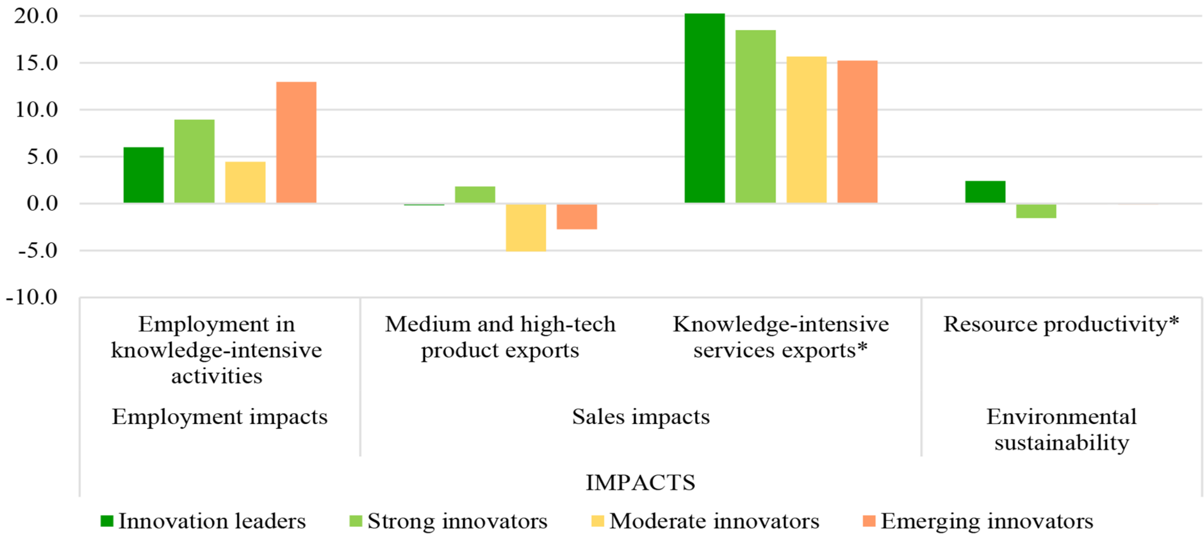
Source: Authors based on EC (2022)



Note: the change in variables related to innovators and innovative SMEs collaborating with others, PCT applications cannot be measured because of the data availability.

Figure 5. Changes in innovation activities differentiated by innovation performance groups during the time of the pandemic

Source: Authors based on EC (2022)



Note: the change in employment in innovative enterprises, sales of new-to-market and new-to-enterprise innovations, air emissions by fine particulates, and development of environment-related technologies cannot be measured because of the data availability.

Figure 6. Changes in impacts differentiated by innovation performance groups during the time of the pandemic

Source: Authors based on EC (2022)

Figure 5 shows the changes in innovation activities including innovators, linkages, and intellectual assets. There is a strong decrease in job-to-job mobility of HRST in all performance groups except for the innovation leaders. The public-private co-publications increase the most in emerging innovators and there are also more trademark applications in this group. In innovation activities the moderate innovators' performance is poor, and the number of design applications decreases while there is a significant improvement in other groups. We can conclude that in the field of innovation activities, there is an improvement in the performance of emerging innovators but there is no convergence between innovation leaders and followers.

Figure 6 shows the changes in innovation activities including employment impacts, sales impacts, and environmental sustainability. There is no significant change in resource productivity in less innovative groups while there is an improvement in this field in innovation leaders and a decrease in strong innovators. There is a decrease in medium and high-tech product exports in moderate and emerging innovators while strong innovators' performance becomes better and there is no change in innovation leaders. The knowledge-intensive services export increased significantly in each group, matching their innovation performance. In contrast, employment in knowledge-intensive activities increases the most among emerging innovators. We can conclude that there is a moderate convergence in employment impacts between innovation leaders and followers but in the other field, like sales impact and environmental sustainability, there is a significant improvement in less innovative countries.

4. CONCLUSION

This research aims to analyse the changes in European countries' innovation performance in the last years when the COVID-19 pandemic prevailed with data from European Innovation Scoreboard. We assumed that there is a moderate rearrangement in innovation ranking because of an improvement in the field of innovation in less innovative countries enforced by the pandemic. Sweden preserved the leading role in the EU in the field of innovation, Finland caught up and the SII value of these countries was equal in 2022. Before the pandemic, there were only four countries that belonged to the innovation leaders group, but after the pandemic, there are five countries whose innovation performance is dominant, because Belgium's relative innovation performance exceeded 125% of the EU average in 2022. Some less innovative countries have taken advantage of technological development in the last few years. Cyprus realized the most significant improvement in innovation performance during the time of the pandemic, the SII was higher at 39,592% in 2022 than in 2019, and because of this, it became a strong innovator from a moderate one. Some countries changed places in each group, so there is a rearrangement in ranking due to the pandemic but there is no significant convergence between technological leaders and followers. The other hypothesis is that the convergence of less innovative countries can be observed mainly in the physical infrastructure and financing was not confirmed. Our analysis pointed out that there is a moderate convergence in the field of human resources and employment impacts between innovation performance groups while technological leaders' performance improves significantly in investments and innovation activities.

References

EC (European Commission). (2022). *European Innovation Scoreboard Methodology Report*. https://research-and-innovation.ec.europa.eu/system/files/2022-09/ec_rtd_eis-2022-methodology-report.pdf

Hollanders, H., Es-Sadki, N. & Khalilova, A. (2022). *European Innovation Scoreboard 2022*, Publications Office of the European Union, European Commission, Directorate-General for Research and Innovation, https://data.europa.eu/doi/10.2777/309907

Renu, N. (2021). Technological advancement in the era of COVID-19. *SAGE Open Medicine, 9*, 205031212110009. https://doi.org/10.1177/20503121211000912

Schwab, K., & Zahidi, S. (2020). *The Global Competitiveness Report Special edition 2020. How Countries are Performing on the Road to Recovery.* World Economic Forum. Available at: https://www.weforum.org/reports/the-global-competitiveness-report-2020/

Appendix

A1. The results of the Kolmogorov-Smirnov test of variables

Innovation dimension		Variable	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
FRAMEWORK CONDITIONS	Human resources	New doctorate graduates (STEM) (% share)	,114	,200
		Population with tertiary education (% share)	,078	,200
		Population aged 25-64 involved in lifelong learning activities (%-shares)	,126	,200
	Attractive research systems	International scientific co-publications per million population	,188	,015
		Top 10% most cited publications (% share)	,133	,200
		Foreign doctorate students (% share)	,109	,200
	Digitalisation	Broadband penetration (% share)	,167	,051
		Individuals who have above basic overall digital skills (% share)	,130	,200
INVESTMENTS	Finance and support	R&D expenditures public sector (% of GDP)	,093	,200
		Venture capital expenditures (% of GDP)	,126	,200
		Direct government funding and government tax support for business R&D	,212	,003
	Firm investments	R&D expenditures business sector (% of GDP)	,179	,027
		Non-R&D innovation expenditures (% of turnover)	,109	,200
		Innovation expenditure per person employed	,132	,200
	Use of information technologies	Enterprises providing training to develop or upgrade the ICT skills of their personnel (% share)	,102	,200
		Employed ICT specialists (% of total employment)	,160	,073
INNOVATION ACTIVITIES	Innovators	SMEs with product innovations (% share)	,108	,200
		SMEs with business process innovations (% share)	,159	,080
	Linkages	Innovative SMEs collaborating with others (% share)	,103	,200
		Public-private co-publications per million population	,223	,001
		Job-to-job mobility of Human Resources in Science & Technology (% share)	,134	,200
	Intellectual assets	PCT patent applications per billion GDP (in PPS)	,225	,001
		Trademark applications per billion GDP (in PPS)	,203	,006
		Design applications per billion GDP (in PPS)	,144	,159
IMPACTS	Employment impacts	Employment in knowledge-intensive activities (% share)	,107	,200
		Employment in innovative enterprises (% share)	,102	,200
	Sales impacts	Medium and high-tech product exports (% share)	,095	,200
		Knowledge-intensive services exports (% share)	,130	,200
		Sales of new or improved products ('product innovations') (% of turnover)	,135	,200
	Environmental sustainability	Resource productivity (measured as domestic material consumption (DMC) in relation to GDP)	,152	,112
		Air emissions by fine particulate matter (PM2.5) in Industry	,187	,017
		Development of environment-related technologies	,130	,200

Source: Authors based on EC (2022)

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.11

Business Performance during Crisis: A Case Study of Albania in the Period of COVID-19

Armela Anamali[1]
Bitila Shosha[2]
Romeo Mano[3]

Received: March 17, 2023
Accepted: June 23, 2023
Published: October 30, 2023

Keywords:
Albania;
Businesses Performance;
COVID-19;
Working Capital
Management;
Digitalization

Abstract: *Albanian businesses, similar to global ones, encountered numerous issues in coping with the various challenges that the COVID-19 pandemic manifested. The uncertainties of the moment, as well as those which many see in the long term, reinforced the role that certain aspects of running a business have in their survival and success. According to the studies conducted over the last three years, there was a boom in the financing and technology embraced by businesses to adapt to the situation. The systematic literature review delineates a synopsis of the empirical analysis that various researchers provided as a contribution to overcoming the socio-economic impasse and the prudent management of uncertain future situations. The authors of this paper, given the importance of the factors considered in the study, looked into the approach applied by the "surviving" businesses in Albania to withstand the crisis. In the unfolded results, the scarcity of embracing technology in doing business is still surprising.*

1. INTRODUCTION

The 21st century is overturning many predictions both at the micro and macro levels. COVID-19 brought into focus security, as a concept taken for granted, and the role that management, finance and technology play in society. The pandemic was like an avalanche that spared no one (Clark et al., 2020). Its consequences affected the physical-socio-economic health of individuals, challenged entrepreneurship (Brown & Rocha, 2020; Kuckertz et al., 2020) and mobilized governments to respond through multifaceted measures. In addition to healthcare, immediate attention was also paid to businesses, whose collapse would soon give rise to another parallel crisis. There were various forms of supporting businesses, such as counseling, wage subsidies, mediation with the banking sector, etc. (World Bank, 2020).

The complete lockdown and the subsequent partial lockdowns, as well as the changes in consumer behaviour for market products and services, kept businesses vigilant in maintaining their financial indicators. In some studies, it is noted how entrepreneurs managed to transcend from survival to flourishing, seeking or advancing toward new opportunities through innovation and activities that generated income during the crisis (Kuckertz et al., 2020; Thorgren & Williams, 2020). However, little research was conducted on analyzing how the response of businesses to COVID-19 affected their performance (Dimson et al., 2020; Kalemli-Ozcan et al., 2020). One cannot claim that businesses had the same strategies as regards size and nature, and the same may apply to the response of businesses in different countries.

[1] University Aleksandër Moisiu Durrës, Street "Miqësia" University Campus, Durrës, Albania
[2] University Aleksandër Moisiu Durrës, Street "Miqësia" University Campus, Durrës, Albania
[3] University "Eqrem Çabej" Gjirokastër, Street Studenti 30, Gjirokastër Albania

Albania is an economy led by small and medium businesses (Ilollari et al., 2021). During the pandemic period, this was also the most severely affected segment of businesses. However, few studies have scrutinized the underlying changes in unit activities to assess the level of business performance in response to the COVID-19 pandemic. Our study aims to complement or add to the existing literature the outcomes or novelties related to the performance of Albanian firms concerning the clarity of cost-benefits during two difficult pandemic years. By dint of authors, sources and analysis of the econometric model used as reference in this paper, we aim to unravel what were the powerful tools that firms either had at their disposal or obtained in due time to overcome the difficult situation induced during COVID-19. We also aim to bring to the fore how Albanian firms struggled to adapt as quickly as possible to the new reality, while monitoring their business plans, financial management and future planning.

2. LITERATURE REVIEW

In the second year of the pandemic, the world continues to fight with the visible and the invisible. COVID-19 is very likely to profoundly and irreversibly change the environments and strategies of doing business both nationally and internationally (Verbeke & Yuan, 2020). Moreover, COVID-19 could be a milestone for the emergence of a new generation of entrepreneurs who would lead the next industrial revolution and find new ways of doing business driven by increasingly developed technologies (Akpan et al., 2021).

The results deriving from studies accentuate the uncertainty that this pandemic has created for businesses (Altig et al. 2020; Hu & Zhang, 2021; McKinsey & Company, 2020). The drastic slumps in income in 2020 and the high level of uncertainty posed a challenge to business managers to maintain a healthy financial position and keep the business running (Donthu & Gustafsson, 2020). The organizations' management has solicited to come up with a result based on the available materials rather than an effort to achieve a certain effect. In such circumstances, Sibik (2020) suggested that organizations should be cautious by analyzing and reviewing action plans in the short term, to maintain their stability.

Firms cannot stop a crisis, but they can devise strategic schemes to prevent or mitigate the effects of a crisis or disaster (Obrenovic et al., 2020). To ensure resilience in these pandemic times, the private sector has become critically dependent on factors such as managerial skills, their reserve funds, the ability to reorganize business, quick response to changes, flexibility and adaptation to the new needs of the market (Ranf et al., 2021). The findings of the study conducted by Simon et al. (2021) suggest new alternatives to working capital management through dynamic financing, commercial loan policies and continuous staff training to overcome the challenges of the crisis. Meanwhile, various authors suggest the use of advanced technologies to ensure resilience and expansion in the global market. However, the existing literature on digitization in developing countries is scarce and remains limited (Ofosu-Ampong, 2021).

3. METHODOLOGY

This study covers a population of Albanian businesses that have similar characteristics in terms of size, nature, etc. (Research Population, 2009). The sample size is 200 businesses, following a filtering process conducted regarding the characteristics of the population considered in the study. The instrument used for this study is the *questionnaire*, as a structured technique for collecting primary data with a series of written questions to which respondents must provide their answers (Beiske, 2007). Whereas, for the analysis of quantitative and qualitative data, the linear regression model was applied. The outputs of the linear regression model were provided by the SPSS version 21 software. The questions are mainly general (nature, size, capital structure, longevity, etc.) and are rated according to the Likert scale (1-7). Likert scale questions measure the respondents' level of perception regarding the factors considered in the study. To study the statistical relationships between business performance in the presence of COVID-2019 and the factors affecting this performance, we have compiled fictitious variables, the values of which are calculated utilizing the arithmetic averages of the respective indicators presented as follows:

- *Dependent variable: Post-COVID business performance*, from 1 (very unsuccessful) to 7 (very successful).
- *Independent variable: Future planning*, from 1 (extremely unclear) to 7 (extremely clear). *Working capital management*, from 1 (extremely unclear) to 7 (extremely clear);
- *Technology absorption in business*, from 1 (extremely unclear) to 7 (extremely clear).

4. RESULTS

Referring to the scope of this paper, the methodology used as well as the question raised '*Was your business clear on the objectives and outcomes of the strategy for coping with the COVID-19 crisis*?',we have analysed the outcomes of three factors that have influenced the performance of businesses during and after lockdown. The factors included in the linear regression model are three problems that have both accompanied and helped in the survival and success of businesses during that crisis.

The observation of the correlation coefficients according to Pearson (table in the appendix) concludes that there is a strong relationship between the indicators, which have served for the compilation of fictitious variables, in most of them. To determine the direct impact level of these indicators on *"Business Performance",* we built linear regressions with the dependent variable *"Business Performance"* and the indicators as independent variables grouped according to the fictitious variables they produce (*Financial Planning - **FP***; *Working Capital Management - **WCM***; *Business Digitization - **BD***).

The evaluation of linear regression coefficients with dependent variable "Business Performance" (**BP**) and independent variables (***FP***); (***WCM***); (***BD***), presented in Table 1 indicates that the constant of the model and digitization go beyond the limits of statistical significance to be included in the econometric model.

Table 1. Linear regression coefficients with dependent variable "Business Performance" (**BP**) and independent variables (***FP***); (***WCM***); (***BD***)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.902	.578		1.560	.127	-.267	2.071		
	FP	.522	.191	.438	2.737	.009	.136	.908	.446	2.245
	WCM	.413	.191	.334	2.165	.037	.027	.800	.481	2.080
	BD	-.220	.139	-.205	-1.579	.122	-.502	.062	.675	1.483

[a] Dependent Variable: *Business Performance*

Source: Elaborated by authors

The exclusion of the constant from the model in the second step of the selection of significant variables with the probability criterion (lowest FP, equal to 0.05), determines as significant independent variable ***FP*** and ***WCM***, presented in Table 2.

Table 2. Significant independent variable FP and WCM

Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	FP	1.208	.083	.914	14.602	.000	1.041	1.375	1.000	1.000
2	FP	.675	.160	.511	4.210	.000	.351	.999	.204	4.910
	WCM	.363	.097	.452	3.719	.001	.166	.560	.204	4.910

[a] Dependent Variable: *Business Performance*
[b] Linear Regression through the Origin

Source: Elaborated by authors

Financial planning in a business is one of the keys to success both in achieving the set objectives and in analyzing what has failed to be achieved. The clearer businesses are in future planning, the better they can manage the problems they face. The crisis caused by COVID-19 revealed the importance of financial planning in understanding where the 'red flags' should be raised in the management of the situation.

The lockdown period and the subsequent time unveiled the importance of liquidity for businesses and *working capital management* in carrying out daily operations (activities) to survive. Apart from the outputs from financing activities (mainly bank loans), which at that time were facilitated by the intervention of government policies, the second major problem was the management of cash flows in operational activities with little inputs/income and inevitable payments.

E-commerce and remote working were two approaches that were involuntarily tested during the COVID-19 period. However, they were not regarded as equally successful for all countries, especially the developing ones. The outcomes of the model suggest that *business digitalization* is still an alternative that has an insignificant impact on business performance.

Table 2 produces the econometric equation obtained with a suitability level (R_2=0.877), 87.7%, as follows:

$$BP = 0.675P_{10}P + 0.363P_{10}M + \varepsilon \quad (1)$$

The equation shows that an increase of 1 unit in the level of perception of the clarity of Expectations and Planning while keeping Management unchanged, is accompanied by an increase of 0.675 units of success in business performance in the presence of COVID-19. Whilst, Management has an impact of 0.363 units on business performance in the presence of COVID-19.

5. CONCLUSION

There are not many examples similar to this economic crisis in the historical course of society. Previous pandemics did have a significant effect on the global economy, but they were not as severe or destructive as the current crisis (Durst & Henschel, 2021; He & Harris, 2020). Hence, any business plan is limited in its guidelines regarding the levels of risk and uncertainty prompted by

COVID-19 (Giones et al., 2020). Businesses will need to constantly reassess and amend their business plans to adapt to the infected environment until global herd immunity is achieved.

The victims of a crisis are often the first to organize a response to the situation, providing quick and timely contributions that are critical to alleviating damages (Thorgren & Williams, 2020). This applies to all businesses, regardless of the nature or size of the organizations (Liguori & Pittz, 2020). The study of Kottika et al. (2020) suggests that a positive response to crises depends not only on cost reduction but also on whether managers can forgo costs and focus on the potential benefits of the crisis.

Many discussions and arguments proclaim that nothing will remain unchanged in business: in the post-COVID world, there will be opportunities for entrepreneurs to start creating new products and services, with new business models and business routines that are different from the traditional ones (Janssen et al., 2021).

References

Akpan, I. J., Soopramanien, D., & Kwak, D. H. (2021). Cutting-edge technologies for small business and innovation in the era of COVID-19 global health pandemic. *Journal of Small Business & Entrepreneurship*, *33*(6), 607-617. https://doi.org/10.1080/08276331.2020.1799294

Altig, D., Baker, S., Barrero, J. M., Bloom, N., Bunn, P., Chen, S., Davis, S. J., Leather, J., Meyer, B., Mihaylov, E., Mizen, P., Parker, N., Renault, T., Smietanka, P., & Thwaites, G. (2020). Economic uncertainty before and during the COVID-19 pandemic. *Journal of Public Economics, 191*, 104274. https://doi.org/10.1016/j.jpubeco.2020.104274

Beiske, B. (2007). *Research methods: Uses and limitations of questionnaires, interviews, and case studies* (pp. 1-11). GRIN verlag.

Brown, R., & Rocha, A. (2020). Entrepreneurial uncertainty during the COVID-19 crisis: Mapping the temporal dynamics of entrepreneurial finance. *Journal of Business Venturing Insights*, *14*, e00174. https://doi.org/10.1016/j.jbvi.2020.e00174

Clark, A., Jit, M., Warren-Gash, C., Guthrie, B., Wang, H. H. X., Mercer, S. W., Sanderson, C., McKee, M., Troeger, C., Ong, K. L., Checchi, F., Perel, P., Joseph, S., Gibbs, H. P., Banerjee, A., Eggo, R. M., Nightingale, E. S., O'Reilly, K., Jombart, T., … Jarvis, C. I. (2020). Global, regional, and national estimates of the population at increased risk of severe COVID-19 due to underlying health conditions in 2020: a modelling study. *The Lancet Global Health, 8*(8), e1003-e1017. https://doi.org/10.1016/s2214-109x(20)30264-3

Dimson, J., Mladenov, Z., Sharma, R., & Tadjeddine, K. (2020). COVID-19 and European small and medium-size enterprises: How they are weathering the storm. *McKinsey & Company.*

Donthu, N., & Gustafsson, A. (2020). Effects of COVID-19 on business and research. *Journal of business research*, *117*, 284-289. https://doi.org/10.1016/j.jbusres.2020.06.008

Durst, S., & Henschel, T. (2021). COVID-19 as an accelerator for developing strong (er) businesses? Insights from Estonian small firms. *Journal of the International Council for Small Business, 2*(1), 1-29.

Giones, F., Brem, A., Pollack, J. M., Michaelis, T. L., Klyver, K., & Brinckmann, J. (2020). Revising entrepreneurial action in response to exogenous shocks: Considering the COVID-19 pandemic. *Journal of Business Venturing Insights*, *14*, e00186.

He, H., & Harris, L. (2020). The impact of COVID-19 pandemic on corporate social responsibility and marketing philosophy. *Journal of business research*, *116*, 176-182. https://doi.org/10.1016/j.jbusres.2020.05.030

Ilollari, O., Papajorgji, P., & Todri, A. (2021). The need for governmental help for SME recovery in Albania. In Proceedings of the 5th UNICART Interdisciplinary International Conference. Rome / Castellana Grotte, Bari (Italy).

Janssen, M., Chang, B. P. I., Hristov, H., Pravst, I., Profeta, A., & Millard, J. (2021). Changes in Food Consumption During the COVID-19 Pandemic: Analysis of Consumer Survey Data From the First Lockdown Period in Denmark, Germany, and Slovenia. *Frontiers in Nutrition, 8*. https://doi.org/10.3389/fnut.2021.635859

Kalemli-Ozcan, S., Gourinchas, P.-O., Penciakova, V., & Sander, N. (2020). COVID-19 and SME Failures. IMF Working Papers, 2020(207), 1. https://doi.org/10.5089/9781513557748.001

Kottika, E., Özsomer, A., Rydén, P., Theodorakis, I. G., Kaminakis, K., Kottikas, K. G., & Stathakopoulos, V. (2020). We survived this! What managers could learn from SMEs who successfully navigated the Greek economic crisis. *Industrial Marketing Management, 88*, 352-365.

Kuckertz, A., Brändle, L., Gaudig, A., Hinderer, S., Morales Reyes, C. A., Prochotta, A., Steinbrink, K. M., & Berger, E. S. C. (2020). Startups in times of crisis - A rapid response to the COVID-19 pandemic. *Journal of Business Venturing Insights, 13*, e00169. https://doi.org/10.1016/j.jbvi.2020.e00169

Liguori, E. W., & Pittz, T. G. (2020). Strategies for small business: Surviving and thriving in the era of COVID-19. *Journal of the International Council for Small Business, 1*(2), 106-110. https://doi.org/10.1080/26437015.2020.1779538

McKinsey & Company. (2020). COVID-19: Global health and crisis response, available at https://www.mckinsey.com/~/media/mckinsey/business%20functions/risk/our%20insights/covid%2019%20implications%20for%20business/covid%2019%20may%2013/covid-19-facts-and-insights-may-6.ashx

Obrenovic, B., Du, J., Godinic, D., Tsoy, D., Khan, M. A. S., & Jakhongirov, I. (2020). Sustaining Enterprise Operations and Productivity during the COVID-19 Pandemic: "Enterprise Effectiveness and Sustainability Model". *Sustainability, 12*(15), 5981. https://doi.org/10.3390/su12155981

Ofosu-Ampong, K. (2021). Determinants, Barriers and Strategies of Digital Transformation Adoption in a Developing Country COVID-19 era. *Journal of Digital Science, 3*(2), 67-83. https://doi.org/10.33847/2686-8296.3.2_5

Ranf, D. E., Mănescu, G., & Badea, D. (2021). Specific Business Continuity Management Practices During the COVID-19 Pandemic Crisis. Land Forces Academy Review, 26(1), 62-68.

Research Population. (2009). Explorable.com: https://explorable.com/research-population

Sibik, B. (2020). Preparing for a Pandemic: Review Business Continuity Plans Amid Coronavirus Outbreak. Retrieved from http://www.riskmanagementmonitor.com/preparing-for-a-pandemic-review-business-continuity-plans-amid-coronavirus-outbreak/

Simon, S., Sawandi, N., Kumar, S., & El-Bannany, M. (2021). Economic downturns and working capital management practices: a qualitative enquiry. *Qualitative Research in Financial Markets, 13*(4), 529-547. https://doi.org/10.1108/qrfm-09-2020-0181

Thorgren, S., & Williams, T. A. (2020). Staying alive during an unfolding crisis: How SMEs ward off impending disaster. *Journal of Business Venturing Insights, 14,* e00187. https://doi.org/10.1016/j.jbvi.2020.e00187

Verbeke, A., & Yuan, W. (2020). A Few Implications of the COVID-19 Pandemic for *International Business Strategy Research. Journal of Management Studies, 57*(8), 1751-1758. https://doi.org/10.1111/joms.12665

World Bank. (2020). *Small and Medium Enterprises (SMES) Finance.*

Appendix

Correlations

		P10_1	P10_2	P10_3	P10_4	P10_5	P10_6	P10_7	P10_8	P10_9
P10_1	Pearson Correlation	1								
	Sig. (2-tailed)									
P10_2	Pearson Correlation	.772**	1							
	Sig. (2-tailed)	.000								
P10_3	Pearson Correlation	.772**	.670**	1						
	Sig. (2-tailed)	.000	.000							
P10_4	Pearson Correlation	.513**	.470**	.452**	1					
	Sig. (2-tailed)	.000	.001	.002						
P10_5	Pearson Correlation	.502**	.367*	.466**	.820**	1				
	Sig. (2-tailed)	.001	.016	.002	.000					
P10_6	Pearson Correlation	.490**	.250	.460**	.656**	.769**	1			
	Sig. (2-tailed)	.001	.106	.002	.000	.000				
P10_7	Pearson Correlation	.639**	.515**	.723**	.753**	.712**	.740**	1		
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000			
P10_8	Pearson Correlation	-.276	-.314*	-.306*	.091	.297	.332*	-.128	1	
	Sig. (2-tailed)	.074	.040	.046	.560	.053	.030	.412		
P10_9	Pearson Correlation	-.277	-.271	-.228	.197	.258	.274	-.007	.812**	1
	Sig. (2-tailed)	.072	.079	.141	.205	.095	.076	.964	.000	

*   Correlation is significant at the 0.05 level (2-tailed).

**   Correlation is significant at the 0.01 level (2-tailed).

Source: Authors

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.19

Effects of COVID-19 Stringency Measures on Business Indicators in the European Union

Armin Kovači[1]

Received: April 14, 2023
Accepted: July 6, 2023
Published: October 30, 2023

Keywords:
Business indicators;
Stringency measures;
Business policy

Abstract: *The global pandemic had a big effect on business and the economy overall. Affected by the fear of the spreading virus, many countries implemented stringency measures. These measures additionally affected the level of business activities. The main objective of this study was to research and analyze the business effects of COVID-19 measures at the level of the European Union. Business indicators included business investment rate, the gross profit share of non-financial corporations, assets of non-financial corporations as a percentage of GDP, economic sentiment indicator, production in construction, production in industry, and the volume of retail trade (monthly data, percentage change on previous period). The main indicator used to show the level of stringency measures was the COVID-19 Stringency Index. Results showed a high correlation between stringency measures and business investment rate, assets of non-financial corporations, production in industry, production in construction and volume of retail trade. Some of these results could be under the influence of the European Union's long-term budget, coupled with NextGenerationEU.*

1. INTRODUCTION

The business sector has been heavily affected by the COVID-19 pandemic. Since the start of the pandemic, a high number of infected, many restriction measures including lockdowns, lowered the level of business activity. Productivity in all sectors decreased, prices increased and perception of the entire economy changed. No sector has not been affected by this issue. Additionally, waves of COVID-19 infection increased the fear, which had a big effect on the investment level.

As the world becomes more interconnected, the economic impacts of the pandemic have become more severe. In addition to increased health expenditures and a reduced labor force, the pandemic has hit the supply and demand chain massively and caused trouble for manufacturers who have to fire some of their employees or delay their economic activities to prevent more loss (Kolahchi et al., 2021). As a result, the pandemic triggered a health and fiscal response unprecedented in terms of speed and magnitude. On a global scale, fiscal support reached nearly $16 trillion (around 15 percent of global GDP) in 2020 (Levy & Filipini, 2021).

According to Fabbrini (2022), EU member states in an earlier phase of the pandemic mostly focused on containing the spread of contagions, and attention rapidly shifted to the devastating socio-economic consequences of the pandemic.

EU approved the long-term budget, coupled with NextGenerationEU (NGEU), the temporary instrument designed to boost the recovery. It is the largest stimulus package ever financed in Europe which consists of €2.018 trillion in current prices.

1 University of Modern Sciences-CKM, Mostar, Zalik bb, Mostar, Bosnia and Herzegovina

The pandemic had a big influence on the economy. On the other side, the question is what are the effects of anti-COVID-19 measures on the business sector. The main objective of this study was to research and analyze the business effects of COVID-19 measures at the level of the European Union.

COVID-19 measures included closing schools, and offices, limited public transport, social distancing, etc. All of these measures had an effect in reducing of demand for many goods and services. To analyze these measures, the COVID-19 Stringency Index has been used. This index includes workplace closures; cancellation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; and international travel controls.

2. METHODOLOGY

The research included the data from Eurostat and The Oxford COVID-19 Government Response Tracker. Having in mind the objective of the study, there were two types of information derived from these datasets:

- Business indicators
  - Business investment rate (quarterly data, percentage),
  - Gross profit share of non-financial corporations (quarterly data, percentage),
  - Non-financial corporations - Assets as percentage of GDP (quarterly data),
  - Economic sentiment indicator (monthly data, seasonally adjusted data, not calendar adjusted data),
  - Production in construction (monthly data, percentage change on previous period),
  - Production in industry (monthly data, percentage change on previous period),
  - Volume of retail trade (monthly data, percentage change on previous period).
- COVID-19 measures indicator
  - COVID-19 Stringency Index (daily data).

The research was conducted in 3 phases:

1) Data collection,
2) Data preparation for analysis,
   a) COVID-19 stringency index - calculation of a quarterly average and extraction of data for EU countries
   b) Economic sentiment indicator- calculation of a quarterly average
   c) Production in construction- calculation of a quarterly average
   d) Production in industry - calculation of a quarterly average
   e) Volume of retail trade - calculation of a quarterly average
3) Data analysis - calculation of mean, mod, median, variance, standard deviation, Pearson's correlation coefficient.

Tools used for the analysis were Tableau and MS Excel.

3. RESULTS

The results of the study will be presented in the following way. First, an analysis of business investment rate, and gross profit share of non-financial corporations and non-financial corporations- assets as a percentage of GDP indicator at the level of EU and member states will be presented. After that, the correlation between all business indicators and COVID-19 indicators at the EU level will be presented.

The business investment rate at the EU level is presented with figures 1 and 2. During Q3 of 2020, the business investment rate was the lowest level since Q3 of 2017. The business investment rate average for the period of 2020-2021 is higher than the average for the period 2017-2019. At the level of member states, 8 member states reported lower business investment rates during 2020-2021 compared to 2017-2019. 12 member states reported that minimum of the business investment rate for the period of 2017-2021, occurred during the pandemic period 2020-2021.

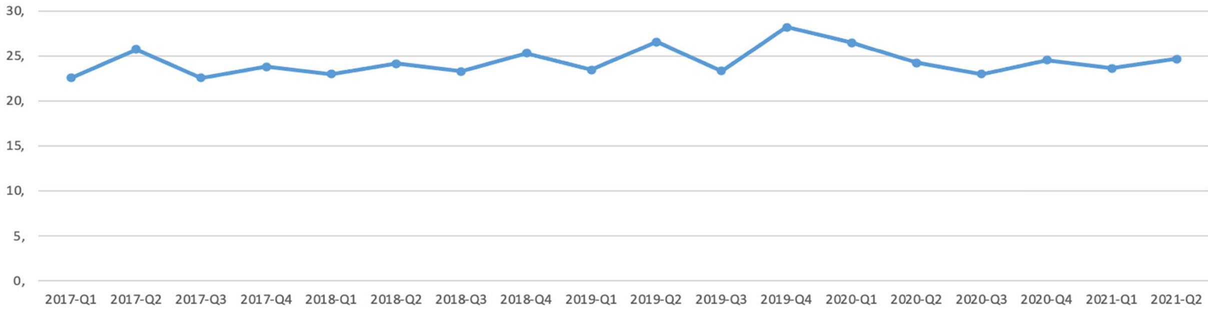


Figure 1. Business investment rate at the EU level

Source: Eurostat

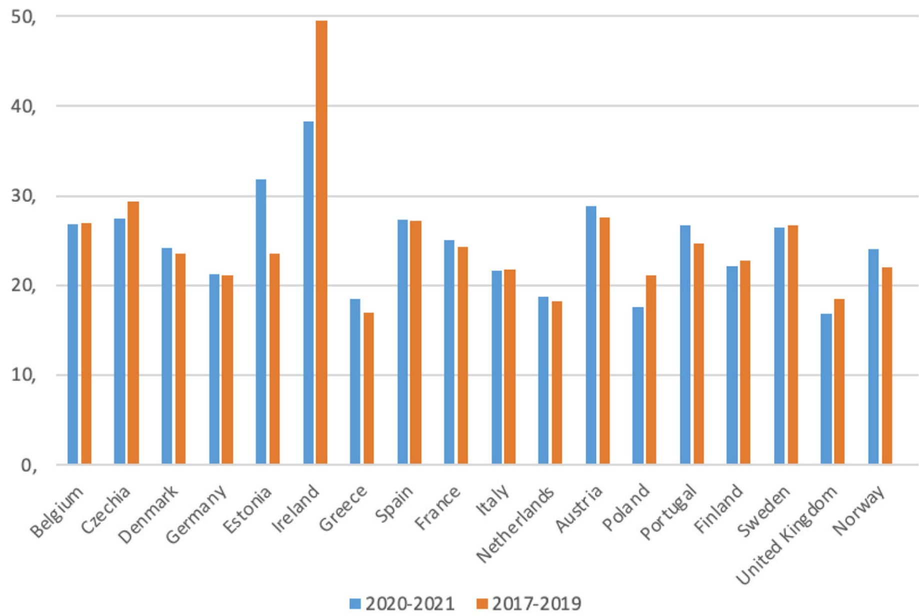


Figure 2. Business investment rate for EU member states

Source: Eurostat

The Figure 3 presents the gross profit share of non-financial corporations. According to collected data, the minimum level was reported in Q2 of 2020. The average Gross profit share of non-financial corporations for the period of 2020-2021 is higher than the average of the period 2017-2019. This result is mostly affected by a strong recovery after the very low Q2 of 2020.

Although nine countries reported a minimum share in the gross profit of non-financial corporations, we can see that for the rest of the countries, the average gross profit is higher during the pandemic period 2020-2021 than in the period 2017-2019. It is interesting to see that the assets of non-financial corporations as a percentage of GDP increased during the pandemic period. The average for the period 2020-2021 is higher than the average for the period 2017-2019. There was a fall during the Q1 of the year 2020, but strong growth followed in the period after.

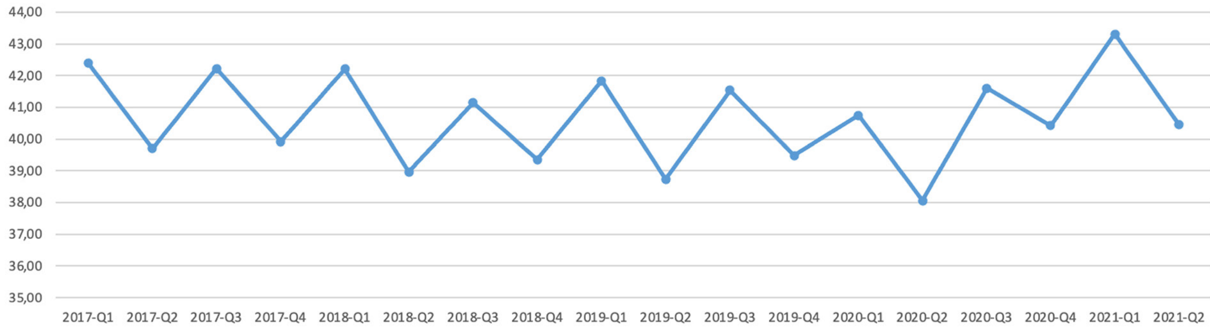


Figure 3. The gross profit share of non-financial corporations in the EU

Source: Eurostat

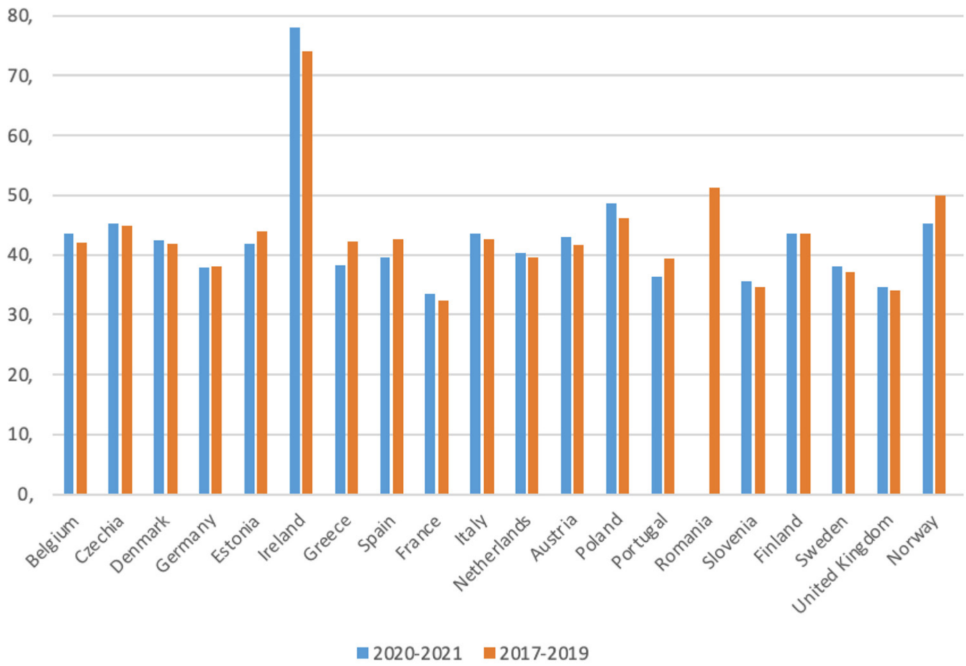


Figure 4. Average gross profit share of non-financial corporations in the EU member states

Source: Eurostat

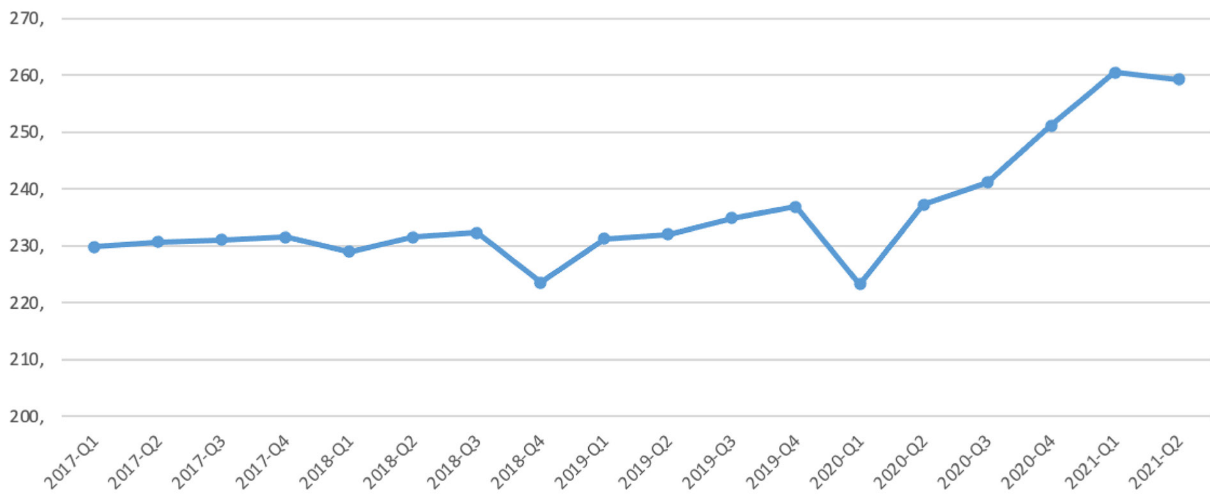


Figure 5. Assets of non-financial corporations as a percentage of GDP in the EU

Source: Eurostat

If data per country are analyzed, a similar situation can be observed. 21 countries reported a higher average and 19 countries reported maximum of a maximum percentage of GDP of non-financial corporations during the pandemic compared to the pre-pandemic period.

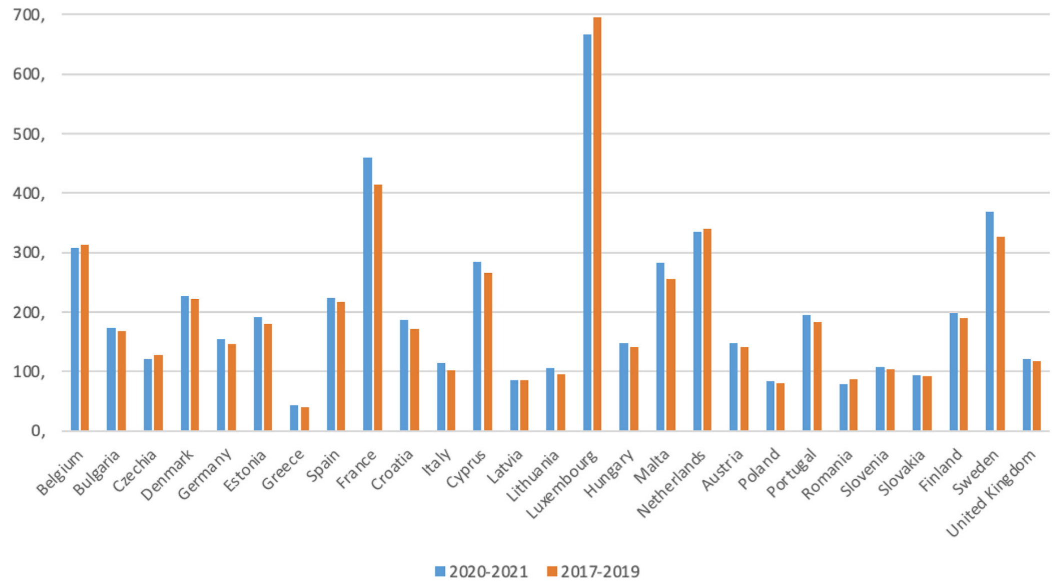


Figure 6. Assets of non-financial corporations as a percentage of GDP in the EU member states

Source: Eurostat

In the following part of the analysis, the COVID-19 stringency index has been compared to business indicators at the EU level. In the following graph, dynamics of business investment rate, gross profit share of non-financial corporations, assets of non-financial corporations as a percentage of GDP, economic sentiment indicator and COVID-19 stringency index can be seen. Calculations showed that there is a strong negative correlation between pandemic measures and business investment rate (-0.619). On the other side, there is a strong positive correlation between pandemic measures and assets of non-financial corporations as a percentage of GDP (0.747). A very weak negative correlation was found for the other 2 indicators (-0.06 - gross profit share of non-financial corporations; -0.08 - economic sentiment indicator).

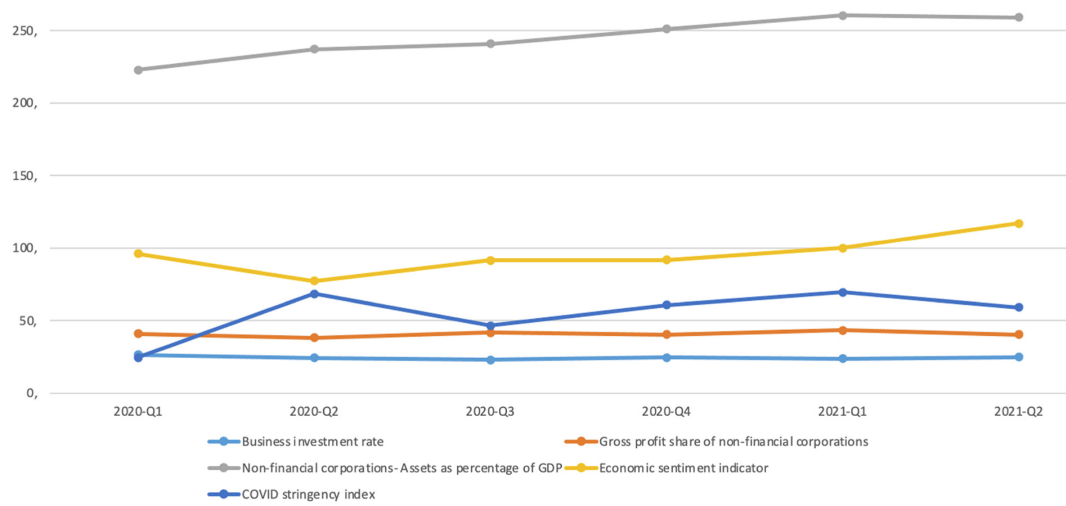


Figure 7. COVID-19 stringency index compared to business indicators at the EU level

Source: Eurostat and https://ourworldindata.org/coronavirus

The situation is different when comparing the COVID-19 stringency index to production and the volume of retail. According to monthly data from February 2020 to September 2021, stringency measures heavily affected these sectors. Analysis showed that there is a strong negative correlation between the COVID-19 stringency index and production in construction (-0.71), production in industry (-0.79) and volume of retail trade (-0.72). In other words, more measures lead to lower production and lower retail trade volume.

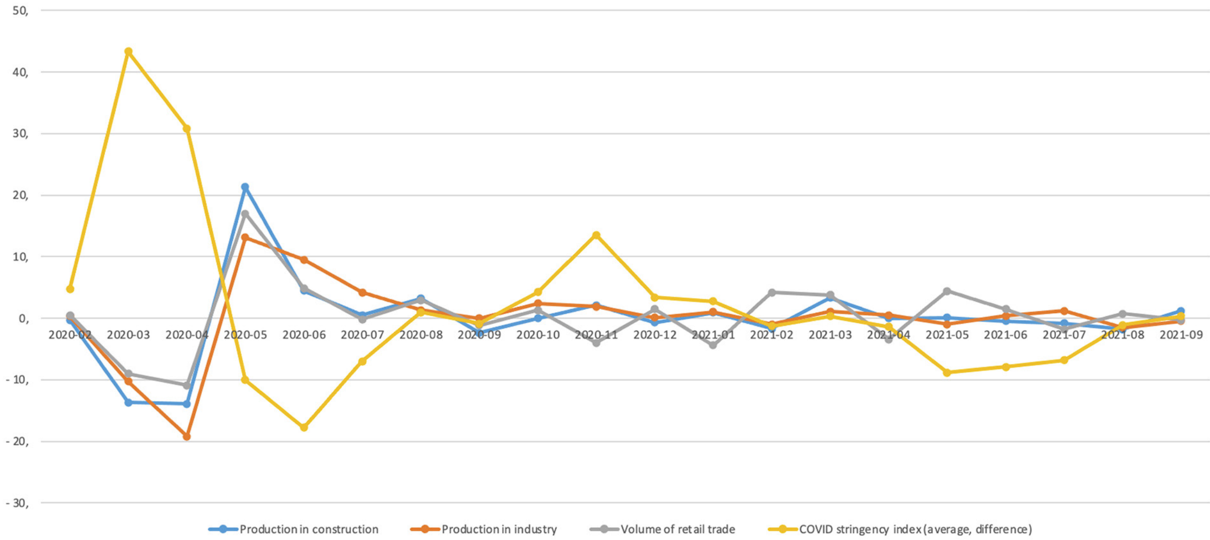


Figure 8. COVID-19 stringency index compared to production and a volume of retail at the EU level

Source: Eurostat and https://ourworldindata.org/coronavirus

4. CONCLUSION

This study aimed to research and analyze the business effects of COVID-19 measures at the level of the European Union and member states.

Results showed that COVID-19 stringency measures did not have a big influence on the gross profit share of non-financial corporations and economic sentiment indicators. This can also be a result of EU financial assistance during this period. Probably, results would be different if there was not any assistance to the business sector.

It is surprising to see the growth of assets of non-financial corporations during the pandemic period. Growth of these assets was strong and the maximum of these was assets reported during this period.

On the other side, production and retail trade volume has been heavily affected by COVID-19 stringency measures.

Limitations of the research were a lack of ready-to-use data for small and medium enterprises for the analyzed period and a big diversity of measures between member states. Future research can be focused on the effects of stringency measures on small and medium enterprises. Additionally, future research can be focused on the analysis of the effects of stringency measures on business indicators of individual member states.

References

Fabbrini, F. (2022). The Legal Architecture of the Economic Responses to COVID-19: EMU beyond the Pandemic*. *JCMS: Journal of Common Market Studies, 60*(1), 186-203. https://doi.org/10.1111/jcms.13271

https://ec.europa.eu/eurostat/web/covid-19/data

https://ec.europa.eu/info/strategy/recovery-plan-europe_en

https://ourworldindata.org/coronavirus

Kolahchi, Z., De Domenico, M., Uddin, L. Q., Cauda, V., Grossmann, I., Lacasa, L., Grancini, G., Mahmoudi, M., & Rezaei, N. (2021). COVID-19 and Its Global Economic Impact. *Advances in Experimental Medicine and Biology*, 825-837. https://doi.org/10.1007/978-3-030-63761-3_46

Levy, E., & Filipini, F. Y. (2021). Social and economic impact of COVID-19, BROOKINGS GLOBAL WORKING PAPER #158

Additional reading

Ritchie, H., Mathieu, E., Rodés-Guirao, L., Appel, C., Giattino, C., Ortiz-Ospina, E., Hasell, J., Macdonald, B., Beltekian, D., & Roser, M. (2020). Coronavirus Pandemic (COVID-19). Published online at OurWorldInData.org.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.27

Impacts of GDP per Capita According to PPS and Health Care Expenditure on Basic Indicators in C5 Countries

Jaroslav Škrabal[1]
Jarmila Duháček Šebestová[2]
Ingrid Majerová[3]

Received: June 24, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
Eurostat;
Economies;
Indicators;
Healthcare expenditure;
Correlation analysis

Abstract: *The paper focuses on GDP per capita in PPS (standard purchasing power) in C5 countries (Czech Republic, Austria, Slovenia, Slovakia and Hungary). The basic aggregates in the comparison of the indicator include the density of population, employment per thousand persons, and expenditure on pensions. The period for the given comparison is from 2011 to 2021. Other comparisons of indicators that the authors made in this paper were focused in the context of health care expenditure including years of healthy life, proportion of people 65+, occupational accidents, discharge from hospital, and length of stay. For this comparison, the period of 2014-2020 is taken into account. The data sources for the given paper are data from the Eurostat portal. The paper aims to perform a correlation analysis (Pearson correlation coefficient) of the basic indicators related to GDP per capita according to PPS and healthcare expenditure within the C5 countries.*

1. INTRODUCTION

Currently, individual economies are facing large expenses, especially after the COVID-19 pandemic. The economies of the world are now trying to get back to the productivity that was before the pandemic. Today, it is evident that individual governments are not solely addressing an energy recession, especially in 2022, but are also actively managing various external events on both national and international scales. The motivation for writing this contribution was primarily to find out the situation of the C5 countries within the above-mentioned period, which is divided into two periods, namely, the period from 2011-2021 and 2014-2020. The paper aims to perform a correlation analysis (Pearson correlation coefficient) of the basic indicators related to GDP per capita according to PPS and healthcare expenditure within the C5 countries. The grouping of countries C5 was chosen by the authors of the paper based on historical context.

Healthcare represents an important part of most households' budgets. A stylized fact is that older individuals in most countries tend to have greater healthcare needs and, depending on the level of health insurance and other social protections, are likely to have higher healthcare expenditures than households with younger members (de Meijer et al., 2013; Yang et al., 2003; Zweifel et al., 2004). Health care expenditure (HCE) continues to rise worldwide at an alarming rate posing a threat to government budgets. Despite that, the tools used for decision-making in health more than often neglect the role of fiscal sustainability and focus merely on alleged health benefits. Though the importance of improvements in health cannot be overlooked, looking at things from a government's perspective, requires taking into consideration the fiscal aspect of health

[1] Institute of Innovation in Healthcare, Moravian Business College Olomouc, Kosmonautu 1288/1, 779 00 Olomouc, Czech Republic

[2] Institute of Business Economics and Entrepreneurship, Moravian Business College Olomouc, Kosmonautu 1288/1, 779 00 Olomouc, Czech Republic

[3] Institute of Management, Moravian Business College Olomouc, Kosmonautu 1288/1, 779 00 Olomouc, Czech Republic

care. Specifically, for the government to continue spending money on health care in the long run, a degree of fiscal sustainability must be achieved as it is also important that concrete evidence regarding improvements in health indicators exist (Christopoulos & Eleftheriou, 2020). Almost all developed countries have universal health insurance: through public insurance programs or privately provided social insurance, they give access to healthcare services to their entire population. In most European nations, regardless of income, people have nominal access to the same services, which are typically free at the point of use or come with small co-payments (Biro & Prinz, 2020).

The article is structured as follows: Introduction is followed by the second chapter Methodology. The third chapter points to the results found, which the authors of the contribution reached. At the end, the Conclusion is designed, where the most important findings from the given contribution are evaluated.

2. METHODOLOGY

The second chapter focuses on the methodology of the paper. The paper aims to perform a correlation analysis (Pearson correlation coefficient) of the basic indicators related to GDP per capita according to PPS and healthcare expenditure within the C5 countries (Czech Republic, Slovakia, Austria, Slovenia and Hungary).

The method of correlation analysis is applied as one of the possible analytical approaches to the problem. Correlation can be defined as a measure of the relationship between two or more statistical variables. Correlation can be measured in several ways. The choice of measurement method depends on the type of statistical variables. Among the most used correlation coefficients is Pearson´s correlation coefficient. The selection correlation coefficient is given by:

$$r_{xy} = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2 \sum_{i=1}^{n}(y_i - \bar{y})^2}} \tag{1}$$

The values of the Pearson correlation coefficient are in the range <-1,1>. Boundary values indicate a perfect linear relationship. The values of the correlation coefficient can be verified by a statistical test. In the case of the t-test, the null hypothesis is tested, which is the assertion that the selection comes from the two-dimensional normal distribution in which a correlation coefficient of zero (e.g. Hebak et al., 2007; Hendl, 2004). The test statistic is then defined as follows:

$$t = r_{xy}\sqrt{\frac{n-2}{1-r_{xy}^2}} \tag{2}$$

where it has a distribution *t* of n-2 degrees of freedom, where *n* is the number of pairs (x_i, y_i).

The meaning of the resulting values of the correlation coefficients is as follows:
p(x,y) = 1 – there is perfect direct dependence between the quantities x and y;
p(x,y) = 0 – quantities *x* and *y* are not correlated;
p(x,y) = -1 – there is a perfect inverse relation between the quantities x and y;

The authors in the given article focused on the evaluation of certain variables in the context of the issue of the given economy and subsequently the field of healthcare economics.

3. RESULTS PAYING ATTENTION TO THE GIVEN ISSUE

The third chapter pays attention to the empirical results of this article. The figure below (Figure 1) pays attention to GDP per capita according to PPS. Within the framework of the comparison of the GDP macroeconomic indicator, the most acceptable form of using the possibility of comparison is through PPS, which captures the difference in price levels between countries. The period in the case of the given analyzed graph is from 2011 to 2021. Austria (i) achieved the highest values for all analyzed years, followed by Slovenia (ii) and the Czech Republic (iii) in third place. The given order is determined based on the average values of the given indicator in the context of the period and is graphically illustrated in Figure 2.

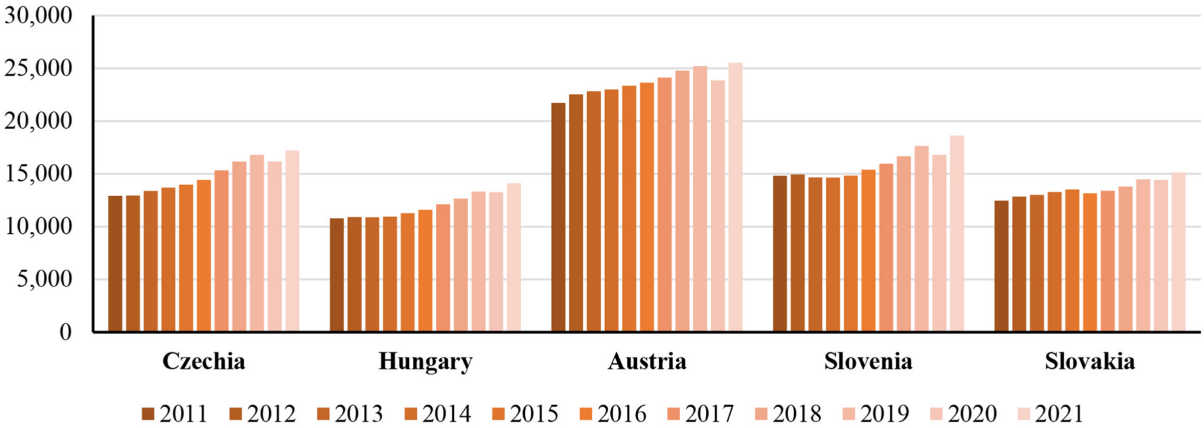


Figure 1. GDP per capita according to PPS

Source: Eurostat (2011-2021); own elaboration (2023)

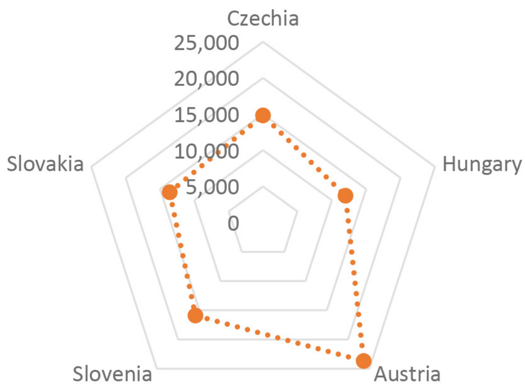


Figure 2. Average value of GDP per inhabitant according to PPS

Source: Eurostat (2011-2021); own elaboration (2023)

The following two figures (Figure 3 and Figure 4) show the results based on the correlation analysis. In the case of Figure 3, the authors focused on comparing two variables, namely GDP per capita indicators according to PPS and population density in the analyzed countries. Based on the above facts, it can be concluded that the strongest positive correlation is in the case of the Czech Republic (i), Hungary (ii) and Austria (iii). Figure 4 shows the results of a correlation analysis based on two parameters, namely GDP per inhabitant according to PPS and employment per thousand persons. Here, a strong dependence (strong positive correlation) was found in the case of Hungary. A strong negative dependence was subsequently found based on the given variables in the case of Slovenia. The period in the performed analysis is from 2011 to 2019.

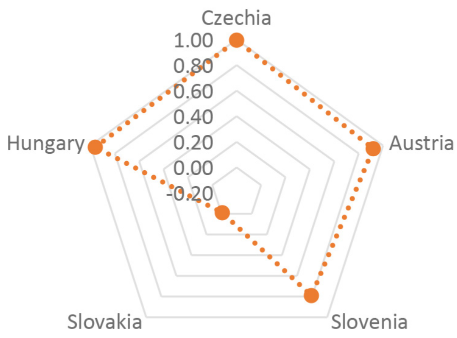


Figure 3. GDP indicator per capita according to PPS and population density
Source: Eurostat (2011-2021); own elaboration (2023)

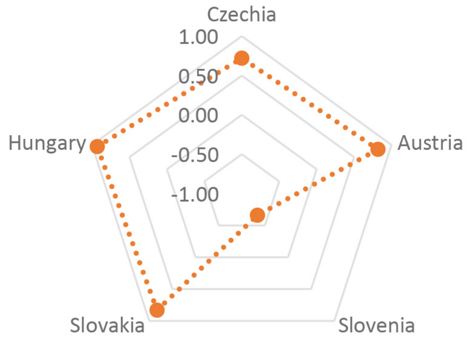


Figure 4. GDP per capita according to PPS and employment per thousand persons
Source: Eurostat (2011-2021); own elaboration (2023)

The last figure (Figure 5) of this analysis shows the links between two variables, based on the GDP per capita indicator according to PPS and pension expenditure. Almost all countries showed a negative correlation. The strongest negative influence of both parameters is mainly in the case of Slovenia (i), Austria (ii) and subsequently on the territory of the Czech Republic (iii). Based on this information, it can be concluded that there is a strong negative correlation between the variables.

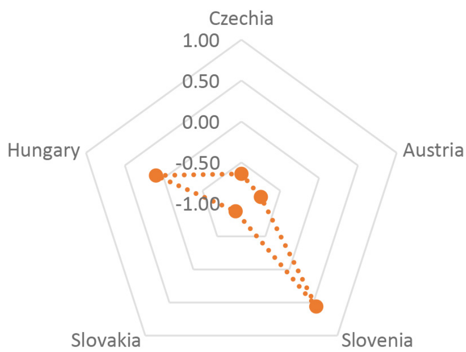


Figure 5. Indicators of GDP per capita according to PPS and expenditure on pensions
Source: Eurostat (2011-2021); own elaboration (2023)

Another empirical part of the paper is devoted to the issue of healthcare expenditures. The figure below (Figure 6) shows the values of spending on health care according to the standard purchasing power of money (PPS) per inhabitant within the period 2014-2020. It is necessary to point out that a different time range as in the case of (Figure 1) could not be conceived, due to the lack of data (data) from the Eurostat portal. As is obvious, Austria, the Czech Republic, Slovenia and Hungary achieve the highest values based on the given data in all analyzed years. For these countries, it can be stated that there has been a gradual increase in healthcare costs in the analyzed years. This fact is primarily caused by the issue of the COVID-19 pandemic. In the case of Slovakia, the situation is different from other countries, where the fluctuating situation of health care costs in the given years is obvious.

The situation described above for all analyzed years is better presented in Figure 7 below, which focuses on the average values of the given parameter in the case of a period. Below is the ranking of countries based on average values: Austria (i), Slovenia (ii), Czech Republic (iii), Hungary (iv), and Slovakia (v).

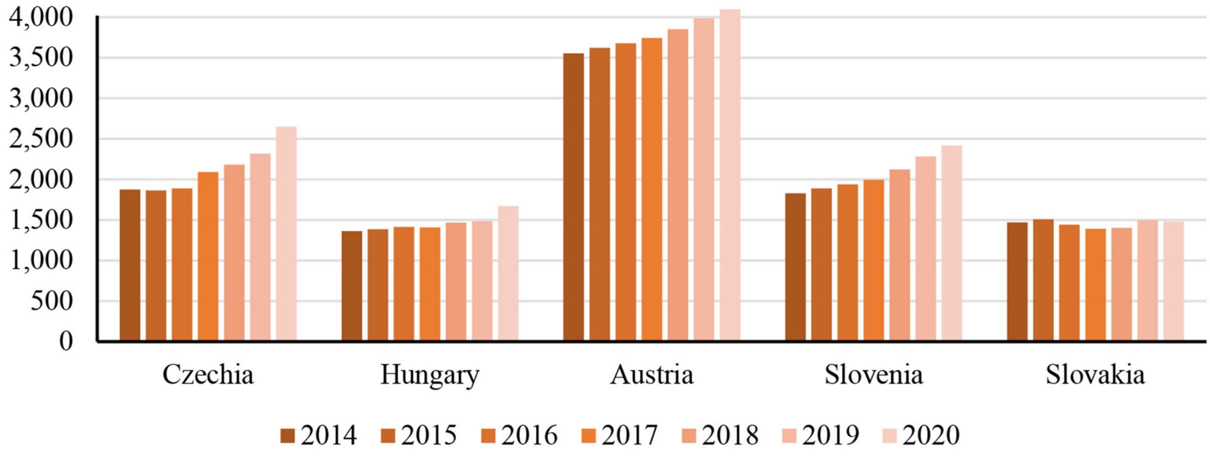


Figure 6. Health care costs according to PPS per inhabitant

Source: Eurostat (2014-2020); own elaboration (2023)

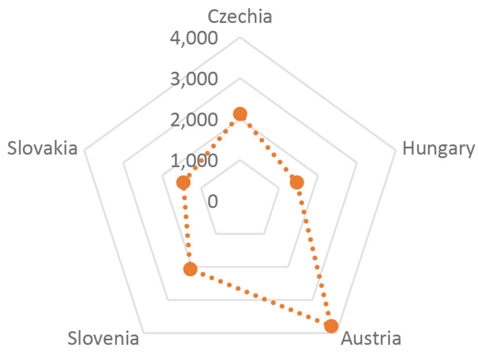


Figure 7. Health care costs - average values

Source: Eurostat (2014-2020); own elaboration (2023)

As part of the given analysis, a correlation analysis is subsequently performed based on the analyzed region in the case of the GDP parameter and health care expenditures based on PPS. All countries show a positive covariance between the variables. The strongest links between the variables are in the case of Austria, where there is a strong positive dependence (i). Followed by the Czech Republic (ii), Slovakia (iii) and Hungary (iv). For these countries, it can be stated that there is a dependence between the changes. Based on the given parameters, Slovenia shows a weak positive dependence. These facts are presented in Figure 8. The next figure (Figure 9) and the results in that figure are focused on the results of the correlation analysis based on the comparison of two attributes, namely health care costs (PPS) per inhabitant and years of healthy life. All the mentioned countries within the analyzed period (2014-2020) show a positive dependence. The strongest rivalry between the given variables is evident in the case of the Czech Republic, where the correlation coefficient reaches a value of 0.96. The next country is Slovakia (0.77) and Hungary (0.70). The last two countries, namely Austria and Slovenia, show a small positive dependence between the variables in the context of the given region. For these countries, it cannot be stated that a certain strong link between the attributes is proven.

The next two pictures (Figure 10 and Figure 11) deal with other results of the correlation analysis. Figure 10 examines the relationship between health care costs (PPS) per capita and the proportion of people aged 65+. From this point of view, it can be stated that most countries show a strong positive correlation between the given variables, except for Slovenia. Austria, Hungary and the Czech Republic show a strong positive correlation with the values from the given attributes.

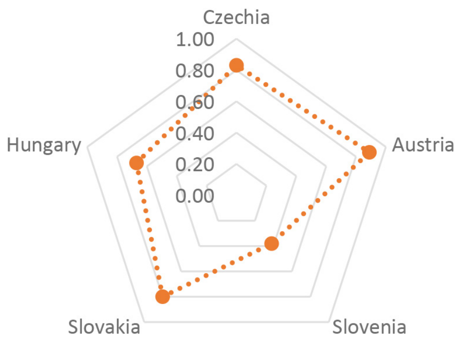


Figure 8. GDP and health care expenditure (PPS) per capita

Source: Eurostat (2014-2020); own elaboration (2023)

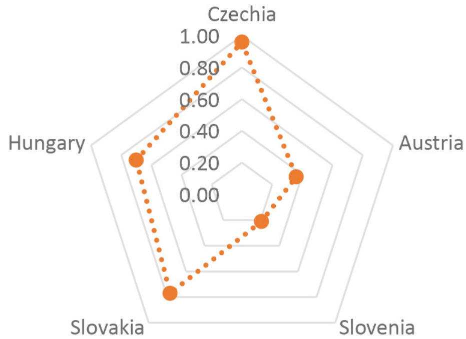


Figure 9. Health care costs (PPS) per capita and years of healthy life

Source: Eurostat (2014-2020); own elaboration (2023)

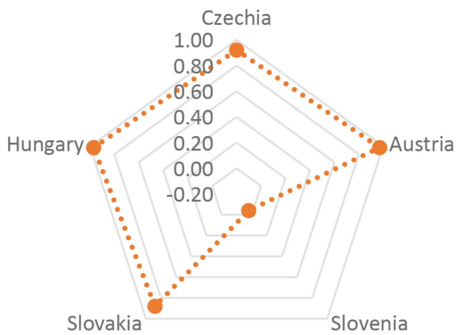


Figure 10. Health care costs (PPS) per capita and proportion of people aged 65+

Source: Eurostat (2014-2020); own elaboration (2023)

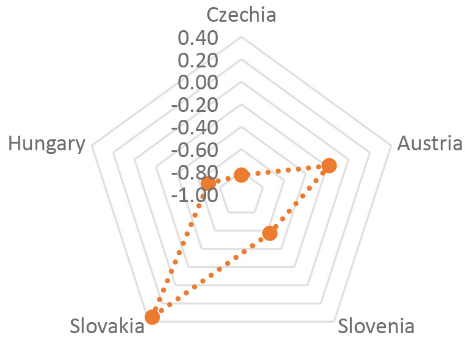


Figure 11. Health care costs (PPS) per resident and occupational accidents

Source: Eurostat (2014-2020); own elaboration (2023)

Figure 11 focuses on the results of attributes, namely health care costs (PPS) per capita and occupational accidents for the period 2014-2020. The strongest negative correlation dependence is in the territory of Slovenia, where the correlation coefficient between the given variables reaches a value of - 0.83. This is a strong negative correlation that is statistically significant. Another country that has a strong negative correlation in the context of the given values is Hungary, where the correlation coefficient is -0.69 and it can be stated that this is a strong statistical value. The other analyzed countries show ties that cannot be considered statistically significant in terms of the given parameters.

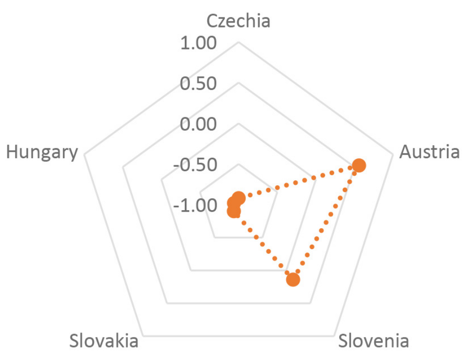


Figure 12. Healthcare costs (PPS) per resident and hospital discharge and length of stay

Eurostat (2014-2020); own elaboration (2023)

The last figure (Figure 12) shows the results of the parameters devoted to the problem of health care costs (PPS) per resident and discharge from the hospital and length of stay in hospitals. A strong negative correlation (statistically significant) is found for the analyzed period 2014-2020, evident in the territory of the Czech Republic (i), Hungary (ii) and Slovenia (iii). Austria and Slovenia show a positive correlation between the given variables but are statistically insignificant.

4. CONCLUSION

The paper aimed to perform a correlation analysis (Pearson correlation coefficient) of the basic indicators related to GDP per capita according to PPS and healthcare expenditure within the C5 countries. In the analysis (correlation), certain differences were found between the individual economies examined.

It was found that the largest GDP expenditure per inhabitant according to PPS in the context of the given period was reported by Austria. When examining variables, namely GDP expenditures per capita according to PPS and population density, a strong positive correlation was found in the territory of the Czech Republic. In the other two variables, where the authors included GDP expenditures per inhabitant according to PPS and employment per thousand persons, a strong positive correlation was found in the case of Hungary. A negative correlation value was found in Slovenia. Another finding was that when comparing the variables, namely GDP per capita expenditure according to PPS and pension expenditure, most of the analyzed countries showed a negative correlation, except for Slovenia.

The next part of the paper focused on healthcare expenditures, where it was found that almost all countries showed a rising trend during the analyzed period. Austria had the largest expenditure on health care. Subsequently, the authors of the article performed a correlational comparison of two parameters, namely GDP and healthcare expenditures based on the PPS indicator. All countries showed positive correlation values. It was found subsequently when comparing two attributes, namely healthcare costs (PPS) per inhabitant and years of healthy life, that all analyzed countries show a positive correlation coefficient. Part of the given analysis was the implementation of dependence between variables, namely healthcare costs according to PPS per inhabitant and the proportion of people aged 65+. Most of the countries of the C5 grouping show positive dependence, except for Slovenia. The penultimate analysis of variables focused on the costs of PPS health care per resident and occupational accidents. The strongest negative correlation value was found in Slovenia, followed by Hungary. Other countries show a positive trend, but none so strong that it could be interpreted as statistically significant. The last comparison of attributes focused on the issue of PPS healthcare costs per resident and hospital discharge, and the second attribute was the length of stay in hospitals. A strong negative correlation, which can be considered statistically significant, was found in the Czech Republic, Hungary and Slovenia. The other countries (Austria and Slovenia) showed positive values in the given analysis but were statistically insignificant.

It is clear from the analysis that the individual attributes examined in this paper differ in some ways, but it is clear that healthcare spending is increasing. With the effect that even life expectancy in recent years has a rising trend, individual economies must take this fact into account, as it is obvious that in the years to come, healthcare spending and life expectancy will increase, so it is important to think about how to innovate approaches in the healthcare sector and look for possible effective solutions for the future.

Acknowledgment

This paper was created with the financial support of an Internal Grant agency of The Moravian Business College Olomouc "Challenges of Contemporary Management in Healthcare" 2_2022/23.

This paper was created with financial support from the Development of Capacity for Research and Development of The Moravian Business College Olomouc. Registration number CZ.02.2.69/0.0/0.0/18_054/0014592.

References

Biro, A., & Prinz, D. (2020). Healthcare spending inequality: Evidence from Hungarian administrative data. *Health Policy, 124(3), 282-290.* https://doi.org/10.1016/j.healthpol.2020.01.006

Christopoulos, K., & Eleftheriou, K. (2020). The fiscal impact of health care expenditure: Evidence from the OECD countries. *Economic Analysis and Policy, 67, 195-202.* https://doi.org/10.1016/j.eap.2020.07.010

de Meijer, C., Wouterse, B., Polder, J., & Koopmanschap, M. (2013). The effect of population ageing on health expenditure growth: a critical review. *European Journal of Ageing, 10, 353-361.*https://doi.org/10.1007/s10433-013-0280-x

Eurostat. (2023). Data Browser. Retrieved February 2023, from https://ec.europa.eu/eurostat/databrowser/explore/all/general?lang=en&display=list&sort=category&extractionId=HLTH_SHA11_HP

Eurostat. (2023). Data Browser. Retrieved February 2023, from https://ec.europa.eu/eurostat/databrowser/explore/all/popul?lang=en&subtheme=hlth.hlth_care.hlth_sha11&display=list&sort=category&extractionId=HLTH_SHA11_HP

Hebak, P., Hustopecky, J., Jarosova, J., & Pecakova, I. (2007). *Vícerozměrné statistické metody*. Praha: Informatorium. ISBN 80-7333-056-9.

Hendl, J. (2004). *Přehled statistických metod zpracování dat*. Praha: Portál. ISBN 80-7178-820-1.

Yang, Z., Norton, E. C., & Stearns, S. C. (2003). Longevity and Health Care Expenditures: The Real Reasons Older People Spend More. *The Journals of Gerontology, 58(1), 2-10.* https://doi.org/10.1093/geronb/58.1.S2

Zweifel, P., Felder, S., & Werblow, A. (2004). Population Ageing and Health Care Expenditure: New Evidence on the "Red Herring". *Geneva Pap Risk Insur Issues Pract, 29, 652-666.* https://doi.org/10.1111/j.1468-0440.2004.00308.x

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.35

Comparison of the Evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic

Kristína Jánošková[1]

Received: April 8, 2023
Accepted: September 5, 2023
Published: October 30, 2023

Keywords:
Evaluation;
European Structural and Investment Funds;
Impacts

Abstract: *The programming period 2014-2020 can be distinguished by the increased emphasis of the European Union on the evaluation of the European Structural and Investment Funds. The main goal of the evaluation is to increase the economic, social, and environmental impact on the lives of inhabitants. In the European Union countries, it is made by central coordination organs and managing organs of operational programs and is realized on national and regional levels. The main objective of the paper is to analyze the evaluation of ESIF in Slovakia and the Czech Republic and find its differences. The major methods used in the paper are the analysis and comparison of the evaluation process in both countries. The realization of the evaluation is based on the main evaluation document - Plan of the Evaluation and it is focused on similar areas.*

1. INTRODUCTION

The European Union's regional policy is characterized by financial solidarity in favor of less developed regions, and social groups and helps maintain regional competition. The fundamental aim of Cohesion policy is regional development through the economic and social reduction of regional disparities (Ďureje et al., 2007). The instruments for mitigating them include various financial supports, of which the European Structural and Investment Funds are an example. They aim to support the implementation of activities that increase the potential of regions and aim to bring about positive change in economic and social conditions. EU support has a positive impact on promoting economic growth, regional competitiveness, sustainable development, and job creation (Kováčik & Čajka, 2019). This is linked to the growing need for monitoring and evaluation of the activities supported and the related effectiveness and efficiency of the funds spent.

The ex-post evaluation of the European Cohesion policy focuses on examining the effectiveness and efficiency of the funds and their impact on economic, social, and territorial cohesion (Gagliardi & Percoco, 2016). There are several perspectives in the literature on whether the cohesion policy has delivered the expected results in terms of convergence processes between the regions of the European Union. The European Commission (2020) asserts the positive impact of the Cohesion policy in reducing the disparities in GDP per capita in the regions of the European Union. The authors Kyriacou and Roca-Sagales (2012) also claim that structural and cohesion funds have helped to reduce regional disparities within EU Member States during programming periods 1994-1999 and 2000-2006. The authors also point out "the existence of a maximum desirable level of transfers from the Structural Funds, approximately 1.6% of total funding from the national GDP, beyond which are structural regional disparities within countries". The reasons may vary from moral hazard and substitution effects to diminishing returns.

[1] University of Economics in Bratislava, Department of Tourism, Faculty of Commerce, Dolnozemská cesta 1, 852 35 Bratislava, Slovakia

Examining the achievement of convergence has significant importance. It gives answers about the effectiveness of the Cohesion policy in terms of meeting its main aim and provides a basis for future policy action. If a high degree of convergence is demonstrated, there is no need to direct a lot of public money into this area and, conversely, divergent tendencies call for more support (Kováč Gerulová et al., 2010). Tijanić and Obadić (2015) found that the EU's Structural and Cohesion Fund positively impacted competitiveness overall. Badoiu (2018) evaluates the possibility of achieving real convergence in several states - Romania, Poland, and Bulgaria, by analyzing the factors directly influencing GDP including European financing. Authors Lovrinović and Nakić (2016) have analyzed ten transition economies over 14 years and found positive effects of analyzed EU funds.

Some authors Bachtler and Wren (2006), Mendez (2011, 2013), Bachtler and Gorzelak (2007), Mirošník et al. (2014), Enguix et al. (2012) found the opposite effect of EU funds. Research on the impact of EU funds has shown that structural funds are ineffective.

Evaluation is a qualitative management tool and a means of contributing to the improvement of quality, efficiency, and effectiveness of the implementation of the European Structural and Investment Funds and to strengthening not only the Cohesion Policy but also the European Union's common agricultural policy and integrated maritime policy. The programming period 2014-2020 is characterized by an increased emphasis of the European Union on conducting evaluations that focus on the economic, social, and environmental impacts on citizens' lives. According to authors Potluka et al. (2016), the EU Member States' austerity and budget problems increase pressure on the need to find out how effective EU funds are. It also raises the question of what the real impact of this policy is.

2. DESCRIPTION OF RESEARCH AND METHODOLOGY

The paper aims to compare the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic. The European Structural and Investment Funds are major financial instruments through which several areas are supported - education, transport, and environment. The contribution focuses on introducing the institutional arrangements for the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic. In connection with the organizational arrangements, the article also focuses on the identification of the procedural organization of the evaluation in both countries. The last part of the contribution also compares regional differences in the mentioned countries.

Information about institutional and procedural arrangements in the countries in question was drawn from secondary sources, namely the websites of the institutions responsible for the evaluation of the European Structural and Investment Funds and the official documents of these institutions. The source of information about the planned and realized evaluation on a national level was the "Summary Report on evaluation activities and Results of the ESIF Evaluations" in Slovakia and the Plan of Evaluation and Summary Report in the Czech Republic. Data about the regional gross domestic product and number of inhabitants in self-governing regions in Slovakia and the Czech Republic were taken from official statistical documents and institutions – the Statistical Office of the Slovak Republic and the Czech Statistical Office.

The research question is: What is the difference in the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic? The hypothesis was also established:

- Null hypothesis: There is no difference between the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic.
- Alternative hypothesis: There is a difference between the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic.

3. RESULTS AND DISCUSSION

The evaluation of the European Structural and Investment Funds (ESIF) is the responsibility of the national coordinating authorities, whose activities are determined by European and national legislation. For the programming period 2014-2020, the Office of the Deputy Prime Minister of the Slovak Republic for Investment and Informatization was designated as the Central Coordination Authority (CCA). Since the year 2020, the Ministry of Investment, Regional Development, and Informatization of the Slovak Republic has taken over the role of the Central Coordinating Authority. In the Czech Republic, the National Coordination Authority is the Ministry of Regional Development of the Czech Republic. The central management and coordination are strengthened in the programming period 2014-2020 thanks to the experience from the previous programming period and due to the performed evaluation of the efficiency of the EU funds management. The strengthening of this role is also down to EU regulations relating to cohesion policy, which feature elements that require much stronger management and coordination at the central level for the achievement of the aims and priorities of the Partnership Agreement.

The common task of the Central Coordinating Authority in the field of evaluation of the European Structural and Investment Funds in both countries is the preparation of the European Structural and Investment Funds Evaluation Plan for the programming period 2014-2020 and its updating in each calendar year.

Other activities falling under the CCA are the development of methodological guidance for evaluation processes at the national level, ensuring data sources, collecting and processing data necessary for the evaluation of the ESIF in cooperation with the Statistical Office of the Slovak Republic, the Social Insurance Institution, and other relevant institutions, preparing the Summary Report on evaluation activities and results of the ESIF evaluations for the previous calendar year. During the programming period, CCA evaluates the implementation of the ESIF, assessing the relevance, efficiency, and effectiveness of the implementation of the ESIF, and submits to the members and the EC partners a report on the implementation of the evaluation plan and the outputs of the individual evaluations in the form of final evaluation reports at least once per calendar year (Ministry of Investment, Regional Development, and Informatization of the Slovak Republic, Ministry of Regional Development of the Czech Republic, 2023).

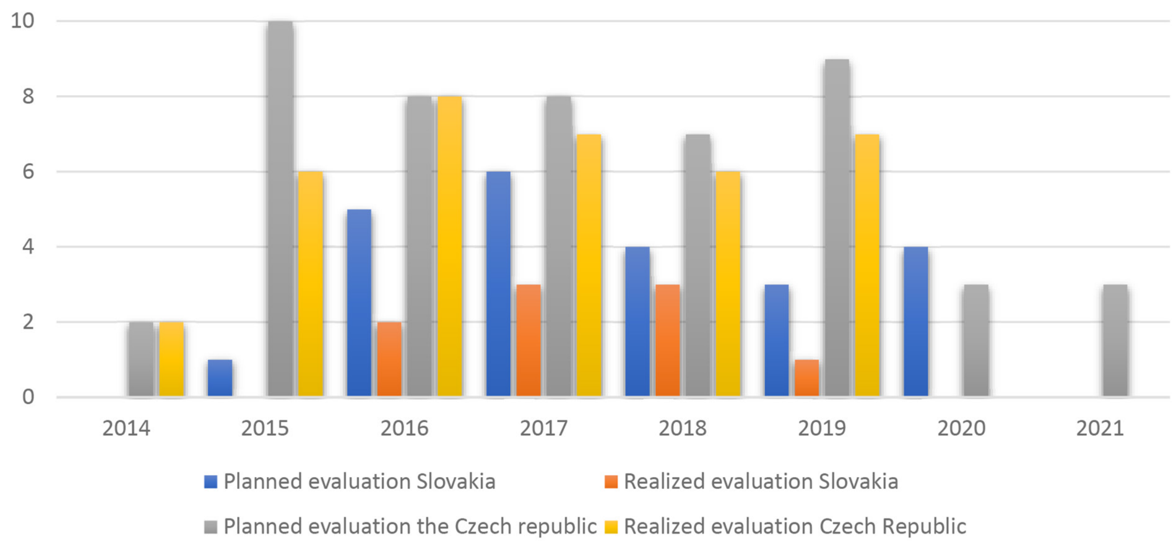
In Slovakia, a National Monitoring Committee is set up by the Central Coordination Authority. The main tasks of the National Monitoring Committee include monitoring the implementation in achieving the target values of the measurable indicators, and sub-objectives within the performance framework, and proposing measures related to increasing the efficiency and effectiveness of the implementation of the European Structural and Investment Funds. At the same time, it also approves the ESIF Evaluation Plan and the updates of the planned evaluations (Ministry of Investment, Regional Development, and Informatization of the Slovak Republic, 2023).

Ministry of Investment, Regional Development, and Informatization of the Slovak Republic states that the European Commission is also an institution that can conduct evaluations of the

ESIF in Slovakia. The key role of the European Commission in this area is methodological support for evaluation, and support for administrative capacity building for evaluation.

According to information from Central Coordinating Authority, the realization of the evaluations each year should proceed from the updated Evaluation Plan. Graph 1 shows the discrepancy between the planned evaluations based on the Evaluation Plans and the actual evaluations of the European Structural and Investment Funds conducted by the Central Coordinating Authority in Slovakia and the Czech Republic. The realization of evaluations started late in Slovakia. That was linked to the slow start of implementation in the programming period 2014-2020. The graph also shows that the evaluations in Slovakia are not in conformity with the Plan of evaluations. Only 34 % of planned evaluations were realized in the years 2014-2019. The number of realized evaluations is lower in every programming year. Given the small number of completed projects, as well as the changes in their implementation context because of and in response to the pandemic, the implementation of planned external evaluations has been postponed during the pandemic.

In the Czech Republic, the evaluation follows the Evaluation Plan because the percentage of realized evaluation stands for more than 80 % of planned evaluations. The evaluation proceeds from reality and can be pointed out as a good example of a correctly set plan of evaluations.



Graph 1. Planned and realized evaluation of ESIF in the years 2015-2019 by Central Coordinating Authority

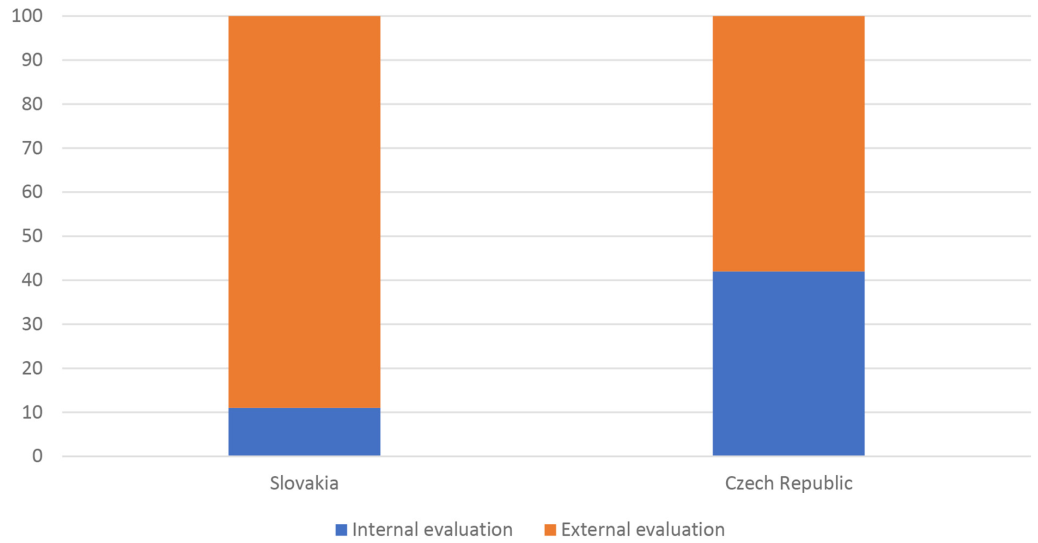
Source: processed based on the data of the Ministry of Investment, Regional Development and Informatization of the Slovak Republic, 2023; Ministry of Regional Development of the Czech Republic, 2023.

In Slovakia, the external type of evaluation of the European Structural and Investment Funds has been significantly more prevalent. External providers conducted 89 percent of evaluations. The internal evaluation was conducted by the Evaluation Unit of the Central Coordination Authority and represented 11 % of all evaluations.

The evaluation of the European Structural and Investment Funds in the Czech Republic is conducted by the European Funds Coordination and International Relations Section, for which the Department of EU Funds Publicity and Evaluation is responsible. The share between internal and external evaluations is more balanced – 42 % and 58 %.

The fundamental areas of evaluation in Slovakia are mainly the evaluation of effectiveness, system and process settings, communication and information activities, implementation progress, achievement of goals, results, and impacts. In the Czech Republic, there are also added, for example, evaluation of financial instruments, achievement of aims, horizontal themes, coordination between funds, and metadata.

Another realized type of evaluation are the evaluation of the level of managing authority. Each operational program has its own Plan of Evaluation. The responsibility of evaluation is on the managing authority.



Graph 2. The ratio between the internal and external evaluation in Slovakia and the Czech Republic

Source: processed based on the data of the Ministry of Investment, Regional Development and Informatization of the Slovak Republic, 2023; Ministry of Regional Development of the Czech Republic, 2023.

In the context of the main aim of the use of the European Structural and Investment Funds, in the next section, we will analyze the regional disparities in Slovakia and the Czech Republic. The Gini coefficient and the Lorenz curve were used to compare the regional differences in Slovakia and the Czech Republic. The Gini coefficient and Lorenz curve have been applied to evaluate the regional disparities in Matlovič et al. (2008), Matlovič, and Matlovičová (2011). The Gini coefficient talks about the localization and concentration of spatial phenomena. The axes of the graph represent the cumulative sums of the percentages of the studied phenomena. In the context of the use of European Union funds, the relevant indicator for assessing eligibility for EU funds is the regional gross domestic product per capita, which "is the ratio of two indicators - the regional gross domestic product and the average number of people permanently resident in the region" (Matlovič & Matlovičová, 2011, p. 56).

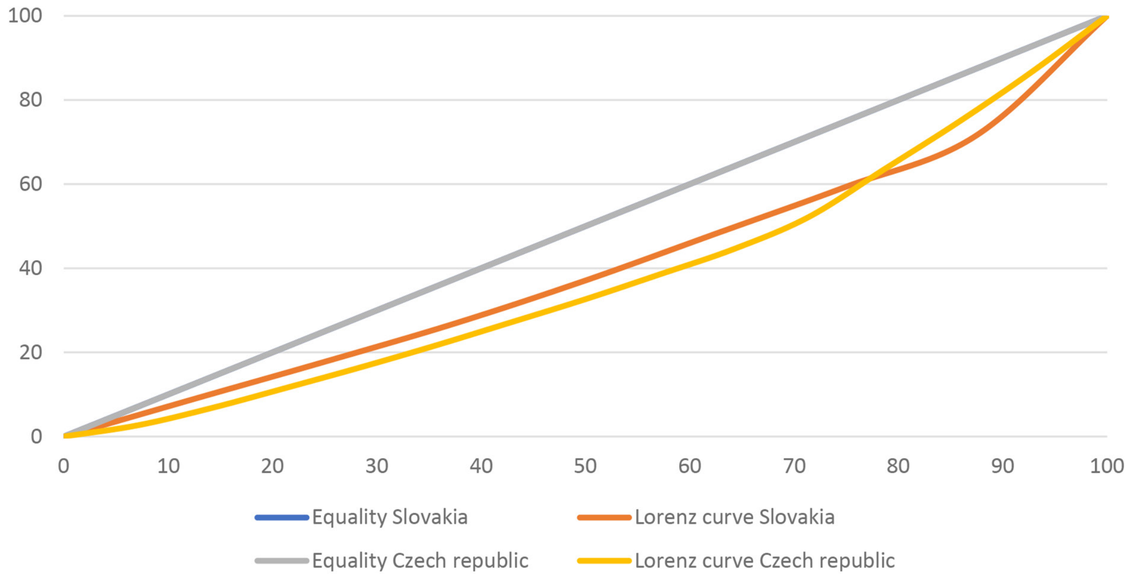
The following formula is used to calculate the Ginni coefficient (Michálek, 2012):

$$G = \frac{1}{2xn^2} \sum_i \sum_j |x_i - x_j|; 0 \leq G \leq 1 \tag{1}$$

It is the ratio of values given as a spatial indicator in region i, $\overline{x}$ is the average of the values of indicator x_i. The Gini coefficient ranges from 0 (absolute equality) to 1 (absolute inequality) (Hamada, 2014).

In graph number 3 it is possible to see the Lorenz curve, which shows the regional differences in Slovakia and the Czech Republic at the regional level.

The graphical representation of similar regional differences is confirmed by the Gini coefficient, which reached 0,182 in Slovakia. In the Czech Republic, the Gini coefficient reached 0.258.



Graph 3. The Lorenz curve represents the regional disparities in Slovakia and the Czech Republic

Source: processed based on the data from the Statistical Office of the Slovak Republic, 2023; Czech Statistical Office, 2023.

In this paper, we set a hypothesis, that deals with the idea of whether there are or not differences in the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic. Based on the main indicators of evaluation, we can reject the null hypothesis - There is no difference between the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic and accept the alternative hypothesis which says: There is a difference between the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic.

The common feature of both countries is the similarity in the setting of the implementation of the European Structural and Investment Funds. This similarity concerns mainly the settings connected with the Partnership Agreement. Similarly, to Slovakia, the Czech Republic is also concerned with the evaluation obligation. In the area of evaluation, the common feature is the national coordinating authority which is responsible for the evaluation of European funds. Also, the powers and activities of national coordination authorities are similar.

In the evaluation process, we can see a few differences. The main difference concerns the set-up of the evaluation processes. From the data on planned and actual evaluations conducted by the central coordinating body, it appears that the evaluation process is better set up in the Czech Republic and that planned evaluations are based on real needs. Another difference is the share of internal and external evaluation. The problem relates to the administrative capacities of authority.

Access to information can also be seen as a difference. As part of the information on the central coordinating body in the Czech Republic, a library of evaluations is available on the website, where all evaluations are available not only from the current evaluation but also from previous periods. Access to information about evaluations is easier than in Slovakia. The evaluation library can be a wonderful way to make the data more accessible to a large circle of people.

4. CONCLUSION

The European Union's Cohesion Policy aims at regional development focused on reducing regional disparities in economic and social terms. The programming period 2014-2020 is characterized by a growing need to evaluate the European Structural and Investment Funds as a financial instrument of the Cohesion Policy.

The contribution is focused on the comparison of the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic. The null hypothesis was denied, and the alternative hypothesis about the existence of differences between both countries was accepted. The answer to the research question: "What are the differences in the evaluation of the European Structural and Investment Funds in Slovakia and the Czech Republic?" was also obtained through research. The main differences can be seen in the setting of the ESIF, in the way evaluations are conducted, and in the provision of information on evaluations.

The evaluation of the European Structural and Investment Funds aims at the effective implementation of the funds and the achievement of the aims set. At the same time, it contributes to the development of recommendations that are useful in setting up the new programming period.

References

Bachtler, J., & Gorzelak, G. (2007). Reforming EU cohesion policy: a reappraisal of the performance of the structural funds. Policy Studies, 28(4), 309–326. https://doi.org/10.1080/01442870701640682.

Bachtler, J., & Wren, C. (2006). Evaluation of European Union cohesion policy: research questions and policy challenges. Regional Studies, 40(2), 143–153. https://doi.org/10.1080/00343400600600454.

Badoiu, C. M. (2018). The impact of structural funds on real convergence in Eastern Europe. In 32nd conference of the International-Business-Information-Management-Association (IBIMA). Seville, Spain, Nov 15-16, 2018, Vision 2020: sustainable economic development and application of innovation management (pp. 7922 –7909). IBIMA.

Czech Statistical Office. (2023). Regional gross domestic product. Available at: https://apl.czso.cz/pll/rocenka/rocenka.presmsocas.

Czech Statistical Office. (2023). Selected demographic data by region in 2021. Available at: https://www.czso.cz/csu/czso/4-obyvatelstvo-2co6hn6s1d.

Ďureje, M., Imrovič, M., & Marenčáková, T. (2007). Treaty establishing the European Economic Community In: Zborník študentskej vedeckej konferencie pri príležitosti 50. výročia podpísania Rímskej zmluvy / NOVÁČKOVÁ, D., ŠIMKOVÁ S., Paulína Stachová - Bratislava: [Informačná kancelária Európskeho parlamentu na Slovensku], 2007. - ISBN 978-80-969241-3-4, S. 60-65.

Enguix, M. R. M., García, J. G., & Gallego, J. C. G. (2012). An impact analysis of the European structural funds on the variation of the rate of employment and productivity in objective

1 regions. European Planning Studies, 20(4), 685–705. https://doi.org/10.1080/09654313.2012.665038.

European Commission. (2020). Regional Development and Cohesion Policy beyond 2020. Available at: https://ec.europa.eu/commission/presscorner/detail/en/MEMO_18_3866.

Gagliardi, L., & Percoco, M. (2016). The impact of European Cohesion Policy in urban and rural regions, Regional Studies, https://doi.org/ 10.1080/00343404.2016.1179384.

Hamada, R. (2014). Selected process and methods measurement and evaluation of regional disparities. In Regionální rozvoj mezi teorií a praxí, http://www.regionalnirozvoj.eu/201401/vybrane-sposoby-metody-merania-hodnotenia-regionalnych-disparit.

Kováč Gerulová, L., Kováč, U., & Buček, M. (2010). Regionálna konvergencia EÚ z pohľadu teórie a empírie. - Registrovaný: Web of Science. In Mezinárodní kolokvium o regionálních vědách: sborník příspěvků. - Brno: Masarykova univerzita v Brně, 2010. ISBN 978-80-210-5210-9. p. 9-16.

Kováčik, V., & Čajka, P. (2019). Vplyv štrukturálnych fondov Európskej únie na opatrenia aktívnej politiky trhu práce v programovom období 2007 – 2013. In: Almanach: aktuálne otázky svetovej ekonomiky a politiky. Vol. 14, no. 3 (2019), p. 53-69, ISSN 1337-0715.

Kyriacou, A. P., & Roca-Sagales, O. (2012). The Impact of EU Structural Funds on Regional Disparities within Member States. Environment and Planning C: Government and Policy, 30(2), 267–281. https://doi.org/10.1068/c11140r.

Lovrinović, T., & Nakić, M. (2016). The impact of EU funds on the development of transition economies. In 13th international scientific conference on economic and social development (ESD) (pp. 142–151). Varazdin Dev & Entrepreneurship Agcy; Univ N, Economic, and Social Development.

Matlovič, R., Klamár, R., & Matlovičová, K. (2008). Vývoj regionálnych disparít začiatkom 21. storočia na Slovensku vo svetle vybraných indikátorov. Regionální studia, 2, 2-13.

Matlovič, R., & Matlovičová, K. (2011). Regionálne disparity a ich riešenie na GEOGRAFICKÝ ČASOPIS / GEOGRAPHICAL JOURNAL 64 (2012) 3, 219-235 234 Slovensku v rozličných kontextoch. Acta Facultatis Studiorum Humanitatis et Naturae Universitatis Prešoviensis. Folia Geographica, 53, 18, 8-87.

Mendez, C. (2011). The Lisbonization of EU cohesion policy: a successful case of experimentalist governance? European Planning Studies, 19(3), 519–537. https://doi.org/10.1080/09654313.2011.548368.

Mendez, C. (2013). The post-2013 reform of EU cohesion policy and the place-based narrative. Journal of European Public Policy, 20(5), 639–659. https://doi.org/10.1080/13501763.2012.736733.

Michálek, A. (2012). Some methods for measuring regional disparities. In: Geografický časopis, 64, 3, 219-235.

Ministry of Investment, Regional Development, and Informatization of the Slovak Republic. (2023). Evaluation summary reports. Available at: https://www.partnerskadohoda.gov.sk/hodnotenie-esif/.

Ministry of Regional Development of the Czech Republic. (2023). Evaluation of EU funds. Available at: https://www.dotaceeu.cz/cs/evropske-fondy-v-cr/narodni-organ-pro-koordinaci/evaluace.

Mirošník, K., Petkovová, L., & Čadil, J. (2014). Statistical analysis of cohesion funding in the Czech Republic. Procedia Economics and Finance, 12, 437– 444.

Potluka, O., Bruha, J., Špaček, M., & Vrbová, L. (2016). Counterfactual impact evaluation on EU cohesion policy interventions in training in companies. Ekonomický časopis: časopis pre ekonomickú teóriu, hospodársku politiku, spoločensko-ekonomické prognózovanie = journal for economic theory, economic policy, social and economic forecasting. Bratislava: Ekonomický ústav SAV: Prognostický ústav SAV, 2016, 64(6), 575-595. ISSN 0013-3035. Available at: www.proquest.com/openview/aea1429e9aecf57d2d43b4c67ffc55d9/1?pq-origsite=gscholar&cbl=816355.

Statistical Office of the Slovak Republic. (2023). Population and migration - Population by sex SR, regions, counties, districts, city, countryside. Available at: https://datacube.statistics.sk/#!/view/sk/vbd_dem/om7102rr/v_om7102rr_00_00_00_sk.

Statistical Office of the Slovak Republic. (2023). Regional gross domestic product. Available at: https://datacube.statistics.sk/#!/view/sk/VBD_SK_WIN/nu3001rr/v_nu3001rr_00_00_00_sk.

Tijanić, L., & Obadić, A. (2015). Can we boost the competitiveness of the European Union through reducing regional inequalities in human capital? Inzinerine Ekonomika-Engineering Economics, 26 (3), 295–305. http://dx.doi.org/10.5755/j01.ee.26.3.8029.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.45

Foreign Direct Investment – State and Performance

Nerma Čolaković-Prguda[1]

Received: May 4, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
Bosnia and Herzegovina;
Institutional framework;
FIPA;
Tax regulations

Abstract: *The paper deals with foreign direct investments (FDI) with a special focus on Bosnia and Herzegovina. Most of the world's economies are interested in FDI, especially today in a globalized society.*

They can generate new jobs, and contribute to the development of new technology, and their special contribution is reflected in the stimulation of economic growth, development and employment. In recent years, Bosnia and Herzegovina made a lot of effort to attract foreign direct investments as one of the important ways to stimulate economic development and solve the problem of unemployment Considerable progress in this field has been achieved by adjusting the legislation and institutional framework.

The costs, procedures and time of registration of craft-entrepreneurial activities have been reduced, and various benefits in the field of customs and taxes have been provided, which will be presented in the paper.

1. INTRODUCTION

Investments represent a necessary condition for achieving progress and implementation of man's constant effort to master natural forces and use them to meet his needs as efficiently as possible. Without investments, there is no technological progress and no progress as a whole. Investing is a part of the global problem of development as a continuous process by which every society and every company ensures its future efficient business.

Investment comes as the final act of the entire process, which realizes the planned development goals, and thus the entire development. The largest share in international investments at the end of the XX century was foreign direct investments (FDI). Almost every country in the world is interested in attracting FDI. They can generate new jobs, contribute to the development of new technology, and accelerate economic growth and development. In addition to this, the government has direct revenues from FDI through taxation of wages, profits of foreign-owned companies and other business taxes. Policymakers should continuously review their taxation procedures in order to attract foreign investors and facilitate the inflow of foreign direct investment.

2. LITERATURE REVIEW

Foreign direct investments (FDI) means the international movement of capital which, viewed from a time perspective, represents the riskiest form of investment and the investment that brings the highest return with the basic purpose of creating transnational organizations and achieving high profits (Krugman & Obstfeld, 2009).

[1] Faculty of Law, University of Džemal Bijedić Mostar, Sjeverni logor bb, Bosnia and Herzegovina

Motives for the arrival of FDI are location (proximity to resources, reduction of transport costs and customization of products and services), internalization (technology transfer, vertical integration, etc.), avoiding tariffs, tempting subsidies, taking over oligopolies, and other.

The OECD defines foreign direct investment as: “Foreign direct investments are investments that involve long-term relationships and maintain permanent interests and control of a company-resident of one country (foreign direct investment investor or parent company) in a company that is a resident of another country” (Damjanović, 2015).

If you want to invest, it is important to assess the risk (commercial and political) of the country where the investment is made. The most common division of direct investments is into direct investments that create new production assets, (“greenfield investments”), while the purchase of existing facilities and companies and taking control of them with the aim of more efficient management are brownfield investments, which also include foreign direct investments. created by privatization (Babić et al., 2001). The motives of foreign investors are usually divided into the motive of optimizing the multinational company’s portfolio, the motive of externalities or market imperfections, and the motive of industrial organization.

It is very important to emphasize that FDI has a strong development potential: firstly, it is an additional inflow of investment capital, especially important for countries that have a low rate and volume of domestic savings; secondly, it initiates a new economic activity or increase an existing one, in the production or service sector; third, one of the most significant effects is the spillover of technologies, knowledge and productivity (Antevski, 2008).

The largest volume of FDI flows takes place between developed industrial countries, which are normally abundant with investment capital. The positive effects that they expect to take advantage of and for which they offer various types of benefits and facilities to foreign investors can be: first, raising the general level of business activity (thereby preventing stagnation or recession); secondly, the development of less developed regions; third, the development of certain industries (eg. automotive); fourth, acquisition of new knowledge and technologies, improvement of productivity, most often associated with new, especially information and communication technologies - ICT; fifth, connection and inclusion of domestic companies in international technological, production and distribution networks of TNCs.

3. BOSNIA AND HERZEGOVINA AND FOREIGN DIRECT INVESTMENT

3.1. Institutional Framework

The existence of different forms of organization in the form of agencies, chambers and representative offices has the task of contributing to increasing the number and quality of foreign investments and to emphasize openness towards foreign investments. The main participants of that role are:

- Foreign Investment Promotion Agency of Bosnia and Herzegovina (FIPA),
- Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina (Sector for foreign trade policy and foreign investments),
- Ministry for European Integration and International Cooperation of the Republic of Srpska,
- Investment and Development Bank of the Republic of Srpska,

- Foreign Trade Chamber of Bosnia and Herzegovina/Chamber of Commerce and Industry of Republic of Srpska/Chamber of Economy of the Federation of Bosnia and Herzegovina,
- Development Agency of the Republic of Srpska,
- Local Agencies for Development.

The Foreign Investment Promotion Agency (FIPA) of Bosnia and Herzegovina (BiH) is a State Agency established with the mission to:
- Attract and maximize the flow of foreign direct investment into Bosnia and Herzegovina, and encourage existing foreign investors to further expand and develop their businesses in Bosnia and Herzegovina.
- Facilitate the interaction between public and private sectors, and have an active role in policy advocacy in order to contribute to continually improving the environment for business investment and economic development.
- Promote a positive image of Bosnia and Herzegovina as a country that is attractive to foreign investors.

3.2. Reasons for Investing in Bosnia and Herzegovina

There are several factors affecting investment climate, such as crime levels, poverty rate, employment rate, judicial system, political stability or instability, regulatory uncertainty, stability of financial markets and tax regime. In recent years, Bosnia and Herzegovina made a lot of effort to attract foreign direct investments as one of the important ways to stimulate economic development and solve the problem of unemployment. Considerable progress in this field has been achieved by adjusting the legislation and institutional framework.

Some of the reasons for investing in Bosnia and Herzegovina are:
- Geographical position,
- Availability of natural resources,
- Long tradition of industrial production,
- Large number of available industrial zones, attractive locations and production facilities,
- Favorable legislation for foreign investors,
- Low taxes,
- Educated workforce,
- Stable currency linked to the euro,
- Signed regional and bilateral trade agreements,
- The perspective of joining the European Union.

Bosnia and Herzegovina has a very favorable geographical position - at the crossroads between the West and the East, the Mediterranean and the Continent (Krejic & Karadza, 2015). This position certainly attracts foreign investors, especially due to the proximity of certain markets. Attractive locations such as lakes, rivers and mountains, as well as thermal and mineral springs, agricultural land, forests, ores, etc., can greatly influence the attraction of foreign investors.

Within industrial production with a long tradition, the following branches stand out in particular: the mining and metal processing industry, as well as the wood and automotive industry. The Swedish company Zinkteknik has invested money in certain production facilities located near Mostar, where certain parts for cars are produced and exported to the European market.

An important factor in making the investment decision was surely high-quality and trained, and at the same time, cheap labor force. The fact is that we have an extremely educated and high-quality workforce, but it is underutilized because a significant number of people do not have a job or are not adequately paid, if they have it.

In addition to skilled labor, low taxes also encourage foreign investors to come to a certain country, including Bosnia and Herzegovina. However, creators should be very careful when determining certain tax rates because the benefits of such rates should be greater than the costs or other negative effects. It is also very important that our currency is pegged to the euro and there is a low possibility of inflation, which again represents security and stability for foreign investors.

3.3. Privileges for Foreign Investors

First of all, the importance is on the exemption of foreign investors from the obligation to pay customs duties on the import of equipment, because the equipment has the status of investment capital (the equipment must not be older than 10 years and must comply with technical standards). In addition, investors are exempt from paying income tax for 5 years.

Following the Law on the Policy of Foreign Direct Investment in Bosnia and Herzegovina, foreign investors are guaranteed the following:

a) The national treatment - foreign investors shall have the same rights and obligations as the residents of Bosnia and Herzegovina.
b) Foreign investors shall have the right, for their investments, to open on the territory of Bosnia and Herzegovina accounts in any commercial bank denominated in the national or any freely convertible currency.
c) Foreign investors, concerning all payments related to their investments in Bosnia and Herzegovina, shall have the right to freely convert the national currency of Bosnia and Herzegovina into any other freely convertible currency.
d) Foreign investors shall have the right to transfer abroad, freely and without delay, in freely convertible currency, proceeds resulting from their investment in Bosnia and Herzegovina, including, but not limited to:
   a. income from investments received in the form of profit, dividends, interest, and other forms of profit;
   b. funds received by investors after partial or full liquidation of their investments in Bosnia and Herzegovina, or disposal of invested property or proprietary rights.
e) Foreign investors shall have the same property rights with respect to real estate as the citizens and legal entities of Bosnia and Herzegovina.
f) Foreign investment shall not be subject to any act of nationalization, expropriation, requisition or measures that have similar effects, except in the public interest in accordance with applicable laws and regulations, without any type of discrimination and against the payment of appropriate compensation (FIPA, n. d.).

The rights and benefits of foreign investors granted and obligations imposed, by this Law cannot be terminated or eliminated by the subsequently passed laws and regulations. If such subsequently passed laws and regulations shall have been more favourable to foreign investors, they shall have the right to choose under which regime the respective foreign investment will be governed.

3.3.1. *Tax Benefits*

In the Federation of Bosnia and Herzegovina: Companies whose exports exceed 30% of the total revenue and companies that have invested at least 20 million KM in a period of five consecutive years in production are completely exempted from paying profit tax, provided that the investments in the first year amounted to at least 4 million KM. Companies that employ more than 50% of people with disabilities or special needs for a period longer than one year are exempt from paying profit tax for that year. All costs related to research and development (R&D) can be recognized as an expense. There are also incentives for scientific and development research (FIC, 2018).

In the Republic of Srpska, tax benefits were introduced for investments in equipment, plants and real estate to conduct the taxpayer's business, up to the amount of the realized investment. Tax incentives also exist in the case of hiring at least 30 new workers for an indefinite period, up to the amount that the taxpayer pays for income tax and social security contributions for the employed worker (FIC, 2018).

3.4. Foreign Direct Investment in 2021

In 2021, according to the Central Bank of Bosnia and Herzegovina (2021), foreign direct investments (FDI) amounted to 496.6 million EUR (or 971.2 million BAM). FDI increased by 32% compared to 2020, with the highest amount since 2009.

The COVID-19 pandemic affected FDI, with a decline registered in the last quarter of 2019 and 2020. The decrease in FDI in 2020 was -7.8%.

The main investor countries in Bosnia and Herzegovina in 2021 were: Switzerland (107.8 million EUR), Turkey (75.2 million EUR), and the United Kingdom (64.5 million EUR). The following countries also registered significant capital increases: Austria (49.1 million EUR), Croatia (41.9 million EUR) Serbia (40.6 million EUR), Germany (39.3 million EUR), Slovenia (36.2 million EUR), and Italy (30.0 million EUR).

Based on CBBH data, by activities, most investments were realized in the area of retail trade at 88.4 million EUR, followed by the area of production of finished metal products at 58.4 million EUR and the area of base metal production at 52.5 million EUR.

Significant capital increases have been registered also for electricity, gas, steam and air conditioning supply (42.3 million EUR), wholesale trade (39.9 million EUR) and manufacture of paper and paper products (32.9 million EUR).

The total amount of Foreign Direct Investment in Bosnia and Herzegovina, until December 2021, was 8.3 billion EUR (8,322 million EUR). Based on CBBH data, the Federation of Bosnia and Herzegovina participates in total FDI with 62.8% (5,226 million EUR), the Republic of Srpska 34.4% (2,861 million EUR), and Brčko District with 0.9% (78.8 million EUR).

According to the FDI Stock by countries, the largest share still refers to Austria (1.5 billion EUR), Croatia (1.4 billion EUR), Serbia (1.2 billion EUR) and Slovenia (0.6 million EUR). European countries are still the most important investors in Bosnia and Herzegovina. Investments from EU-27 countries amounted to 63% of total FDI. Out of total foreign direct investments, 36% have been invested within the production (primary, industrial and electricity production), followed by the banking sector with 23%, trade with 13% and telecommunications with 12% (UHY, 2022).

4. CONCLUSION

The inflow of foreign direct investments primarily raises the level of investment and general economic activity in a country or region, with the following consequences: growth of the volume of production or services and employment growth. So, investments are welcome in both, rich and poor countries, so the inflow of FDI is especially important for countries poor in capital because they cannot provide it from domestic sources to the required extent, although they often accept negative costs (environmental pollution, company shutdown or expulsion from the market).

It can be concluded that some basics for a good investment climate are certainly as follows:

- Stable politics and government that would be able to produce stable and reasonable economic guidelines;
- Avoidance of excessive restrictions (access to convertible currency or profit return regime) and regulation;
- Stable and functional legal and tax system;
- Macroeconomic stability and size of the domestic market;
- Availability of basic infrastructure such as roads, electricity and communication;
- Low level of corruption;
- Market-friendly regulations.

Foreign direct investments cannot and must not be the basis of the development of the national economy. They can and should be only a complementary factor of the domestic economy, that is, one of the factors that significantly influences the growth and development of the domestic economy.

References

Antevski, M. (2008). A foreign direct investment: Characteristics, patterns, and effects. *Medjunarodni problemi, 60*(1), 61-92. https://doi.org/10.2298/medjp0801061a

Babić, A., Pufnik, A., & Stučka, T. (2001). Theory and reality of foreign direct investments in the world and in transition countries with special reference to Croatia, Overviews P-9.

Damjanović, I. (2015). Tax impact on foreign direct investment in Bosnia and Herzegovina, Proceedings of the Faculty of Economics in Brčko, 9 (9), 67-74.

FIC. (2018). Incentives for investors, Retrieved November 12, 2018, from www.fic.ba

FIPA. (n. d.). FDI Position and Performance, www.fipa.gov.ba

Krejic, M., & Karadza, M. (2015). FOREIGN INVESTMENTS IN BOSNIA AND HERZEGOVINA, https://advokatskafirmasajic.com/EN/pdf/FOREIGN-INVESTMENTS-IN-BH.pdf

Krugman, R. P., & Obstfeld, M. (2009). International economy: theory and policy, Beograd: Datastatus.

Law on the policy of foreign direct investment in Bosnia and Herzegovina, Official Gazette of Bosnia and Herzegovina, No. 17 (1998), No. 13 (2003), No. 48 (2010) and No. 22 (2015).

UHY. (2022). DOING BUSINESS IN BOSNIA AND HERZEGOVINA, https://www.uhy.com/wp-content/uploads/Doing-Business-in-Bosnia-and-Herzegovina.pdf

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.51

Inflation under a Currency Board: The Bulgarian Experience

Ivan Todorov[1]
Tsvetomir Tsvetkov[2]

Received: March 28, 2023
Accepted: September 21, 2023
Published: October 30, 2023

Keywords:
Bulgaria;
Currency board;
Inflation

Abstract: *The objective of this paper is to study inflation in Bulgaria under a currency board. The theoretical fundamentals of inflation are systematized. The empirical investigations on inflation in Bulgaria under a currency board are reviewed. The determinants of inflation in Bulgaria under a currency board are identified. A vector autoregression model is specified to forecast inflation and analyze the efficiency of two macroeconomic instruments (the government's fiscal reserve and the central bank's minimum reserve requirements) in managing inflation. The empirical results imply that Bulgaria's inflation is influenced by its past values and the previous values of oil prices, the Euro area's inflation and the Bulgarian central bank's minimum reserve requirements. The only macroeconomic instrument Bulgarian policymakers can use to impact on inflation are the minimum required reserves of commercial banks. Since the minimum reserve requirements lack the dosed effect, the reversibility and the flexibility of other monetary tools, their use is recommended in heavy crises only and when no other options are available.*

1. INTRODUCTION

During energy and price crises, inflation becomes a painful social problem and a key issue of macroeconomic management. Policymakers in a small open economy under a currency board, such as the Bulgarian one, have limited opportunities for harnessing inflation. They are deprived by the open-market operations, the base interest rate and the exchange rate policy. However, Bulgarian policymakers can raise the fiscal reserve of the government and the minimum reserve requirements of the Bulgarian National Bank (BNB), thus decreasing the money supply and possibly the inflation rate.

In economic theory, three types of inflation are known - demand-pull, cost-push and structural. The first type of inflation results from demand-side factors, which can be real (unsatisfied demand) and monetary (excessive monetary expansion). Real inflationary factors on the demand side appear when GDP is above its potential level (inflationary gap). Monetary sources of inflation exist if the growth rate of the money supply exceeds the growth rate of potential output.

The second type of inflation is caused by adverse shocks in aggregate supply (a decrease in the quantity and quality of production factors, an increase in the costs of inputs and a drop in productivity), which shift the aggregate supply curve to the left and lead to stagflation. Stagflation is a combination of stagnation (a decline in output) and inflation (a rise in price level).

The third type of inflation arises from real convergence (reduction of economic disparities between more developed and less developed countries) and/or changes in the structure of relative

[1] South-West University "Neofit Rilski", Faculty of Economics, 66 Ivan Mihaylov Str., Blagoevgrad 2700, Bulgaria
[2] Sofia University "St. Kliment Ohridski", Faculty of Philosophy, bul. "Tsar Osvoboditel" 15, 1504, Sofia, Bulgaria

prices of individual goods and services in the economy, stemming from various factors - political, social, economic, environmental and technological.

Each type of inflation requires specific measures tailored to its cause. Demand-pull inflation implies a restrictive monetary policy. In the conditions of the Bulgarian currency board, this can be achieved by increasing the government deposit in the Issue Department of the BNB or the minimum required reserves of commercial banks. However, monetary restrictions are extremely risky in the present situation, as they could deepen the crisis.

Cost-push inflation can be overcome by long-term policies for increasing the quantity and quality of factors of production such as investing in infrastructure, education, research and innovation. In the event of an energy crisis, this means territorial diversification of energy supplies and investments in new energy sources and technologies for reducing the price of energy and ensuring sufficient energy supply. The current energy and price crisis cannot be resolved at the national (macroeconomic) level, but only at the communitarian (European) level through the joint efforts of the member states and the institutions of the European Union (EU).

Structural inflation can be a natural economic phenomenon or artificially caused by targeted national and supranational policies, such as the EU Green Deal. In the second case, funds should be provided not only to achieve the goal of these policies but also to overcome their negative side effects (loss of jobs, rising prices of vital goods and services, impoverishment, reduced competitiveness, etc.).

The goal of this research is to investigate inflation in Bulgaria under a currency board. The objective of the study is achieved by the fulfillment of the following tasks:

- Systematization of the theoretical foundations of inflation (section 1);
- Review of empirical literature on inflation in Bulgaria under a currency board (section 2);
- Empirical analysis of inflation in Bulgaria under a currency board (section 3);
- Formulation of advisable anti-inflationary policies for Bulgaria under a currency board (conclusion).

The empirical analysis employs a vector autoregression and monthly seasonally adjusted data for the inflation in Bulgaria and the Euro area, the Bulgarian government's fiscal reserve, the minimum reserve requirements and the representative prices of crude oil and natural gas obtained from the Eurostat, the BNB and the Federal Reserve websites.

2. THEORETICAL FOUNDATIONS OF INFLATION

Inflation is a complex process. Factors that lead to inflation are monetary, demand factors, supply factors and structural factors (Totonchi, 2011). Therefore, inflation is a function of the interaction of several factors. It follows that inflation is a complex macroeconomic and institutional phenomenon (Kibritçioğlu, 2002).

Inflation and the inflation process are described by the quantitative theory of money. According to Irving Fisher, many authors, such as Locke, Hume, Adam Smith, Ricardo, Mill, Walker, Marshall, Hadley, Fetter, and Kemmerer, assume that prices depend on the amount of money (Fisher, 1920, p. 14). The direct relationship between the quantity of money and prices is argued by David Hume (Hume, 1752). Also, Hume argues that limiting the amount of money leads to lower labor costs (Hume, 1752, p. 29). The relationship between the amount of money and the price of labor by Hume, respectively, leads to a relationship between the amount of money and unemployment. The relationship between labor costs and unemployment is also examined by A. W. Phillips (Phillips, 1958), who argued that increasing wages would reduce unemployment but increase prices. Thus, the theses of Hume and Phillips correspond to each other, because the increase in the amount of money is associated with both an increase in wages and an increase in prices.

Fisher points out that inflation depends on three main factors. Factors on which inflation depends are the amount of money in circulation, the velocity of money and the amount of goods that can be purchased with the amount of money in circulation (Fisher, 1920, p. 14). Fisher builds on the understanding of Locke, Hume, Adam Smith, Ricardo, Mill, Walker, Marshall, Hadley, Fetter, and Kemmerer that the price level changes in proportion to the amount of money in circulation, adding that this connection is valid when the speed of money in circulation and trade are constant. He derives the following equation $MV = \sum pQ$ (Fisher, 1920, p. 26). Algebraically derived quantitative theory leads to several conclusions. The first conclusion is that at a constant velocity of money (V) and a constant quantity of goods (Q), a change in the quantity of money (M) will lead to a change in prices (p). The second conclusion is that with a constant amount of money (M) and a constant amount of goods produced (Q), but with a change in the velocity of money (V) the prices of goods (p) will change. The third conclusion is that if the quantity of money (M) and the velocity of money (V) are constant, but the quantity of goods produced (Q) changes. Then the prices will change inversely proportional to the change in the quantity of goods produced (Fisher, 1920). Therefore, both a change in the amount of money in circulation and a change in the velocity of money will lead to a proportional change in prices. While the change in the quantity of goods produced leads to an inversely proportional change in prices.

Fisher, starting the theory of inflation, through the quantitative theory of money allowed to development of two theories of inflation: a monetary theory and a Keynesian theory of inflation. The main difference between Keynesian theory and monetary theory is that monetarists assume that the velocity of money is constant (Friedman, 1959), and Keynesians assume that the velocity of money is variable (Keynes, 2018, p. 272). This difference in the theoretical views of monetarists and Keynesians leads to different interpretations of quantitative theory and, respectively, to different theoretical justifications for the causes that determine inflation.

Milton Friedman (Friedman, 1992) points out that inflation is always caused by a larger increase in the money supply compared to an increase in the quantity of goods produced. It follows that inflation is determined by the money supply, provided that the velocity of money is constant. Therefore, inflation is a monetary phenomenon (Friedman, 1992). M. Friedman and A.J. Schwartz (Friedman & Schwartz, 1963) developed the thesis that in the long run an increase in money supply only leads to an increase in inflation. An increase in the mass of money does not lead to an increase in output. Prolonged inflation, which is a monetary phenomenon in the long run, is accelerated by the government's policies and government policy decisions. This thesis is developed by Friedman, who points out that the reasons for accelerating inflation are the introduction of a fixed exchange rate, the refusal of governments to increase or impose new taxes and the government's decision to increase government spending (Friedman, 1974). The fixed exchange rate leads to imports of external inflation. In the case of a currency board, the fixed exchange rate is a mandatory condition, which leads to the import of inflation. The monetary theory of inflation was developed by Phillip Cagan (Cagan, 1987), who stated that hyperinflation is determined not only by rising money supply but also by irrationally adapting inflation expectations. The inflationary expectations of the economic lambs are adjusting belatedly to the real dynamics of the money supply. He linked the adjustment of inflation expectations to the actual demand and supply of money, arguing that there was a mismatch between inflation expectations and the money supply (Cagan, 1956). Cagan argues that the inflationary expectations of economic agents have a reverse direction of the dynamics of the demand for money (Cagan, 1956). Thomas J. Sargent and Neil Wallace (Sargent & Wallace, 1973) further developed the monetary theory of adaptive expectations of inflation developed by Cagan, based on the condition that adaptive expectations that affect inflation are rational. The catch stems from Cagan's thesis on the inverse relationship between current inflation and future money growth rates. This feedback, according to Sargent & Wallace (Sargent & Wallace, 1973), is a rationality of inflationary adaptive expectations because lagging money production has a limited impact on inflation as opposed to lagging inflation, which has a significant impact on current inflation. In fact, Sargent & Wallace deduce the rationality of adaptive expectations from the logic that an increase in inflation does not lead to an increase in money supply, which means that there will be no significant increase in money supply in the future. Thomas J. Sargent (Sargent, 1977) argues that inflationary adaptive expectations are irrational when the government intervenes and the central bank begins to print money.

Quantitative theory of money is the basis of the theory of demand-pull inflation developed by Keynes. According to John Maynard Keynes (Keynes, 2018, p. 106), real inflation or demand inflation will occur when investment continues to increase when it reaches full employment. Keynes's theory of demand inflation accepted the assumption of the quantitative theory that an increase in the amount of money leads to inflation. However, Keynes considers the relationship between the amount of money and prices at a variable rate of money in circulation. The assumption of the change in the velocity of money in circulation enables Keynes to consider the effect of effective demand on changes in the amount of money and on prices, respectively. Inflation occurs when an increase in wages does not lead to an increase in production. Also, with a change in the velocity of money, if there is an increase in employment and an increase in nominal wages for equipment and declining profitability, prices will rise. Linking the rise in prices with the dynamics of Keynes' nominal wages, he actually puts marginal costs as a factor leading to higher prices. According to Paul Davidson and Sidney Weintraub (Davidson & Weintraub, 1973), when wages change, this will increase the costs of companies and lead to an increase in the price level. The authors argue that the dynamics and size of wages are determined by factors such as competition and monopoly, which are manifested in the market mechanism (Davidson & Weintraub, 1973, pp. 1125-1126). The dynamics and magnitude of inflation depend on the ratio between the increase in wages and the increase in labor productivity (Davidson & Weintraub, 1973, p. 1131). Shultz (1975), Kahn (1984) and Trevithick (1984) accepting the thesis of Davidson and Weintraub take a step forward by pointing out the reason that leads to a constant increase in wages. The reason is the conclusion of employment contracts, which do not allow the reduction of salaries, but only their increase. Robert J. Gordon (Gordon, 1981) cites as an example of structural inflation the entry of three-year contracts that fix wages and the transition from the gold standard to the fiat monetary system. The cost-structural cause of inflation is the frequent change in the costs of companies, which is calculated in the prices of goods (Gordon, 1981, p. 520). Structural inflation occurs when prices do not respond to changes in demand. Gordon points out that a demand reduction will not lead to lower raw material prices and lower wages (Gordon, 1981, pp. 536-527). There is a structural cost gap that leads to inflation.

Structural inflation is caused by the uneven increase in wages relative to labor productivity in different sectors of the economy. Another reason for structural inflation is the different productivity of labor in each sector of the economy. These are developed by Baumol (1967), Balassa (1964) and Samuelson (1964). Baumol (1967) emphasizes the desire of the less developed sector to equalize wages with the more developed sector, which leads to increased costs. The increase in costs caused by structural disparities between the two sectors will determine inflation. Balassa (1964) divides the economy into two sectors marketable and non-marketable goods. According to him, the sector of non-tradable goods will have higher prices than the sector of tradable goods, because the prices of tradable goods will be determined by international trade. Balassa (1964) and Samuelson (1964) conclude that rising prices in the tradable sector lead to rising prices in the services sector. This mechanism is realized by increasing labor productivity in the tradable sector.

Scacciavillani (1994) accepts the Cagan equation (Cagan, 1956) as the basis for deriving the factors that cause chronic inflation. Then he synthesized the Cagan equation using the Hamilton and Whiteman method (Hamilton & Whiteman, 1985). Thus, Scacciavillani argues that the dynamics of inflation can be caused by speculative phenomena, which he calls "bubbles", "sunspots" and "external influences" (Scacciavillani, 1994, p. 1). Speculative phenomena manifest themselves as a difference between the money supply and the price level. Scacciavillani applies the Autoregressive Fractionally Integrated Moving Average, which tests the difference between money supply and price level. Scacciavillani concludes that chronic inflation is a consequence of fiscal imbalance (Scacciavillani, 1994). Scacciavillani manages to measure the expectations that lead to self-fulfilling change that do not correspond to economic logic and theory. Self-sustaining change leads to money bubbles. The fiscal imbalance creates conditions for self-fulfilling change, which leads to the creation of money bubbles.

Authors such as Öniş and Özmucur (1990) studied inflation in Turkey between 1981 and 1987. They use the Vector Autoregressive model to analyze the interaction between the exchange rate, the money supply and the price level. The main conclusion drawn by Öniş and Özmucur is that inflation in Turkey between 1981 and 1987 was determined by the combination of exchange rate devaluation and the growth of the monetary base. A different thesis on the causes of inflation in Turkey is presented by Akcay et al. (1996), according to whom the high budget deficit leads to higher inflation. The increase in the budget deficit leads to an increase in inflation through two channels and provided that the central bank does not increase the issue of money. The first channel is increasing the demand for credit, which will push private investment and lead to higher interest rates. The effect will be a reduction in the production of goods and services, which will cause an increase in inflation. The other channel through which the budget deficit can lead to higher inflation is when interest rates rise, which stimulates the financial sector to create new risk-free financial assets that have higher interest rates and have the liquidity of money. Akcay, Alper and Ozmucur apply the Vector Autoregression model and Vector Error Correction, which examine both the long-term and short-term relationship between budget deficit, money in circulation and inflation. The authors conclude that budget deficits lead to an increase in inflation in the long run, through inflation expectations, which are formed by rising prices of one commodity, which leads to a general increase in prices as a consequence of creating an inertial inflation mechanism. A similar thesis is developed by Cheng Hoon Lim and Ms. Laura Papi (Lim & Papi, 1997), who point out that money, the exchange rate, budget deficits, inertia factors, and exchange rate devaluation policies determine inflation. The authors consider the effect of the described variables on inflation in the long and short term. In the long run, the authors measure the impact of money supply, the exchange rate, the budget deficit on inflation, through co-integration. In the short term, Cheng Hoon Lim and Ms. Laura Papi applied least squares regression analysis. The empirical conclusion they draw is that the money supply and the exchange rate have the greatest effect on inflation in Turkey. The authors also argue that political intervention by devaluing the exchange rate significantly determines the dynamics of inflation. According to Pierre-Richard Agénor and Alexander Hoffmaister (Agénor & Hoffmaister, 1997), the main causes of inflation are the rising money supply, the devaluation of the currency exchange rate, the growth of nominal wages and the difference between production and inflation. Nominal wage growth is cited as a strong factor influencing inflation dynamics. The method they use to quantify the impact of money supply, nominal wages, exchange rates and output on inflation is a generalized Vector Autoregression model.

The budget deficit is a major factor that provokes rising inflation. According to Luis Catao and Marco Terrones (Catao & Terrones, 2001), reducing the budget deficit by one percentage point leads to a reduction in inflation in the long run by 6 percentage points. The empirical study conducted by Catao and Terrones is characterized by the inclusion of a linearly transformed variable that covers the nonlinear effects between the budget deficit and inflation. In addition to a linearly transformed variable, the study focuses on the long-term effects of the budget deficit on inflation. The linearly transformed variable is the association of the constant component of the budget deficit with the ratio of narrow money to gross domestic product, which ratio expresses the tax base of inflation (Catao & Terrones, 2001, pp. 4-5.). The econometric model applied by Catao and Terrones is the Autoregressive Distributed Lag Model, which covers the delay of the dependent and independent variables. Examining the effects of reserve money, broad money, nominal GDP, and budget deficits on inflation in 161 countries, Stanley Fischer, Ratna Sahay, and Carlos A. Végh (Fischer et al., 2002) used regression analysis to draw the following empirical conclusions. Rising money leads to rising inflation. The budget deficit determines the rise in inflation. The increase in money supply has been cited as a reason for high inflation by Muhammad, Zafar and Arfeen (Muhammad et al., 2016), who apply the Autoregressive Distributed Lag Model and Error Correction Model. The main conclusion they draw is that when money increases, the currency depreciates and inflation rises. The authors also point out that when the budget deficit increases, it leads to an increase in inflation. A similar thesis is argued by Gary G. Moser (Moser, 1994), who by regression analysis proves the connection between the increase in the budget deficit, which leads to an increase in the money supply, which leads to an increase in inflation.

Interestingly the empirical study by Michael Sarel (Sarel, 1995), aims to examine the nonlinear relationship between inflation and economic growth. Sarel concludes that inflation, when up to eight percent of its effect on economic growth is from neutral to slightly positive. However, when inflation is above eight percent, the effect on economic growth is strong and negative. In fact, according to Sarel, the eight percent value of inflation is the trajectory of structural refraction of the effect of inflation on economic growth. This structural refraction leads from a neutral-positive effect of inflation on economic growth to a strongly negative effect of inflation on economic growth. Therefore, macroeconomic policies must be implemented, which include policy measures and institutional changes to keep inflation below 8 percent (Sarel, 1995). Sarel applies regression analysis with a dummy variable. The dependent variable is the average GDP growth per capita, and the independent variables are inflation, such as the consumer price index, initial income per capita, population growth rate, government spending as a percentage of GDP and the rate of change in trade conditions. Sarel argues that macroeconomic policy must take as its primary macroeconomic objective the avoidance of high inflation (Sarel, 1995, p. 13).

3. REVIEW OF EMPIRICAL STUDIES ON INFLATION IN BULGARIA UNDER A CURRENCY BOARD

The development of inflation in the conditions of a currency board is characterized by a specific manifestation of inflationary factors and channels on the dynamics of the inflationary process. A major factor in inflation on a currency board basis is the confidence of economic agents in a fixed exchange rate (Hanke & Shuler, 1994). Confidence in the fixed exchange rate is determined by the usefulness of the currency. The usefulness of the currency means that current inflation is low. This creates trust in economic agents for economic predictability and price stability. The future inflation expectations of economic agents are determined by the trust created. Confidence in the fixed exchange rate is created by the usefulness of the reserve currency to which the local currency is fixed. Hanke and Shuler (Hanke & Shuler, 1994) argue that confidence in the local currency is due to low inflation, which is reflected in the reserve currency. Also, interest rate levels are a consequence of interest rates on the reserve currency. However, Hanke and Shuler say that political risk, taxes, and transaction fees can provoke inflation (Hanke & Shuler, 1994). From the developed logic of Hanke and Shuler it can be said that in the conditions of a currency board the introduction of external inflation from the reserve currency is one of the reasons that leads to higher domestic inflation and undermines confidence in the fixed exchange rate. According to Stacie Beck, Jeffrey B. Miller and Mohsen Saad (Beck et al., 2003) in a currency board environment, inflation expectations are determined by the dynamics of the size of monetary aggregates and confidence in government policy and structural gaps between inflation expectations and price behavior. The authors conclude that the factors of inflation in the conditions of the currency board are the state policy, which leads to budget deficits and structural breaks between inflation expectations and the price level. And the mass of money does not have a significant effect on inflation. Stacie Beck, Jeffrey B. Miller and Mohsen Saad, apply Cagan's hyperinflation model as a theoretical framework, as well as the Vogelsang and Perron model, which covers the structural refraction between inflation expectations and price levels. The econometric technique used by the authors is the method of the smallest squares with a proxy variable.

According to Martin Zaimov and Kalin Hristov (Zaimov & Hristov, 2003), inflation in Bulgaria under the currency board is a consequence of the structure and flexibility of the Bulgarian economy. The authors argue that in the conditions of the currency board inflation in Bulgaria is not caused by monetary factors and inflation expectations do not lead to inflation. Kalin Hristov and Mihail Mihaylov (Hristov & Mihaylov, 2003) argue that the rate of inflation in Bulgaria is determined by the monetary policy of the European Central Bank. In fact, this is an effect of the currency board in which Bulgaria finds itself. The authors further develop their thesis, explaining that inflation in the conditions of a currency board can also be determined by the structure of the economy and its microeconomic characteristics. The microeconomic factors that lead to structural differences are the cost of production and the cost of non-tradable goods. The structure of production costs and the structure of costs of non-tradable goods are factors that determine inflation. Also, the increase in prices on a currency board can be caused by the government's policy, which by raising taxes can increase the costs of companies, which, in turn, to maintain the rate of profit and increase the prices of their goods. It is clear that in the conditions of a currency board inflation is provoked by real determinants of inflation. Kalin Hristov and Mihail Mihaylov, following the logic of "markup" and using "markup models" as a basis, created a model to argue the rate of change in inflation. The econometric model created by Hristov and Mihaylov is based mainly on the thesis that the profit margin that companies put in leads to an increase in inflation in the conditions of a currency board. The set variables in the Hristov and Mihaylov model, which determine inflation in a currency board environment, are energy prices, prices of imported goods and labor costs per unit of output (Hristov & Mihaylov, 2003, p. 11). The econometric technique with which the authors assess the impact of inflationary factors on the dynamics of the inflation process is the equation with error correction (single equation ECM). The econometric results of Hristov and Mihaylov are that non-energy commodity prices, labor costs, the lev-dollar exchange rate, and oil prices lead to higher inflation in a currency board environment (Hristov & Mihaylov, 2003). Apart from import inflation and labor cost inflation, according to Nikolay Nenovski and Kalina Dimitrova (Nenovski & Dimitrova, 2003) inflation in Bulgaria after the introduction of the currency board is determined by the mismatch between money supply and demand, as well as the effectiveness of factors determining production. Inflation under currency board conditions, including inflation in Bulgaria under currency board conditions, is not a consequence of monetary factors. One of the reasons for the inflation in the conditions of the currency board is the firmness of the real wages; another reason is the degree of breakdown of the real economy and the different development of the sectors of the real economy. The main reason for inflation in Bulgaria in terms of the currency board is the discrepancies that are realized between supply and demand in the tradable and non-tradable sectors. Nikolay Nenovsky, Victor Yotzov and Kalin Hristov (Nenovsky et al., 2000) quantify, using the Vector Autoregression model, the behavior of inflation in the conditions of a currency board and conclude that rising commodity prices and real wages are key factors of inflation in the conditions of a currency board.

Inflation in Bulgaria in the conditions of the currency board is determined by the unbalanced structure of the economy. One of these factors is the prices of non-tradable goods, which tend to approach international prices for services and transport. The dynamics of international prices affect inflation in the conditions of a currency board. Liberalization of prices in the conditions of a currency board leads to an increase in inflation (Choukalev, 2000).

The structure of the Bulgarian currency board is such that the generation of inflation is allowed by reducing the required minimum reserves and reducing the government deposit (Raleva, 2013). When the required minimum reserves decrease, lending goes up, new money is created and the money supply rises. Also, the realization of budget deficits leads to a reduction in government deposits with the central bank, which again leads to an increase in money supply.

4. EMPIRICAL ANALYSIS OF INFLATION IN BULGARIA UNDER A CURRENCY BOARD

4.1. Methodology

The determinants of inflation in Bulgaria and the opportunities for its management are analyzed by a vector autoregression (VAR), which includes the following variables:

$INFL\_BG_t$ - rate of change of the Harmonized index of consumer Prices in Bulgaria in month **t** compared to the previous month (percent);

$INFL\_EA_t$ - rate of change of the Harmonized index of consumer prices in the Euro area in month **t** compared to the previous month (in percent);

OIL_t - rate of change of the representative price of crude oil in month **t** compared to the previous month (in percent);

GAS_t - rate of change of the representative price of natural gas in month **t** compared to the previous month (in percent);

FISC_RES$_t$ - rate of change of the fiscal reserve of Bulgarian government in month **t** compared to the previous month (in percent);

MRR$_t$ - minimum required reserves of commercial banks in Bulgaria (percent from deposits).

The dependent (target) variable is **INFL_BG. INFL_EA, OIL** and **GAS** are factors beyond the control of Bulgarian macroeconomic management. **INFL_EA** can be considered a proxy for two groups of inflation sources - monetary factors on the demand-side and structural factors. **OIL** and **GAS** reflect the supply-side (cost-push) origins of inflation. **FISC_RES** and **MRR** are the macroeconomic tools Bulgarian policymakers can use to affect inflation in Bulgaria.

4.2. Data

The VAR uses monthly seasonally adjusted data for the period January 1999 - October 2021. The data sources are Eurostat for the inflation in Bulgaria and the EA, the Federal Reserve Bank of Saint Louis for the prices of crude oil and natural gas and the Bulgarian National Bank for the government's fiscal reserve and the minimum reserve requirements in Bulgaria.

4.3. Results

The group unit tests show that **INFL_BG, INFL_EA, OIL, GAS, FISC_RES** and **MRR** as a group are stationary at level, which implies the construction of an unrestricted VAR model (see Table 1).

Table 1. Group unit root test on the level values of INFL_BG, INFL_EA, OIL, GAS, FISC_RES and MRR

Method	**Statistic**	**Probability**	**Cross-sections**	**Observations**
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.9542	0.0000	6	1636
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-27.2926	0.0000	6	1636
ADF - Fisher Chi-square	448.675	0.0000	6	1636
PP - Fisher Chi-square	530.632	0.0000	6	1638

Source: Authors

The optimal lag length in the VAR is one (See Table 2). The VAR is estimated with one lag (see Table 3). After the step-by-step elimination of insignificant variables **FISC_RES(-1)** and **GAS(-1),** the results in Table 4 are obtained.

Table 2. Test for the optimal number of lags in the VAR

Number of lags	**FPE**	**AIC**	**SC**	**HQ**
0	15326.86	26.66462	26.74546	26.69710
1	464.8549*	23.16891*	23.73473*	23.39622*
2	494.9788	23.23131	24.28211	23.65346
3	494.3506	23.22905	24.76483	23.84603
4	547.0717	23.32850	25.34927	24.14033
5	600.0691	23.41792	25.92368	24.42458
6	562.3605	23.34851	26.33925	24.55001
7	594.1298	23.39719	26.87291	24.79353
8	647.6885	23.47515	27.43585	25.06632

* Shows the optimal number of lags according to the respective criterion

Source: Authors

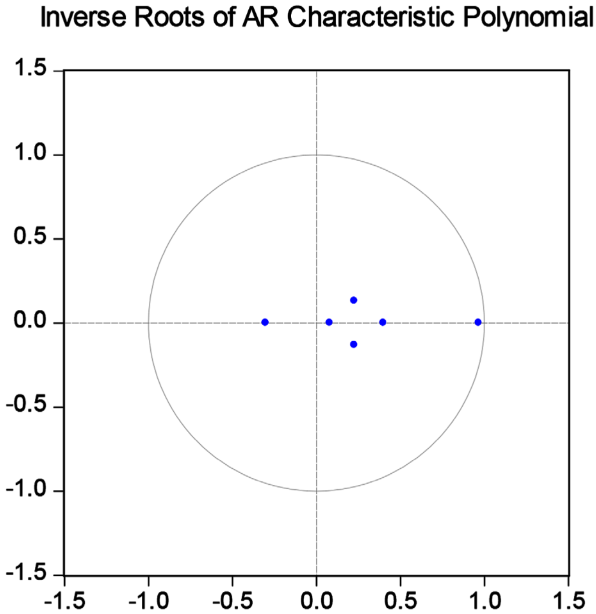


Figure 1. AR roots graph of the one-lag VAR

Source: Authors

The AR roots graph (see Figure 1) shows that the one-lag VAR is stable, all roots are inside the unit circle.

Table 3. Results from the econometric estimation of the VAR

Variable	Coefficient	Standard Error	t-Statistic	Probability
C	0.670994	0.254601	2.635478	0.0089
INFL_BG(-1)	0.285620	0.059543	4.796854	0.0000
INFL_EA(-1)	0.505115	0.184328	2.740301	0.0066
OIL(-1)	0.014521	0.003264	4.448796	0.0000
GAS(-1)	0.004060	0.003154	1.287313	0.1991
FISC_RES(-1)	-0.001435	0.002129	-0.674046	0.5009
MRR(-1)	-0.058086	0.026580	-2.185321	0.0297

Source: Authors

Table 4. Results from the econometric estimation of the VAR after the step-by-step removal of insignificant variables FISC_RES(-1) and GAS(-1)

Variable	Coefficient	Standard Error	t-Statistic	Probability
C	0.654052	0.254331	2.571650	0.0107
INFL_BG(-1)	0.292382	0.059294	4.931066	0.0000
INFL_EA(-1)	0.517067	0.183598	2.816295	0.0052
OIL(-1)	0.014987	0.003249	4.613199	0.0000
MRR(-1)	-0.056321	0.026546	-2.121603	0.0348

Source: Authors

The VAR model can be described by the Equation

$$\mathbf{INFL\_BG = 0.65 + 0.29*INFL\_BG(-1) + 0.52*INFL\_EA(-1) + 0.01*OIL(-1) - 0.06*MRR(-1)} \quad (1)$$

The monthly inflation rate in Bulgaria is impacted by its own past values and the previous values of inflation in the Euro area, the minimum reserve requirements of the Bulgarian National Bank, the crude oil and natural gas representative prices and the Bulgarian government's fiscal reserve. The signs of all significant regression coefficients are in agreement with economic theory - positive before **INFL_BG(-1), INFL_EA(-1)** and **OIL(-1),** and negative before **MRR(-1).** The positive regression coefficients indicate that 1% change in **INFL_BG(-1), INFL_EA(-1)** and **OIL(-1)** will lead to a change in **INFL_BG** in the same direction of respectively 0.29%, 0.52% and 0.14%. The negative regression coefficient shows that 1% change in **MRR(-1)** will cause a change in **INFL_BG** of 0.06% in the opposite direction.

The value of the coefficient of determination ($R^2 = 0.26$) means that 26% of the variation of the inflation in Bulgarian can be explained by changes in the independent variables in Equation 1. The probability of the F-statistic (0.00) shows that the alternative hypothesis of adequacy of the model used is confirmed. It should be made clear that this does not mean that the model is the best possible one but simply that it adequately reflects the relationship between the dependent and independent variables.

The results from the Ramsey test (RESET) - probability of the F-statistic of 0.16, suggest acceptance of the null hypothesis of lack of errors in the specification of Equation (1). The null hypothesis of the absence of a serial correlation of residuals in Equation (1) is confirmed (see Table 5). The results of the heteroscedasticity test on the residuals in Equation (1) (see Table 6) mean that the null hypothesis of non-heteroscedasticity should be accepted.

Table 5. Results from the serial correlation test on the residuals in Equation (1)

F-statistic	0.77	Probability F (1, 267)	0.38
Observations R-squared	0.79	Probability Chi-Square (1)	0.38

Source: Authors

Table 6. Results from the heteroscedasticity test on the residuals in Equation (1)

F-statistic	0.00	Probability F (1, 270)	0.95
Observations R-squared	0.00	Probability Chi-Square (1)	0.94

Source: Authors

The causality tests indicate that both in the short term and the long run, Bulgaria's inflation is caused by the inflation in the EA, the price of crude oil and the minimum reserve requirements of the Bulgarian National Bank (see Tables 7 and 8).

Table 7. Results from the short-run causality tests

Independent variables	Probability
INFL_EA	0.00
OIL	0.00
GAS	0.09
FISC_RES	0.48
MRR	0.01

Source: Authors

Table 8. Results from the long-run causality tests

Independent variables	Probability
INFL_EA	0.00
OIL	0.00
GAS	0.20
FISC_RES	0.50
MRR	0.03

Source: Authors

The responses of Bulgaria's inflation to changes in the Euro area's inflation, the Bulgarian government's fiscal reserve, the BNB's minimum reserve requirements and the prices of crude oil and natural gas are displayed in Figure 2.

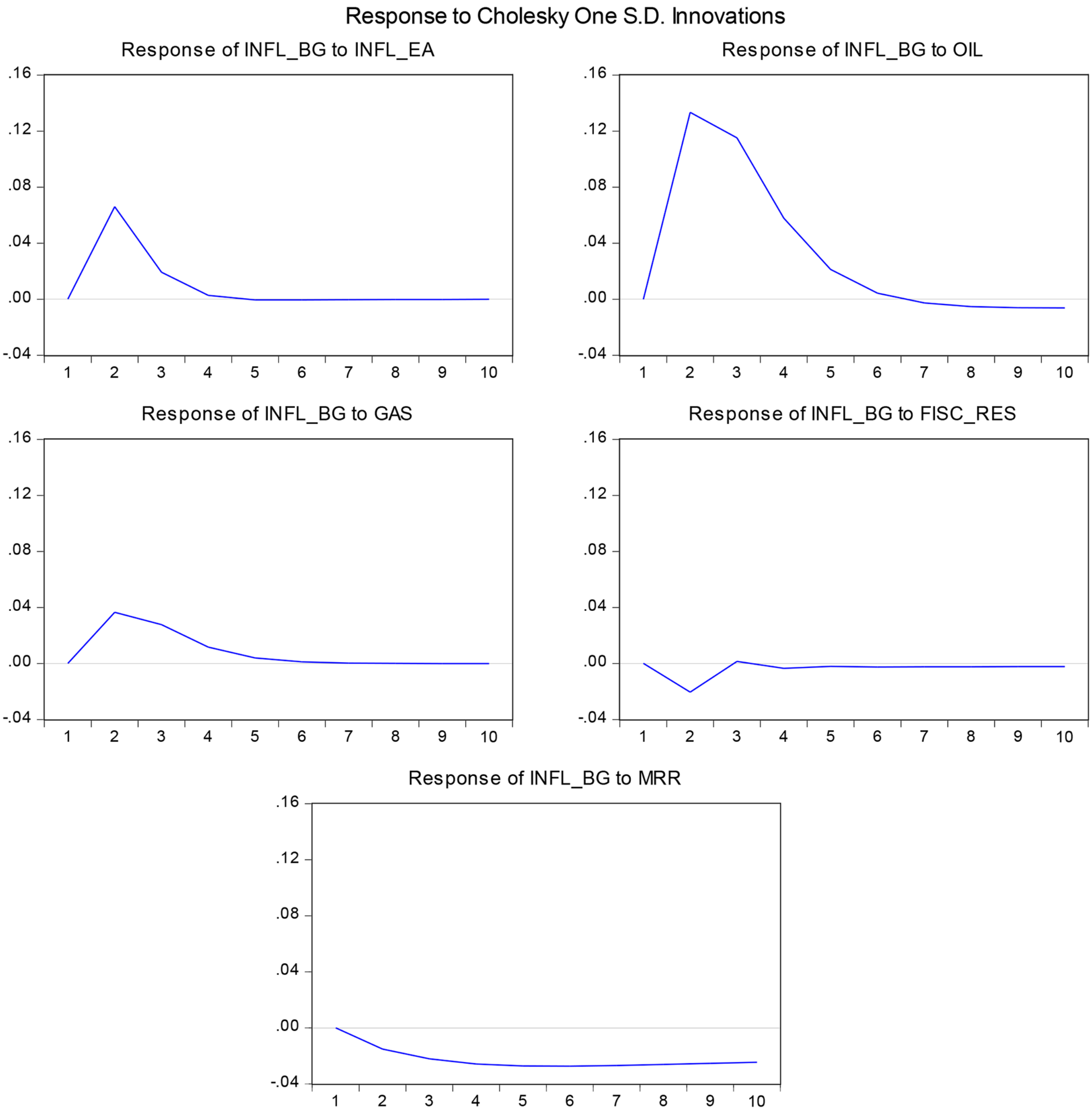


Figure 2. Responses of INFL_BG to changes in INFL_EA, OIL, GAS, FISC_RES and MRR
Source: Authors

5. CONCLUSION

The empirical results from this research show that the determinants of inflation in Bulgaria under a currency board are the inflation in the Euro area, the crude oil price and the minimum reserve requirements of the Bulgarian National Bank. The only instrument Bulgarian policy-makers can use to affect inflation are the minimum required reserves of commercial banks. The lower absolute value of the regression coefficient before **MRR** than the absolute values of the regression coefficient before **INFL_EA** and **OIL** indicates that the opportunities of Bulgarian macroeconomic managers to affect inflation are negligible in comparison with the impact of the external factors beyond their control. The minimum reserve requirements do not have the dosed effect, the flexibility and the reversibility of the other two monetary instruments - the open market operations and the interest rate policy. The use of the minimum reserve requirements can do more harm than good and it is not advisable except in extreme cases of deep recession or overheating of the economy.

The results from the Granger causality tests indicate that inflation in Bulgaria in the period 1999-2021 is caused by structural, supply-side and demand-side factors. Inflation in the Euro area is a proxy for both the monetary policy of the European Central Bank and the economic convergence between Bulgaria and the monetary union. The oil price changes reflect cost-push (supply-side) inflation, while the minimum reserve requirements of the Bulgarian National Bank are a monetary demand-side factor.

References

Agénor, P.-R., & Hoffmaister, A. (1997). Money, Wages and Inflation in Middle-Income Developing Countries. International Monetary Fund.

Akcay, O., Alper, C., & Ozmucur, S. (1996). Budget Deficit, Money Supply and Inflation: Evidence from Low and High Frequency Data for Turkey. Istanbul: Bogazici University.

Balassa, B. (1964). The Purchasing Power Parity Doctrine: A Reappraisal. Journal of Political Economy, 72, 584-596.

Baumol, W. (1967). Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crises. American Economic Review, 57(3), 415-426.

Beck, S., Miller, J. B., & Saad, M. (2003). Inflation and the Bulgarian Currency Board. Sofia: Bulgarian National Bank.

Cagan, P. (1956). The monetary dynamics of hyperinflation. In: M. Friedman (Ed.), Studies in the Quantity Theory of Money. Chicago: University of Chicago Press, pp. 25-117.

Cagan, P. (1987). Hyperinflation. In: J. Eatwell, M. Milgate & P. Newman (Eds.), The New Palgrave: A Dictionary of Economics. London: Macmillan Press Limited, pp. 704-706.

Catao, L., & Terrones, M. (2001). Fiscal Deficits and Inflation: A New Look at the Emerging Market Evidence. International Monetary Fund.

Choukalev, G. (2000). Inflation Under A Currency Board Arrangement. Factor Analysis. Sofia: Agency for Economic Analysis & Forecasting.

Davidson, P., & Weintraub, S. (1973). Money as Cause and Effect. The Economic Journal, 83(332), 1117-1132.

Fischer, S., Sahay, R., & Végh, C. A. (2002). Modern Hyper- and High Inflation. Cambridge: National Bureau Of Economic Research.

Fisher, I. (1920). The Purchasing Power Of Money. New York: The Macmillan Company.

Friedman, M. (1959). The Demand for Money: Some Theoretical and Empirical Results. Journal of Political Economy, 67(4), 327-351.

Friedman, M. (1974). Monetary Correction: A Proposal for Escalator Clauses to Reduce the Costs of Ending Inflation. London: Institute of Economic Affairs.

Friedman, M. (1992). Money Mischief: Episodes in Monetary History. New York; San Diego; London: Harcourt Brace Jovanovich.

Friedman, M., & Schwartz, A. J. (1963). A Monetary History of the United States, 1867-1960. Princeton: Princeton University Press.

Gordon, R. J. (1981). Output Fluctuations and Gradual Price Adjustment. Journal of Economic Literature, 19(2), 493-530.

Hamilton, D., & Whiteman, C. (1985). The Observable Implications of Self-fulfilling Expectations. Journal of Monetary Economics, 16, 353–374.

Hanke, S., & Shuler, K. (1994). Currency Boards for Developing Countries. San Francisco: International Center for Economic Growth.

Hristov, K., & Mihaylov, M. (2003). Modelirane na inflatsiyata v Bulgaria. Sofia: Balgarska Narodna Banka.

Hume, D. (1752). Political Discourses. Edinburgh: Printed by R. Fleming, for A. Kincaid and A. Donaldson.

Kahn, G. (1984). International Differences in Wage Behavior: Real, Nominal and Exaggerated. American Economic Review, 74(2), 155-159.

Keynes, J. M. (2018). The General Theory of Employment, Interest, and Money. Cambridge: Palgrave Macmillan.

Kibritçioğlu, A. (2002). Causes of Inflation in Turkey: A Literature Survey with Special Reference to Theories of Inflation. In: A. Kibritçioğlu, L. Rittenberg & F. Selçuk (Eds.), Inflation and Disinflation in Turkey. Aldershot: Ashgate, pp. 43-76.

Lim, C. H., & Papi, L. (1997). An Econometric Analysis of the Determinants of Inflation in Turkey. International Monetary Fund.

Moser, G. G. (1994). The Main Determinants of Inflation in Nigeria. International Monetary Fund.

Muhammad, S., Zafar, S., & Arfeen, N. (2016). The Nexuses between Budget Deficit and Price Inflation in Pakistan: An ARDL Bound Testing Approach. Pakistan Journal of Commerce and Social Sciences, 10(3), 606-614.

Nenovski, N., & Dimitrova, K. (2003). Dualna inflatsia v usloviyata na parichen savet. Predizvikatelstva pred prisaedinyavaneto na Bulgaria kam ES. Sofia: Balgarska Narodna Banka.

Nenovsky, N., Yotzov, V., & Hristov, K. (2000). Inflation under Currency Board (The Case of Bulgaria). Frankfurt am Main: European Central Bank Working Paper.

Öniş, Z., & Özmucur, S. (1990). Exchange Rates, Inflation and Money Supply in Turkey: Testing the Vicious Circle Hypothesis. Journal of Development Economics, 32(1), 133–154.

Phillips, A. W. (1958). The Relation Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861–1957. Economica, 25(100), 283-299.

Raleva, S. (2013). Inflatsia i ikonomicheski rastezh: Teoria, metodologia, empirika. Sofia: Izadatelski kompleks-UNSS.

Samuelson, P. (1964). Theoretical Notes on Trade Problems. Review Economics and Statistics, 46, 145-154.

Sarel, M. (1995). Nonlinear Effects of Inflation on Economic Growth. International Monetary Fund.

Sargent, T. J. (1977). The Demand for Money During Hyperinflations Under Rational Expectations. International Economic Review, 18(1), 59-82.

Sargent, T. J., & Wallace, N. (1973). Rational Expectations and the Dynamics of Hyperinflation. International Economic Review, 14(2), 328–350.

Scacciavillani, M. F. (1994). Long Memory Processes and Chronic Inflation. International Monetary Fund.

Shultz, C. (1975). Macroeconomic Efficiency and Nominal Wage Stickiness. American Economic Review, 75(1), 1-15.

Totonchi, J. (2011). Macroeconomic Theories of Inflation. Singapore: IACSIT Press.

Trevithick, J. (1984). Money Wage Inflexibility and the Keynesian Labor Supply Function. The Economic Journal, 86, 327-332.

Zaimov, M., & Hristov, K. (2003). Parichnata politika i ikonomikata: pette godini na balgarskia parichen savet. Sofia: Balgarska Narodna Banka.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.65

Is the Fiscalization Process a Sustainable Tool to Reduce the Informal Economy? The Effects and Challenges after the Implementation Compared with the Region Countries

Jonada Mamo[1]
Rovena Vangjel[2]

Received: August 3, 2023
Accepted: September 20, 2023
Published: October 30, 2023

Keywords:
Fiscalization process;
Informality;
Region

Abstract: *During the year 2021, the government took measurements for the full implementation of the law no. 87/2019 date 18.12.2019 "On electronic invoice and the turnover monitoring system". All businesses in Albania experienced a difficult period through staff training and continuous online platform problems of the software etc. Now, one year after the implementation of the law we may see if there is any positive effect on the business's activities. What about this process in other countries in the region? The questionnaire was created for companies in the cities of Tirana and Durres. The results will show the effort of the tax authority administration to support businesses during this transition phase and if there are still fiscal and technical challenges for both parties after the full process of implementation. We will also analyze if this process has had an impact on the informal economy in Albania.*

1. FISCALIZATION PROCESS IN ALBANIA

Law no. 87/2019 dated 18.12.2019 "On electronic invoice and the turnover monitoring system" was approved by the Albanian parliament on 18 December 2019 and published in the Official Gazette on 20 January 2020. This law is partially aligned with Directive 2014/55 EU of the European Parliament and the Council, dated April 16, 2014, "On electronic invoicing in public procurement", as well as Council Directive 2006/112/EC, dated November 28, 2006, "On the system of common value added tax", amended.

Fiscalization is an important process in Albania related to the electronic monitoring and reporting of financial transactions to the tax authorities. Fiscalization is implemented to combat tax evasion, increase tax compliance, and improve the efficiency of tax collection.

To implement this process, the business needs to apply first for the electronic certification. After receiving this certificate from a certain authority it can be submitted in the fiscalization platform of electronic invoices. Then the fiscal devices used for issuing fiscal invoices must undergo certification and approval by the tax authorities to ensure compliance with the legal requirements.

Each fiscal device is assigned a unique identifier code, which is linked to the respective business and its tax identification number. One of the most important advantages of this process is real-time reporting.

During each transaction, the fiscal device generates an electronic fiscal receipt that includes details of the sale, such as the date, time, amount, VAT (Value Added Tax) details, and the unique identifier of the fiscal device. The generated fiscal receipts are transmitted in real-time or periodically to the tax authorities' central system for monitoring and verification.

1 "University Aleksander Moisiu" Durrës, Albania
2 "University Aleksander Moisiu" Durrës, Albania

In the invoice, there are five secure elements like number of the insurer of the invoice issuer (NSLF), the unique identification number of the invoice (NIVF), the operator code, the code of the address of the entity, and the QR code. The fiscal receipts are printed or electronically sent to the customers as proof of their purchases.

During the year 2021, like everything new, the challenges for the implementation of this law were numerous, causing difficulties for both businesses and the tax administration. The purpose of this paper is to study how the situation appears, now, more than one year after the implementation of the law and to see if there is any positive effect on the business's activities. What about this process in other countries in the region? Following the study, we will see how is the situation presented in other countries of the region or more broadly in the European countries that have implemented this process. Will conclude with the result from the questionnaire, to answer how the general situation appears more than one year after the implementation of this process.

2. FISCALIZATION PROCESS IN THE REGION AND EU COUNTRIES

Fiscalization refers to the process of electronically recording and reporting sales transactions, especially in businesses that have direct interactions with end consumers. It has been studied by many researchers (Talikovs & Litvinenko, 2021), as an integrated process into digital infrastructure, or for its effect in the underground economy in the research of (Marković & Pavić, 2013).

In his research (Woźniakowski, 2018) defined the fiscalization process as "*a process through which a certain level of government (supranational/federal/central) expands its power to raise its own sources of revenue, and in doing so it decreases the level of vertical fiscal imbalance*".

According to A guide from Enactor (n.d.), in other countries around the region and Europe, there are fiscal law types related to the fiscalization process as shown in Table 1 below.

Table 1. Fiscal law types by countries

Country	Fiscal Law Type	Additional Information
Austria	Hardware/Software	Generally, a software-based approach but can use a Card Reader or HSM to store the certificate and generate signatures. Alternatively, 3rd parties offer this as an online service avoiding the need for any hardware.
Bosnia & Herzegovina	Hardware	The printer requires certification, a standard hardware-based approach.
Bulgaria	Hardware	Legislation changes that are due to come into force shortly have been challenged by retailers and are likely to be delayed, possibly significantly.
Croatia	Software	The Czech Republic/Croatia/Slovenia share a similar approach.
Germany	Hardware/ Software	Requires a technical security device that will communicate with the authorities and record transactions on a fiscal memory. Legislation is due to come into force on the Jan 1st and at present no technical security devices have been certified.
Greece	Hardware	Long-standing fiscal rules in place.
Hungary	Hardware	The solution needs to be certified.
Italy	Hardware	Integration with NCR 165a supported.
Norway	Software	No certification is required, but self-certify the product to support audits, must have a legal entity in the country.
Poland	Hardware	The printer requires certification, a standard hardware-based approach.

Romania	Hardware	The solution needs to be certified.
Serbia	Hardware	The printer requires certification, a standard hardware-based approach.
Slovak Republic	Software	Fiscal printer, just announced changes to moving online, similar to the Czech Republic, as of July 1st, 2019.
Slovenia	Software	The Czech Republic/Croatia/Slovenia share a similar approach.
Sweden	Hardware/ Software	Large organizations with good financial controls can apply for an exemption.
Republic of Srpska	Hardware	Printer requires certification, a standard hardware-based approach.
Ukraine	Hardware	Printer based.

Source: Enactor (n.d.)

Albania adopts this process from the region countries and, to be precise, from the fiscalization process in Croatia. There are many reasons that countries have gone through this process like reduced informal economy and more control of cash transactions. Similar research is made in Croatia for the effect of this process on the collection of more taxes (Tot & Detelj, 2014).

Other authors focus their study especially on the impact of the fiscalization process (Hoxha et al., 2022) or the readiness of Albania as a transition country for this process (Hykaj & Angjeli, 2023).

It is stated even in the economic reform programme that, during the period 2022-2024, the Albanian Tax Administration's efforts to tackle informality will focus on:

- "identifying non-compliant taxpayers (taxpayers with increased revenue, but decreased due VAT; taxpayers not declaring expenses for electricity bills; taxpayers with under-declared wages for their employees – identified by comparing several years' data.
- tackling tax evasion, tax fraud and informality, by making use of real-time monitoring of financial transactions between taxpayers, under the newly implemented fiscalization system.
- detecting undeclared global income from taxpayers and individuals, through the first Automatic Exchange of Information on Financial Accounts in 2021" (Council of Ministers, Republic of Albania, 2022).

3. ANALYSIS OF RESULTS AND FINDINGS

In this paper, we are studying the effects and challenges after the implementation of the fiscal process in Albania. We collected primary and secondary information from different resources. To achieve that we used a questionnaire towards businesses in Tirana and Durrës.

In the questionnaire, we included open and closed questions to receive as much information as possible. On the other hand, we used the data from government institutions about the revenues collected from tax authorities in the last two years. The questionnaire was sent to more than 200 businesses but only 146 of them responded.

We should emphasize that in Albania more than 90% of the businesses are small and medium enterprises. In the questionnaire, 146 businesses took part in the features as presented in the responses. Below are presented the results of the questionnaire.

a) The first question was about the legal form of the businesses. 59% of them were limited liability companies, 28% were self-employed with or without employees and the rest were stock companies.

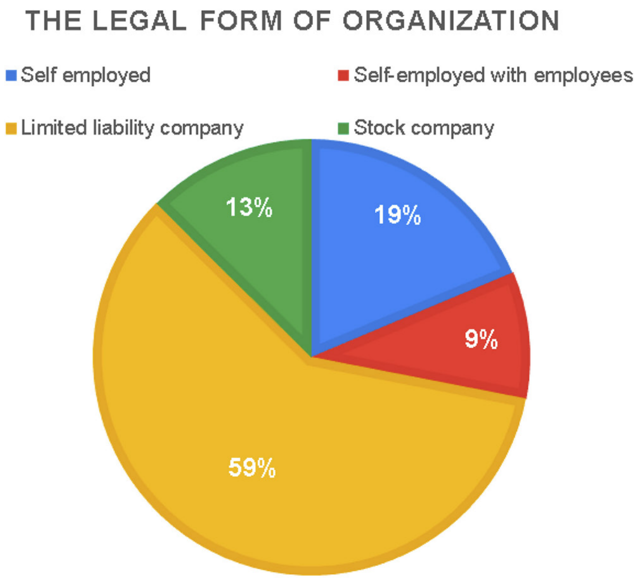


Figure 1. The legal form of organization
Source: Authors

b) In the second question they were asked about the period in which they started the implementation of the process. The law no. 87/2019 dated 18.12.2019 " On electronic invoice and the turnover monitoring system" became effective on three different dates. According to Article 48 of the Law, from January 1, 2021, it would be applied to transactions between businesses and the government, only with electronic invoices.

Furthermore, from July 1, 2021, it would be applied to all non-cash transactions between businesses and the last, and from September 1, 2021, the implementation would begin for all small businesses as well as cash transactions with the final consumer. As we can see from the results, 95% of the entities started the process just in time.

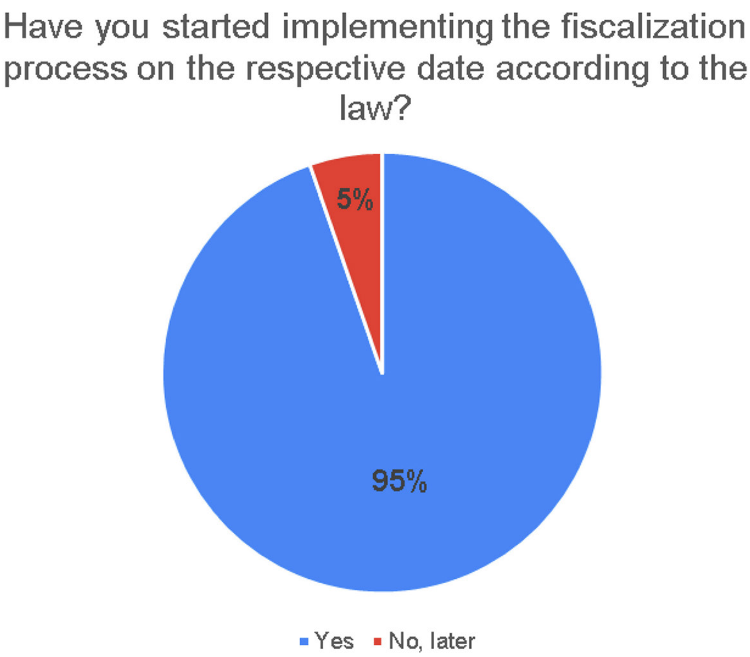


Figure 2. Implementation of fiscalization process
Source: Authors

c) This process was new for all types of businesses. It was normal that part of them would have difficulties implementing it. From the results, we can see that 37% of them had difficulties implementing the fiscalization process and for the other part 63% it was easier. Taking into consideration that almost 60% of the sample was a limited liability company it is obvious that 63% of the sample would not have difficulties. Why?

This type of business is more organized and has its structure with a lot of people where everyone does their job. Instead, in the self-employed type of activity, the owner does everything himself. The majority of self-employed type of businesses do not have an economist or accountant who could help or train during the transition and implementation phase.

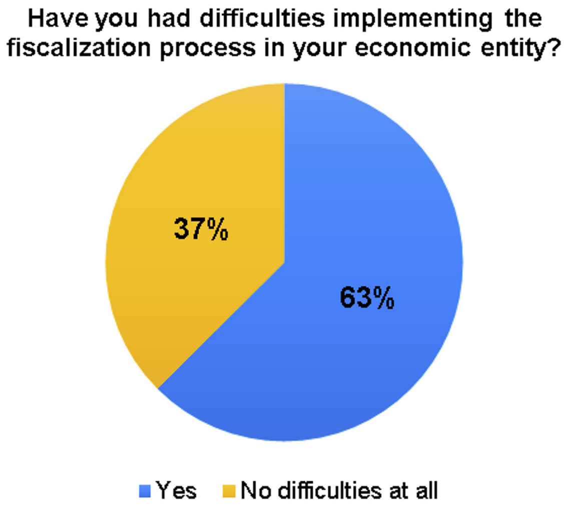


Figure 3. Difficulties in implementing fiscalization process

Source: Authors

d) One of the most difficult issues during this process was addressing technical and IT problems. Businesses subject to fiscalization are required to use a computer, internet and approved fiscal devices, such as electronic cash registers or point-of-sale (POS) systems, equipped with software that generates electronic fiscal receipts. For 82% of the sample, this process was evaluated with a low and medium level of difficulty, but for the rest of 18%, they faced a high level of difficulty.

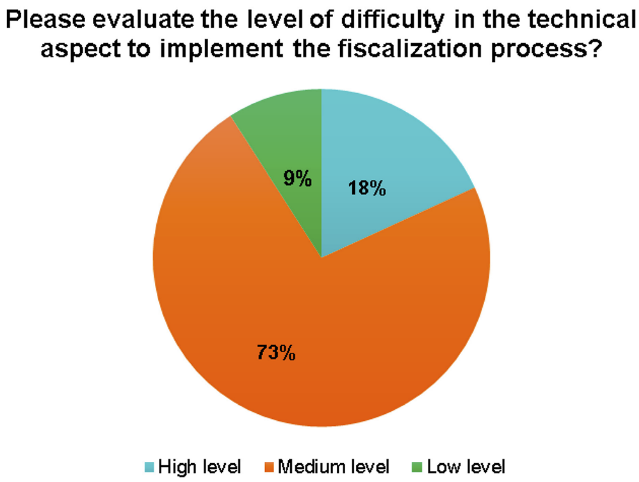


Figure 4. Level of difficulty in the technical aspect

Source: Authors

e) Compared with the previous question, about the level of difficulties in adopting and training the human resources we have more companies that face difficulties. Only 18% of them evaluated it with low level, and the other part 58% medium and 24% high level of difficulties. So, we can conclude that it is more difficult to adapt and train human resources to new processes than other technical issues.

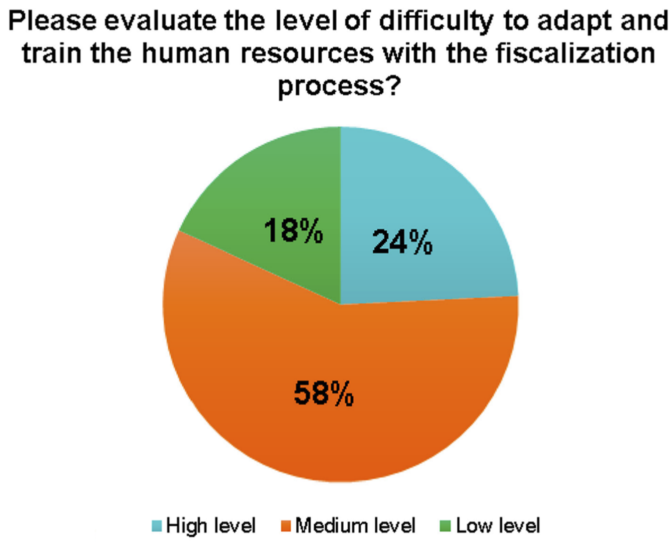


Figure 5. Level of difficulty to adapt and train the human resources

Source: Authors

f) During the first year the tax authority had every day, three times a day, constant training for the fiscalization process. Every entity had the opportunity to take part in the training three times a day and repeat it based on their needs.

However, it was a little difficult to convince owners to take part in those training, especially for self-employed entities. They had to do everything by themselves and was hard for them to find the time and follow the training. According to the results, 40% of the businesses admit that those trainings have helped them too much, 32% a little, and for the 28% those training have not helped at all.

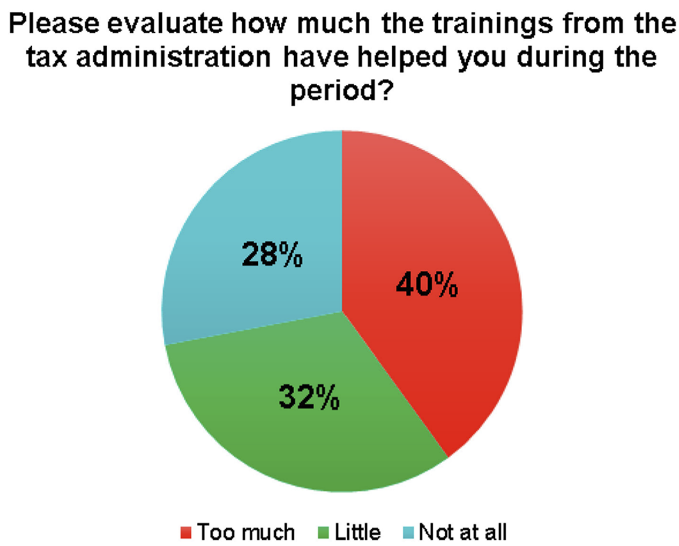


Figure 6. Training from the tax administration

Source: Authors

g) The tax administration was in charge of finding solutions for all the problems of the businesses. According to the questionnaire, 60% of them found solutions from the tax administrations, 5% of them in some cases and 35% did not find solutions from the tax authority. Like everything new, even this process was a challenge for all businesses, the tax administration and the customers themselves.

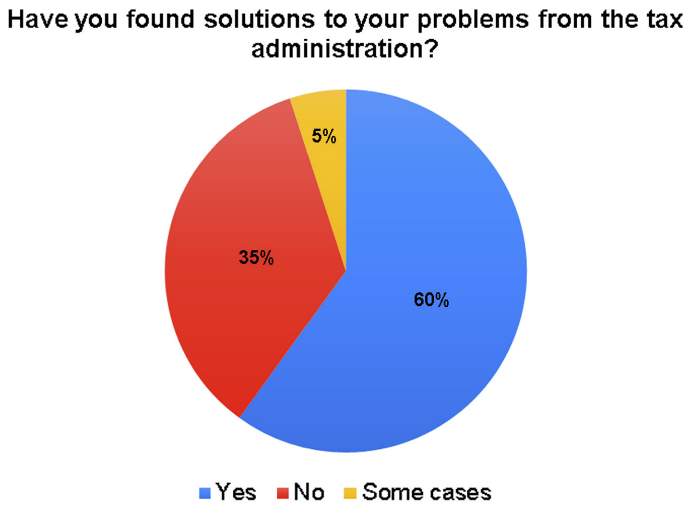


Figure 7. Solutions to problems

Source: Authors

h) As we can see from the chart below, there is an alignment of the responses. So, businesses that find solutions for the problems find this process useful and are 48% very satisfied, 22% are satisfied, in total 70%. On the other hand, 30% are not satisfied and think that this process needs improvements.

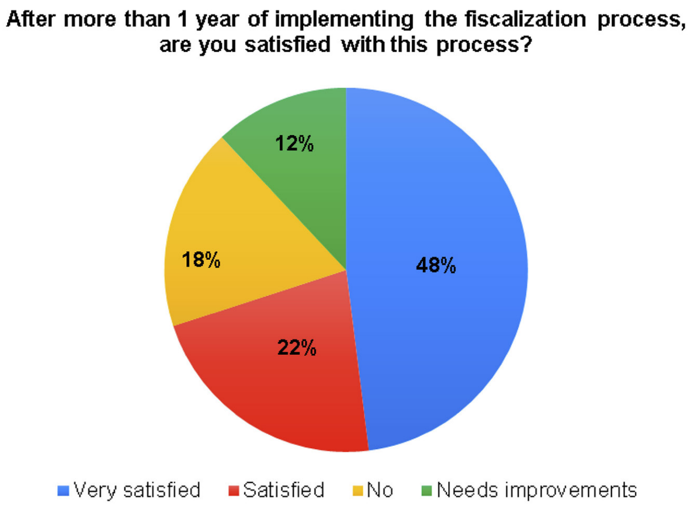


Figure 8. Satisfaction with the process

Source: Authors

i) One of the major reasons that this process was implemented was exactly to prevent and fight against fiscal evasion. In general, even the data from the tax authority shows that more taxes are collected after the implementation of this process. In our study, the same conclusion has been generated; 7% are neutral and the rest of 16% disagree and strongly disagree with that.

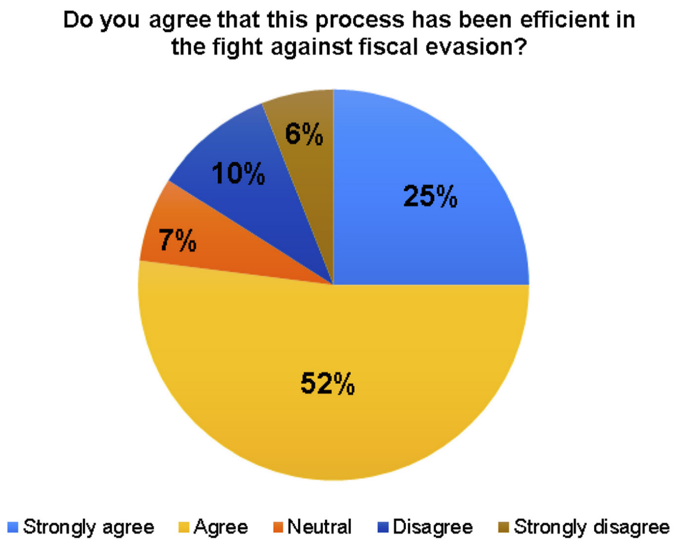


Figure 9. Process efficiency

Source: Authors

In general, there has been a positive impact and an increase in revenues during these two years in the state budget. If we are going to compare just the Value Added Tax for these two years will see an increase in VAT collected (Albanian Ministry of Finances and Economy, 2023). In a first view of the data we can say that this may be the result of the fiscalization process, and this automated process has increased the formal economy and collected more VAT revenues in the budget.

Table 2. VAT revenues in the budget (in million lek)

ITEM	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
V.A.T. 2021	11,205	21,627	31,730	43,046	55,237	68,406	83,922	97,590	111,277	127,577	144,274	161,536	**957,429**
V.A.T. 2022	15,075	29,586	45,639	60,821	75,943	91,129	107,876	125,498	143,907	161,018	176,806	191,412	**1,224,709**

Source: Albanian Ministry of Finance and Economy, 2023.

But, if we consider an extended analysis during the three years - 2021, 2022 and 2023, there has been an increase in the inflation rate for many reasons. First, it was the effect of the pandemic situation and then the war in Ukraine that increased all prices. So, it remains a little unclear and we cannot conclude that the increase in revenues is an effect of the fiscalization process.

4. CONCLUSIONS AND RECOMMENDATIONS

Even though it was a long process with three different phases, in general, 95% of the entities started the process just in time according to the law no. 87/2019 dated 18.12.2019 "On electronic invoice and the turnover monitoring system".

Fiscalization process requested a computer, software devices and technical support. For 82% of the sample, this process was evaluated with a low and medium level of difficulty.

On the other hand, it requested a lot of hours of human resources training. Businesses evaluated that it was more difficult to train the staff for the new process and to adapt them to all the new devices and IT issues.

The results show the effort of the tax authority administration to support businesses during this transition phase and if there are still fiscal and technical challenges for both parties after the full implementation of the process.

According to the questionnaire, 60% of them found solutions from the tax administrations. 70 % of the businesses find fiscalization process useful, 22% are satisfied and 48% are very satisfied with it.

In conclusion, we can emphasize that 77% of the businesses agree and strongly agree that this process was efficient in the fight against fiscal evasion.

According to the question if this process is a sustainable tool to reduce informal economy we can conclude that there was an improvement of the situation, and this is also supported by the results of the questionnaire. There is much to work in the entire chain of transactions, to strictly implement this process; then, there would be a noticeable reduction in informality.

We would recommend increasing the controls and penalties from the tax administration as it is done in the fiscal package 2023, but also the tax authority should support more businesses at any time.

References

Albanian Ministry of Finances and Economy. (2023). *Fiscal Indicators according to the Consolidated Budget.* Tiranë. https://financa.gov.al/3014-2/

Council of Ministers, Republic of Albania. (2022). Economic Reform Programme, 2022-2024.

Enactor. (n.d.). Managing Fiscalisation Across Europe.

Hoxha, E., Mulla, G., & Vukatana, K. (2022). *A proposed mobile bill payment architecture and business solution based on the new fiscalization process in Albania.* WSEAS TRANSACTIONS on ENVIRONMENT and DEVELOPMENT.

Hykaj, A., & Angjeli, A. (2023). *Was Albania ready for the implementation of the Fiscalization Process?* Tiranë: The Mediterranean University of Albania.

Marković, B., & Pavić, D. (2013). *The Effects of Fiscalization in Supressing Underground Economy in Catering Industry.* Interdisciplinary Management Research.

Talikovs, K., & Litvinenko, A. (2021). *Fiscalization Instruments and Concepts for Digital Economy Enhancement.* Vilnius, Lithuania.

Tot, A., & Detelj, K. (2014). *Implementation of Cash Transaction, Fiscalization Procedure in Businesses: Case of Croatia.* Zagreb: Central European Conference on Information and Intelligent Systems.

Woźniakowski, T. P. (2018). *Towards Fiscalization of the European Union? The European and American Fiscal Unions in A Comparative Historical perspective.* Florence: European University Institute

Additional reading

Casey, P., Castro, P. (2015). Electronic Fiscal Devices (EFDs) An Empirical Study of their Impact on Taxpayer Compliance and Administrative Efficiency, IMF Working Paper

General Directorate of Taxation (GDT), Fiscalization Service – Technical Specifications, Available at: Tatime.gov.al

Serbian Fiscalization Act. Available at: https://kpmg.com/rs/en/home/insights/2022/12/amendments-to-the-law-on-fiscalization.html

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.75

Opportunistic Behavior and the Impact on Audit Quality in Albania

Shyqyri Llaci[1]
Blanka Xhani[2]

Received: April 19, 2023
Revised: October 13, 2023
Accepted: October 14, 2023
Published: October 30, 2023

Keywords:
Turnover intention;
Time budget pressure;
Client Importance;
Personality type;
Unethical behavior;
Big 4;
Audit firms;
Auditors

Abstract: *The 21st century has witnessed the bankruptcy of many large corporations because of the opportunistic behavior of management reflected in the financial statement. A realistic review from the board of directors to the internal management can only be carried out with genuine data, which are distributed along with the financial statements. This allows shareholders and other stakeholders to examine the company's performance and make accurate decisions.*

All this control is carried out by external auditors who certify the financial statements. Although it is challenging to evaluate an auditor's job, this paper sought to pinpoint the causes of their opportunistic conduct in this study. The authors examined five variables that could cause opportunistic behavior, including time budget pressure, client importance, personality type and turnover intention, and analyzed their attitude to critical ethical issues in situations they face during their work as external auditors.

This research is based on the quantitative primary data. The sampled population is 150 auditors in Tirana, from the 236 certified auditors registered in Albania, until February 2023; also, from the 65 audit firms, only the Big 4 are taken, to gather primary data and regression analysis is used to examine every single one of them. The questionnaire was created based on previous studies and was distributed through a survey in Google Forms, using a hybrid data collection approach. As a primary step, a literature review was conducted regarding the ethical issues of an auditor during the audit of financial statements.

The study concludes that time budget pressure, client importance, and personality type were the most important factors for the opportunistic behavior of auditors in Albania, and has found that the impact of the turnover factor is minimal.

1. INTRODUCTION

The authors take the opportunity to put together this research based on the numerous scandals for financial statement deception and fraud over the years, such as the Enron scandal in the early 2000s, when real debts were hidden in the financial statements and resulting in the company's bankruptcy in 2001. Also, in 2003, Tyco's external auditor, Price Waterhouse Coopers, failed to fulfill its duty to uncover the fraudulent transactions reported in Tyco's financial reports. Following these cases was the biggest Lehman Brothers crisis in 2008, when attention was focused on Ernst & Young, Lehman Brothers' external auditors, for failing to spot bank abuse in situations involving mortgage repossessions. The lack of auditors' professional integrity is the cause of all these scandals involving the largest corporations. General Electric Co. most recently followed the situations mentioned above in 2016 and 2017. In those years, an external auditor never disclosed that the underlying source of General Electric Co.'s stated profits was a reduction of prior cost estimates.

[1] Faculty of Economics, University of Tirana, Str. "Arben Broci", Tirana, Albania
[2] Faculty of Economics, University of Tirana, Str. "Arben Broci", Tirana, Albania

According to the most recent publication from the Association of Certified Fraud Examiners (2020, p. 31) Report to the Nation, which is a study of the effects occupational fraud has on businesses around the world, “83% of the victim organizations had their financial statements audited by an external auditor” and even though they had a regular process for auditing financial statements, they were again victims of fraud.

The goal of this study is to identify the variables that may contribute to auditors’ opportunistic behavior at work in Albania. These variables include time budget pressure, client importance, personality type, turnover intention, and ethical conduct when examining financial reports.

The study’s findings allow shareholders, investors, creditors, and management the chance to identify such behavior, come up with solutions, and improve the standard of the audits of their financial statements. In total, 150 Albanian auditors, some of whom are independent contractors, were invited to complete the questionnaire as part of the main data collection.

According to previous research, the external auditors’ opportunistic behavior at work caused businesses to go bankrupt because of their errors, unethical behavior, and fraud, all of which were caused by the unreliable financial statements they certified.

Authors such as Paino et al. (2012) and Syam et al. (2020) conducted some of these investigations. From an ethical perspective, Kaptein (1998, 2011, 2020,) discusses six different types of ethics audits, separating the scope of an audit based on the intentions (input/efforts/characteristics), behavior (throughput), or consequences (output/results/impact) as the audit’s object, which corresponds to the main division of ethical theories based on virtue ethics, deontology, and utilitarianism, respectively. So, the study’s primary goal is to identify and investigate the variables that may contribute to the opportunistic behavior of Albania’s auditors.

2. CONTENT DETAILS

2.1. Ethics and Auditors

In an environment like Albania, unethical behavior puts greater pressure on the audit and encourages more irrational behavior. To illustrate the relationships between the auditors and the pressure exerted by management, the connection to fraud, the leaking of confidential information, and bribery, five questions have been prepared as shown below.

Since there is little research and references about the auditor’s bribe and the role that auditors and accountants should play in preventing bribery (Cooper et al., 2014), this research has a challenge in this area. Due to this, empirical research on the effects of bribery in the accounting and auditing literature is limited and has primarily concentrated on the evidence at the country level regarding global corruption statistics (Rodríguez et al., 2020).

The Corruption Perceptions Index 2022, ranks Albania 101 out of 180 states (with a score of 36 from 100, a highly corrupt place). Such a high level of corruption leads to the conclusion that auditors behave irrationally and that they stress out the level of their opportunistic behavior. Since the professional integrity of an audit depends on the authenticity and accuracy of the financial statements that are certified, pursuing ethics is a topic always on the agenda, not only for scientific research but also for continuous research on audit ethics.

The first question posed to the auditors is about how much can the auditor be influenced by managers. Given the implications of a culture that has for many years encouraged fear in providing a realistic answer and information distortion, we must keep in mind that not all results are reliable. Yet, some of the responses arrive at a conclusion that has to be considered after showing a tendency to act unethically.

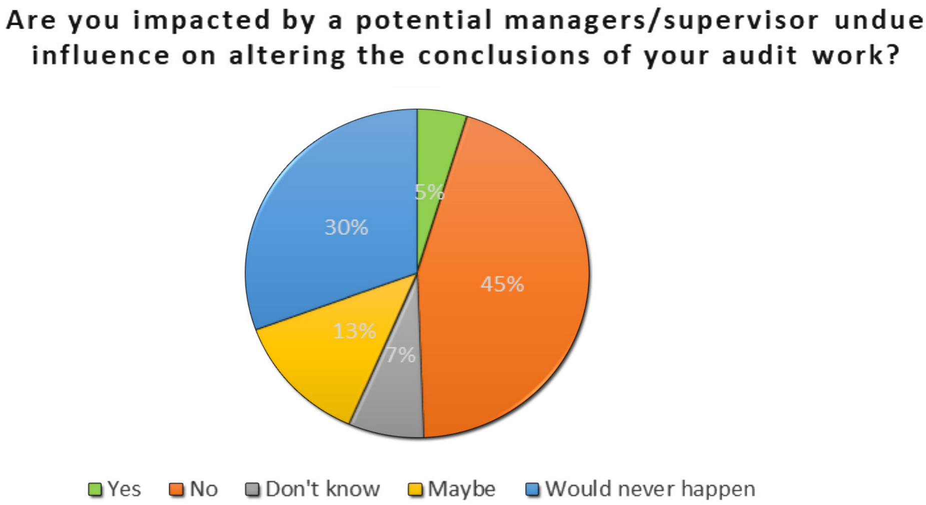


Figure 1. How much can the auditor be influenced by managers

Source: Authors

In total, only 5 % of the auditors said Yes, that they are impacted by the manager, in the case when they are employed. When performing their professional duties, auditors should maintain neutrality and be free from conflicts of interest. Conflict-free auditors will be able to perform impartially without being influenced by demands or pressure from particular parties. This appropriateness suggests a higher audit quality (Windsor & Ashkanasy, 1995; Dirsmith et al., 1997).

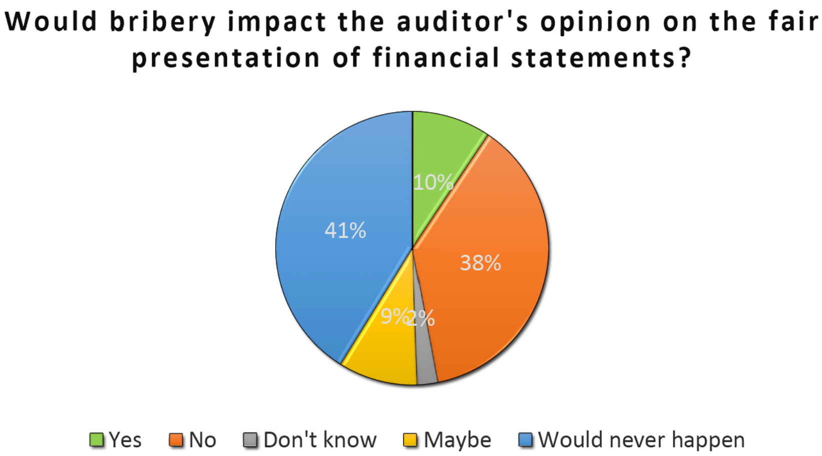


Figure 2. Acceptance of bribery by auditors

Source: Authors

The second intriguing question is whether bribery would impact the falsification of financial information because it directly demonstrates unethical behavior on the part of auditors. 10% of the auditors answered positively to this question.

Also, 2% of them claimed uncertainty, and 9% answered "maybe". This suggests that there is approximately 11% ambiguity in their district concerning bribery, which could change the financial statements' condition. To demonstrate that they have never accepted bribes and that such a situation will never arise, the choices included the words "no" and "it will never happen." Only 41% of them acknowledged that they would never accept bribes to provide false financial figures. These numbers demonstrate unethical activity on the part of auditors at work.

Furthermore, little is known about the effects of corruption in the accounting and auditing area despite its enormous relevance in both the business and societal environments (Bushman et al., 2004). Surprisingly, auditing is tasked with keeping an eye on any potential effects of inadequate gains on financial statements and expressing a qualified or unfavorable opinion depending on the significance of the impact of bribery on the financial statements (for example, contingent liability or revenue loss (AICPA, n.d.).

The third question was if they would ask for legal counsel for advice in case of alleged or perpetrated fraud during the audit. In total 1 % of the respondents said no to legal consulting for advice in case of fraud during the audit of financial statements and 10 % had a shadow of a doubt when they answered they didn't know. 89% of them acknowledge that they would ask for advice from other parties in the event of a fraudulent situation.

The fourth question was directly related to whether they have had any case where they have faced a fraud situation and have been asked to resign from their job as an auditor. Only 12% of them admit that they have faced such a situation and 6% of them do not know if they have encountered such a situation. Anyway, the authors think this part is not very honest in answering. Most of them, about 82%, do not admit that they have faced such situations.

The last question was if the auditors violated the principle of confidentiality for personal gain. 1% of them answered positively and 3% answered "maybe". The answer no (62%), means that they haven't violated (until now) the principle of confidentiality for personal gain, and only 34% said they would never do it in the future. In the answer to this question, the authors have a very big shadow of doubt on the auditors. Through the above 5 questions is confirmed that auditors have a tendency for irrational behavior in the workplace and that will serve as a basis for the following analysis regarding their opportunistic behavior.

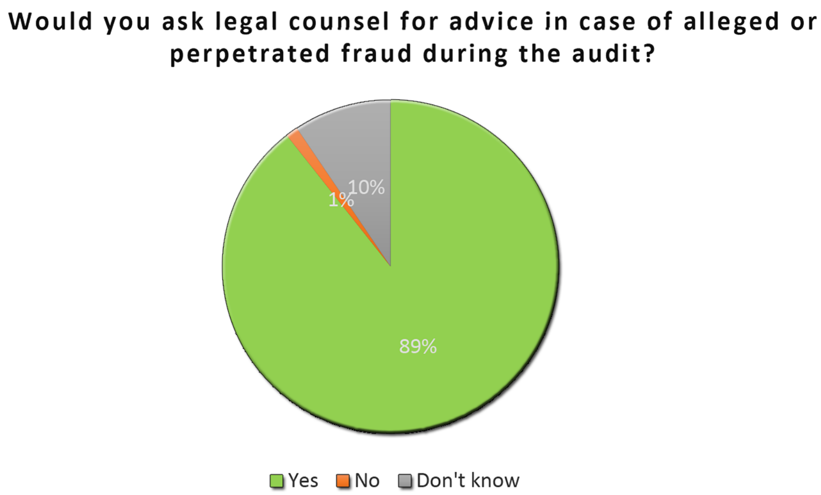


Figure 3. Auditors in case of fraud situation

Source: Authors

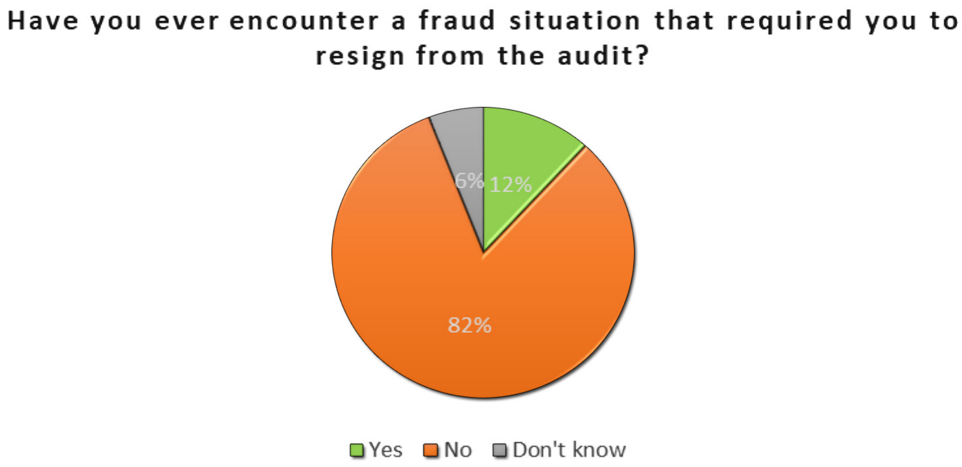


Figure 4. Resignation of the auditor in case of financial fraud

Source: Authors

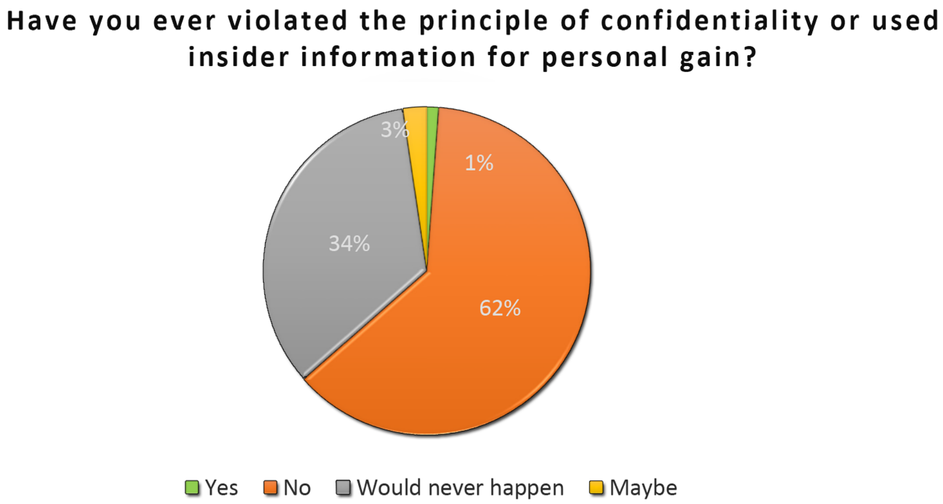


Figure 5. Principle of confidentiality and usage for personal gain

Source: Authors

3. OPPORTUNISTIC AUDIT BEHAVIOR

The research question for this study is:

> "How does the dependent variable "Opportunistic Audit Behavior" change in response to changes in other variables that are independent variables like "Time Budget Pressure", "Client Importance", "Personality" and "Turnover Intention"?"

3.1. Methodology

This research is based on quantitative primary data. The sampled population is 150 auditors in Tirana, out of 236 authorized auditors registered in Albania, until February 2023; also, out of 65 audit firms, only the big 4 are considered, to collect primary data, and regression analysis is used to examine each of them. The questionnaire was created based on previous studies and distributed via a Google Forms survey, using a hybrid data collection approach. As a primary step, a literature review was conducted regarding the auditor's ethical issues during the audit of financial statements.

Consequently, the respondents are selected randomly, as the research uses convenient sampling in the study. The population of this study focuses on the auditors (respondents) from PwC, Deloitte, KPMG, Grand Thornton, and EY in Albania, as well as auditors who are self-employed and are not working in audit firms.

The dependent variable "Opportunistic Audit Behavior" changes in response to changes in other variables that are independent variables like "Time Budget Pressure", "Client Importance", "Personality" and "Turnover Intention". The survey is conducted through a questionnaire with questions employing a scale of five categories to measure agreement, using a Google Forms survey or a direct face-to-face interview.

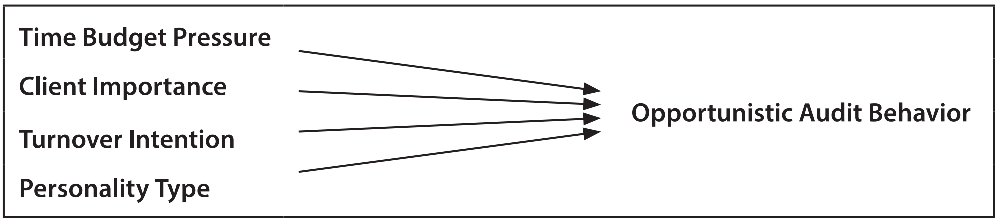


Figure 6. Research question

Source: Authors

3.2. Analysis

For each variable, itemized questions are used in questionnaires, including the dependent variable and the four independent factors. Few auditors would admit to engaging in illogical behavior on the job, based on their responses. The table below provides a summary of the overall score for each question.

Table 1. Opportunistic Audit Behavior

No	Statement	1	2	3	4	5	Mean	Standard Deviation
1	I have made a superficial document review	2%	13%	16%	**39%**	29%	3.80	0.63
2	I decreased the quality of work below a reasonable level	2%	9%	14%	**39%**	35%	3.95	0.72
3	I accepted weak client explanation(s)	0%	14%	26%	**41%**	19%	3.65	0.57
4	I have failed to require the client to implement an accounting requirement	1%	9%	20%	**45%**	25%	3.82	0.66

* Note: 1: Strongly Agree, 2: Agree, 3: Neither Disagree nor Agree, 4: Disagree, 5: Strongly Disagree

Source: Authors

3.3. Time Budget Pressure

In total, there are five questions for the independent variable "Time Budget Pressure," and this is the only section where the auditors have provided more realistic responses because the distribution of answers varies based on the question. As shown in the table below, for instance, 59% of them agree with the statement "I work hard and charge all-time properly" and 55% agree with the statement "I request an increase in the budget where necessary". This indicates that the majority of them work under intense time budget pressure, which could lower the quality of the financial statement.

Time budget pressure happens when a company allows auditors insufficient time to perform needed procedures, whereas time deadline pressure happens when auditors struggle to finish their task by the deadline set (Margheim et al., 2005).

Time budget, according to other studies (Chan et al., 2009; Otley & Pierce, 1995), has a direct impact on the decrease in audit quality and opportunistic audit behavior. Due to time budget pressure and financial constraints, audits must be completed quickly, which can lead to the collection of insufficient supporting evidence and the production of imprecise findings.

Table 2. Time Budget Pressure

No	Statement	1	2	3	4	5	Mean	Standard Deviation
1	In general, budgets for the jobs you worked on during the last year were unattainable.	2%	28%	**39%**	20%	11%	3.08	0.37
2	I work hard and charge all time properly.	20%	**59%**	15%	6%	0%	2.07	0.41
3	I decrease the quality of the audit in order to meet time budget.	0%	7%	15%	**54%**	24%	3.94	0.80
4	I have reported less time than actually worked on an engagement.	6%	**34%**	22%	29%	8%	3.00	0.37
5	I request an increase in the budget where necessary	8%	**55%**	24%	12%	1%	2.42	0.39

* Note: 1: Strongly Agree, 2: Agree, 3: Neither Disagree nor Agree, 4: Disagree, 5: Strongly Disagree

Source: Authors

3.4. Client Importance

The independent variable "Client Importance" shows the strong connection that auditors have with clients. From the response, 51 % of them agree that the clients are extremely important and 38 % of them agree that they have a client that occupies 10% of their schedule.

Table 3. Client Importance

No	Statement	1	2	3	4	5	Mean	Standard Deviation
1	Most of my audit clients are extremely important to me.	20%	**51%**	24%	6%	0%	2.15	0.37
2	The degree of client satisfaction is very important to me.	31%	**46%**	15%	8%	0%	2.01	0.30
3	I have a client that occupies more than 10 percent of my work schedule.	21%	**38%**	22%	14%	5%	2.44	0.22

* Note: 1: Strongly Agree, 2: Agree, 3: Neither Disagree nor Agree, 4: Disagree, 5: Strongly Disagree

Source: Authors

As long as auditors are compensated by their clients, the relationship between the two will always be important. Although the approach recognizes that the auditor is not entirely independent of his client, they nonetheless need to maintain their integrity.

3.5. Turnover Intention

This variable becomes more meaningful when considering that the value has decreased. This is because 42% of the respondents are certified auditors working independently, while 58% are employed by BIG 4 audit firms.

In the upcoming research, we'll examine this variable among the 65 audit firms' auditors. A wider spectrum of responders will inform us that declining work interest also lowers work quality.

Table 4. Turnover Intention

No	Statement	1	2	3	4	5	6	Mean	Standard Deviation
1	I plan to remain with my current organization until I retire.	18%	16%	**34%**	20%	7%	5%	2.96	0.31
2	I feel I may change my job within 2-3 years.	1%	19%	**38%**	25%	9%	8%	3.47	0.38
3	I will quit my job in the near future.	1%	5%	**39%**	26%	24%	6%	3.84	0.50
4	I am thinking about working in another industry.	0%	13%	**35%**	25%	16%	11%	3.76	0.38

***Note:** 1: Strongly Agree, 2: Agree, 3: Neither Disagree nor Agree, 4: Disagree, 5: Strongly Disagree

Source: Authors

According to Chong and Monroe (2013), employees who are less satisfied with their jobs are more likely to voluntarily end their relationship with the company. It appears that the public accounting turnover dynamic is a global occurrence (Gertsson et al., 2017).

3.6. Personality Type

Most of them have a good attitude and are willing to admit that they are committed to their work when it comes to the independent variable "Personal Type". Let's not forget the reality that people are generally more positive when evaluating themselves.

Table 5. Personality Type

No	Statement	1	2	3	4	5	6	Mean	Standard Deviation
1	I must finish my job once I started	29%	**39%**	12%	14%	6%	0%	2.28	0.24
2	I am ambitious and strive for a fast advancement in my career	31%	**45%**	14%	8%	1%	1%	2.08	0.28
3	I often set my own deadlines	27%	**58%**	12%	4%	0%	0%	1.92	0.39
4	I take work very seriously and work overtime (work weekends, bring work home) in order to meet the timeline	35%	**46%**	11%	8%	0%	0%	1.92	0.31

* Note: 1: Strongly Agree, 2: Agree, 3: Neither Disagree nor Agree, 4: Disagree, 5: Strongly Disagree

Source: Authors

The human qualities of the auditor are extremely important in determining audit quality. According to Rayburn and Rayburn (1996), a person's personality type and ethical orientation are closely associated. As a result, it seems logical to investigate the connection between personality type and problematic audit conduct.

3.7. Linear regression analyses

After collecting all the data from the answers to the above questions, they are coded for linear regression analysis. Linear regression analysis was performed using Excel; a summary of the results is shown in the table 6. The formula of Linear regression analysis is as below:

$$Y = a + B_1X_1 + B_2X_2 \cdots + B_nX_n \tag{1}$$

where:

Y = the dependent variable,
a = constant value,

B_1, B_2, B_n = B values for the independent variables,
X_1, X_2, X_n = the independent variables.

From the analysis, **Significance F = 0.00006**. This is a good model because the significance F is very, very small. The equation is a perfect model of regression. The probability level of 0.00006 means that the probability of the results occurring by chance is 0.00006 (Hair et al., 2016).

Opportunistic Audit Behavior = 1.774 + 0.944 (time budget pressure) + (- 0.094) (client importance) + 0.026 (turnover intention) + (- 0.290) (personality type)

1. When time budget pressure increases by one unit, the opportunistic audit behavior is expected to increase by 0.944, while all other independent variables are held constant.
2. When client importance increases by one unit, the opportunistic audit behavior is expected to decrease by 0.094, while all other independent variables are held constant.
3. When turnover intention increases by one unit, the opportunistic audit behavior is expected to increase by 0.026, while all other independent variables are held constant.
4. When personality type increases by one unit, the opportunistic audit behavior is expected to decrease by 0.290, while all other independent variables are held constant.

Table 6. Linear regression analyses

		Coefficients	Standard Error	t Stat	P-value
A. Opportunistic Audit Behavior	Intercept	1.774042182	0.705950274	2.512984622	0.013980557
B. Time Budget Pressure	Variable 1	**0.943902779**	0.214879701	4.392703326	**0.00003399**
C. Client Importance	Variable 2	-0.094131606	0.133427355	-0.705489558	0.482554853
D. Turnover Intention	Variable 3	**0.026719138**	0.109293472	0.24447149	**0.807491617**
E. Personality Type	Variable 4	-0.290474398	0.131574077	-2.207687148	0.03013014

Source: Authors

4. LIMITATIONS

Challenges encountered while interviewing participants:

- Despite repeated attempts, some interviewees refused to respond.
- Respondent declined to answer several questions. This is for an unknown cause; the respondent may have accidentally missed a question, or the answer may not have been clear. Instances with missing data are not included in the analysis.
- The authors argue that this occurred as a result of the repressed truth-telling inherent in recent cultural inheritance.

5. CONCLUSION

This study has been conducted to analyze and examine the factors that potentially will lead to opportunistic audit behavior amongst auditors in Albania.

The study's findings indicate that the acceptance of opportunistic audit conduct is influenced by time budget pressure, which has a strong correlation and a good coefficient of 0.944. The time budget pressure's P-value, as determined by the regression analysis, is 0.000034, which indicates that the variable's percentage of random variation is quite low, making it a good value.

On the other hand, the poor association and weak coefficient of 0.026 indicate that turnover intention is the unimportant element that affects the acceptance of opportunistic audit behavior. Regarding turnover intention, the P-value of 0.807 indicates that the variable's explanation rate is 80.75%, which is a very high percentage. Therefore, this value is not excellent.

According to Paino et al. (2012), turnover has a negative link and a significant impact on the variable of opportunistic behavior, but our study contradicts their findings (at a 1 percent level).

Nevertheless, it is in line with the findings of Balasingam et al. (2019), which found that turnover intention has a favorable relationship with opportunistic behavior rather than being a significant predictor of it. Time budget pressure is another important factor.

The study contains limitations, and different countries' responses to survey questions reflect different cultural perceptions.

6. RECOMMENDATIONS

- The audit firms must be extremely careful with the time pressure on auditors and the consequences it gives on the quality of auditing financial statements, according to the study's findings, which indicate that time budget pressure is a significant factor strongly associated with opportunistic audit behavior.
- Since this is the first study of its kind to be conducted in Albania on auditor behavior at work, further collaboration and observational data collection are required. In particular, the BIG 4 personnel from the 65 licensed audit firms must be involved. A more accurate picture of the misconduct of auditors could be obtained by increasing the proportion of respondents who are auditors.
- The study can be expanded to include more elements like gender, position, experience, clients, etc.
- The opportunistic behavior in the near future can be analyzed at four different levels, including those of independent auditors, audit firm managers, senior auditors, and junior auditors.
- Besides the study's limitations, the findings may apply to operational and management controls on human and social developments related to problems with opportunistic behavior in the auditing industry.

References

AICPA. (n.d.). Pre-Clarity Statements on Auditing Standards, SAS No. 54, Illegal Acts by Clients. Retrieved from https://us.aicpa.org/research/standards/auditattest/sas#SAS43

Association of Certified Fraud Examiners. (2020). The 2020 Report to the Nations, p. 31, FIG. 21 What anti-fraud controls are most common? https://acfepublic.s3-us-west-2.amazonaws.com/2020-Report-to-the-Nations.pdf

Balasingam, S., Arumugam, Dh., & Sanatova, A. (2019). Auditors Acceptance of Dysfunctional Behavior in Kazakhstan. *International Journal of Recent Technology and Engineering (IJRTE), 7*(5S). ISSN: 2278-3075.

Bushman, R. M., Piotroski, J. D., & Smith, A. J. (2004). What Determines Corporate Transparency? *Journal of Accounting Research, 42*(2), 207-252.

Chan, K., Kleinman, G., & Lee, P. (2009). The impact of Sarbanes-Oxley on internal control remediation. *International Journal of Accounting and Information Management, 17*, 53–65.

Chong, V. K., & Monroe, G. S. (2013). The impact of the antecedents and consequences of job burnout on junior accountants' turnover intentions: A structural equation modelling approach. *Accounting and Finance, 55*(1). https://doi.org/10.1111/acfi.12049.

Cooper, D. J., Dacin, T., & Palmer, D. (2014). Fraud in Accounting, Organizations and Society: Extending the Boundaries of Research. *Accounting, Organizations & Society, 38*(6-7), 440-457. University of Alberta School of Business Research Paper No. 2014-04.

Dirsmith, M. W., Heian, J. B., & Covaleski, M. A. (1997). Structure and agency in an institutionalized setting: The application and social transformation of control in the Big Six. Accounting, Organizations and Society, 22(1), 1-27.

Gertsson, N., Sylvander, J., Broberg, P., & Friberg, J. (2017). Exploring audit assistants' decision to leave the audit profession. *Managerial Auditing Journal, 32*(9), 879-898. https://doi.org/10.1108/MAJ-05-2016-1381

Hair, J. F., Celsi, M., Money, A., Samouel, P., & Page, M. (2016). The Essentials of Business Research Methods, 3rd Edition. Routledge. ISBN 978-0-7656-4613-2.

Kaptein, M. (1998). Ethics Management: Auditing and developing the ethical content of organizations. Issues in Business Ethics (IBET, Volume 10).

Kaptein, M. (2011). Understanding unethical behavior by unraveling ethical culture. SAGE Journal, 64(6). https://doi.org/10.1177/00187267103905.

Kaptein, M. (2020). Ethics Audit. In Encyclopedia of Business and Professional Ethics. Publisher: Springer.

Margheim, L., Kelley, T., & Pattison, D. (2005). An Empirical Analysis of The Effects of Auditor Time Budget Pressure and Time Deadline Pressure. *The Journal of Applied Business Research, 21*(1).

Otley, D. T., & Pierce, B. J. (1995). The control problem in public accounting firms: An empirical study of the impact of leadership style. Accounting, Organizations and Society, 20(5), 405-420.

Paino, H., Smith, M., & Ismail, Z. (2012). Auditor acceptance of dysfunctional behavior: An explanatory model using individual factors. Journal of Applied Accounting Research, 13(1), 37-55. https://www.researchgate.net/publication/235269737_Auditor_acceptance_of_dysfunctional_behaviour_An_explanatory_model_using_individual_factors

Rayburn, J. M., & Rayburn, L. G. (1996). Relationship between Machiavellianism and Type A Personality and Ethical-Orientation. *Journal of Business Ethics, 15*(11), 1209-1219.

Rodríguez, S. G., Márquez-Illescas, G., & Nikel, M. N. (2020). Denial of Corruption: Voluntary Disclosure of Bribery Information. *Journal of Business Ethics, 162*(3), 609-626. https://philpapers.org/rec/GAGDOC

Syam, M. A., Djaddang, S., & Ghozali, I. (2020). The Attributes of Dysfunctional Audit Behavior (DAB): Second Order Confirmatory Factor Analysis. *International Journal of Financial Research, 11*(2), 311-322.

Windsor, C. A., & Ashkanasy, N. M. (1995). The effect of client management bargaining power, moral reasoning development, and belief in a just world on auditor independence. *Accounting, Organizations and Society, 20*(7-8), 701-720.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.87

Rebalancing Portfolios in Periods of Stress in the Global Economy: Capital Markets vs. WTI, XAU, XAG, XPT

Nicole Horta[1]
Mariana Chambino[2]
Rui Dias[3]

Received: April 25, 2023
Accepted: June 27, 2023
Published: October 30, 2023

Keywords:
Capital markets;
Commodities;
Financial integration;
Portfolio diversification

Abstract: *The purpose of this paper is to estimate whether portfolio diversification is feasible in the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and the commodities oil (WTI), silver (XAG), gold (XAU), and platinum (XPT) from January 1st, 2018, to December 31st, 2022. The goal of this analysis is to answer the following question, namely to know if: i) the 2020 and 2022 events accentuated the integration between capital markets and commodities (WTI), silver (XAG), gold (XAU), and platinum (XPT)? The results show that during the Tranquil period, the markets present 41 integrations (in 110 possible), with the French price index (CAC 40) integrating the most with its peers, with 8 integrations (in 10 possible), while the commodities markets present the lowest integrations, with silver (XAG) presenting the most relevant number of integrations (2 in 10 possible) and platinum (XPT) showing only 1 integration (in 10 possible). Oil (WTI) and gold (XAU) have not integrated with any of their peers during this period of tranquillity. During the period of the 2020 and 2022 events, there were 60 integrations in 110 possible. According to the results and when compared to the previous sub-period, the capital markets maintained/decreased the same number of integrations with their peers. Silver (XAG) and platinum (XPT) also showed an increase in the number of integrations. XAG exhibited 5 integrations (out of a possible 10), whereas platinum (XPT) had 7 integrations (out of 10 possible). Gold (XAU) was the only commodity that remained completely segmented from both the capital markets and the commodities under consideration. To answer the diversification question, there is evidence that the gold market (XAU) exhibits safe-haven characteristics during the 2020 and 2022 events; these findings are relevant for individual and institutional investors operating in these financial markets.*

1. INTRODUCTION

The practice of spreading investment risk across different assets, industries, or markets is referred to as portfolio diversification. Diversification of a portfolio helps to reduce the risk of loss from any particular investment, increasing the portfolio's overall stability. Portfolio diversification in capital markets may involve investing in stocks from different sectors (e.g., technology, energy, and healthcare) and countries. An investor can mitigate the impact of a given economic downturn or market disruption by spreading investments across several locations and sectors. In commodity markets, portfolio diversification may also include investments in commodities such as precious metals, energy, and agricultural products. An investor can reduce his exposure to commodity price fluctuations by investing in a range of commodities. To summarize, portfolio diversity is an important part of investing strategy that aims to reduce the risk of loss while increasing portfolio stability (Dias et al., 2019, 2020; Pardal et al., 2020).

1 ESCE, Instituto Politécnico de Setúbal, Portugal
2 ESCE, Instituto Politécnico de Setúbal, Portugal
3 ESCE, Instituto Politécnico de Setúbal, Portugal; Center for Studies and Advanced Training in Management and Economics (CEFAGE), University of Évora, Portugal

The degree to which stock prices in various nations are interconnected and influenced by common factors such as global economic circumstances and events is referred to as stock market integration. The increasing integration of stock exchanges has been facilitated by technological advancements, increased cross-border investment, and financial market liberalisation. However, despite increased integration, stock markets continue to demonstrate some levels of country-specific influences and divergence as a result of disparities in regulation, economic structure, and political stability (Dias & Carvalho, 2021; Pardal et al., 2021).

When stock markets have experienced structural breaks, commodities such as oil, gold, silver, and platinum have acted as safe havens. During times of economic or political instability, safe haven assets are investment vehicles that are believed to hold or increase in value. Oil, gold, silver, and platinum are commonly seen as safe haven investments due to their limited supply, high demand, and universal value, which makes them less vulnerable to market volatility than equities or bonds. To protect their assets during times of economic recession, political turmoil, or market crashes, investors frequently seek safe havens. It should be noted, however, that the performance of safe haven assets is not always predictable and can be influenced by a variety of factors such as monetary policy, geopolitical events, and changes in demand (Dias et al., 2022; Pardal et al., 2022; Revez et al., 2022; Teixeira, Dias & Pardal, 2022; Teixeira, Dias, Pardal, et al., 2022).

This research will test if portfolio diversification is possible in the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and the commodities oil (WTI), silver (XAG), gold (XAU), and platinum (XPT) from January 1st, 2018, to December 31st, 2022. The results suggest that integrations between capital markets and commodities increased throughout the 2020 and 2022 events, but when the two sub-periods are compared, we find that certain markets increased integrations while others decreased. To answer the diversification question, there is evidence that the gold market (XAU) exhibits safe haven characteristics during the 2020 and 2022 events; these findings are relevant for individual and institutional investors that participate in these financial markets.

This research adds to the literature by studying portfolio diversification in the capital markets under consideration and comparing it to commodities such as oil (WTI), silver (XAG), gold (XAU), and platinum (XPT). Portfolio rebalancing is a strategy in which investors adjust their investment allocation to maintain a desired level of risk and return. During moments of extreme stock market volatility or potential losses, commodity markets can play an essential role in rebalancing the portfolio. Investors can diversify their portfolios and reduce overall risk by investing a portion of their portfolio in commodities. This is because commodities and stock prices have a low correlation, which means they might move in opposing directions during market turmoil.

As a result, investing in commodities can help mitigate the overall impact of stock market losses on a portfolio. It is important to note, however, that commodities have their own risks, such as price volatility, and should only be a small part of a well-diversified portfolio. There have been recent studies that have investigated the impact of the 2020 and 2022 events on international financial markets, namely the studies by authors Pardal et al. (2022), Dias et al. (2022), Teixeira, Dias, Pardal, et al. (2022) but the research questions, methodology used, and financial markets were essentially distinct from this paper.

This study is organized into five sections in terms of structure. Section 2 has a Literature Review of articles on international financial market integration, Section 3 describes the methodology and data, Section 4 presents the results, and Section 5 provides the general conclusions.

2. LITERATURE REVIEW

Understanding international stock market linkages is important for investigating the occurrence of financial integration phenomena, particularly in the setting of stock market crashes. Stock market collapses are frequently accompanied by significant levels of volatility and uncertainty, and understanding market interdependence may provide an understanding of the causes of such events and their potential consequences for investors. Researchers can assess the extent to which global factors such as economic circumstances, political events, and monetary policy impact stock prices and market behaviour by examining the relationships between stock markets. Furthermore, research on international links between stock exchanges can give insight into the phenomena of financial integration, such as stock price convergence, the transfer of information and capital across borders, and the emergence of common market trends. Overall, research on international linkages and financial integration is crucial for better understanding stock markets and informing investment decisions (Dias et al., 2019, 2020; Dias and Carvalho, 2021; Silva et al., 2020).

The study by authors Park and Lee (2011) reveals an increasing degree of openness and financial integration in emerging Asia. The authors considered the impact of a regional shock on local stock and bond markets in comparison to a global shock. According to the authors, the region's stock markets are more globally integrated than regionally, while the degrees of regional and global integration have increased significantly since the 1997 Asian financial crisis. In addition, Horvath and Petrovski (2012) analysed the integration of capital markets in Western Europe, Central Europe (Czech Republic, Hungary, and Poland), and South-Eastern Europe (Croatia, Macedonia, and Serbia) from 2006 to 2011. When these two groups were compared, they discovered that Central Europe has a far higher degree of comovements. The correlation of South East European stock markets with developed markets is essentially zero. Croatia is an exception to this trend, with its stock market recently demonstrating a higher degree of integration relative to Western Europe, but still below typical Central European levels. All stock exchanges fall sharply at the onset of the global financial crisis, and the crisis had no influence on the degree of stock exchange integration among this group of countries.

Dunis et al. (2013) examined financial integration between the Eurozone and the five newest members of the European Monetary Union (Cyprus, Estonia, Malta, Slovakia, and Slovenia). According to the findings, the markets of Malta and Slovenia have become more integrated, but Estonia appears segmented. Cyprus and Slovakia, on the other hand, showed some integration after entering the EU, but this tendency reversed after adopting the euro. Overall, the integration process accelerated during EU accession, but EMU does not appear to have the same positive impact. Additionally, Teng et al. (2014) analysed the evolution of integration among the capital markets of ASEAN-5, China, India, the US, and Japan based on the DCC-MGARCH approach. The results confirmed an increase in financial integration between ASEAN-5 markets and China, but still at a relatively low level. After January 2004, this financial integration became significant. The structural changes that have led to a gradual increase in financial market interdependence between ASEAN-5 and China are mostly the result of government law enforcement and the implementation of regional trade policies.

During the 2020 pandemic, authors Pardal et al. (2020) examined financial integration in capital markets of Austria (ATX), Slovenia (SBITOP), Hungary (BUDAPEST SE), Lithuania (OMX VILNIUS), Poland (WIG), the Czech Republic (PX PRAGUE), Russia (MOEX), and

Serbia (BELEX 15). The results suggest very significant levels of integration, which reduces the chances of long-term portfolio diversification. The evidence demonstrates that 47 stock market indexes have been merged (out of 56 possible). ATX, BUDAPESTE SE, and BELEX 15 stock indexes have financial integration with all other indices. The OMX VILNIUS index, on the other hand, only shows 3 integrations. In addition, Heliodoro et al. (2020) analysed financial integration in the markets of Brazil, China, India, and Russia (BRICs) from July 2015 to June 2020, with the sample divided into pre and during global pandemic periods (COVID-19). The results suggest very significant levels of integration; during the COVID period, this evidence reduces the chances of long-term portfolio diversification. In turn, an analysis of the short-term interaction between markets using impulse response functions during the 2020 global pandemic reveals positive/negative movements with statistical significance and persistence longer than one week.

Later, Dias et al. (2021) analysed the financial integration between the G7 capital markets, and the WTI crude oil index, from January 2018 to January 2021. The findings reveal that markets were less integrated before the 2020 oil price war. When comparing the time preceding and following the 2020 oil event, they discovered that integrations increased significantly from 29 to 43 (out of a possible 56); additionally, they emphasize that the WTI Crude Oil Spot Index is no longer a safe haven for portfolio diversification in G7 stock markets. Furthermore, authors Teixeira, Dias, Pardal, et al. (2022) tested financial integration and movements in the capital markets of Germany (DAX), the United States (Dow Jones), France (CAC 40), the United Kingdom (FTSE 100), Italy (FTSE MIB), Russia (MOEX), Japan (NIKKEI 225), and Canada (S&P TSX), China (SHANGHAI and SHENZHEN), and Nigeria (NIGERIA-DS OIL) and the United Kingdom (UK-DS OIL) from January 1st, 2020, to May 6th, 2022. Long-term relationships between capital markets and oil markets, according to the findings, do not assist explain short-term movements. The authors believe that the findings would be of interest to investors looking for opportunities in these financial markets, as well as policymakers looking to implement institutional reforms to increase market efficiency and encourage long-term growth in financial markets.

The purpose of this study is to determine if WTI, XAG, XAU, and XPT can be considered safe haven assets for investors to diversify their portfolios during times of uncertainty, such as the events of 2020 and 2022. The information will assist both investors and capital market regulators in making informed decisions.

3. METHODOLOGY AND DATA

3.1. Data

The data used for the test were the (daily) price indexes of the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and the commodities oil (WTI), silver (XAG), gold (XAU), and platinum (XPT) from January 1st, 2018, to December 31st, 2022. To establish a comparison approach, we divided the sample into two sub-periods: from January 2018 to December 2019, we called it Tranquil; while the period that incorporates the events of 2020 and 2022, was considered the time lapse from January 2020 to December 2022, and we called it the Stress period. To mitigate exchange rate distortions, information was obtained via the Thomson Reuters platform, using quotations in local currency.

Table 1. The country names and indexes used in this paper

Index	Country
AEX	Netherlands
CAC 40	France
DAX 30	Germany
FTSE 100	United Kingdom
FTSE MIB	Italy
IBEX 35	Spain
IMOEX	Russia
WTI	EUA
XAG	EUA
XAU	EUA
XPT	EUA

Source: Own elaboration

3.2. Methodology

The research will be conducted in stages. The sample will be characterized using descriptive statistics, as well as the test of adherence by Jarque and Bera (1980). To validate the stationarity assumption, we will estimate unit root tests in the panel of Breitung (2000) and Hadri (2000) that postulate opposing hypotheses. To assess the integration, we will use the Gregory and Hansen (1996) methodology to identify structure breaks in the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and the commodities oil (WTI), silver (XAG), gold (XAU), and platinum (XPT). The Gregory and Hansen financial integration methodology is a statistical method for identifying the degree of integration between two or more financial markets. It is commonly used to investigate the relationships between various stock markets, foreign exchange markets, or commodity markets. The method is based on co-integration analysis and time series testing for long-term relationships. A co-integration relationship suggests that the markets are integrated, which means that their prices move together in the long run. The findings of Gregory and Hansen's methodology can be helpful for international portfolio diversification as well as for understanding the relationships between the different financial markets (Gregory & Hansen, 1996).

4. RESULTS

Figure 1 depicts the evolution, in returns, in the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and the commodities oil (WTI), silver (XAG), gold (XAU), and platinum (XPT) from January 1st, 2018, to December 31st, 2022 (COVID-19 pandemic and Russian invasion of Ukraine). Among the periods under consideration, the extreme instability experienced by the great majority of markets between the first and second halves of 2020 should be noted, which may be explained by the pessimistic and uncertain climate created by the COVID-19 pandemic. The Russian capital market is an exception, with relatively stable movements. The year 2021 appears to be a period of greater stability, which is disrupted again at the start of the year 2022. Given its direct involvement in the conflict with Ukraine, the Russian market also exhibited more volatile behavior in 2022.

Figures 2, 3, 4, and 5 graphically summarize the results of key statistics for the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), and Russia (IMOEX), as well as commodities such as oil (WTI), silver

(XAG), gold (XAU), and platinum (XPT) from January 1st, 2018, to December 31st, 2022. Figure 2 shows that the markets under consideration had positive average daily returns, except for the price indexes of the United Kingdom (FTSE 100), Spain (IBEX 35), and platinum (XPT). It should be highlighted that among the capital markets studied, the Dutch price index (AEX) had the greatest average daily return, while oil (WTI) stood out on the commodities side.

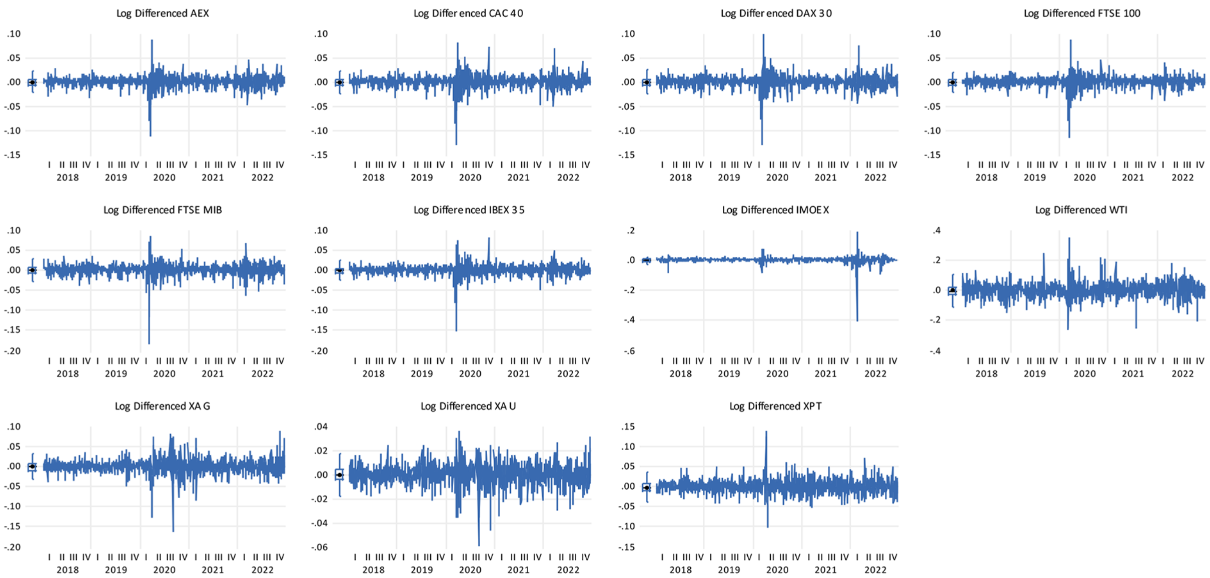


Figure 1. Evolution, in returns, of the 11 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

Source: Own elaboration

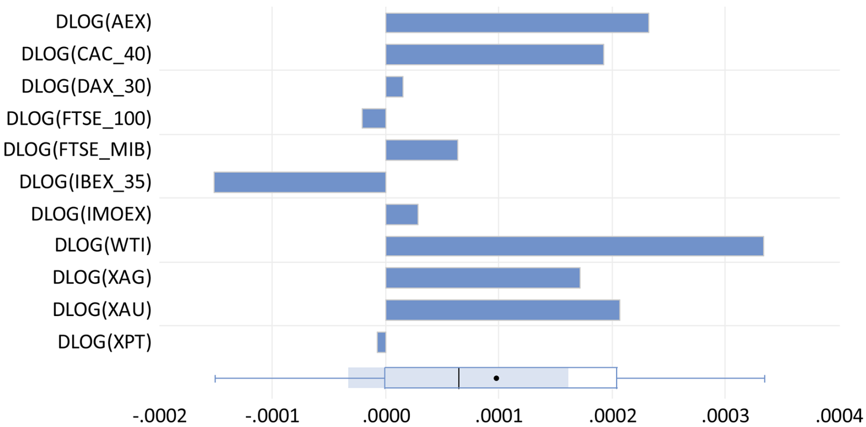


Figure 2. Means of the 11 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

Source: Own elaboration

Figure 3 shows that the Russian capital market (IMOEX) stands out as the market with the highest standard deviation in terms of risk. Gold (XAU), on the other hand, is the market with the lowest standard deviation/risk.

Figure 4 shows that the time series' asymmetry is negative, except oil (WTI) and platinum (XPT). According to Figure 5, all markets have kurtosis values greater than 3. As a result, the skewness coefficients and kurtosis values of the time series under consideration deviate statistically from those of a normal distribution.

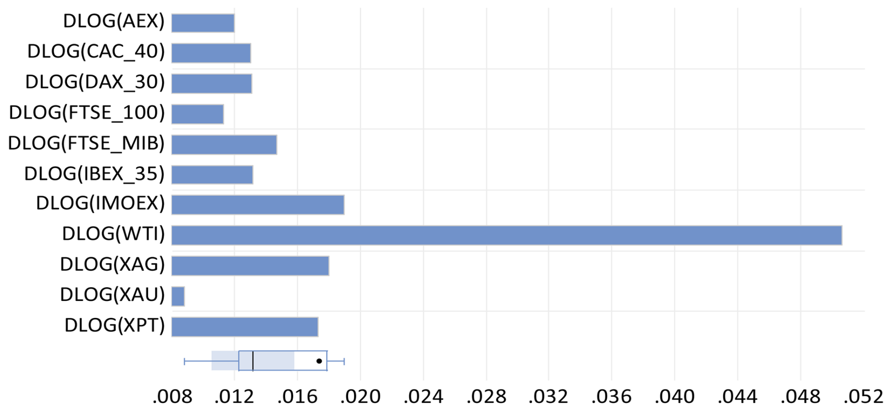


Figure 3. Standard Deviations of the 11 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

Source: Own elaboration

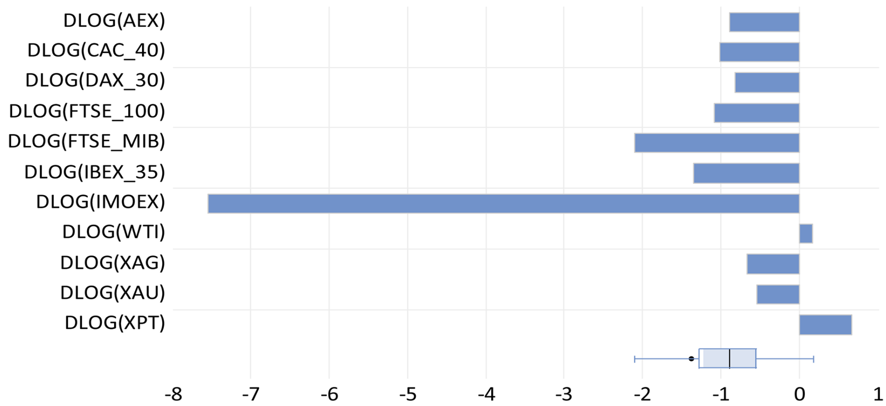


Figure 4. Skewness of the 11 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

Source: Own elaboration

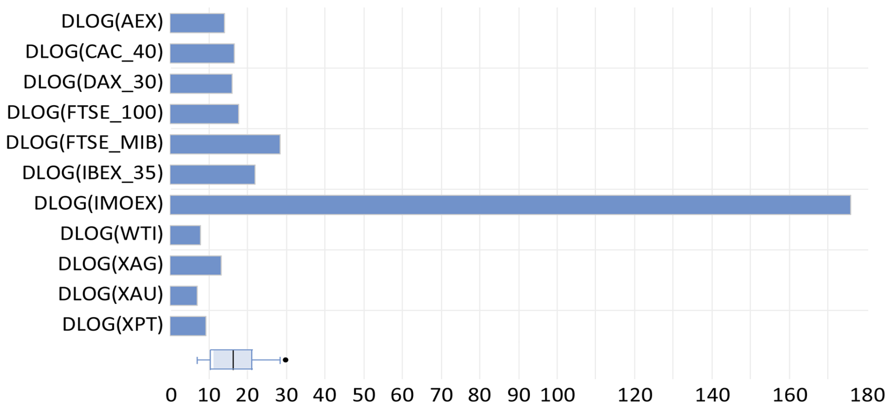


Figure 5. Kurtoses of the 11 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

Source: Own elaboration

The findings indicate that the return series indicate deviations from the normality hypothesis. Furthermore, the Jarque and Bera (1980) test supported this conclusion by allowing rejecting the null hypothesis of normality (H_0) in favour of the alternative (H_1: non normality) at a significance level of 1%. For a better analysis of the statistics performed, two summary tables were compiled (see Tables 2 and 3).

Table 2. Descriptive statistics, in returns, of the 6 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

	AEX	CAC 40	DAX 30	FTSE 100	FTSE MIB	IBEX 35
Mean	0.000233	0.000192	1.53E-05	-2.06E-05	6.40E-05	-0.000151
Std. Dev.	0.011955	0.013016	0.013053	0.011285	0.014682	0.013119
Skewness	-0.889384	-1.013273	-0.822243	-1.089376	-2.105654	-1.344574
Kurtosis	14.03806	16.58722	16.05098	17.59219	28.30665	21.84808
Jarque-Bera	6578.272	9931.367	9105.825	11455.35	34635.76	19075.60
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	1263	1263	1263	1263	1263	1263

Source: Own elaboration

Table 3. Descriptive statistics, in returns, of the 5 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

	IMOEX	WTI	XAG	XAU	XPT
Mean	2.90E-05	0.000334	0.000172	0.000207	-6.92E-06
Std. Dev.	0.018957	0.050654	0.017997	0.008783	0.017331
Skewness	-7.556943	0.175938	-0.667741	-0.533371	0.668327
Kurtosis	175.9746	7.642354	13.14812	6.790340	9.291742
Jarque-Bera	1586572.	1140.661	5513.412	815.9306	2177.236
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	1263	1263	1263	1263	1263

Source: Own elaboration

When estimating time series, it is crucial to analyze the stationary nature of time series from the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and commodities such as oil (WTI), silver (XAG), gold (XAU), and platinum (XPT). For this purpose, we estimated the Breitung (2000) and Hadri (2000) panel unit root tests which postulate the opposite hypothesis; the logarithmic transformation of the original data series allowed the data to be stationary at a 1% significance level (see tables 4 and 5).

Table 4. Breitung stationarity test (2000), applied to the 11 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

Null Hypothesis: Unit root (common unit root process)

Method			**Statistic**	**Prob.****
Breitung t-stat			-75.4986	0.0000
** Probabilities are computed assuming asymptotic normality				
Intermediate regression results on D(UNTITLED)				
Series	**S.E. of Regression**	**Lag**	**Max Lag**	**Obs**
D(AEX)	10.0855	0	22	1261
D(CAC 40)	98.7688	0	22	1261
D(DAX 30)	21.2243	0	22	1261
D(FTSE 100)	105.524	0	22	1261
D(FTSE MIB)	438.029	0	22	1261
D(IBEX 35)	122.708	1	22	1260
D(IMOEX)	74.1968	0	22	1261
D(WTI)	0.31735	0	22	1261
D(XAG)	0.56409	0	22	1261
D(XAU)	20.7725	0	22	1261
D(XPT)	0.02279	1	22	1260
	Coefficient	**t-Stat**	**SE Reg**	**Obs**
Pooled	-0.62810	-75.499	0.008	13858

Source: Own elaboration

Table 5. Hadri stationarity test (2000), applied to the 11 financial markets under analysis, during the period from January 1st, 2018, to December 31st, 2022

Null Hypothesis: Stationarity

Method	**Statistic**	**Prob.****
Hadri Z-stat	-2.40535	0.9919
Heteroscedastic Consistent Z-stat	-1.09431	0.8631

** High autocorrelation leads to severe size distortion in Hadri test, leading to over-rejection of the null.

Intermediate results on D(UNTITLED)

		Variance		
Series	**LM**	**HAC**	**Bandwidth**	**Obs**
D(AEX)	0.0493	55.19327	8.0	1262
D(CAC 40)	0.0359	5574.463	9.0	1262
D(DAX 30)	0.0584	253.4414	8.0	1262
D(FTSE 100)	0.0303	5298.834	10.0	1262
D(FTSE MIB)	0.0366	116620.4	13.0	1262
D(IBEX 35)	0.0288	13606.55	11.0	1262
D(IMOEX)	0.0736	2437.244	7.0	1262
D(WTI)	0.0435	0.062875	10.0	1262
D(XAG)	0.0730	0.137645	15.0	1262
D(XAU)	0.1077	168.9137	26.0	1262
D(XPT)	0.0444	0.000284	34.0	1262

Source: Own elaboration

Cointegration tests with structural breaks achieved through the Gregory and Hansen (1996) methodology were applied to study financial integration in the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and the commodities oil (WTI), silver (XAG), gold (XAU), and platinum (XPT). The tests were estimated for two sub-periods: Tranquil and Stress, in order to investigate the effects of 2020 and 2022 events on time series synchronization. Table 6 shows the test results for the Tranquil sub-period. Overall, during the Tranquil time, there were 41 integrations (out of a potential 110). According to the findings, the French price index (CAC 40) was the market that integrated the most with its pairings, with 8 integrations (out of a possible 10), followed by the German price index (DAX 30) with 7 integrations (in 10 possible). The price indexes of the UK (FTSE 100), the Netherlands (AEX), and Italy (FTSE MIB) exhibit 5 integrations (out of a possible 10), whereas Russia and Spain show 4 integrations (out of 10 possible). Commodity markets have the lowest integrations, with silver (XAG) having the most relevant number of integrations (2 out of 10 possible) and platinum (XPT) having only one (out of 10 possible). Oil (WTI) and gold (XAU), on the other hand, did not integrate with any of their peers during this period of greater tranquillity. These findings are consistent with those of Dias et al. (2019), Heliodoro, P., Dias, R., Alexandre, P., and Vasco (2020), Bagão et al. (2020), Santos et al. (2021), who demonstrate that financial markets are less integrated during periods of global economic stability.

Table 6. Gregory and Hansen Test applied to the 11 financial markets under analysis, during the Tranquil subperiod

Market	**Test**	**Test Statistic**	**Method**	**Lags**	**Breakpoint Date**
FTSE 100 - CAC 40	Zt	-6,3***	Regime	0	31/12/2018
FTSE 100 - AEX	Zt	-6,94***	Regime	0	31/12/2018
FTSE 100 - DAX 30	Zt	-5,00**	Regime	1	09/09/2019
FTSE 100 - IBEX 35	Zt	-6,38***	Trend	0	16/05/2018
FTSE 100 - FTSE MIB	ADF	-48,77***	Trend	1	11/05/2018
CAC 40 - FTSE 100	Zt	-6,41***	Trend	3	11/09/2019
CAC 40 - XPT	Zt	-4,92*	Trend	1	16/10/2018

CAC 40 - AEX	Zt	-4,81*	Trend	2	14/06/2018
CAC 40 - AEX	Zt	-5,84***	Regime	3	24/10/2018
CAC40 - DAX30	Zt	-7,13***	Regime	0	08/02/2019
CAC 40 - IMOEX	Zt	-4,71*	Regime	1	18/10/2018
CAC 40 - IBEX 35	Zt	-5,39**	Trend	1	01/11/2018
CAC 40 - FTSE MIB	Zt	-5,91***	Trend	0	22/05/2018
XAG - XAU	Za	-52,39**	Trend	1	05/09/2019
XAG - XPT	Zt	-4,84*	Trend	0	02/08/2019
XPT - XAG	Zt	-5,05**	Trend	0	14/03/2019
AEX - FTSE 100	Zt	-6,76***	Regime	0	07/08/2019
AEX - CAC 40	Zt	-4,92*	Regime	2	25/10/2018
AEX - DAX 30	Zt	-6,47***	Regime	0	30/01/2019
AEX - IBEX 35	Zt	-5,61***	Trend	4	01/11/2018
AEX - FTSE MIB	Zt	-6,00***	Trend	0	22/05/2018
DAX 30 - FTSE 100	Zt	-6,09***	Trend	3	10/09/2019
DAX 30 - CAC 40	Zt	-7,48***	Trend	0	20/08/2019
DAX 30 - XPT	Zt	-4,84*	Trend	3	12/10/2018
DAX 30 - AEX	Zt	-7,39***	Trend	0	20/08/2019
DAX 30 - IMOEX	Za	-43,88*	Trend	3	01/10/2018
DAX 30 - IBEX 35	Zt	-7,96***	Trend	0	12/11/2018
DAX 30 - FTSE MIB	Za	-54,09**	Trend	2	21/05/2018
IMOEX - CAC 40	Zt	-4,91*	Trend	0	23/04/2018
IMOEX - AEX	Zt	-4,95*	Regime	0	28/09/2018
IMOEX - DAX 30	ADF	-4,96**	Regime	0	28/09/2018
IMOEX - FTSE MIB	Zt	-4,86*	Regime	0	25/09/2018
IBEX 35 - FTSE 100	Zt	-6,32***	Regime	0	16/05/2018
IBEX 35 - AEX	Zt	-5,44**	Trend	4	13/11/2018
IBEX 35 - DAX 30	Zt	-7,96***	Trend	0	12/11/2018
IBEX 35 - FTSE MIB	Zt	-5,57***	Trend	3	31/05/2018
FTSE MIB - FTSE 100	Za	-48,74**	Trend	1	22/05/2018
FTSE MIB - CAC 40	Zt	-6,17***	Trend	0	22/05/2018
FTSE MIB - AEX	Zt	-6,25***	Regime	0	22/05/2018
FTSE MIB - DAX 30	Za	-61,18***	Trend	2	21/05/2018
FTSE MIB - IBEX 35	Zt	-5,57***	Trend	3	31/05/2018

Note: Data worked by the author (software: Stata). The critical values are found in Gregory and Hansen (1996). The critical values for the ADF and Zt parameters are: −5,45 (1%); −4,99 (5%); −4,72 (10%). For the Za parameter, the critical values are: −57,28 (1%); −47,96 (5%); −43,22 (10%). The asterisks ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively.

Source: Own elaboration

The Gregory and Hansen (1996) test results for the Stress subperiod are shown in Table 7. In total, 60 of the 110 possible integrations were observed. According to the findings and as compared to the previous sub-period, most capital markets maintained/decreased the same number of integrations with their peers. With 5 integrations, 7 integrations, and 4 integrations, respectively, the UK (FTSE 100), German (DAX 30), and Spanish (IBEX 35) price indexes have maintained their number of integrations with their peers. The French (CAC 40) and Dutch (AEX) price indexes, on the other hand, reduced their level of integrations, exhibiting 5 and 3 integrations, respectively (out of 10 possible). The highlight in commodity markets is the significant increase in the number of integrations that oil (WTI) recorded, from total isolation during the Tranquil subperiod to becoming integrated with 9 financial markets under consideration, except the gold market (XAU). Silver (XAG) and platinum (XPT) also saw an increase in the number of integrations. XAG had 5 integrations (out of a possible 10), whereas platinum (XPT) had 7 integrations (in 10 possible). Gold (XAU) was the only one that maintained completely segmented from both capital markets and commodities under analysis. In conclusion, commodities were isolated from capital markets during the Tranquil period, however during the Stress period, capital markets saw their number of integrations decrease while commodities integrations increased significantly. To answer the diversification question, there is evidence that the gold market (XAU) exhibits safe-haven characteristics during the 2020 and 2022 events.

Table 7. Gregory and Hansen Test applied to the 11 financial markets under analysis, during the Stress subperiod

Market	Test	Test Statistic	Method	Lags	Date
FTSE 100 - AEX	Zt	-5,74***	Trend	2	13/03/2020
FTSE 100 - DAX 30	Zt	-5,04**	Trend	0	14/06/2018
FTSE 100 - IMOEX	Zt	-5,05**	Trend	0	12/02/2020
FTSE 100 - IBEX 35	Zt	-6,76***	Trend	2	09/12/2019
FTSE 100 - FTSE MIB	Zt	-8,32***	Trend	2	03/03/2020
CAC 40 - FTSE 100	Zt	-7,33***	Trend	0	13/03/2020
CAC 40 – XPT	ADF	-5,03**	Trend	5	30/07/2019
CAC 40 - DAX 30	ADF	-5,42**	Regime	5	03/12/2019
CAC 40 – IMOEX	ADF	-5,38**	Regime	5	16/12/2019
CAC 40 - FTSE MIB	Zt	-6,84***	Regime	5	29/11/2019
WTI - FTSE 100	Zt	-5,64***	Regime	2	29/04/2020
WTI - CAC 40	Zt	-5,55***	Regime	2	29/04/2020
WTI - XAG	Zt	-5,24**	Regime	2	08/01/2019
WTI – XPT	Zt	-5,27**	Trend	2	30/01/2020
WTI - AEX	Zt	-5,55***	Regime	2	27/03/2020
WTI - DAX 30	Zt	-5,66***	Regime	2	28/02/2020
WTI – IMOEX	Zt	-5,57***	Regime	2	27/02/2020
WTI - IBEX 35	Zt	-5,24**	Regime	5	18/03/2020
WTI - FTSE MIB	Zt	-5,55***	Regime	5	29/04/2020
XAG - XPT	Zt	-5,02**	Regime	5	27/06/2018
XAG - DAX 30	Zt	-5,66***	Trend	0	15/08/2018
XAG - IMOEX	Zt	-5,25**	Trend	0	15/08/2018
XAG - IBEX 35	Zt	-5,67***	Trend	0	08/08/2018
XAG - FTSE MIB	Zt	-5,57***	Trend	0	08/08/2018
XPT - FTSE 100	Zt	-5,37**	Trend	2	09/08/2018
XPT - CAC 40	Zt	-5,06**	Regime	5	21/08/2019
XPT - XAG	Zt	-7,43***	Regime	4	14/06/2018
XPT – AEX	ADF	-5,47**	Regime	5	06/08/2019
XPT - DAX 30	Zt	#N/D	Regime	2	01/08/2019
XPT - IMOEX	ADF	-4,74*	Regime	2	01/08/2019
XPT - IBEX 35	Zt	-4,9*	Regime	2	09/08/2018
AEX - DAX 30	ADF	-6,26***	Regime	5	23/07/2019
AEX – IMOEX	Zt	-5,71***	Regime	4	19/11/2019
AEX - FTSE MIB	Zt	-5,79***	Regime	5	01/07/2019
DAX 30 - CAC 40	ADF	-5,45**	Regime	5	05/12/2019
DAX 30 – XAG	Zt	-4,91*	Trend	4	05/03/2020
DAX 30 – XPT	Zt	-5,16**	Trend	3	05/03/2020
DAX 30 – AEX	ADF	-54,73***	Trend	5	30/08/2019
DAX 30 – IMOEX	Zt	-5,03**	Trend	0	13/02/2020
DAX 30 - IBEX 35	ADF	-5,24**	Trend	5	10/03/2020
DAX 30 - FTSE MIB	Zt	-7,02***	Trend	5	18/06/2018
IMOEX - FTSE 100	Zt	-6,03***	Trend	5	12/02/2020
IMOEX - CAC 40	Zt	-5,6***	Trend	5	13/02/2020
IMOEX – WTI	ADF	-5,76***	Trend	5	28/02/2020
IMOEX - XAG	ADF	-5,85***	Trend	5	28/02/2020

IMOEX - XAU	ADF	-5,65***	Trend	5	28/02/2020
IMOEX - XPT	Zt	#N/D	Trend	5	24/02/2020
IMOEX - DAX 30	Zt	-6,14***	Trend	5	13/02/2020
IMOEX - IBEX 35	Zt	-5,92***	Trend	5	24/02/2020
IMOEX - FTSE MIB	Zt	-5,93***	Trend	5	13/02/2020
IBEX 35 - FTSE 100	Zt	-6,42***	Trend	2	18/12/2019
IBEX 25 - CAC 40	Zt	-6,41***	Trend	2	16/04/2020
IBEX 35 – XPT	ADF	-4,94*	Regime	5	16/07/2018
IBEX 35 - FTSE MIB	ADF	-6,82***	Regime	5	14/06/2018
FTSE MIB - FTSE 100	Zt	-6,53***	Regime	3	10/03/2020
FTSE MIB - CAC 40	Zt	-6,75***	Regime	5	15/01/2020
FTSE MIB – AEX	Zt	-5,79***	Regime	5	25/06/2018
FTSE MIB - DAX 30	Zt	-6,06***	Regime	5	30/09/2019
FTSE MIB - IMOEX	ADF	-5**	Regime	0	10/12/2019
FTSE MIB - IBEX 35	ADF	-6,19***	Regime	5	14/06/2018

Note: Data worked by the author (software: Stata). The critical values are found in Gregory and Hansen (1996). The critical values for the ADF and Zt parameters are: −5,45 (1%); −4,99 (5%); −4,72 (10%). For the Za parameter, the critical values are: −57,28 (1%); −47,96 (5%); −43,22 (10%). The asterisks ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively.

Source: Own elaboration

5. CONCLUSION

This paper estimated whether portfolio diversification is feasible in the capital markets of the Netherlands (AEX), France (CAC 40), Germany (DAX 30), Canada (FTSE 100), Italy (FTSE MIB), Spain (IBEX 35), Russia (IMOEX), and the commodities oil (WTI), silver (XAG), gold (XAU), and platinum (XPT) from January 1st, 2018, to December 31st, 2022. The purpose of this analysis was to determine whether: i) the 2020 and 2022 events accentuated the integration between capital markets and commodities (WTI), silver (XAG), gold (XAU), and platinum (XPT)? The results show that during the Tranquil period, the markets showed 41 integrations (out of 110 possible), with the French price index (CAC 40) integrating the most with its peers, with 8 integrations (out of 10 possible), while the commodity markets showed the lowest number integrations, with silver (XAG) presenting the most relevant number of integrations (2 out of 10 possible) and platinum (XPT) displaying only 1 integration (out of 10 possible). During this period of greater tranquillity, oil (WTI) and gold (XAU) did not integrate with any of their pairings. During the 2020 and 2022 events, 60 integrations out of 110 were observed. According to the findings and when compared to the previous sub-period, the majority of capital markets maintained/decreased the same number of integrations with their peers. The highlight in commodity markets is the significant increase in the number of integrations that oil (WTI) registered, from complete isolation during the Tranquil subperiod to becoming connected with 9 of the financial markets under analysis, except the gold market (XAU). Silver (XAG) and platinum (XPT) also observed an increase in the number of integrations. XAG had 5 integrations (out of a possible 10), whereas platinum (XPT) had 7 integrations (out of 10 possible). Gold (XAU) was the only one that remained completely segmented from both capital markets and the commodities under consideration. To answer the diversification question, there is evidence that the gold market (XAU) exhibits safe-haven characteristics during the 2020 and 2022 events; these findings are relevant for individual and institutional investors operating in these financial markets.

References

Bagão, M., Dias, R., Heliodoro, P., & Alexandre, P. (2020). the Impact of Covid-19 on European Financial Markets: an Empirical Analysis. *6th LIMEN Conference Proceedings (Part of LIMEN Conference Collection)*, *6*, 1–11. https://doi.org/10.31410/limen.2020.1

Breitung, J. (2000). The local power of some unit root tests for panel data. *Advances in Econometrics*, *15*. https://doi.org/10.1016/S0731-9053(00)15006-6

Dias, R., Alexandre, P., Heliodoro, P., Santos, H., Farinha, A. R., & Santos, M. C. (2021). The 2020 Oil Price War Has Increased Integration Between G7 Stock Markets and Crude Oil WTI. *7th ERAZ Selected Papers (Part of ERAZ Conference Collection)*, 13–25. https://doi.org/10.31410/eraz.s.p.2021.13

Dias, R., da Silva, J. V., & Dionísio, A. (2019). Financial markets of the LAC region: Does the crisis influence the financial integration? *International Review of Financial Analysis*, *63*(March), 160–173. https://doi.org/10.1016/j.irfa.2019.02.008

Dias, R., Heliodoro, P., Alexandre, P., & Vasco, C. (2020a). *The shocks between oil market to the bric stock markets: A generalized VAR approach*. 25–31.

Dias, R., Heliodoro, P., Alexandre, P., & Vasco, C. (2020b). FINANCIAL MARKET INTEGRATION OF ASEAN-5 WITH CHINA: AN ECONOPHYSICS APPROACH. *4th EMAN Conference Proceedings (Part of EMAN Conference Collection)*, 17–23. https://doi.org/10.31410/eman.2020.17

Dias, R., Pardal, P., Teixeira, N., & Horta, N. (2022). *Tail Risk and Return Predictability for Europe's Capital Markets: An Approach in Periods of the 2020 and 2022 Crises*. https://doi.org/10.4018/978-1-6684-5666-8.ch015

Dias, R. T., & Carvalho, L. (2021). *The Relationship Between Gold and Stock Markets During the COVID-19 Pandemic*. *May*, 462–475. https://doi.org/10.4018/978-1-7998-6643-5.ch026

Dunis, C., Sermpinis, G., & Karampelia, M. F. (2013). Stock market linkages among new EMU members and the euro area: Implications for financial integration and portfolio diversification. *Studies in Economics and Finance*, *30*(4), 370–388. https://doi.org/10.1108/SEF-04-2012-0048

Gregory, A. W., & Hansen, B. E. (1996a). Residual-based tests for cointegration in models with regime shifts. *Journal of Econometrics*, *70*(1), 99–126. https://doi.org/10.1016/0304-4076(69)41685-7

Gregory, A. W., & Hansen, B. E. (1996b). Tests for cointegration in models with regime and trend shifts. *Oxford Bulletin of Economics and Statistics*, *58*(2), 555–560. https://doi.org/10.1111/j.1468-0084.1996.mp58003008.x

Hadri, K. (2000). Testing for stationarity in heterogeneous panel data. *The Econometrics Journal*. https://doi.org/10.1111/1368-423x.00043

Heliodoro, P., Dias, R., Alexandre, P., & Vasco, C. (2020). INTEGRATION IN BRIC STOCK MARKETS: AN EMPIRICAL ANALYSIS. *4th EMAN Selected Papers (Part of EMAN Conference Collection)*. https://doi.org/10.31410/eman.s.p.2020.33

Horvath, R., & Petrovski, D. (2012). International Stock Market Integration: Central and South Eastern Europe Compared. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2078238

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics Letters*, *6*(3). https://doi.org/10.1016/0165-1765(80)90024-5

Pardal, P., Dias, R., Šuleř, P., Teixeira, N., & Krulický, T. (2020). *Integration in Central European capital markets in the context of the global COVID-19 pandemic*. *15*(4). https://doi.org/10.24136/eq.2020.027

Pardal, P., Dias, R., Teixeira, N., & Horta, N. (2022). *The Effects of Russia ' s 2022 Invasion of Ukraine on Global Markets : An Analysis of Particular Capital and Foreign Exchange Markets*. https://doi.org/10.4018/978-1-6684-5666-8.ch014

Pardal, P., Dias, R. T., Santos, H., & Vasco, C. (2021). *Central European Banking Sector Integration and Shocks During the Global Pandemic (COVID-19)*. *June*, 272–288. https://doi.org/10.4018/978-1-7998-6926-9.ch015

Park, C. Y., & Lee, J. W. (2011). Financial integration in emerging Asia: Challenges and prospects. *Asian Economic Policy Review*, *6*(2). https://doi.org/10.1111/j.1748-3131.2011.01193.x

Revez, C., Dias, R., Horta, N., Heliodoro, P., & Alexandre, P. (2022). Capital Market Efficiency in Asia: An Empirical Analysis. *6th EMAN Selected Papers (Part of EMAN Conference Collection)*, 49–57. https://doi.org/10.31410/eman.s.p.2022.49

Santos, H., Dias, R., Vasco, C., Alexandre, P., & Heliodoro, P. (2021). Has the Global Pandemic of 2020 Led To Persistence in the Share Prices of Large Global Companies? *5th EMAN Selected Papers (Part of EMAN Conference Collection)*, *October*, 1–15. https://doi.org/10.31410/eman.s.p.2021.1

Silva, R., Dias, R., Heliodoro, P., & Alexandre, P. (2020). Risk Diversification in Asean-5 Financial Markets: an Empirical Analysis in the Context of the Global Pandemic (Covid-19). *6th LIMEN Selected Papers (Part of LIMEN Conference Collection)*, *6*, 15–26. https://doi.org/10.31410/limen.s.p.2020.15

Teixeira, N., Dias, R., & Pardal, P. (2022). *The gold market as a safe haven when stock markets exhibit pronounced levels of risk : evidence during the China crisis and the COVID-19 pandemic*. *April*, 27–42.

Teixeira, N., Dias, R., Pardal, P., & Horta, N. (2022). *Financial Integration and Comovements Between Capital Markets and Oil Markets : An Approach During the Russian*. *December*. https://doi.org/10.4018/978-1-6684-5666-8.ch013

Teng, K. T., Yen, S. H., Chua, S. Y., & Lean, H. H. (2014). Financial Market Integration of ASEAN-5 with China and India. In *Emerging Markets and the Global Economy: A Handbook*. https://doi.org/10.1016/B978-0-12-411549-1.00035-1

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.101

Interconnections between Clean Energy and Traditional Commodities: Analysis of Energy Fuels, S&P Global Clean Energy Index, and Ishares Global Clean Energy ETF Compared to Oil, Gold, and Natural Gas Prices

Nicole Horta[1]
Mariana Chambino[2]
Rui Dias[3]

Received: April 25, 2023
Accepted: September 19, 2023
Published: October 30, 2023

Keywords:
Clean energy;
2020 and 2022 events;
Co-movements;
Diversification of portfolios

Abstract: *The study of the changes between the Energy Fuels Index, S&P Global Clean Energy Index, iShares Global Clean Energy ETF, iShares Global Energy (SWX) ETF, as well as the changes in the prices of crude oil (BRENT), gold (DJ), and natural gas (DG) was deemed extremely relevant given the importance and emergence of clean energies in the global landscape, as well as the need to develop more empirical studies, especially confirmative studies on the financial dynamics in these markets. The daily returns under analysis exhibit negative and leptokurtic asymmetry rather than a normal distribution. Comparatively, the pre-crisis linkages between the markets for dirty and clean energy are in favor of global portfolio diversification since those low levels of dependence are appropriate to reduce investor exposure to risk. The crude oil market already exhibited a significant effect on the clean energy markets during the Stress subperiod, particularly on the Clean Energy Fuels Index, the iShares Global Clean Energy ETF, and the iShares Global Clean Energy (SWX) ETF. It should be highlighted that the clean energy markets have also increased their impact on the markets for gold and dirty energy (crude oil and natural gas). The findings point to an increase in comovements between the examined indices and the events of 2020 and 2022. These results decrease the possibility that clean energy markets will serve as a portfolio diversification substitute for the gold and dirty energy markets. For investors and financial analysts who are interested in understanding how the various sectors of the energy market interact, these results may also have consequences. These results can enable a more precise forecast of energy market trends and more informed investment decisions by offering a more detailed knowledge of the link between clean and dirty energy prices.*

1. INTRODUCTION

In addition to becoming a challenge for the environmental economy, the advancement of sustainable development and the effort to combat climate change have recently taken center stage in energy planning and policymaking. Now, investors may allocate their resources to "green" or "grey" energy. The optimal method for distributing clean energy across carbon-neutral investment strategies must be found to meet the world's energy demand while causing the least amount of harm to sustainable investment flows. Investors now have additional choices besides conventional commodities like crude oil because of the rise of sustainable energy investments. The link between the price of clean energy stocks and the price of crude oil has been a trending topic in energy finance in recent years. These two stock markets are inextricably connected by

[1] ESCE, Instituto Politécnico de Setúbal, Portugal
[2] ESCE, Instituto Politécnico de Setúbal, Portugal
[3] ESCE, Instituto Politécnico de Setúbal, Portugal; Center for Studies and Advanced Training in Management and Economics (CEFAGE), University of Évora, Portugal

virtue of their nature. It is cost-effective to switch from unrenewable energy sources to sustainable energy sources, as the authors Reboredo and Ugolini (2018) note, because the performance of renewable energy companies is impacted by the dynamics of the crude oil market. Building a risk model to identify the mix of sustainable investments and financial instruments is therefore very encouraging (Chen et al., 2022; Foglia et al., 2022; He et al., 2018).

At the same time, this document is motivated by uncertainties, which can cause interdependence between the different financial assets. In particular, the world has faced unprecedented events such as the global pandemic of 2020 (Dias & Carvalho, 2021; Dias & Santos, 2020; Pardal et al., 2021), shocks in Europe (Dias & Carvalho, 2021; Dias & Santos, 2020; Pardal et al., 2021), as well as the impact of the Russian invasion of Ukraine in 2022 (Dias et al., 2022; Pardal, Dias, Teixeira & Horta, 2022; Teixeira, Dias, Pardal, et al., 2022). Hence, being able to recognize the market structure during typical volatility requires a thorough understanding of the connections between the energy and financial markets. If investors make investments in clean energy but underestimate the risks, they should have been concerned about the risk during the events of 2020 and 2022 to prevent severe losses.

To reduce the risk associated with financial instability, policymakers and investors should be aware of the interconnectedness between financial markets and take the necessary steps. This is what the authors Dias et al. (2020) and Teixeira et al. (2022) recommend. The establishment of legislation to restrict excessive risk-taking, the diversification of assets across markets and asset classes, and the encouragement of openness and information exchange among countries are a few examples of such initiatives. Policymakers and investors may lower overall risk and increase market financial stability by implementing these strategies.

Since changes in one market might influence others, analyzing and confirming the movements between the prices of the clean energy markets, crude oil (BRENT), gold (DJ), and natural gas (DJ) becomes important. For instance, when renewable energy technologies become more profitable as compared to conventional energy sources, they may become more competitive if the price of crude oil increases. Similarly, changes in the price of gold or natural gas may also have an impact on the prices of clean energy markets. In difficult economic times, investors frequently turn to gold as a secure investment, but shifts in gold prices may have an international impact on the stock market. In addition, natural gas prices may also have an impact on the competitiveness of renewable energy sources, as natural gas is a major competitor in electricity production.

Due to the topic's relevance, this paper will examine the movements in the Energy Fuels Index, S&P Global Clean Energy Index, iShares Global Clear Energy ETF, iShares Global Energy (SWX) ETF, as well as the prices of oil (BRENT), gold (DJ), and natural gas (DJ) from January 1, 2018, to March 9, 2023. The findings point to an increase in the number of financial market shocks (from 11 to 14) with the events of 2020 and 2022, with an emphasis on the rise in crude oil market shocks in the clean energy markets.

This paper provides relevant contributions to existing literature. First, it examines the impact of major world events, namely the COVID-19 pandemic and the Russian invasion of Ukraine in 2022, on the shocks of renewable and unrenewable energy markets. Furthermore, it uses a sample period that is divided into two subperiods, "Tranquil" and "Stress", to detect potential asymmetries and causal relationships between clean energy markets and other markets during different market conditions.

Second, the approach adopted in this paper is distinct from other studies that looked at the relationships between renewable energy markets and other markets, namely Reboredo and Ugolini (2018), Liu et al. (2021), Chen et al. (2022) and Foglia et al. (2022). Globally, this paper contributes to the literature on the interdependence between clean energy and traditional commodities (crude oil, gold and natural gas), highlighting the need to consider the impact of major global events on these relationships, providing a new perspective on the subject, and contributing to the understanding of the dynamics between the prices of clean energy stocks and traditional product markets.

This paper is divided into 5 sections in terms of organization. In addition to the current introduction, Section 2 provides a state-of-the-art study of publications on how clean energy stock indices move concerning other markets. The data and methodology are discussed in Section 3; the findings and their analysis are shown in Part 4. The overall findings from the work are presented in Section 5.

2. LITERATURE REVIEW

Governments all over the world have identified the development of clean energy as a key strategy for implementing energy transitions and low-carbon economies to address the growing issue of climate change and environmental pollution brought on by the excessive use of fossil fuels. As a result, the clean energy industry has experienced rapid growth (Mighri et al., 2022).

Non-ferrous metals prices are an important expense to consider for clean energy companies, and when they change, they may have a substantial influence on clean energy stock prices, influencing the returns and financial success of these companies. As a result, non-ferrous metal pricing variations provide a significant level of uncertainty for clean energy indices (Angelini et al., 2022; Basoglu et al., 2014; Chen et al., 2022; Reboredo & Ugolini, 2018). The link between metals and fossil fuels has been extensively researched. Metals and fossil fuels are intertwined in the processes of extraction, production, and consumption. For instance, crude oil and gas extraction sometimes involve the digging of deep wells, which requires machinery made of metals like steel and aluminum. Similarly, metals are frequently used to construct turbines, generators, and other machine parts in the production of power from fossil fuels. Also, the switch to alternative energy sources like solar and wind energy necessitates the extensive usage of metals. Yet, the extraction of metals also has enormous negative effects on the environment and society. As a result, the connection between fossil fuels and metals is a crucial area for research as we look for environmentally friendly methods for producing energy (Angelini et al., 2022; Pandey et al., 2023; Yahya et al., 2020).

The authors Reboredo and Ugolini (2018) looked at the changes in the prices of crude oil, gas, coal, electricity, and clean energy indices between 2009 and 2016, and they concluded that the dynamics of clean energy stock returns in the U.S. and EU were primarily influenced by the prices of crude oil and electricity. Moreover, they demonstrate a symmetrical influence on energy prices, meaning that both extreme upward and downward fluctuations in energy prices have a similar effect on the returns of clean energy stocks. Additionally, Shafiullah et al. (2021) investigated the properties of time series with the help of new econometric techniques to examine the causality and long-term dependence between the prices of crude oil and precious metals (gold, silver, platinum, palladium, steel, and titanium) over the period 1990-2019. According to the empirical findings, there is no causal relationship between the price of metals and the price of crude oil.

The authors Liu et al. (2021) investigated the dynamic dependence between green bonds (GBs), and sectoral clean energy (EC) markets between July 5, 2011, to February 24, 2020. The authors draw attention to sudden changes across markets, suggesting that extremely large declines or increases in the stock market of the European Community (EC) have an overflow impact on the UK (GB) market, and vice versa. These findings represent a significant contribution to investors and politicians who care about the environment and who have positions in the UK, and it is crucial that investors in the UK successfully put their money into business enterprises that support a low-carbon economy.

Using the Tail-Event Driven Networks Risk Model, the authors Foglia et al. (2022) looked at the relationships between renewable energy companies and the crude oil market during the period from January 2011 to October 2021. The findings indicate that crude oil price volatility is a significant factor in the risk dynamics for crude oil companies. Also, the linkages between energy companies are often intra-sectoral, meaning that each sector transfers risk to (from) itself. For those in charge of risk management and policymakers, these findings may have significant practical ramifications. In a related study, the authors Angelini et al. (2022) looked at changes in the prices of Bitcoin, crude oil, and renewable energy indices during the period from 2011 to 2019. The findings imply that severe risks and events, such as sudden shocks, have an impact on the renewable energy market just as much as oil prices do. In addition, depending on market conditions (upside or downside), there is an asymmetrical and symmetrical connection between benefits and risks. The emphasis on the Paris Agreement demonstrates that this event is not risk-transmission neutral. Before the agreement, there were shocks between the oil and renewable energy indices, but the authors found no shocks after it.

More recently, researchers Pandey et al. (2023) examined how the Glasgow Climate Accord affected abnormal returns from the world's clean energy reserves. They also investigated the factors that impact the cumulative abnormal returns (RCAs) of renewable energy reserves by country and by company. The study's clean energy reserves are restricted to 80 businesses from 17 countries that are part of the S&P Global Clean Energy Index between January 26, 2021, and December 7, 2021. The Glasgow Climate Accord has a detrimental impact on renewable energy company stock returns, according to the authors. Moreover, the Climate Performance Index (CCPI) influences cumulative abnormal returns (RCA) in a way that encourages investors in clean energy to support businesses in nations with high CCPI ratings.

Also, the authors Tiwari et al. (2023) examined the changes from November 28, 2008, to September 23, 2020, in the MSCI Global Environment Price Index Green Shares: Alternative Energy, Green Building, Pollution Prevention and Clean Technology, and the Green Bonds listed on S&P Green. The authors emphasize that there is no dependence between green bonds and green stocks; this finding demonstrates how green obligations function as an instrument of protection and diversification, or as safe-haven investments, for an environmental portfolio across the short, medium, and long terms. In conclusion, although both are climate-friendly, green bonds and green stocks are separate asset classes with two different risk-return profiles.

According to the literature reviewed, it is critical to investigate the changes in clean energy indexes and other commodities to comprehend their interdependence and possible impact on one another's pricing. At the same time, variables like geopolitical events, weather patterns, and global economic trends can also have an impact on the prices of conventional commodities like crude oil, coal, and natural gas. Due to the interdependence between the pricing of traditional and alternative energy resources, shifts in one market might influence the other. For policymakers, investors, and other stakeholders interested in encouraging a more sustainable and equitable energy transition, it is crucial to comprehend these interdependences and how they might affect one another's prices.

3. METHODOLOGY AND DATA

3.1. Data

In this paper, we use the daily prices of the Energy Fuels indexes, S&P Global Clean Energy Index, iShares Global Clean energy ETF, ETF and also the prices of oil (BRENT), gold (DJ) and natural gas (DJ). The data was taken from the Thomson Reuters Eikon platform for the period from January 1, 2018 to March 9, 2023.

3.2. Methodology

The research will be conducted in phases. At the initial step, graphs illustrating the development of the time series' behavior were created, and metrics like the average, standard deviation, and coefficients of asymmetry and kurtosis were also produced to examine the time series' statistical characteristics. Jarque and Bera's (1980) test and a visual representation of the distributions of the returns of the time series were used to deduce the normality of the data distribution from samples. To identify the presence of autoregressive unit roots, which can result in spurious regressions (Granger & Newbold, 1974; Tahai et al., 2004; Herranz, 2017), panel unit root tests developed by Levin et al. (2002), Breitung (2000), Im et al. (2003), Dickey and Fuller (1981), and Perron and Phillips (1988), the latter two with Fisher Chi-Square transformation, were used to test each of the sample series. The final stage consists of the prior testing of the model adjustment and the serial autocorrelation hypothesis and, subsequently, the estimation of the VAR model Granger Causality or Block Exogeneity Wald Test. The obtained results will enable us to determine if clean energy markets can predict "dirty" energy markets and vice versa, i.e., enable us to infer the Granger causal link between the financial markets under investigation.

The model can be expressed as follows:

$$X_t = A_t X_{t-1} + \cdots + A_p X_{t-p} + C y_t + \varepsilon_t \tag{1}$$

Where, X_t is an endogenous variable vector $k \times 1$, y_t is na exogenous variable vector $k \times 1$, A_1 to A_p represent the matrix coefficients of exogenous variables. ε_t represents a white noise process.

4. RESULTS

Figure 1 shows market trends for clean energy, gold, crude oil, and natural gas for the five years between March 1, 2018, and March 9, 2023. These huge worldwide events, which had a major influence on financial markets throughout the world, included the COVID-19 pandemic, the price war between Saudi Arabia and Russia in 2020, and the military conflict between Russia and Ukraine in 2022. Figure 1 provides a visual representation of market dynamics and their relationships, which is crucial for comprehending trends and making wise investment decisions. It also shows how the prices of these markets have changed over time, with fluctuations in response to these events suggesting breakdowns. The authors Pardal, Dias, Teixeira & Horta (2022), Dias, Pardal, et al. (2022), and Teixeira, Dias, Pardal, et al. (2022) for the global financial markets also provide evidence of these effects.

The world governments' response to the COVID-19 disease declaration and the virus's global spread included the confinement of people and, as a result, the closure of several productive and economic sectors. These measures immediately triggered a decrease in demand for energy resources, which led to production and reserves (e.g., crude oil) beginning to become excessive, causing a sharp fall in prices. Many investors have turned to safe haven assets such as gold to mitigate the risk present in their portfolios during the turbulence and impending severe losses.

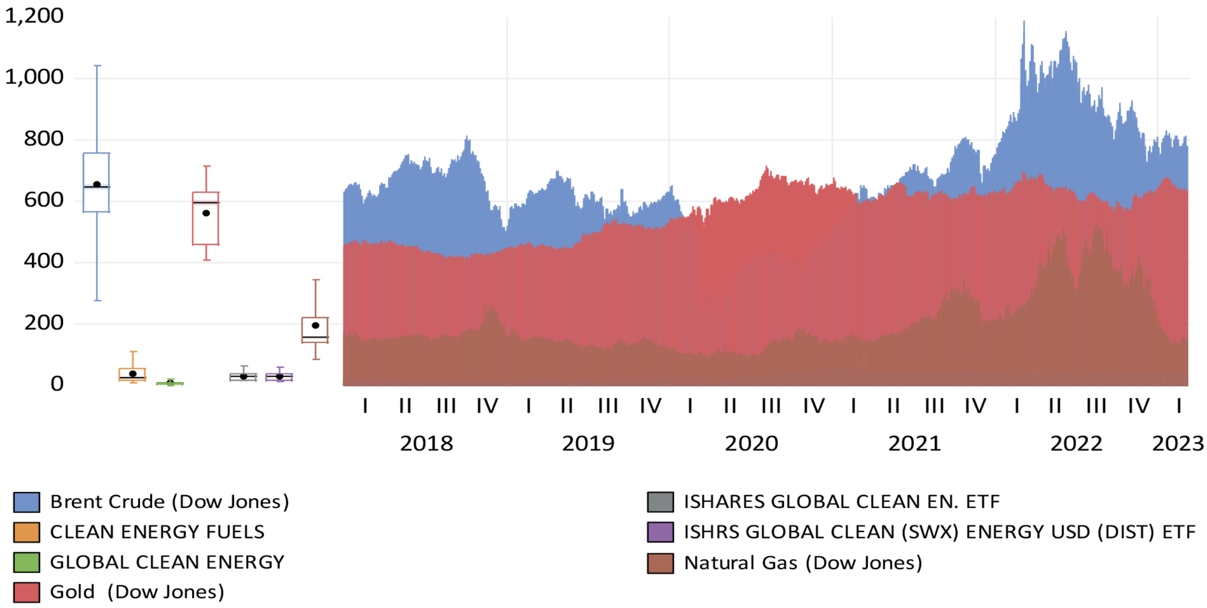


Figure 1. Evolution of the financial markets under study during the period from March 1, 2018, to March 9, 2023

Source: Own elaboration

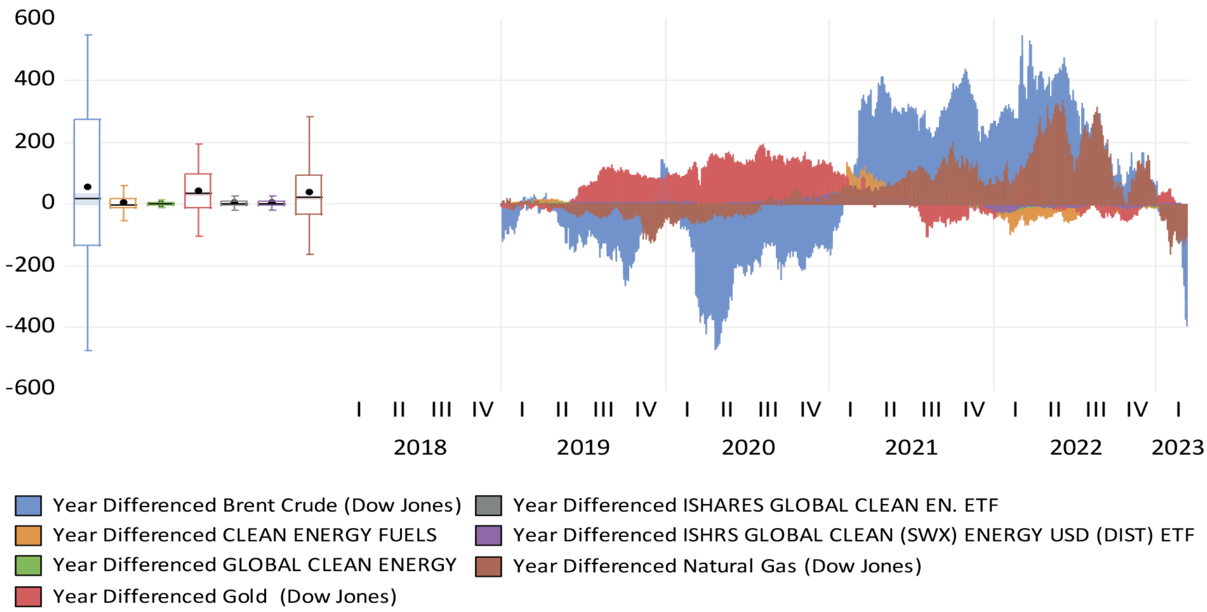


Figure 2. Evolution in first differences of the financial markets under study during the period from March 1, 2018, to March 9, 2023

Source: Own elaboration

As seen in Figures 2 and 3, these patterns effectively defined the first and second quarters of 2020. It is also feasible to show that all the markets under consideration experienced equilibrium in 2021. The year 2022 was marked by the beginning of the conflict between Russia and

Ukraine. Several sanctions have been put in place because of the Russian aggression against Ukraine by different nations. As a result, the Russian government announced reductions in natural gas supply, which immediately raised the price of energy. Several international economies have made significant investments in clean energy to lessen their reliance on energy because of the overwhelming economic effects of the disproportionate growth in energy costs. Similar findings may be found in the research developed by the authors Santana et al. (2023), and Dias et al. (2022).

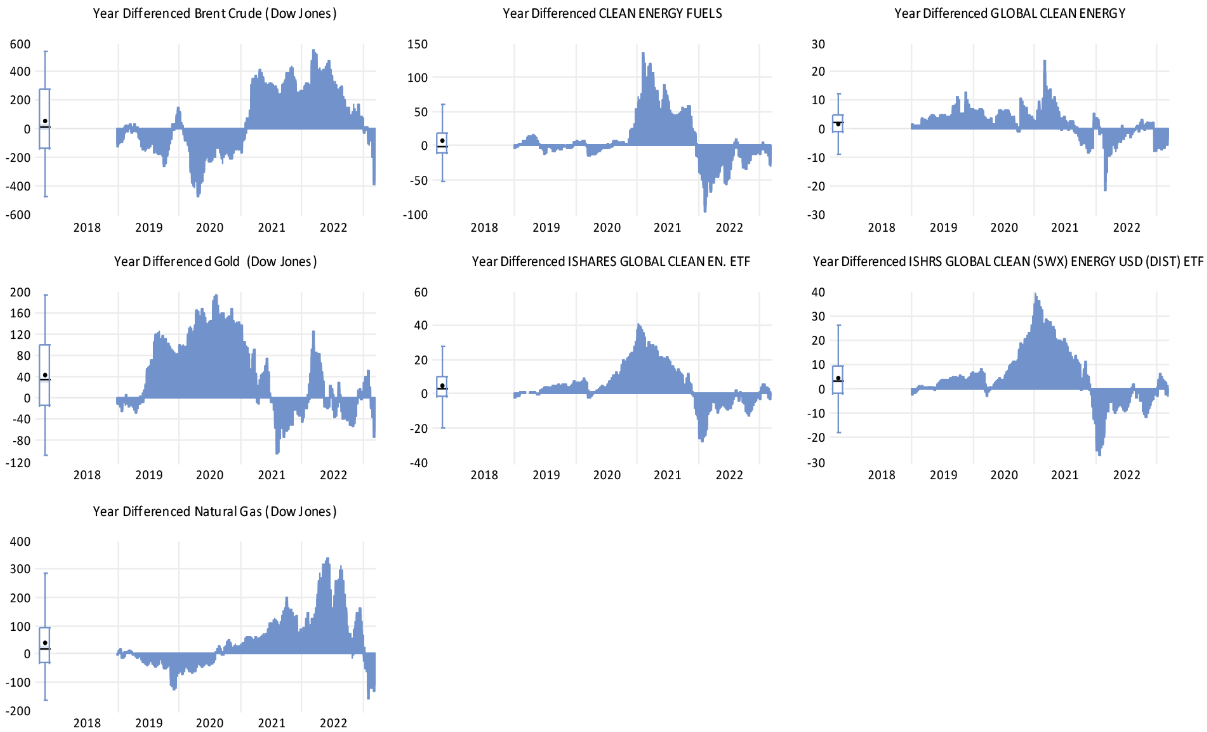


Figure 3. Evolution in first differences of the financial markets under study during the period from March 1, 2018, to March 9, 2023

Source: Own elaboration

Table 1 shows the average, standard deviation, coefficients of asymmetry, and kurtosis values for each of the time series under consideration. All financial markets, except for the natural gas market, displayed positive average daily returns. The Global Clean Energy Index shows the highest average daily return (0.001771) as well as the most pronounced standard (risk) deviation (0.091985). The gold market is identified as the least risky/volatile market, as would be expected given its haven features, with a standard deviation of 0,009404. The data from the time series are referred to as asymptomatic and leptokurtic. We can find similar features about time data distribution in the studies developed by the authors Teixeira, Dias, and Pardal (2022), Guedes et al. (2022), Dias, Pereira, et al. (2022), Horta, Dias, Revez, and Alexandre (2022).

By observing the Q-Q plot (see Figure 4), we get the conclusion that the distribution of the returns of the data series (represented by blue color) does not exactly follow a normal distribution since it does not overlap the straight line of the normal distribution, shown by orange color. We also disprove the normality hypothesis considering the findings of the Jarque-Bera test. However, based on the Central Limit Theorem, we may say that the analyzed data series approximately follows a normal distribution.

Table 1. Descriptive Statistics of the financial markets under study during the period from March 1, 2018, to March 9, 2023

		Mean	Std. Dev.	Skewness	Kurtosis	Observations
1.	CRUDE OIL (BRENT)	0.000155	0.026217	-1.234521	20.91207	1354
2.	CLEAN ENERGY FUELS	0.000598	0.049719	0.597367	14.58143	1354
3.	GLOBAL CLEAN ENERGY	0.001771	0.091985	-1.288416	31.59122	1354
4.	GOLD (DOW JONES)	0.000245	0.009404	-0.237269	8.009203	1354
5.	ISHARES GLOBAL CLEAN ENERGY ETF	0.000553	0.019220	-0.518329	10.33827	1354
6.	ISHARES GLOBAL CLEAN (SWX) ENERGY USD DIS ETF	0.000544	0.018850	-0.440643	9.116044	1354
7.	NATURAL GAS (DOW JONES)	-8.96E-05	0.036237	-0.325035	6.109057	1354

Source: Own elaboration

Table 2. Jarque-Bera Test applied to the financial markets under study during the period from March 1, 2018, to March 9, 2023

	1.	2.	3.	4.	5	6.	7.
Jarque-Bera	18444.78	7647.668	46492.86	1428.318	3098.679	2154.139	569.1778
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Source: Own elaboration

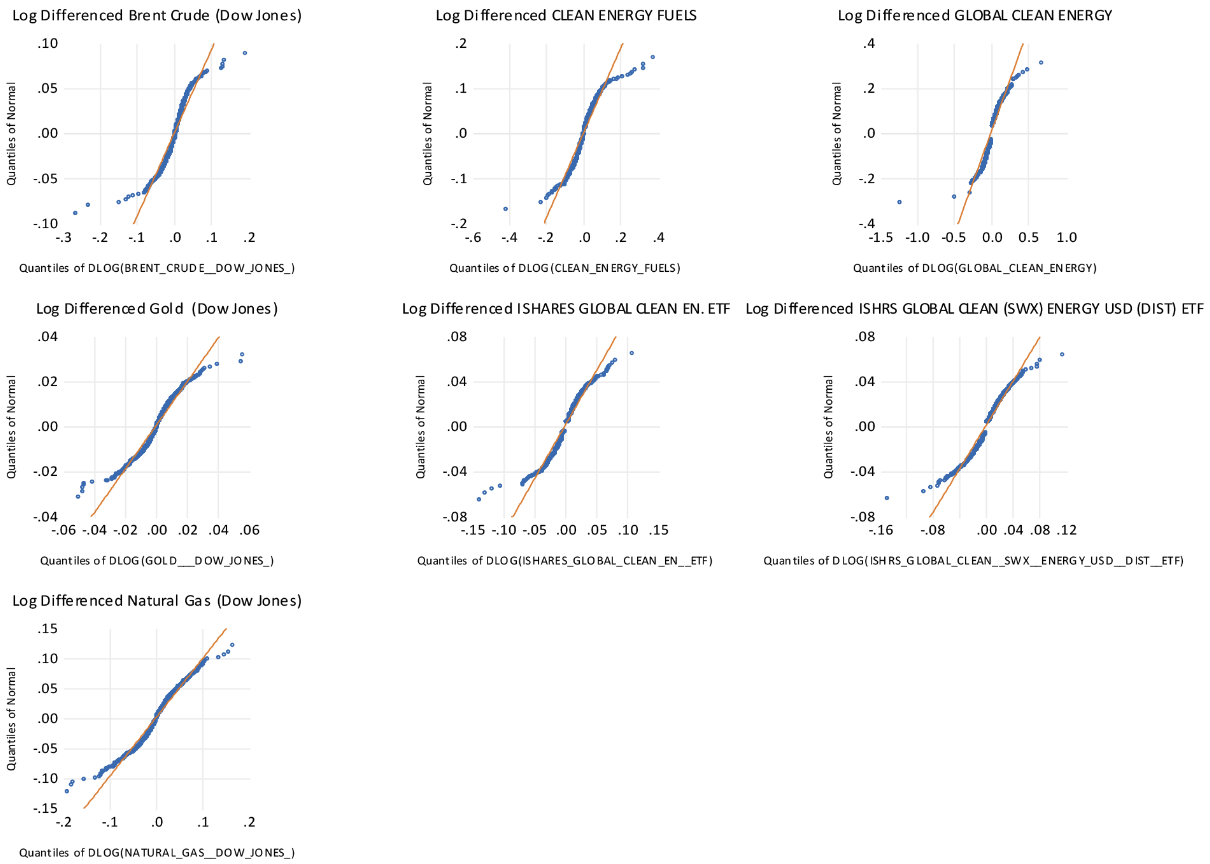


Figure 4. Q-Q Plot, in returns, of the financial markets under study during the period from March 1, 2018, to March 9, 2023

Source: Own elaboration

In time series analysis, Granger causality is a statistical concept that evaluates the relationship between two-time series variables. Causality in the Granger sense examines the possibility of using the values of one variable's previous observations to forecast the future values of another. One of the main assumptions of Granger's causality model is stationarity. Stationarity refers to the statistical properties of a chronological series that remain constant over time. In other words, if a chronological series is stationary, its statistical properties, such as average and variance, do not change over time. The Granger causality model emphasizes stationarity since spurious correlations might be found if the variables in the time series under analysis are not stationary. This may result in inaccurate conclusions about the causal relationship between the variables being studied.

For this purpose, we applied the panel unit root tests developed by Levin et al. (2002), Breitung (2000), Im et al. (2003), Dickey and Fuller (1981) and Perron and Phillips (1988), the latter two with transformation Fisher Chi-square. Table 3 shows the results for the Energy Fuels Index, S&P Global Clean Energy Index, iShares Global Clean Energies ETF, iShares Global Energy (SWX) ETF, as well as the prices for crude oil (BRENT), gold (DJ), and natural gas (DJ). These results demonstrate that there are no unit roots when the original price series is transformed into returns, supporting the stationarity hypothesis. This result is critical to the accuracy of any later study that uses information from time series, including the Granger causality model. Unit roots would be a sign that the data is not stationary and would require transformation before any more analysis could be done.

Table 3. Unit root Tests applied to the financial markets under study during the period from March 1, 2018, to March 9, 2023

Group unit root test: Summary				
Method	**Statistic**	**Prob.****	**Crosssections**	**Obs.**
Null: Unit root (assumes common unit root process)				
Levin, Lin and Chu t*	-162.728	0.0000	7	9461
Breitung t-stat	-82.5924	0.0000	7	9454
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-105.397	0.0000	7	9461
ADF - Fisher Chi-square	1843.74	0.0000	7	9461
PP - Fisher Chi-square	1843.74	0.0000	7	9464

Note: ** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

Source: Own elaboration

To ensure the robustness of our analysis, it is vital to carefully analyze the number of lag-days that are incorporated into our statistical model. This is important when performing the Granger causality test, which is a time precedence test between two variables. We may choose the ideal number of lag-days for our model by considering a variety of information criteria. These criteria consider aspects like the model's complexity and how the data are adjusted to the estimated model.

In Table 4, we checked the results for the Tranquil subperiod, based on the criterion of the Likelihood Ratio (LR); the optimal number of lag-days for our model was determined as 7. The relationship between the variables of interest during this subperiod is likely to be accurately estimated using a model that takes 7 lag-days into account.

Chronological series analysis is a robust tool for investigating the relationships between variables over time. However, it is important to ensure that the analysis is robust and error-free. One way to do this is to examine the serial residuals of the time series. Residues are the differences between the observed values of a variable and the estimated values based on a statistical model. If the serial residual shows patterns, such as autocorrelation, this indicates that the model is not considering the dynamics of the data. Autocorrelation occurs when the residuals are correlated with each other at different time disruptions. To address this question, it is common to estimate the number of lag-days in a vector autoregressive (VAR) model. We can see the serial residuals in Table 5 and Figure 5, which enables us to confirm that the serial residuals of the time series under analysis do not exhibit autocorrelation. This gives us more confidence in our conclusions. By doing so, we can provide robustness to our analysis of the movements between clean and dirty energies, as well as gold.

Table 4. VAR Lag Order Selection Criteria for the Tranquil subperiod

Lag	LogL	LR	FPE	AIC	SC	HQ
0	8988.174	NA	1.37e-24	-35.08271	-35.02476*	-35.05999
1	9101.648	223.4025	1.06e-24	-35.33456	-34.87100	-35.15284*
2	9168.089	128.9901	9.94e-25*	-35.40269*	-34.53351	-35.06197
3	9214.416	88.67156	1.01e-24	-35.39225	-34.11744	-34.89252
4	9247.179	61.81470	1.07e-24	-35.32882	-33.64839	-34.67010
5	9282.051	64.83977	1.13e-24	-35.27364	-33.18759	-34.45590
6	9315.038	60.43430	1.21e-24	-35.21109	-32.71942	-34.23435
7	9358.816	**79.00564***	1.23e-24	-35.19069	-32.29340	-34.05495
8	9393.129	60.98623	1.31e-24	-35.13332	-31.83040	-33.83858
9	9418.965	45.21276	1.44e-24	-35.04283	-31.33430	-33.58909
10	9436.652	30.46752	1.63e-24	-34.92051	-30.80636	-33.30777

Note: * Indicates lag order selected by the criterion. LR: sequential modified LR test statistic (each test at 5% level). FPE: Final prediction error. AIC: Akaike information criterion. SC: Schwarz information criterion. HQ: Hannan-Quinn information criterion.

Source: Own elaboration

Table 5. VAR Residual Serial Correlation LM Tests for the estimated model corresponding to the Tranquil subperiod

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	55.62830	49	0.2394	1.137351	(49, 2299.1)	0.2395
2	48.06904	49	0.5108	0.981194	(49, 2299.1)	0.5109
3	46.13084	49	0.5902	0.941236	(49, 2299.1)	0.5902
4	54.13797	49	0.2848	1.106524	(49, 2299.1)	0.2848
5	49.91977	49	0.4366	1.019379	(49, 2299.1)	0.4367
6	50.19014	49	0.4260	1.024959	(49, 2299.1)	0.4261
7	57.91575	49	0.1794	1.184704	(49, 2299.1)	0.1795
8	54.20006	49	0.2828	1.107807	(49, 2299.1)	0.2828

Source: Own elaboration

Table 6. VAR Lag Order Selection Criteria for the Stress subperiod

Lag	LogL	LR	FPE	AIC	SC	HQ
0	12369.49	NA	2.04e-22	-30.07906	-30.03893	-30.06366
1	12553.55	364.5316	1.47e-22	-30.40767	-30.08667*	-30.28451
2	12652.75	194.7731	1.30e-22	-30.52980	-29.92793	-30.29889*
3	12729.69	149.7722	1.21e-22	-30.59779	-29.71506	-30.25912
4	12784.35	105.4574	1.20e-22	-30.61156	-29.44795	-30.16512
5	12830.36	87.98186	1.21e-22	-30.60427	-29.15980	-30.05008
6	12886.66	106.7182	1.19e-22*	-30.62204*	-28.89670	-29.96009
7	12933.07	87.17128	1.19e-22	-30.61574	-28.60952	-29.84603
8	12969.63	68.05520	1.23e-22	-30.58548	-28.29839	-29.70801
9	12998.04	52.40235	1.30e-22	-30.53539	-27.96743	-29.55016
10	13052.15	**98.87196***	1.28e-22	-30.54782	-27.69899	-29.45483

Note: * Indicates lag order selected by the criterion. LR: sequential modified LR test statistic (each test at 5% level). FPE: Final prediction error. AIC: Akaike information criterion. SC: Schwarz information criterion. HQ: Hannan-Quinn information criterion.

Source: Own elaboration

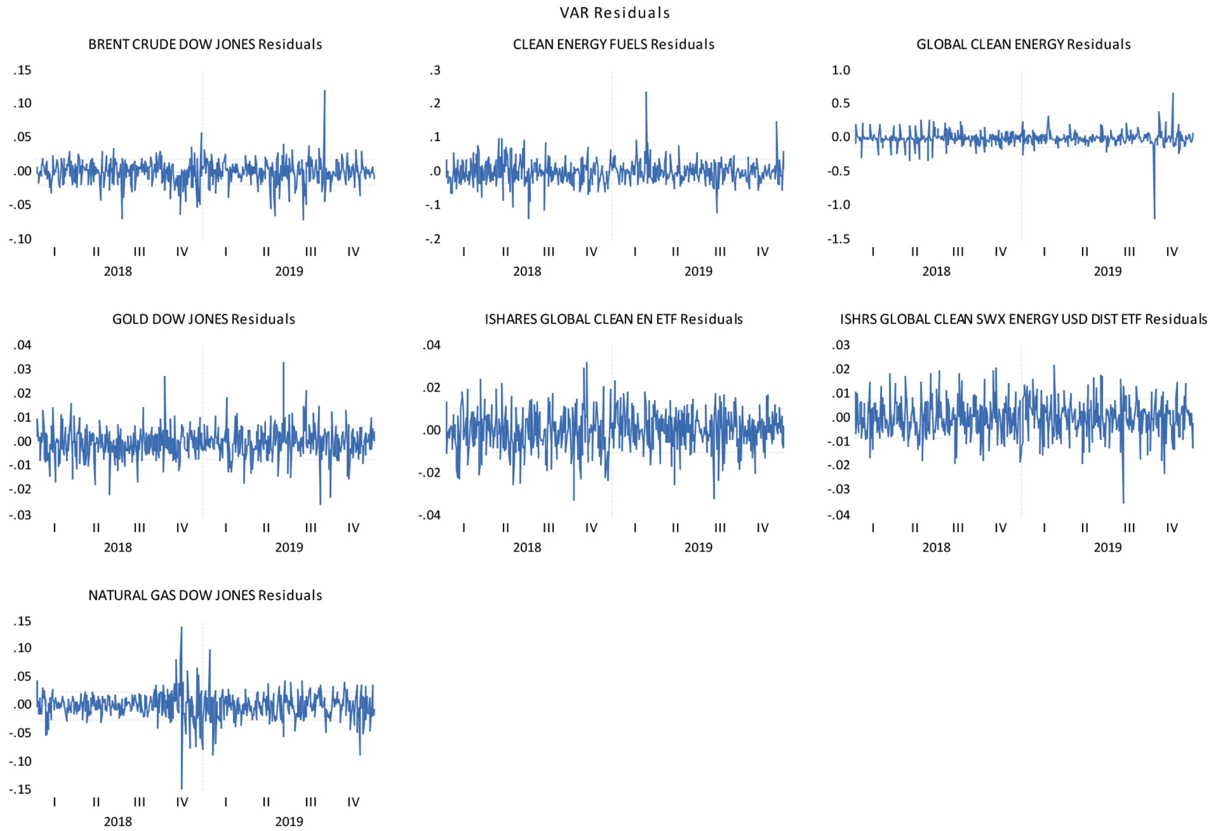


Figure 5. Residuals from the estimated VAR Model for Tranquil subperiod

Source: Own elaboration

In the Stress subperiod, our analysis showed that the optimal number of lag-days for the vector autoregressive (VAR) model was 10 (see Table 6), as determined by the information criterion of the Likelihood Ratio (LR). This result suggests that a model with 10 lag-days provides a good estimate of the relationship between the variables of interest during this period.

In the subperiod that incorporates the events of 2020 and 2022, we use a vector autoregressive (VAR) model. with 10 lag-days based on the information criterion of the Likelihood Ratio (LR). However, when we applied the VAR Residual Serial Correlation LM Tests, we found evidence of autocorrelation in the serial residuals, indicating that the model was not accurately capturing all the variation in the data. To solve this problem, we increased the number of lag-days to 12 days and reassessed the VAR model. This adjustment was based on the results of the statistical test, which showed that increasing the number of lag-days resulted in the absence of autocorrelation in the model. The results of this adjustment can be seen in Table 7 and Figure 6, which show that the modified VAR model with 12 lag-days provides better data suitability and a more accurate estimate of the relationship between the variables of interest during this subperiod.

Based on previous tests, we estimated the Granger causality/Block Exogeneity Wald model, considering 7 and 12 lag-days for the Tranquil and Stress subperiods, for the Clean Energy Fuels Index, S&P Global Clean Energy Index, iShares Global Clear Energy ETF, iShares Global Energy (SWX) ETF and crude oil (BRENT), gold (DJ), and natural gas prices (DJ). In Table 8, we can observe the comovements between the stock indexes in analysis for the Tranquil subperiod, and we verify the presence of 11 shocks (out of 42 possible).

Table 7. VAR Residual Serial Correlation LM Tests for the estimated model corresponding to the Stress subperiod

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	64.66989	49	0.0661	1.322944	(49, 3669.9)	0.0661
2	58.76628	49	0.1601	1.201212	(49, 3669.9)	0.1601
3	60.64585	49	0.1229	1.239948	(49, 3669.9)	0.1229
4	82.94971	49	0.0018	1.701111	(49, 3669.9)	0.0018
5	63.79359	49	0.0761	1.304863	(49, 3669.9)	0.0761
6	83.51194	49	0.0015	1.712772	(49, 3669.9)	0.0015
7	65.20302	49	0.0605	1.333947	(49, 3669.9)	0.0605
8	75.20931	49	0.0094	1.540752	(49, 3669.9)	0.0094
9	79.06474	49	0.0042	1.620584	(49, 3669.9)	0.0042
10	89.18975	49	0.0004	1.830632	(49, 3669.9)	0.0004
11	60.76203	49	0.1209	1.242343	(49, 3669.9)	0.1209
12	60.42405	49	0.1269	1.235376	(49, 3669.9)	0.1269
13	54.77286	49	0.2648	1.118978	(49, 3669.9)	0.2649

Source: Own elaboration

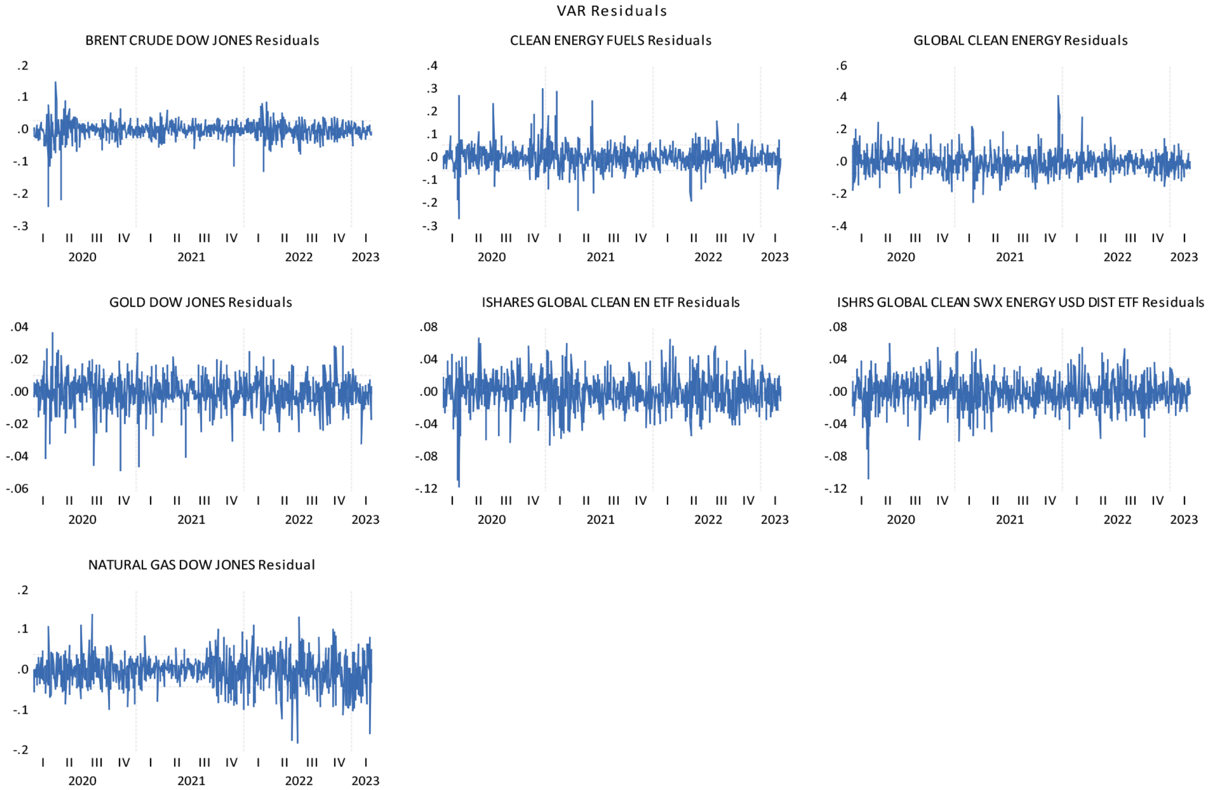


Figure 6. Residuals from the estimated VAR Model for Stress subperiod

Source: Own elaboration

The crude oil market, the S&P Global Clean Energy Index, the iShares Global Clear Energy ETF, and the iShares Global Energy (SWX) ETF are the most endogenous markets, with 2 shocks (of 6 possible). The other markets showed only 1 shock among their peers. Inversely, the iShares Global Energy (SWX) ETF is the most-caused market, receiving 3 shocks from its peers, followed by the crude oil, natural gas markets and iShares Global Clean Energy, receiving 2 shocks from its peers. In conclusion, during the Tranquil subperiod, the findings presented suggest that there is no significant relationship between dirty energy and clean energy prices. This outcome is important in the context of ongoing discussions on energy policy and environmental regulations, which often involve considerations about trade-offs between clean and dirty energy sources.

Table 8. Granger causality/Block Exogeneity Wald Tests, of the financial markets under analysis, in the Tranquil subperiod

		1.	2.	3.	4.	5	6.	7.
1.	CRUDE OIL (BRENT)	-	1,52818	0,44213	0,64077	**2,3973****	1,21714	**2,88137*****
2.	CLEAN ENERGY FUELS	0,97297	-	**1,81541***	1,45158	1,01257	0,588	1,68492
3.	GLOBAL CLEAN ENERGY	0,78988	0,3823	-	0,73248	1,03542	0,46977	1,49464
4.	GOLD (DOW JONES)	**3,36296*****	1,43529	0,62959	-	1,3654	0,80651	1,11285
5.	ISHARES GLOBAL CLEAN ENERGY ETF	1,64315	0,41607	1,22635	**2,28963****	-	**3,53628*****	0,34399
6.	ISHARES GLOBAL CLEAN (SWX) ENERGY USD DIS ETF	0,68532	**2,49254****	0,29436	**2,07281****	**35,2244*****	-	1,18405
7.	NATURAL GAS (DOW JONES)	**3,09704*****	0,68006	0,78097	1,19734	1,21663	**1,79281***	-

Note: Markets in column "cause" markets in row. The asterisks ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively.

Source: Own elaboration

During the stress subperiod, 14 shocks (out of 42 possible) were observed (see Table 9). The oil market showed the highest number of shocks (4 out of 6 possible), followed by the Clean Energy Fuels Index and the iShares Global Clean Energy ETF (3 shocks out of 5 possible). The gold market and the iShares Global Clean Energy (SWX) ETF were the markets that received the most shocks (3 shocks out of 6 possible). The general impression is that in the Tranquil subperiod clean energy markets are only caused by the gold market and each other. According to Angelini et al. (2022), Basoglu et al. (2014), Chen et al. (2022), and Reboredo and Ugolini (2018), non-ferrous metal pricing changes constitute a significant source of uncertainty for clean energy indexes. Our suggestion corroborates their findings.

The crude oil market is caused by the natural gas market and the gold market, and the gas market is only caused by the crude oil market. The gold market is only caused by the crude oil market. This result can be explained by the fact mentioned by the authors Angelini et al. (2022), Pandey et al. (2023) and Yahya et al. (2020) who refer to the fact that crude oil and gas extraction often involves drilling deep wells that require equipment made of metal.

Comparatively, and in conclusion, the relationships existing between the dirty energy markets and the clean-energy markets in the pre-crisis period are favorable for international portfolio diversification as low levels of interdependence are adequate to minimize the exposure of investors to risk. Already during the Stress subperiod, the crude oil market had a strong influence on the clean energy markets, specifically the Clean Energy Fuels Index, the iShares Global Clean Energy ETF and the iShares Global Clean Energy (SWX) ETF. It should be noted that the clean energy markets have also accentuated their influence on the dirty markets (crude oil and natural gas) and the gold market. These findings are validated, in part, by the authors Pardal et al. (2021) for the banking sector, Dias and Carvalho (2021a) for the exchange markets, Horta, Dias, Revez, and Alexandre (2022), and Horta, Dias, Revez, Heliodoro, et al., (2022) for the cryptocurrency markets relative to the G7 stock markets.

Table 9. Granger causality/Block Exogeneity Wald Tests, of the financial markets under analysis, in the Stress subperiod

		1.	2.	3.	4.	5	6.	7.
1.	CRUDE OIL (BRENT)	-	1,47791	1,06663	2,17764**	**1,5662***	1,52992	**0,54766**
2.	CLEAN ENERGY FUELS	2,40108***	-	**0,82419**	1,29323	1,49175	1,86399**	0,5549
3.	GLOBAL CLEAN ENERGY	1,11733	1,17634	-	1,75711*	0,72948	1,12683	1,00832
4.	GOLD (DOW JONES)	**2,42075*** **	2,29363***	0,75393	-	1,82532**	1,23764	1,06977
5.	ISHARES GLOBAL CLEAN ENERGY ETF	3,66947***	1,98703**	1,28528	**1,42597**	-	**0,8082**	0,64086
6.	ISHARES GLOBAL CLEAN (SWX) ENERGY USD DIS ETF	3,93855***	**4,61915*** **	1,39062	**1,44605**	**19,4425*** **	-	0,98792
7.	NATURAL GAS (DOW JONES)	**0,83912**	0,28629	0,19722	1,20064	1,40684	**2,05854*** **	-

Note: Markets in column "cause" markets in row. The asterisks ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively.

Source: Own elaboration

5. CONCLUSION

The study looked at the relationship between several energy markets, including clean and dirty energy, as well as gold, from January 2018 to March 2023. It was found that the daily returns of these markets had negative asymmetries and were leptocurtic, indicating that they did not have an exact normal distribution. During the pre-crisis period, the low levels of interdependence between dirty and clean energy markets were considered suitable for portfolio diversification. However, during the stress subperiod, the crude oil market had a strong influence on the clean energy markets, indicating a decrease in the effectiveness of portfolio diversification.

The study also discovered that during the events of 2020 and 2022, markets for clean energy had an increasing impact on markets for dirty energy and gold, which further restricted the viability of clean power markets as a substitute for portfolio diversification. For investors and financial analysts interested in understanding the connections between the various sectors of the energy industry, these discoveries have significant ramifications. The study offers a more detailed knowledge of how clean and dirty energy prices relate, which may help with more precise forecasting of market trends and better-informed investment choices. Further empirical research is required to support and develop these conclusions.

References

Angelini, E., Birindelli, G., Chiappini, H., & Foglia, M. (2022). Clean energy indexes and brown assets: an analysis of tail risk spillovers through the VAR for VaR model. *Journal of Sustainable Finance and Investment*. https://doi.org/10.1080/20430795.2022.2105788

Basoglu, M. S., Korkmaz, T., & Cevik, E. I. (2014). London metal exchange: Causality relationship between the price series of non-ferrous metal contracts. *International Journal of Economics and Financial Issues*, *4*(4).

Breitung, J. (2000). The local power of some unit root tests for panel data. *Advances in Econometrics*. https://doi.org/10.1016/S0731-9053(00)15006-6

Chen, J., Wang, Y., & Ren, X. (2022). Asymmetric effects of non-ferrous metal price shocks on clean energy stocks: Evidence from a quantile-on-quantile method. *Resources Policy*, *78*. https://doi.org/10.1016/j.resourpol.2022.102796

Dias, R., Pereira, J. M., & Carvalho, L. C. (2022). Are African Stock Markets Efficient? A Comparative Analysis Between Six African Markets, the UK, Japan and the USA in the Period of the Pandemic. *Naše Gospodarstvo/Our Economy*, *68*(1), 35–51. https://doi.org/10.2478/ngoe-2022-0004

Dias, R., & Santos, H. (2020). the Impact of Covid-19 on Exchange Rate Volatility: an Econophysics Approach. *6th LIMEN Conference Proceedings (Part of LIMEN Conference Collection)*, *6*(July), 39–49. https://doi.org/10.31410/limen.2020.39

Dias, R., Teixeira, N., Machova, V., Pardal, P., Horak, J., & Vochozka, M. (2020). Random walks and market efficiency tests: Evidence on US, Chinese and European capital markets within the context of the global Covid-19 pandemic. *Oeconomia Copernicana*, *11*(4). https://doi.org/10.24136/OC.2020.024

Dias, R. T., & Carvalho, L. (2021a). *Foreign Exchange Market Shocks in the Context of the Global Pandemic (COVID-19)*. 359–373. https://doi.org/10.4018/978-1-7998-6643-5.ch020

Dias, R. T., & Carvalho, L. (2021b). *The Relationship Between Gold and Stock Markets During the COVID-19 Pandemic*. *May*, 462–475. https://doi.org/10.4018/978-1-7998-6643-5.ch026

Dias, R. T., Pardal, P., Teixeira, N., & Horta, N. R. (2022). Tail Risk and Return Predictability for Europe's Capital Markets: An Approach in Periods of the 2020 and 2022 Crises. *Advances in Human Resources Management and Organizational Development*, 281-298. https://doi.org/10.4018/978-1-6684-5666-8.ch015

Dickey, D., & Fuller, W. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica*, *49*(4), 1057–1072. https://doi.org/10.2307/1912517

Foglia, M., Angelini, E., & Huynh, T. L. D. (2022). Tail risk connectedness in clean energy and oil financial market. *Annals of Operations Research*. https://doi.org/10.1007/s10479-022-04745-w

Granger, C. W. J., & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics*, *2*(2), 111–120. https://doi.org/10.1016/0304-4076(74)90034-7

Guedes, E. F., Santos, R. P. C., Figueredo, L. H. R., Da Silva, P. A., Dias, R. M. T. S., & Zebende, G. F. (2022). Efficiency and Long-Range Correlation in G-20 Stock Indexes: A Sliding Windows Approach. *Fluctuation and Noise Letters*. https://doi.org/10.1142/S021947752250033X

He, Y. X., Jiao, Z., & Yang, J. (2018). Comprehensive evaluation of global clean energy development index based on the improved entropy method. *Ecological Indicators*, *88*. https://doi.org/10.1016/j.ecolind.2017.12.013

Herranz, E. (2017). Unit root tests. In *Wiley Interdisciplinary Reviews: Computational Statistics*. https://doi.org/10.1002/wics.1396

Horta, N., Dias, R., Revez, C., & Alexandre, P. (2022). *CRYPTOCURRENCIES AND G7 CAPITAL MARKETS INTEGRATE IN PERIODS OF EXTREME VOLATILITY ? 10*(3), 121–130.

Horta, N., Dias, R., Revez, C., Heliodoro, P., & Alexandre, P. (2022). Spillover and Quantitative Link Between Cryptocurrency Shocks and Stock Returns: New Evidence From G7 Countries. *Balkans Journal of Emerging Trends in Social Sciences*, *5*(1), 1–14. https://doi.org/10.31410/balkans.jetss.2022.5.1.1-14

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*. https://doi.org/10.1016/S0304-4076(03)00092-7

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics Letters*, *6*(3), 255–259. https://doi.org/10.1016/0165-1765(80)90024-5

Levin, A., Lin, C.-F., & James Chu, C.-S. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of Econometrics, 108*(1), 1-24. https://doi.org/10.1016/s0304-4076(01)00098-7

Liu, N., Liu, C., Da, B., Zhang, T., & Guan, F. (2021). Dependence and risk spillovers between green bonds and clean energy markets. *Journal of Cleaner Production*, *279*. https://doi.org/10.1016/j.jclepro.2020.123595

Mighri, Z., Ragoubi, H., Sarwar, S., & Wang, Y. (2022). Quantile Granger causality between US stock market indexes and precious metal prices. *Resources Policy*, *76*. https://doi.org/10.1016/j.resourpol.2022.102595

Pandey, D. K., Kumar, R., & Kumari, V. (2023). Glasgow climate pact and the global clean energy index constituent stocks. *International Journal of Emerging Markets*. https://doi.org/10.1108/IJOEM-05-2022-0815

Pardal, P., Dias, R., Teixeira, N., & Horta, N. (2022). *The Effects of Russia' s 2022 Invasion of Ukraine on Global Markets : An Analysis of Particular Capital and Foreign Exchange Markets*. https://doi.org/10.4018/978-1-6684-5666-8.ch014

Pardal, P., Dias, R. T., Santos, H., & Vasco, C. (2021). *Central European Banking Sector Integration and Shocks During the Global Pandemic (COVID-19)*. *June*, 272–288. https://doi.org/10.4018/978-1-7998-6926-9.ch015

Perron, P., & Phillips, P. C. B. (1988). Testing for a Unit Root in a Time Series Regression. *Biometrika*, *2*(75), 335–346. https://doi.org/10.1080/07350015.1992.10509923

Reboredo, J. C., & Ugolini, A. (2018). The impact of energy prices on clean energy stock prices. A multivariate quantile dependence approach. *Energy Economics*, *76*. https://doi.org/10.1016/j.eneco.2018.10.012

Shafiullah, M., Chaudhry, S. M., Shahbaz, M., & Reboredo, J. C. (2021). Quantile causality and dependence between crude oil and precious metal prices. *International Journal of Finance and Economics*, *26*(4). https://doi.org/10.1002/ijfe.2119

Tahai, A., Rutledge, R. W., & Karim, K. E. (2004). An examination of financial integration for the group of seven (G7) industrialized countries using an I (2) cointegration model. *Applied Financial Economics*, *14*(5), 327–335. https://doi.org/10.1080/0960310042000211597

Teixeira, N., Dias, R., & Pardal, P. (2022). *The gold market as a safe haven when stock markets exhibit pronounced levels of risk : evidence during the China crisis and the COVID-19 pandemic*. *April*, 27–42.

Teixeira, N., Dias, R. T., Pardal, P., & Horta, N. R. (2022). Financial Integration and Comovements Between Capital Markets and Oil Markets: An Approach During the Russian Invasion of Ukraine in 2022. *Advances in Human Resources Management and Organizational Development*, 240-261. https://doi.org/10.4018/978-1-6684-5666-8.ch013

Tiwari, A. K., Abakah, E. J. A., Yaya, O. O. S., & Appiah, K. O. (2023). Tail risk dependence, co-movement and predictability between green bond and green stocks. *Applied Economics*, *55*(2). https://doi.org/10.1080/00036846.2022.2085869

Yahya, M., Ghosh, S., Kanjilal, K., Dutta, A., & Uddin, G. S. (2020). Evaluation of cross-quantile dependence and causality between non-ferrous metals and clean energy indexes. *Energy*, *202*. https://doi.org/10.1016/j.energy.2020.117777

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.117

Investment in Unmanned Aerial Systems in Agriculture and Economic Growth: G(7)

Vesna Jablanovic[1]

Received: April 19, 2023
Accepted: August 23, 2023
Published: October 30, 2023

Keywords:
Investment in Unmanned Aerial Systems;
Agriculture;
Economic growth;
Chaos

Abstract: *This paper examines the economic growth stability in the Group of Seven (G7) (France, Germany, Italy, the United Kingdom, Japan, the United States, and Canada). Investment in unmanned aerial systems in agriculture can be observed as an important factor of economic growth. The basic aim of this paper is to create a relatively simple chaotic economic growth model. The share of investment that is used for unmanned aerial systems in agriculture is an important factor of economic stability in the Group of Seven (G7) in the period 1990-2023.*

1. INTRODUCTION

According to Završnik (2016) Unmanned Aerial Systems (UAS) or Remotely-Piloted Aerial Systems (RPAS) or "drones" were initially deployed for military purposes. Now, they are used in the civilian and humanitarian domains. They are increasingly used for goals as diverse as news gathering, an aerial inspection of oil refinery flare stacks, mapping of the Amazonian rainforest, crop spraying and search and rescue operations. The drone revolution may be a new technological revolution.

According to FAO (2018), drones will impact business. In this sense, predicted applications are: Infrastructure (Investment monitoring, maintenance, asset inventory); Agriculture (Analysis of soils and drainage, crop health, assessment); Transport (Delivery of goods, medical logistics); Entertainment & Media (Advertising, entertainment, aerial photography, shows and special effects); Insurance (Support in claims, settlement process, fraud detection); Telecommunication (Tower maintenance, signal broadcasting); Security (Monitoring lines and sites, proactive response); Mining (Planning, exploration, environmental impact, assessment).

Stokenberga & Catalina (2021) explore the economic and broader societal rationale for using an unmanned aerial vehicle (UAV) or "drone" technologies as a complement to the current transport and logistics systems in several use cases in East Africa (medical goods deliveries, food aid delivery, land mapping and risk assessment, agriculture, and transport and energy infrastructure inspection). In the public health use case, as more low - and middle-income countries explore opportunities to improve efficiency and performance in their health supply chains and diagnostics networks, they face myriad choices about how best to use UAVs to improve product availability and public health outcomes and to reach the last mile. Food aid delivery by drones is still mostly at a planning, rather than implementation, stage. Drone applications are rapidly evolving, and several use cases could gain impact and scale over the coming years.

[1] University of Belgrade, Faculty of Agriculture, Nemanjina 6, 11081 Belgrade, Serbia

This paper uses the elements of chaos theory. Namely, chaos theory started with Lorenz's (1963) discovery of complex dynamics in the weather system. Lorenz (1963) discovered this effect - the lack of predictability in deterministic systems. Sensitive dependence on initial conditions is an important concept of deterministic chaos. Li and Yorke (1975) discovered that the simple logistic curve can explain very complex behavior. Further, May (1976) described chaos in population biology. Chaos theory has been applied in economics by Benhabib and Day (1981), Day (1983), Grandmont (1985), Goodwin (1990), Jablanovic (2022), etc.

2. THE MODEL

The chaotic economic growth model is presented by the following equations:

$$Y_t = C_t + I_t + G_t + Nx_t \tag{1}$$

$$C_t = \alpha\, Y_{t-1}^{\;2},\ 0 < \alpha < 1 \tag{2}$$

$$I_{a,t} = \beta\, I_t,\ 0 < \beta < 1 \tag{3}$$

$$\mathrm{I}_{a,T} = \rho\, (Y_t - Y_{t-1}),\ \rho > 0 \tag{4}$$

$$G_t = \gamma\, Y_t,\ 0 < \gamma < 1 \tag{5}$$

$$Nx_t = \delta\, Y_t,\ 0 < \delta < 1 \tag{6}$$

With Y – the gross domestic product (GDP), I – investment, I_a – investment in unmanned aerial systems in agriculture, C – consumption, Nx – net exports, G – government spending, α – the marginal propensity to consume, β - the share of investment that is used for investment in unmanned aerial systems in agriculture, ρ – the ratio of investment in unmanned aerial systems in agriculture and the change in value of the gross domestic product (GDP), γ - the government expenditure rate, δ – the net exports rate. (1) GDP (Y) is the sum of consumption (C), investment (I), government spending (G), and net exports (Nx); (2) the consumption function displays the quadratic relationship between consumption (C_t) and real output of the previous period (Y_{t-1}), where the coefficient α is „the marginal propensity to consume" (MPC). The MPC coefficient can be between zero and one. (3) shows the relation between investment in unmanned aerial systems in agriculture and investment; (4) shows the relation between investment in unmanned aerial systems in agriculture and the change in the value of the gross domestic product (GDP); (5) shows the relation between government spending (G) and the gross domestic product (Y); (6) shows the relation between net exports (Nx) and the gross domestic product (Y).

Now, putting (1), (2), (3), (4), (5), and (6) together we immediately get:

$$\mathrm{Y_t} = \left[\frac{\rho}{\rho + \beta(\gamma + \delta - 1)}\right] Y_{t-1} - \left[\frac{\alpha\,\beta}{\rho + \beta(\gamma + \delta - 1)}\right] Y_{t-1}^{\;2} \tag{7}$$

Further, it is assumed that the current value of the gross domestic product (GDP) is restricted by its maximal value in its time series. This premise requires a modification of the growth law. We introduce y as $y = Y / Y^m$, where Y^m is the maximal value of GDP in its time series. Thus y ranges between 0 and 1. Now, the GDP growth rate is

$$\mathrm{y_t} = \left[\frac{\rho}{\rho + \beta(\gamma + \delta - 1)}\right] y_{t-1} - \left[\frac{\alpha\,\beta}{\rho + \beta(\gamma + \delta - 1)}\right] y_{t-1}^{\;2} \tag{8}$$

This model given by equation (8) is called the logistic model.

3. THE LOGISTIC EQUATION

It is possible to show that the iteration process for the logistic equation

$$z_t = \pi z_{t-1}\,(1 - z_{t-1}),\ \pi \in [0\ ,4],\ z_t \in [0,\ 1] \tag{9}$$

is equivalent to the iteration of the growth model (8) when we use the identification

$$z_t = \left(\frac{\alpha\,\beta}{\rho}\right) y_t \ \text{ and } \ \pi = \left[\frac{\rho}{\rho + \beta\left(\gamma + \delta - 1\right)}\right] \tag{10}$$

Using (8) and (10) we obtain:

$$z_t = \left(\frac{\alpha\,\beta}{\rho}\right)\left\{\left[\frac{\rho}{\rho + \beta\left(\gamma + \delta - 1\right)}\right] y_{t-1} - \left[\frac{\alpha\,\beta}{\rho + \beta\left(\gamma + \delta - 1\right)}\right] {y_{t-1}}^2\right\} =$$

$$= \left[\frac{\alpha\,\beta}{\rho + \beta\left(\gamma + \delta - 1\right)}\right] y_{t-1} - \left\{\frac{\alpha^2\,\beta^2}{\rho\left[\rho + \beta\left(\gamma + \delta - 1\right)\right]}\right\} {y_{t-1}}^2$$

On the other hand, using (9) and (10) we obtain:

$$z_t\ = \pi z_{\ t\text{-}1}\ (1 - z_{\ t-1}) =$$

$$= \left[\frac{\rho}{\rho + \beta\left(\gamma + \delta - 1\right)}\right]\left(\frac{\alpha\,\beta}{\rho}\right) y_{t-1}\left[1 - \left(\frac{\alpha\,\beta}{\rho}\right) y_{t-1}\right] =$$

$$= \left[\frac{\alpha\,\beta}{\rho + \beta\left(\gamma + \delta - 1\right)}\right] y_{t-1} - \left\{\frac{\alpha^2\,\beta^2}{\rho\left[\rho + \beta\left(\gamma + \delta - 1\right)\right]}\right\} {y_{t-1}}^2$$

Thus we have that iterating (8) is the same as iterating (9) using (10). The dynamic properties of the logistic equation (9) have been widely analyzed (Li & Yorke, 1975; May, 1976). For example: (i) For parameter values $0 < \pi < 1$ all solutions will converge to $z = 0$; (ii) For $1 < \pi < 3{,}57$ there exist fixed points the number of which depends on π; (iii) For $1 < \pi < 2$ all solutions monotonically increase to $z = (\pi - 1) / \pi$; (iv) For $2 < \pi < 3$ fluctuations will converge to $z = (\pi - 1) / \pi$; (v) For $3 < \pi < 4$ all solutions will continuously fluctuate; (vi) For $3{,}57 < \pi < 4$ the solution become "chaotic" which means that there exist totally aperiodic solution or periodic solutions with a very large, complicated period.

4. EMPIRICAL EVIDENCE

The main aim of this paper is to analyze the economic growth stability in the period 1990-2023 in the Group of Seven (G7) (France, Germany, Italy, the United Kingdom, Japan, the United States, and Canada). In this sense, it is important to use the logistic model (11)

$$y_t = \pi\, y_{t-1} - \upsilon\, y_t^2 \tag{11}$$

where

$$y = Y / Y^m,$$

Y – the gross domestic product (GDP), $\pi = \left[\frac{\rho}{\rho + \beta\left(\gamma + \delta - 1\right)}\right]$, $\upsilon = \left[\frac{\alpha\,\beta}{\rho + \beta\left(\gamma + \delta - 1\right)}\right]$.

Now, the model (11) is estimated (see Tables 1-7).

Table 1. The estimated model (11): Canada, 1990-2023.

	R=0.99352 Variance explained: 8.708%	
	π	υ
Estimate	1.04279	0.02769
Std. Err.	0.02465	0.031335
t(31)	42.30208	0.883729
p-level	0.00000	0.383645

Source: IMF (n.d.)

The real gross domestic product fluctuated between 1,092.14 and 2,264.83 (unit of measure: national currency in bn, constant prices) in the period 1990 -2023 in Canada. π was 1.04279. Further, according to the logistic equation (9), for $1 < \pi < 2$ all solutions monotonically increase in Canada in the observed period.

Table 2. The estimated model (11): France, 1990-2023.

	R=0.9839 Variance explained: 96.806%	
	π	υ
Estimate	1.05847	0.0533
Std. Err.	0.03582	0.042634
t(31)	29.5529	1.250182
p-level	0.00000	0.220588

Source: IMF (n.d.)

The real gross domestic product fluctuated between 1,481.90 and 2,414.77 (unit of measure: national currency in bn, constant prices) in the period 1990 -2023 in France. π was 1.05847. Further, according to the logistic equation (9), for $1 < \pi < 2$ all solutions monotonically increase in France in the observed period.

Table 3. The estimated model (11): Germany, 1990-2023.

	R=0.9839 Variance explained: 96.806%	
	π	υ
Estimate	1.04326	0.035538
Std. Err.	0.03694	0.044454
t(31)	28.2446	0.799433
p-level	0.00000	0.430123

Source: IMF (n.d.)

The real gross domestic product fluctuated between 2,112.84 and 3,389.90 (unit of measure: national currency in bn, constant prices) in the period 1990 -2023 in Germany. π was 1.04326. Further, according to the logistic equation (9), for $1 < \pi < 2$ all solutions monotonically increase in Germany in the observed period.

Table 4. The estimated model (11): Italy, 1990-2023.

	R=0.9839 Variance explained: 96.806%	
	π	υ
Estimate	1.14933	0.156016
Std. Err.	0.06900	0.074837
t(31)	16.656	2.084751
p-level	0.00000	0.045421

Source: IMF (n.d.)

The real gross domestic product fluctuated between 1,411.89 and 1,761.84 (unit of measure: national currency in bn, constant prices) in the period 1990-2023 in Italy. π was 1.14933. Further, according to the logistic equation (9), for $1 < \pi < 2$ all solutions monotonically increase in Italy in the observed period.

Table 5. The estimated model (11): Japan, 1990-2023.

	R=0.9839 Variance explained: 96.806%	
	π	υ
Estimate	1.08148	0.081955
Std. Err.	0.05001	0.055763
t(31)	21.62707	1.46970
p-level	0.00000	0.15172

Source: IMF (n.d.)

The real gross domestic product fluctuated between 426,629.20 and 566,401.42 (unit of measure: national currency in bn, constant prices) in the period 1990 -2023 in Japan. π was 1.08148. Further, according to the logistic equation (9), for $1 < \pi < 2$ all solutions monotonically increase in Japan in the observed period.

Table 6. The estimated model (11): UK, 1990-2023.

	R=0.9839 Variance explained: 96.806%	
	π	υ
Estimate	1.06774	0.062431
Std. Err.	0.03540	0.042608
t(31)	30.16011	1.465242
p-level	0.00000	0.152925

Source: IMF (n.d.)

The real gross domestic product fluctuated between 1,220.83 and 2,238.07 (unit of measure: national currency in bn, constant prices) in the period 1990 -2023 in the UK. π was 1.06774. Further, according to the logistic equation (9), for $1 < \pi < 2$ all solutions monotonically increase in the UK in the observed period

Table 7. The estimated model (11): U.S., 1990-2023.

	R=0.9839 Variance explained: 96.806%	
	π	υ
Estimate	1.03853	0.020177
Std. Err.	0.02156	0.07934
t(31)	48.17887	0.722318
p-level	0.00000	0.475513

Source: IMF (n.d.)

The real gross domestic product fluctuated between 9,371.48 and 20,941.11 (unit of measure: national currency in bn, constant prices) in the period 1990 -2023 in the U.S. π was 1.03853. Further, according to the logistic equation (9), for 1 $\pi < 2$ all solutions monotonically increase in the U.S. in the observed period.

5. CONCLUSION

This paper creates the chaotic economic growth model. A key hypothesis of this work is based on the idea that the coefficient $\pi = \rho$ / (ρ+ $\beta(\gamma + \delta - 1)$ plays a crucial role in explaining the local economic growth stability, where, β - the share of investment that is used for investment in unmanned aerial systems in agriculture, ρ – the ratio of investment in unmanned aerial systems in agriculture and the change in the value of the gross domestic product (GDP), γ- the government expenditure rate, δ – the net exports rate.

An estimated value of the coefficient π confirms stable economic growth in the Group of Seven (G7) (France, Germany, Italy, the United Kingdom, Japan, the United States, and Canada) in the observed period.

References

Benhabib, J., & Day, R. H. (1981). Rational Choice and Erratic Behaviour, *Review of Economic Studies* 48: 459-471.

Day, R. H. (1983). The Emergence of Chaos from Classica Economic Growth. *Quarterly Journal of Economics* 98: 200-213.

FAO. (2018). E-agriculture in Action: Drones for Agriculture http://www.fao.org/3/i8494en/i8494en.pdf

Goodwin, R. M. (1990). Chaotic Economic Dynamics. Clarendon Press, Oxford.

Grandmont, J. M. (1985). On Endogenous Competitive Business Cycles. Econometrica 53: 994-1045.

IMF. (n.d.). www.imf.org

Jablanovic, V. (2022). The Golden Ratio and the Equilibrium Stock Market Index in Elliott Wave theory. Aracne . Roma ISBN 979-12-218-0318-1

Li, T., & Yorke, J. (1975). Period Three Implies Chaos. American Mathematical Monthly 8: 985-992.

Lorenz, E. N. (1963). Deterministic nonperiodic flow. Journal of Atmospheric Sciences 20: 130-141.

May, R. M. (1976). Mathematical Models with Very Complicated Dynamics. Nature 261: 459-467

Stokenberga, A. & Catalina O. M. (2021). Unlocking the Lower Skies: The Costs and Benefits of Deploying Drones across Use Cases in East Africa. International Development in Focus; World Bank Publications

Završnik, A. (Ed). (2016). Drones and Unmanned Aerial Systems.Legal and Social Implications for Security and Surveillance. Springer.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.123

BAT Techniques in Agribusiness through the Prism of Sustainable Development in the Republic of Serbia

Milena Milojević[1]
Suzana Knežević[2]
Jelena Ignjatović[3]

Received: April 5, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
BAT;
Techniques;
Agribusiness;
Sustainable development;
Serbia

Abstract: *Today's climatic, ecological, and social challenges impose pressure on decision-makers to provide systemic solutions in all areas of business, including agribusiness. The changes that take place within the domestic regulatory framework need to be harmonized with the international legal framework of the sustainable development of the European Union. This will directly affect new solutions for achieving the goals of sustainable development. Modern livestock farms imply the use of modern agricultural mechanization following BAT techniques. The application of the principles of BAT techniques should be included in all stages of the production process on the farm. This includes planning, operation, maintenance as well and closing the farm according to acceptable technical and economic conditions, all to achieve the highest possible level of environmental protection. This work aims to point out the importance of BAT techniques in agribusiness through the prism of sustainable development in the Republic of Serbia. The first part of the paper analyzes the impact of global trends on agribusiness in Serbia. The second part indicates the importance of applying BAT techniques for sustainable development, while the third part of the paper examines the possibility of applying BAT techniques from the aspect of animal husbandry.*

1. INTRODUCTION

Today's global challenges have a long-term impact on climate, environmental and social factors. Considering that sustainable development is being pursued more and more, there is increasing pressure to provide systemic solutions, in all areas of business, and therefore also in agribusiness. Sustainable agricultural development implies the preservation of soil, water, plant and animal resources, while it is technically applicable, economically profitable and socially acceptable (Ristić, 2023). Considering that the pillars of sustainable development are economic, social and ecological, all three pillars must be harmonized (Vučić, 2006).

Agriculture as an economic branch affects economic development directly and indirectly, which together through the application of appropriate measures, can improve the state of agribusiness. Some of the measures can be related to increasing the participation of large commodity producers (which would increase the productivity of production), regulating the market of agricultural products, increasing the role of the state through increasing the agricultural budget (larger participation of subsidies or premiums for further development), construction of irrigation systems, education of the population, increase of investments, development of small agribusiness and entrepreneurship and faster implementation of standards (Tomić & Tomić, 2011).

[1] Academy of Applied Studies, Unit for Agricultural and Business Studies and Tourism, Vojvode Putnika 56, Šabac, Serbia
[2] Academy of Applied Studies, Unit for Agricultural and Business Studies and Tourism, Vojvode Putnika 56, Šabac, Serbia
[3] Academy of Applied Studies, Unit for Agricultural and Business Studies and Tourism, Vojvode Putnika 56, Šabac, Serbia

Bearing in mind the social and economic changes that the Republic of Serbia has faced in the last few decades, there is an urgent need to create adequate solutions for the most efficient functioning (Kočović & Radovanović, 2014). Changes within the domestic regulatory framework need to be harmonized with the international legal framework of sustainable development of the European Union (Tasić, 2015), which results in the creation of solutions for sustainable development goals.

Best Available Techniques (BAT) have been introduced by IPPC Directive 96/61/EC and are in accordance with the Law on Integrated Prevention and Control of Environmental Pollution („Sl. glasnik RS" br. 135/2004, 25/2015 i 109/2021). Their definition can be given according to the abbreviation BAT, where: B - "best" implies the most effective performance in achieving a high general level of environmental protection; A - "available" means a technique developed to a degree that enables application in a certain industry sector under economically and technically acceptable conditions, including costs and benefits, (if it is available to the operator under normal conditions); T - "technique" means the way a facility is designed, built, maintained, operated and decommissioned or closed, including the technology used. BAT is accompanied by reference documents known as BREFs for different sectors (Stafford, 2015).

This work aims to point out the importance of BAT techniques in agribusiness through the prism of sustainable development in the Republic of Serbia. The first part of the paper analyzes the impact of global trends on agribusiness in Serbia. The second part indicates the importance of applying BAT techniques for sustainable development, while the third part of the paper examines the possibility of applying BAT techniques from the aspect of animal husbandry.

2. IMPACT OF GLOBAL TRENDS ON AGRIBUSINESS IN SERBIA

Sustainable development as one of the most popular phenomena today, especially within the framework of the Agenda for Sustainable Development until 2030, created by the United Nations, is aimed at balancing numerous economic, environmental and social development goals, as well as the importance of the institutional component (Ristić, et al., 2019). Contemporary challenges of agricultural development in the Republic of Serbia are the subject of research by many domestic and foreign authors (Ristić, 2013), who deal with trends and modernization in agribusiness (Vujičić, 1997).

Today, rural areas around the world, and therefore also in the Republic of Serbia, face numerous internal and external challenges, especially environmental, technical-technological, institutional, economic-financial, social, regional, global, and similar (Kvrgić & Ristić, 2019). The global pandemic of COVID-19 also caused adaptation to new living conditions (Ignjatović et al., 2021), so the question arises as to what the real consequences will be for sustainable development.

In the world, the national strategy of agribusiness is defined and oriented primarily towards development goals, which consist of optimal use of available resources in agriculture, increasing the intensity (yield) of production, and increasing the volume of total production (Avdić, 2017). Thus, the development strategy is based on two models (Drobac, 2008):

- A model of agricultural growth, which means economic progress without radical qualitative changes;
- The development model is characterized by radical changes, including restructuring. This model is based on export orientation with an emphasis on increasing efficiency and changes in the production structure.

Serbian agriculture is based on small family farms with low labor productivity and small surpluses in production. The Agriculture and Rural Development Strategy of the Republic of Serbia for the period 2014-2024, defines the goals, priorities, and frameworks of political and institutional reforms in this area, as key internal challenges for the development of rural areas of the Republic of Serbia, are stated (SPRR, 2014):

- sustainable management of resources;
- knowledge transfer and technical-technological progress;
- increasing competitiveness;
- development of the food chain, with logistical support to the sector;
- development of rural areas and strengthening of the social structure of rural communities.

To adequately valorize agribusiness and increase its attractiveness, in the Republic of Serbia, it is necessary to infrastructurally modernize the villages, increase the profitability of agriculture and other activities in the countryside, encourage the development of rural tourism, small and medium-sized enterprises, develop agricultural business centers, implement permanent education of the rural population, better connect with international organizations, improve the promotion of sustainability, include environmental measures, follow new scientific trends (Milenković, 2007). That is why the development strategy of agribusiness should take into account natural and demographic factors, infrastructure, support from institutions and the legal and economic environment (Plojović & Bušatlić, 2011).

3. IMPORTANCE OF APPLYING BAT TECHNIQUES FOR SUSTAINABLE DEVELOPMENT

Sustainable agriculture is the production of food, fiber, or other plant or animal products, using agricultural techniques that protect the environment, public health, the human community and respect the principles of animal welfare. This form of agriculture enables the production of healthy food, without endangering production resources for future generations and leaves the possibility for them to do the same. The use of BAT techniques is one of the ways to achieve the goals of sustainable agricultural production.

4. BAT TECHNIQUES AND ANIMAL HUSBANDRY

The BAT concept as a regulatory standard is used to replace or improve existing legislative regulations as rules of good agricultural practice. Its application means that farmers will use techniques, methods and processes, which effectively prevent emissions into the environment and which are most effective in achieving a high level of protection for the environment as a whole (Möckel, 2015).

For operators of industrial and agricultural activities with a high potential for environmental pollution and endangering human health, including farms for intensive breeding of poultry and pigs that exceed certain capacities (projected number of places for housing animals), the European Union (EU) defines obligations and conditions which they must respect. For these reasons, an integrated permit was introduced, to prevent or reduce air, water and soil pollution, noise and vibration emissions, and the amount of waste (generated in industrial and agricultural complexes), with the efficient use of energy and other resources, i.e. ensuring high levels of environmental protection.

The permit prescribes monitoring that controls emissions into all environmental media, as well as the application of the best available techniques - BAT. Farms with intensive livestock production, for which it is necessary to obtain an integrated permit in terms of capacity, are characterized by a high degree of specialization and organization.

Activities on poultry and pig farms that can potentially affect the environment are pollution of surface and underground water (e.g. N_2O – and NH_3 +); acidification (NH_3, SO_2, NO_X); eutrophication (N, P); air pollution, especially NH_3, N_2O, NO, dust, (PM_{10} and $PM_{2.5}$), bio-aerosols; increasing the greenhouse effect (CO_2, CH_4, N_2O); drying (due to the use of underground water); local disturbance (unpleasant smells, noise); diffuse spread of pesticides and toxic substances; spread of pathogens, including antibiotic-resistant pathogens; appearance of pharmaceutical product residues in water (Stafford et al., 2017).

According to research by Stafford et al. (2017), BAT techniques are singled out, the application of which on pig and poultry farms can reduce the negative impact on the environment:
- environmental management systems (EMS);
- good agricultural practice in the field of environmental management (site selection and spatial aspects, education and training; activity planning, emergency planning and management, cleaning, repair and maintenance, fodder storage, storage and disposal of dead animals);
- animal nutrition (multi-phase diet, low-protein diet supplemented with amino acids, adding the enzyme phytase to achieve a phosphorus-balanced diet in poultry and pigs, highly digestible inorganic phosphates in the diet);
- techniques for efficient use of water;
- techniques for efficient use of energy;
- techniques of noise emission into the environment (choice of ventilation system and equipment, ventilation design and construction of the facility, operational measures);
- techniques for reducing dust emissions (techniques for reducing dust emissions inside the facility for housing animals, techniques for reducing dust concentration inside animal facilities, air purification systems);
- techniques for reducing unpleasant odors (general measures, dilution of unpleasant odors);
- techniques for protecting soil and water from emissions from liquid manure storage (storage tanks, earth lagoons for liquid manure, measures to detect and prevent leaks in liquid manure storage, manure collection and transport systems);
- spreading manure on the fields.

The farm "Ruklada" from Lajkovac can be singled out as an example of good practice in the application of BAT techniques. The production capacity of the farm is 336,000 broiler chickens in one cycle, i.e. 1,580,000 broiler chickens per year. The resource savings of this farm compared to classic farms that do not use BAT are:
- Lower water consumption due to regular monitoring of consumption, use of efficient watering cans and dry cleaning procedure;
- Lower energy consumption, due to well thermally insulated buildings, efficient LED lighting and automatic control of fan operation - lower carbon dioxide (CO) emissions;
- A smaller amount of ammonia (NH), methane (CH) and particulate matter (PM) released from breeding facilities due to process control, application of a special feeding regimen, use of long straw for mats and effective ventilation;
- Fewer deaths due to automatic production control and improved technological parameters;

- By acting in accordance with the principles of the circular economy and handing over the manure for further use, emissions of nutrients such as nitrogen (N), phosphorus (PO) and potassium (KO) into water and soil, as well as emissions of ammonia (NH) into the air, were avoided, in relation to the usual practice of manure storage (IED, 2023).

An illustration of the savings is shown in Figure 1.

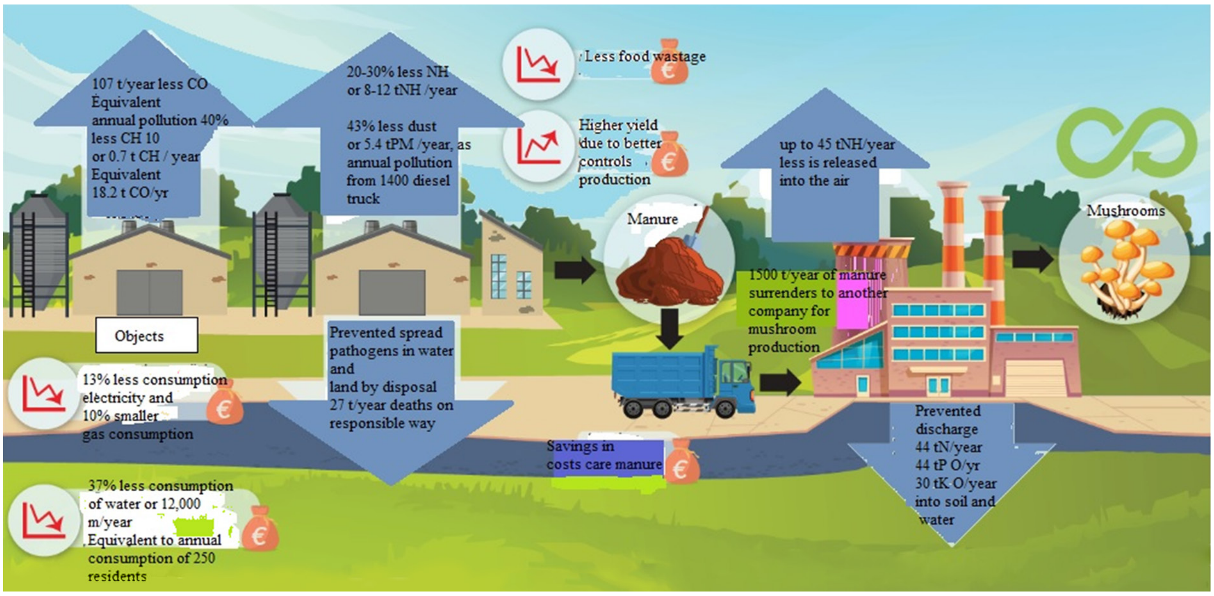


Figure 1. Savings of resources by applying BAT techniques on the farm "Ruklada"
Source: IED, 2023.

5. CONCLUSION

Favorable climatic conditions and abundant land resources are essential prerequisites for the development of agribusiness in the Republic of Serbia. However, numerous shortcomings refer to limited financial resources for investments, insufficient application of modern technologies in the agricultural and food sector, underdeveloped rural infrastructure, etc. The future development of agribusiness in the Republic of Serbia is significantly determined by internal factors, such as sustainable resource management, technical and technological progress, increasing the competitiveness of agribusiness, development of the food chain, development of the logistics sector, and others. However, external factors related to climatic, ecological and social changes should not be neglected. Sustainability in animal husbandry can be achieved by applying BAT techniques because it is based on the sustainable use of available resources and technologies. BAT techniques in animal husbandry, especially on pig and poultry farms, are regulated in Serbian legislation and harmonized with relevant EU directives. Their practical implementation is necessary because farms are recognized as major sources of environmental pollution.

References

Avdić, P. (2017). Strategija razvoja agrobiznisa. Doktorska disertacija. Novi Sad: Univerzitet privredna akademija-FIMEK.

Council Directive 96/61/EC (IPPC). OJL 257. Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996L0061:en:HTML, accessed April 3, 2023.

Drobac, M. (2008). *Menadžment u agrobiznisu - teorija i stvarnost.* Novi Sad: Fakultet za pravne i poslovne studije.

IED. (2023). Smanjenje industrijskih emisija-dobrobit za sve. Available at https://iedserbia.org/wp-content/uploads/uspesna-prica-ied-srbija-lajkovac.pdf

Ignjatovic J., Kisin J., Mashovic A. (2021), *Economic aspects of the COVID-19 pandemic in the Western Balkans region*, International conference Sustainable Economic transformation in the post-pandemic period, (pp. 63-88), Sremska Kamenica: Educons University.

Kočović, M., & Radovanović, B. (2014). Novi podsticaji agroindustrijskom sektoru i njihovi doprinosi uravnoteženom razvoju". In: *Deindustrijalizacija u Srbiji: mogućnosti revitalizacije industrijskog sektora.* Institut ekonomskih nauka, Beograd, pp. 606-616.

Milenković, S. (2007). Ekonomski odnosi tradicionalnog i savremenog u ruralnom prostoru Republike Srbije. *Tradicionalno i savremeno u radu i životu ljudi u selu.* Beograd: Zavod za proučavanje sela.

Möckel, S. (2015). 'Best available techniques' as a mandatory basic standard for more sustainable agricultural land use in Europe?. *Land Use Policy*, 47, 342–351. doi:10.1016/j.landusepol.2015.04.021.

Plojović, Š., & Bušatlić, S. (2011). *Značaj strategijskog planiranja u agrobiznisu.* Novi Pazar: Internacionalni Univerzitet Novi Pazar.

Ristić, L. (2013). Strategijsko upravljanje održivim ruralnim razvojem u Republici Srbiji. *Ekonomski horizonti,* 15(3), 229 – 243.

Ristić, L., Bošković, N., & Despotović, D. (2019). Održivi integralni razvoj poljoprivrede i turizma u Republici Srbiji. *Ekonomski horizonti*, 21(1), 57-74.

Sl. glasnik RS" br. 135/2004, 25/2015 i 109/2021. Zakonom o integrisanom sprečavanju i kontroli zagađivanja životne sredine. Available at https://www.paragraf.rs/propisi/zakon_o_integrisanom_sprecavanju_i_kontroli_zagadjivanja_zivotne_sredine.html.

SPRR. (2014). *Strategija poljoprivrede i ruralnog razvoja Republike Srbije za period 2014*-2024. "Službeni glasnik RS", br. 85/14.

Stafford, T. (2015). Smernice za izbor najboljih dostupnih tehnika (BAT) za intenzivne poljoprivredne aktivnosti. Available at http://www.ippcfarms.org/code/uploads/2015/06/Smernice-za-izbor-najboljih-dostupnih-tehnika-BAT-za-intenzivne-poljoprivredne-aktivnosti-Tom-Stafford.pdf, accessed April 3, 2023.

Stafford, T., Sweeney, P. L., Clinton, F., Janković, E., Stevanović Čarapina, H., Bijelić, M., Stamenić, M., Ćosović, A., Spajić, R., Quaggiato, R., & Vukadinov, B. (2017). Integrisano sprečavanje i kontrola zagađivanja životne sredine u sektoru intenzivnog uzgoja živine i svinja - Priručnik za izradu zahteva za integrisanu dozvolu. Tehnološko-metalurški fakultet Univerziteta u Beogradu, Beograd. Available at http://www.ippcfarms.org/code/uploads/2017/05/IPPC-Manual-sr_WEB.pdf.

Tasić, S. (2015). Implementacija agroekonomske politike EU na poljopivredni i ruralni razvoj Republike Srbije. Doktorska disretacija. Novi Sad: Univerzitet privredna Akademija.

Tomić, R., & Tomić, D. (2011). Proizvodni potencijal agroprivrede Srbije - Faktor unapređenja konkurentnosti. *Škola biznisa,* (3), 1-10.

Vučić, S. (2006). Održivi poljoprivredni i ruralni razvoj – SARD koncept. U *Obnova i razvoj seoskih zajednica na marginalnim područjima* (str. 71-80). Beograd, Republika Srbija: Zavod za proučavanje sela.

Vujičić, M. (1997). Ruralni i agrarni razvoj: šta i kako dalje. *Ekonomika, 43*(4-6), 166-172.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.129

A European Perspective on Engaging and Supporting Civil Society Organisations in Local Territorial Development

George Mihael Manea[1]

Received: April 24, 2023
Accepted: September 19, 2023
Published: October 30, 2023

Keywords:
Roadmap;
Agriculture;
Governance;
Capacity Building;
Sustainable Development Goals

Abstract: *In an inter-connected world, having strong interdependencies, the transfer of know-how represents a blueprint for development. In a transition from global to local, in order to stimulate the challenges of local development, it is paramount to understand how to act, to connect civil society with local authorities, and to create a dynamic and multi-stakeholder dialogue. Development at the local level could lead to a more engaged civil society and more predictable governance from the local authorities; for example, developing a comprehensive set of policies could contribute to a food-secure population, but also tackle issues related to transparency and accountability. The practical experience of the author in Gabon and Sao Tome and Principe will bring an innovative and original approach to complement the existing literature with the reality of the project cycle on the ground, in two specific areas such as agriculture and good governance.*

1. INTRODUCTION

The European Union's (EU) strategy to reach local territorial development in beneficiary countries was also based on building capacities, training and empowering Civil Society Organisations (CSOs), in line with the Sustainable Development Goals (SDGs). In this regard, CSOs could be seen as an essential stake in effective democracies, a means to improve decision-making processes, a factor of social cohesion and a powerful channel to legitimise local power (Keita et al., 2015).

The EU, through its cooperation with partner Governments in beneficiary countries, seeks "to scale up public authorities' capacity to work constructively with civil society, increasing trust and competencies to build up dialogue and opportunities for partnerships" (European Commission, 2012a, p. 6). As a direct consequence of this, civil society becomes more prepared and ready to contribute to civic education by "paying more attention to developing civic capacity in a way that it is better linked to local government" (Smoke, 2013). It represents a step forward for civil society to create real synergies and to continue the fight against poverty challenges, widening inequality, social exclusion and unsustainable development (Subject 2).

The CSOs should grow in environments where political, economic, and social development is possible at the local level. Otherwise, there might be a risk of having a large number of CSOs that are not used to working in synergy, being in permanent competition. In addition, there are not enough funds for all of them, and their life become very short without funding (Subject 4). In addition, the nature of the CSOs opens a new door for discussions, especially in beneficiary countries, where the non-political nature of these organisations will lead to building the right working environment.

[1] University of Bucharest, Romania

Furthermore, CSOs should not be influenced, nor corrupted, as they are the main drivers of project implementation on the ground: "they should not be involved in doing politics or seeking access to power, in this respect, they should be neutral and objective in their views and actions for development. At the same time, civil society should not be perceived as an opposition in front of the political actors" (Maison de la Société Civile au Bénin, 2015). In addition, the CSOs play "an important role in service delivery, complementing local and national government provision and piloting innovative projects" (European Commission, 2012a, p. 8).

The CSOs' true involvement in the public arena is based on "institutional support, constitutional and clear legal framework; proven technical skills; credible internal governance; capacity for mobilisation, representation, lobby and strategic communication" (Maison de la Société Civile au Bénin, 2015). Based on these criteria, the EU considers the dialogue between CSOs, local authorities, international donors and other stockholders should be "timely, predictable and transparent" (European Commission, 2012a, p. 8).

By having already this background information on the nature and role played by CSOs on the ground, the central aim of this paper is to examine the EU's strategy to engage with local stakeholders, mainly with civil society, to elaborate action plans and to implement technical assistance programmes in line with the SDGs. From this point of view, this paper will try to answer the research question: *"To what extent the EU supports the capacity building of civil society organisations in beneficiary countries and addresses the shortcomings of the two specific areas, agriculture in Gabon and governance in Sao Tome and Principe?"*. In terms of methodology, the current paper will be based on qualitative research methods ranging from EU official documents and local strategy papers to case studies and ground interviews.

The EU's engagement with civil society needs to foster a plan for the future, in line with the SDGs, having as main target the necessity of "building capacity targeted to proximate needs (and more demand driven) with appropriate follow up […] getting feedback, learning from experience and adjusting policy as needed" (Smoke, 2013). The EU is well known and respected for its foreign aid (especially for a wide range of funded opportunities), but also for trying to involve as much as possible the civil society in the development of its thematic programmes and project implementation (Subject 3).

Therefore, in order to better understand this bottom-up and top-down continuous dialogue, we will further explore throughout this paper how the EU has adopted a more participatory and inclusive approach in order to structure and map the needs of the civil society in Gabon and Sao Tome and Principe. Based on the CSO Sustainability Index, the aspects usually evaluated by international organisations refer to the working environment, legal framework, organisational and advocacy capacity, financial sustainability, service delivery, infrastructure and reputation. However, neither Gabon nor Sao Tome and Principe is situated in the highest category of sustainability (Louvouezo et al., 2015).

2. THE ROLE OF CSOS IN GABON (AGRICULTURAL SECTOR)

Gabon is a small country in Central Africa with a population of 1.8 million, out of which 14% is represented by foreigners, excluding a large number of unregistered immigrants. The economy is heavily dependent on oil, being exposed to fluctuations in price and income volatility. With two billion barrels of proven reserves, Gabon is the fourth largest oil producer in sub-Saharan

Africa. Although classified as a superior middle-income country, Gabon has nevertheless all the characteristics of a poor country, with very large inequalities and more than a third of its population under the poverty line (EU Delegation, 2015).

Agriculture is not only an important sector in Gabon, but also a valuable part of further local development and SDGs achievement. Gabon is a middle-income country, which means that economic and financial aspects should not constitute a real constraint to development, and the provision of services to the population should not be affected (Subject 2). However, mining, agricultural and forest sectors, while offering enormous potential in theory, are confronted with a low level of development. Starting from this point, it is important to focus the aid actions on crucial aspects, such as agriculture and capacity building at the local level. Ranked among the richest countries in Africa, Gabon has an economy based to a large extent on the exploitation of oil resources. This is why investing in local stakeholders and CSOs, sustainable development might be achieved, as "Africa is clearly viewed as a potential agricultural giant" (SPORE, 2014, p. 17).

On the other side, the Government wants to impose a new dynamic for the sustainable development of the agricultural sector at the national level. In this way, a series of problems need serious attention, such as lack of interest and expertise in agricultural issues at the national level which makes it difficult to ensure high-level production and regular supply of Libreville in food products; improving distribution channels to sell more and generate more incomes; and improving the living conditions of women interested in agriculture by raising their income level.

The National Strategy for Poverty Reduction (NPRS, 2012-2016) has been focused on diversifying agricultural production, increasing productivity, and developing the processing and market sectors. In the agricultural field, "food and vegetable production increased by 7% in 2014, primarily due to higher demand from restaurants and hotels. Overall, the agricultural sector has increased its contribution to GDP following the launch of an emergency plan for food security based on the promotion of agro-pastoral products (cassava, banana, rice, vegetables, poultry and pork), and fruit farm development programmes. Despite this, the sector remains underdeveloped with its potential constrained by infrastructure and logistical bottlenecks; especially limited access to credit. Consequently, Gabon remains largely dependent on the import of basic goods, such as wheat and rice" (World Bank, 2015, pp. 6-7).

In this geographical area, there are good weather conditions for agriculture, but this sector has been little supported, hence the country depends heavily on food imports because domestic production is not enough for the domestic market. Improving productivity, diversifying production, securing production systems, and enhancing the value of products through improved storage, processing and distribution chains, all of these should be part of an interconnected network. Moreover, "transparent communication related to natural resources lead to perspectives of change and poverty eradication" (SPORE, 2013, p. 12).

2.1. SWOT Analysis of the Civil Society in Gabon

According to the Association "Observatoire Gaboinais", the civil society in Gabon is fragmented, and poorly structured, with an insufficient level of internal communication. They have a weak capacity for financial management, lack of qualified human resources and conflicts of interest problems that make it difficult to move towards advocacy roles (i.e.: people working at the same time for the Government and in different NGOs to exercise their influence for a particular interest and/

or cause). In this regard, Gabonese CSOs should improve their positioning in the public arena, by carrying out initiatives to strengthen the participatory democracy, considering the demand for transparent and responsible governance is increasing (Subject 2). However, realistic perspectives can be enhanced through a SWOT analysis regarding the strengths, weaknesses, opportunities, and threats that Gabonese CSOs are facing, as presented in the table below.

Table 1. Gabon – Country SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
- Acceptance of political support to civil society reinforcement and development.	- Tendency to finance projects rather than processes; - Short-term vision with limited attention to build trust and collaborate with the State; - CSOs are not interested in defining a coherent strategy for action and a proper trajectory of institutional development as an actor of governance; - No use of political dialogue for advocacy, to improve the CSOs environment (especially the legal framework); - Lack of structured dialogue with the civil society.	- Complementary opportunities and synergies between the European Commission, Member States as well as Technical and Financial Partners.	- Political instability; - Restrictive policies for the CSOs formulated unilaterally by the Government; - Unrealistic ambitions to develop and support the CSOs as a governance actor.

Note: For thematic sectors, the EU insists on the importance of methodology in project proposals from the CSOs, the identification of targeted roles in the field (tasks and responsibilities), sustainable measures for project development and risk analysis. An integrated approach is needed by combining more factors such as increased household production, creating new opportunities for processing and storage, facilitating access to national markets, and better coordination between the State and civil society. Biological agriculture, such as cassava, for instance, can lead to a sustainable agri-food sector and creates agri-business perspectives.

Source: EU Delegation, 2015.

2.2. The Impact of Implemented Projects in the Field of Agriculture

The project "On mange local" was launched for a duration of three years, with the support of the EU Delegation, together with other 19 agricultural associations from the platform "Or Vert". The implementation of this project contributed to the progress of some development goals, such as SDG 2: zero hunger, SDG 3: good health and well-being, SDG 8: decent work and economic growth. The overall objective of the project was to strengthen the CSOs' capacities and to increase their involvement in policy initiatives for poverty reduction and the country's sustainable development through agriculture. Through these activities, the main goal was to reduce the dependency of Gabon on food products vis-à-vis the neighbouring countries, especially for bananas, cassava, and vegetable crops (e.g.: onion, pepper, tomatoes, cabbage, eggplant, etc.).

"On mange local" was a project that showed effective commitment and ownership towards local capacities development in order to give continuity in fighting rural poverty. By setting specific goals such as (i) increasing local food production to ensure better availability of low cost food products; (ii) improving household food security through a better protein-energy relationship; (iii) reducing rural poverty through increased agricultural income of the local stakeholders involved; thus, the non-oil economy (including agri-business) can create new employment opportunities in the agri-food sector, formalise the sector through greater professionalization of the operators and consolidate the results obtained in the scope of food security projects.

The added value of the project was represented by the involvement of international experts, with hands-on experience in agriculture, in charge of the technical support provided to the farmers.

Their involvement was required especially in terms of (i) planning development for agricultural work, (ii) checking and finding solutions for possible sanitation and technical problems, (iii) monitoring compliance with the use of fertilizers and pesticides, (iv) and implementing agricultural techniques that allow the soil conservation. Another important step is to build synergies between the stakeholders involved in order to improve the production flow, to set-up trade agreements with resellers and retailers (as part of the distribution chain) and to facilitate the flow of local products on the market. Once the goods and local products arrive on the market, it is equally recommended to create a brand that needs not only promotion strategies but also marketing and communication campaigns, therefore to stimulate and increase the demand.

At the economic and social level, the project also contributed to employment schemes (especially for women and people coming from vulnerable groups), promoted the national economy through the consumption of local products and reduced the import dependency on agricultural products. In addition, defining agricultural policies at the local and national levels, organising international seminars on food security, and drafting a policy against the phenomenon of land grabbing represent some concrete measures to ensure the sustainability of the project.

The project was designed to meet the needs expressed by the target groups (farmers, civil society and local authorities) in both urban and rural areas. However, additional risks that could affect the project at different stages have been taken into account in order to make the project sustainable: natural hazards risks (adverse weather conditions, high winds dangerous for some crops, bushfire during the dry season, elephants' invasion), economic risks (thefts, difficulties in trade and economic speculation), political and social risks (conflicts between farmers and population, low motivation and knowledge ownership between the main stakeholders, internal management difficulties: land law and property law problems).

It can be seen that agriculture and human rights are very close inter-connected. Agriculture is a complex sector and its development is dependent on favourable climate conditions and water access. Right to property becomes crucial not only for farmers but also for those interested in agricultural assets.

3. THE ROLE OF CSOS IN SAO TOME AND PRINCIPE (GOVERNANCE SECTOR)

Sao Tome and Principe is an agricultural country, highly dependent on cocoa cultivation, which generates 85% of export earnings. In the medium and long term, Sao Tome and Principe has also the ambition to develop the oil and the service sectors (especially based on eco-tourism). The State budget is 90% assured of international aid, coming from bilateral donors and multilateral banks such as the World Bank, the African Development Bank, the United Nations, the European Union, Portugal, France, Taiwan, and even Brazil and Angola. However, over 50% of the Sao Tome and Principe population continues to live in extreme poverty conditions (Campos, 2008, pp. 64-68).

Poor governance and the absence of transparency in data management of public and collective resources foster inequalities and underdevelopment. Therefore, it is important to stimulate public debate and make accessible the information in public arena, to create spaces for debate, and mechanisms for access to qualitative information, as well as to generate participation opportunities in the political and social dialogue, not only for the CSOs, but also for the citizens. Another problem is represented by the poor social dialogue on public policies, as CSOs are in most cases only informed and not involved in the definition of policies. On the other hand, the civil society – still new and fragile in Sao Tome and Principe – lacks the capacities and resources that could allow them to become an active partner in the monitoring process, but also create their monitoring mechanisms of governance.

Sao Tome and Principe are currently included in the OECD and World Bank lists of fragile states, in particular, because of the vulnerability of its economic structure and its insularity. A potential conflict might arise at any time, considering the country is not accompanied by good practices at the level of transparency and accountability. Codes of conduct and good working practices are highly required to achieve sustainable development, but also to spend money more responsibly at the national level.

Natural resources can lead to strong GDP growth without having necessarily a poverty reduction. However, the exploitation of extractive industries, combined with good governance, can generate resources for the benefit of the poorest populations and might lead to concrete improvements in people's lives. In this sense, it is crucial to have public access to budget information and to debate on the revenues utilisation, including monitoring capacity implementation for public policies and governance.

3.1. SWOT Analysis of the Civil Society in Sao Tome and Principe

As 90% of the investment budget in Sao Tome and Principe is guaranteed through international cooperation for development, the CSOs often manage to substitute the State – through their channels of funds absorption – especially in the social sector and governance area (Subject 1). The CSOs in Sao Tome and Principe are often replacing the State in many areas, trying to help and to provide services in governance, social and health sectors. Most of the development projects, managed by international and local NGOs, often represent how certain services are provided to the population.

To create a proper environment for cooperation and collaboration, as well as to ensure positive results and sustainable solutions, it is vital to strengthen technical capacity building and to enhance transparency in access and management of financial resources (Subject 1). In this way, the role of CSOs in monitoring and implementing public policies becomes more powerful, especially based on a SWOT analysis that identifies the strengths, the weaknesses, the opportunities, and the threats of the CSOs from Sao Tome and Principe, as highlighted in the table 2.

Table 2. Sao Tome and Principe – Country SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
- Acceptance of the importance of regular support to civil society; - Support offered to structure the civil society; -International NGOs play a catalyst role for the civil society.	- Tendency to finance projects as a service delivery rather than as a logical process; - Low level of complementarity between the various stakeholders in support of civil society; - The EU's dominant tool for projects implementation (i.e.: "Call for proposals") does not encourage CSOs to develop a coherent strategy for action and/or an institutional framework development as a governance actor; - Failure to take into account the concerns of emerging CSOs; - Absence of a structured dialogue with civil society.	- The will of the EU and Member States to make significant steps to consider CSOs as governance actors.	- Unrealistic ambitions in supporting CSOs (as governance actors) through the volume of cooperation and development.

Source: European Commission, 2015b.

3.2. The Impact of Implemented Projects in the Field of Governance

Good governance, guided by the principles of transparency, accountability and responsibility, can contribute to the country's development and improve the level of well-being of the whole population. Good governance is a window of opportunity for multilateral cooperation and a dynamic environment of synergies, complementarities and achievements (European Commission, 2016). The project "Civil Society Development through communication, training and advocacy" sought to address issues such as institutional dialogue to improve governance and transparency, communication and good monitoring practices. The implementation of this project contributed to the progress of some development goals, such as SDG 11: sustainable cities and communities and SDG 16: peace, justice and strong institutions.

The main goal of the project was to reinforce advocacy skills and capabilities of public policy management that could allow active participation in the political and social dialogue. The effective participation of the CSOs is a prerequisite to ensure that the benefits gained from natural resources are distributed more equitably: "when you try to influence policies and legislations, you are forced to work with the central government; you have to work with the central government" (Romeo, 2013). Moreover, the mechanisms of inspection and regulation should respond more to international worries than to the internal will of good governance and therefore require a real national appropriation: "appropriation is one of the mechanisms in place to ensure financial sustainability once the project support has come to an end. Without it, projects cannot be sustainable" (Subject 3).

Good governance and transparency are imperative, especially when a large amount of foreign aid is received by a beneficiary country: "if we have to choose who to help from a financial perspective, then it is very difficult, because there is no discrimination in development and aid should be provided to everyone. Practically speaking, giving priority to a particular category of the society, automatically means to disadvantage another social category" (Subject 4). Thus, advocacy initiatives, transparency and monitoring practices must be offered in return, as a guarantee that the aid provided has a positive impact on the ground.

Furthermore, the successful implementation of the project was based on a series of strategic pillars as follows: (i) the active participation of different target groups; (ii) the adhesion of the target groups to different social media channels; (iii) the ability to progressively build a collaborative environment between the Government and the civil society; (iv) the information disclosure in a timely and clear manner by the Santomean institutions; (v) good capacity for communication, organisation and coordination, by all the stakeholders that have been involved in the process of project implementation; (vi) the availability of trainers with the necessary requirements for the successful implementation of the planned activities.

The project sustainability depended on the financial, institutional, political, and environmental sustainability frameworks:

a) financial sustainability: the project increased its visibility over time and became a bridge for new partnerships, enabling the possibility of receiving more funds for financing the whole spectrum of the designed project activities;
b) institutional sustainability: the project allowed the direct involvement of target groups in various exchange opportunities and greater awareness through national campaigns of information and advocacy, therefore enhancing the multi-stakeholder cooperation on different layers;

c) political sustainability: the management of public finances and the investment in development have been an open discussion in the Santomean society, so as to influence the practices of the Santomean government at the level of accountability and transparency through the publication of various documents such as the proposed budget, the approved budget, the audit reports or the utilisation plan of natural resources;
d) environmental sustainability: some topics included reflection on the management of natural resources, not only in financial terms, but also on how to avoid negative effects and promote environmental sustainability in order to positively contribute to the country's development in short, medium and long term.

4. FUTURE RESEARCH DIRECTIONS

The current paper could represent an interesting starting point for further research and analysis, mainly on the role played by the key drivers of local development correlated with climate change and the achievement of SDGs by 2030 (i.e. agriculture in relation to climate change and governance as a catalyzer for climate policy initiatives). The impact can be reached by empowering local stakeholders and strengthening their capacity to improve their national environments. In addition, promoting regional dialogue and engaging in strategic thinking on issues related to climate change - as a cross-cutting factor of extreme poverty acceleration - will facilitate a gain in terms of technical expertise and will ease the process of environment protection and disaster prevention.

Civil society, local authorities and line ministries - in beneficiary countries - should contribute to inclusive economic growth and development of the green economy through the capacities of professional organisations and foreign aid, budget support and monitoring, awareness at all levels on the challenges of climate change (i.e. as it is already mentioned within the SDG 13 on climate action). The global architecture of aid requires more and more involvement of civil society, as they represent the closest category of the society able to solve the problem together with all international stakeholders that are committed and engaged to reach the development goals.

5. CONCLUSION

The EU is seen by the Governments of the beneficiary countries as a genuine partner, mainly because the EU could deepen democracy and play an important role in the implementation of national development policies (Subject 1). The EU is "a major global development player implementing most of its external assistance spending through a large, decentralised network of country and regional EU Delegations. They play therefore a crucial role in translating the EU's broad international cooperation and development policy objectives into effective action and results in the field" (European Commission, 2015a, p. 11).

This paper started in light of the main research question: "To what extent the EU supports the capacity building of civil society organisations in beneficiary countries and addresses the shortcomings of the two specific areas, agriculture in Gabon and governance in Sao Tome and Principe?". We've seen that the EU's commitment, through its EU Delegations and its Member States, should be reflected through the impact on the ground and to bring CSOs at a higher level of professionalism (including better internal governance, results-based management, mastery of techniques and development tools, monitoring and evaluation of public policies, etc.). There is a need for a greater involvement of CSOs in political life and it is equally important to increase the transparency in access and management of the resources. This is supposed to strengthen the CSOs role, both in terms of monitoring and implementation of public policies.

The two cross-cutting areas such as agriculture and good governance have been chosen according to the most specific needs of the African countries that have been analysed during the field research. In the case of Gabon, it was explained that it is a particular country, with emerging ambitions to develop its agricultural sector through the involvement of civil society. On the other side, Sao Tome and Principe is a country that counts on the support of international donors and technical assistance, which means that transparency and accountability in managing funds should be achieved through good governance to carry out development activities, projects and programmes.

However, it has been observed "the 'affectio societatis' of the African countries, beyond their great declarations, continue to remain weak" (Subject 3). The national CSOs, despite their activism in the country, have difficulties in presenting projects under the calls for proposal launched by the EU or other international donor-funding agencies, not only in terms of writing but also from a technical and financial capability point of view, which is generally insufficient to apply.

A tailored vision needs "an understanding of the actors, the environment they operate in, the national / sectoral / local processes of change they are engaged in, their interrelation with other relevant actors (the State, the private sector) and their own dynamics and governance systems" (European Commission, 2012b, p. 41). This shows the importance of the strategic approach, both in Gabon and Sao Tome and Principe, in the process of structuring civil society, as well as the importance of creating links between the local authorities and the technical and financial partners.

Based on what has been proved and highlighted in this paper, we can consider development as a "process directed at outcomes encapsulating improved standards of living and greater capacity for self-reliance in economies that are technically more complex and more dependent on global integration than before" (Kingsbury et al., 2004, p. 22). Good governance plays a key role in various development actions and should be taken into consideration by all actors and stakeholders involved in the SDGs implementation:

> "to support the domestic efforts, tailored to the needs and context of each society to build sustainable democratic states, resilient to external and internal shocks […] to promote accountable and transparent institutions, participatory decision-making and public access to information […] to promote effective multi-level governance, with the participation of vulnerable groups, through partnerships between national, sub-national and local governments […] to support and promote an open and enabling space for civil society, inclusive approaches and transparency in decision making at all levels" (European Commission, 2016, pp. 16-17).

As explained by the European Commission, all development efforts should be in line with the local needs and the country context. Increasing the level of resilience in developing countries can decisively contribute to avoiding possible shocks and being better prepared in terms of communication means, transportation systems, population movements, and shelters for food and water. Good governance leads to democratic systems and transparent institutions, making easier the identification and common management of resources at the national level. If these criteria are fulfilled, then CSOs can play an important role in decision-making processes at all levels. However, they need training to increase their capacities and capabilities, and the EU can transfer its know-how in the field.

References

Campos, F. (2008). "O lugar e o papel da cooperação internacional no desenvolvimento de São Tomé e Príncipe", in *Revista Lusófona de Humanidades e Tecnologias*, No.12, pp. 64-68.

EU Delegation. (2015). EU Delegation to Gabon, Equatorial Guinea, Sao Tome and Principe and the Economic Community of Central African States, *Gabon – EU Country Roadmap for Engagement with Civil Society*, first stage of the document editing (draft unpublished), Libreville, Gabon.

European Commission. (2012a). *The roots of democracy and sustainable development: Europe's engagement with Civil Society in external relations*, COM 492 final, September 12, Brussels.

European Commission. (2012b). *Mapping and Civil Society Assessments – A Study of Past, Present and Future Trends*, EuropeAid, Brussels.

European Commission. (2015a). *ROM Handbook. Results Oriented Monitoring*, Version 2.0, DG DEVCO, Brussels.

European Commission. (2015b). *Sao Tome and Principe – EU Country Roadmap for Engagement with Civil Society*, DG DEVCO, published by Roadmap Support Facility on Capacity4Dev Public Group on Civil Society, Brussels.

European Commission. (2016). *Proposal for a new European Consensus on Development. Our World, Our Dignity, Our Future*, COM 740 final, November 22, Strasbourg.

Keita, A., Kabore, A. J., Vignon, A., N'Sia, S., & Assogba, M. (2015). *Territorial Approach to Local Development*, TALD Workshop organised by DG DEVCO and ECDPM, November 23-25, Cotonou, Benin.

Kingsbury, D., Remenyi, J., McKay, J., & Hunt, J. (2004). *Key Issues in Development*, Palgrave Macmillan, New York.

Louvouezo, D., Mabala, R., & Nkundiye, S. (2015). President of REPONGAC / Regional Coordinator at REPONGAC / President of USYPAC, Lancement du forum régional des OSC d'Afrique Centrale, November 17, Libreville, Gabon.

Maison de la Société Civile au Bénin. (2015). *Actes du Colloque – Implication des Organisations de la Société Civile à la prise de décisions et à l'affermissement de la démocratie*, retrieved from http://www.mdscbenin.org/IMG/pdf/Actes_du_colloque_international.pdf

Romeo, L. (2013). *Three Basic Dimensions of Capacity Building of Local Authorities*, video transcript retrieved from https://europa.eu/capacity4dev/public-pub.sector-reform-decentralisation/minisite/50-videos-answer-your-most-burning-questions-regarding-decentralisation-and-local-govern-28

Smoke, P. (2013). *Regional Decentralization Trends, Challenges and Strategies*, retrieved from http://capacity4dev.ec.europa.eu/public-pub.sector-reform-decentralisation/document/regional-decentralisation-trends-challenges-and-strategieshttps://europa.eu/capacity4dev/public-pub.sector-reform-decentralisation/document/regional-decentralisation-trends-challenges-and-strategies

SPORE. (2013). "Wheels of change", published in *The Magazine for Agricultural and Rural Development in ACP Countries*, no.167, the Netherlands.

SPORE. (2014). "Emerging nations play the agricultural card", published in *The Magazine for Agricultural and Rural Development in ACP Countries*, no.170, the Netherlands.

World Bank. (2015). *Gabon Economic Update – Protecting The Poor Despite Slower Growth*, Issue 1, Libreville.

Guiding Interview Protocol

Subject 1, representative of the NGO Federation of Sao Tome and Principe, interview held on 12 January 2016, Sao Tome and Principe.

Subject 2, member of the Association "Observatoire Gabonais", interview held on 19 February 2016, Libreville, Gabon.

Subject 3, former representative of the EU Delegation to Gabon for Equatorial Guinea, Sao Tome and Principe and ECCAS, interview held on 12 August 2016, Brussels, Belgium.

Subject 4, Romanian diplomat with vast experience on the African continent, interview held on 28 August 2016, Bucharest, Romania.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.141

Significance of Financial Valuation of Brands in Agribusiness in Serbia

Jelena Ignjatović[1]
Ivana Vladimirović[2]
Borislav Kolarić[3]

Received: April 19, 2023
Accepted: August 28, 2023
Published: October 30, 2023

Keywords:
Financial valuation;
Brand;
Agribusiness;
Serbia

Abstract: *Agricultural production represents a significant financial and economic value of the Serbian economy. Today's food crisis has shown the importance of agribusiness for the economic development of both, countries in transition and Serbia. Therefore, modern management approaches, in the sphere of agribusiness, are gaining more and more importance. A large number of agricultural enterprises in Serbia derive part of their value from the strength of the brand they produce. That is why agricultural managers strive to increase the value of the company, through increasing the value of the brand. As the modern economy bases value on the customer, it is important to look at and determine the parameters of the company's value, through brand valuation. There are numerous examples of branded agricultural and food products in Serbia. These are traditional products, with a quality mark, made from high-quality domestic raw materials, according to a unique recipe and technological procedure. Such products usually have a mark of geographical origin and have recognizable characteristics. It adds value, that is realized, by selling on the market. In Serbia, the most common brands are the following products: meat, cheeses, wines, beers, water, honey and many other products obtained by processing domestic fruits and vegetables. Therefore, the goal of this paper is to determine the importance of the financial valuation of the brand in agribusiness in Serbia. In this paper, research was conducted based on data analysis through the synthesis of theoretical and empirical facts. From the methodological side, the work is based on the desk method of research, which covers synthesis, analysis, deduction and induction, but also methods of description of published scientific works, texts and documents related to brand valuation in agribusiness. In addition, the collected data were systematized. After the introduction, the paper primarily discussed the importance of product branding. The importance of the financial valuation of the brand in Serbia was analyzed with a focus on its financial effects, as well as the importance of product branding in Serbian agribusiness. At the end, a conclusion is given.*

1. INTRODUCTION

Today's agricultural production represents the foundation of agribusiness and the significant financial and economic value of the Serbian economy. The current food crisis has shown the importance of agribusiness for the economic development of countries in transition, to which the Republic of Serbia belongs. Thus, a large number of agricultural enterprises in Serbia derive part of their value from the strength of the domestic brand of which they are producers. That is why agricultural managers strive more and more to increase the value of the company, through increasing the value of the brand, because the modern economy of value is based on the customer.

[1] Academy of Applied Studies Šabac, Unit for Agricultural Business Studies and Tourism, Vojvode Putnika 56, 15000 Šabac, Serbia
[2] Academy of Applied Studies Šabac, Unit for Agricultural Business Studies and Tourism, Vojvode Putnika 56, 15000 Šabac, Serbia
[3] Academy of Applied Studies Šabac, Unit for Agricultural Business Studies and Tourism, Vojvode Putnika 56, 15000 Šabac, Serbia

Finally, it is important to look at and determine the company's value parameters, through brand valuation (Knežević, et al. 2013), because in the Republic of Serbia, there are numerous examples of branded agricultural and food products. This is actually about traditional products, with a quality mark, made from high-quality domestic raw materials, according to a unique recipe and technological procedure, which usually have a mark of geographical origin and recognizable characteristics. Given that added value is achieved by selling on the market, the most common domestic brands are based on the following products: meat, cheeses, wines, beer, water, honey and many other products obtained by processing domestic fruits and vegetables.

A brand belongs to the intellectual property of an agribusiness company, and it must be constantly improved and its value increased, with the ultimate goal of increasing market share, income, and profit. The main role of a brand in agribusiness is to create an image of the value of agricultural and food products to consumers. In that case, it becomes a kind of "product quality certificate" (Keegan & Green, 2008). The success of the brand depends on the ability of the agribusiness company to maintain its value while taking into account the activities of competitors (Kocić et al., 2013).

Therefore, the goal of this paper is to determine the importance of the financial valuation of the brand in Serbian agribusiness. After the introduction, the paper primarily discussed the importance of product branding. The importance of the financial valuation of the brand in Serbia was analyzed with a focus on its financial effects, as well as the importance of product branding in Serbian agribusiness. At the end, a conclusion is given.

2. THE ROLE OF THE BRAND IN THE MARKETING AND SALE OF AGRICULTURAL AND FOOD PRODUCTS

Branding is one of the most frequently mentioned terms when talking about competitive advantage and market positioning. Branding highlights the manufacturing and other advantages of the company and goes much further than traditional product presentation. Just as brands can lead to certain social benefits, they can also act as a powerful mechanism for consumer protection.

Sensory stimuli play an important role in creating a brand of agricultural and food products. By influencing the senses of hearing, sight, touch and smell of the consumer, one tries to attract their attention, which will ultimately lead to the final transactional step, i.e. the purchase of a certain agricultural and food product (Gobe, 2006).

In a situation of strong competitive struggle, in order to distinguish the manufacturer and his offer, the positioning of the brand of agricultural and food products represents the creation of an appropriate brand image in the minds of consumers. Kotler defines positioning as the act of creating the company's offer and image in such a way that it takes a special place in the consciousness of consumers from the target segment" (Kotler & Keller, 2006). The stronger the brand's position in the consumer's mind, the more likely it is that the brand will be considered for purchase. Strong, successful brands are more likely to be chosen in situations where consumer decision-making uncertainty arises.

Capon and colleagues distinguish several levels of distinction and in the recognition of a specific brand (Capon & Hulbert, 2001):

- There is no awareness of the brand ("I have never heard of the brand").
- Recognition: The brand is recognized in the list of printed brands.

- Recalling the brand with some help, e.g. when mentioned.
- Recalling the brand without help, i.e. it is not necessary to mention it.
- The first brand when a product is mentioned.
- Dominant brand is the only brand that comes to mind when a product is mentioned.

A brand of agricultural products must be directed to the right consumers in the right way. To be presented in the right way, one must know the attributes by which consumers value an agricultural product, in order to choose the desired position for a specific brand.

When consumers define a positive attitude about the brand, it leads to brand acceptance, that is, to a greater purchase of the brand. The best evidence that the product has succeeded on the market is when consumers insist on buying a defined and recognizable product and do not want to accept a substitute if this is not available in the retail store. The process of brand acceptance from the consumer's point of view is presented by Keegan with the following scheme (Keegan, 2013).

Ignorance of the brand

Information-Recognition-Acceptance-Brand preference

Insisting on the brand

Figure 1. Brand adoption process

Source: Keegan, 2013.

The created brand has had a stable status among consumers for a long time. This means that there are no major fluctuations in product demand and sales. Promotional activities should strive to ensure that the image that consumers have about the product is constantly present in the minds of consumers, in order to ensure stable demand.

3. SIGNIFICANCE OF FINANCIAL BRAND VALUATION IN SERBIA

The most famous definition of brand value was given by Aaker. According to this definition, the brand value represents "a set of assets and liabilities related to the brand, its name and symbol, which increase or decrease the value provided by the product or service" (Christodoulides & Chernatony, 2010, pp. 45-46). Brand value in agribusiness can be viewed from the perspective of the consumer and the perspective of the company. These two perspectives are connected in such a way that the financial value of the brand rests on the value of the brand for consumers (Vranješ et al., 2016).

In a turbulent market, with difficult-to-predict moves of the competition, the financial valuation of the brand in agribusiness is very necessary, especially in situations of mergers or takeovers of companies, joint ventures, investments, borrowing, etc. The financial value of a brand in agribusiness is not only information in financial reports but is extremely useful information for both internal and external stakeholders of the company and all those who can use it to make quality business decisions.

A brand should be seen as an investment in marketing and as a driver of profit creation. "The brand is a significant part of the company's property, which is intangible and requires a special assessment" (Pavlek, 2008, p. 373). Building a successful brand that has a high financial value is a long-term process and imperative for many companies in agribusiness, and only strong brands influence the increase of their financial value (Marinković, 2016).

The process of assessing the real financial value of a brand in agribusiness is complex and challenging. According to Abratt and Bick (2003), brand valuation can be divided into five categories: cost approach, market approach, economic benefit approach or profit-based approach, prescribed approaches (formulary approaches), and approaches in special situations (special situation approaches). Cost-based approaches start from the costs associated with brand creation or replacement, including the costs of product research and development, market testing, promotion, and product improvement.

The market-based approach is based on the amount for which the brand will be sold, while the benefit-based approach takes into account the valuation of future net earnings directly associated with the brand to determine the value of the brand in its current use. Prescribed approaches start from more prescribed criteria for determining the value of a brand, and most of the time, large global consulting companies have developed their valuation methods. Approaches for special situations are based on the fact that the value of the brand can be related to special or specific circumstances in the company's operations (Romić & Milenković, 2015).

According to the International Valuation Standards Council (2022), there are three basic approaches for valuing intangible assets (brands): 1) The comparison approach, 2) The income approach, and 3) the Cost approach. Each of these approaches contains methods adapted for the valuation of intangible assets under certain circumstances (Romić & Milenković, 2015). There are three key methods within this approach: 1) Royalty Relief Method; 2) Premium profits method (incremental income method), and 3) Excess earnings method or residual profit method.

According to the method of not having the burden of paying the license fee, the value of the intangible asset is calculated taking into account the hypothetical license payment, which the company would be charged if it did not own the brand. The license payment is determined based on a hypothetical license rate, as a percentage of the revenue expected from the use of the property, and that payment is discounted to the present value. The value of the brand according to this method is calculated as the present value of the total cash flow from savings on the license fee, which consists of discounted values expected in the planned period (Kolačević & Hreljac, 2012).

The premium profits method implies that the value of the brand is presented as the cash flow achieved by the branded product in relation to the non-branded product during its lifetime minus marketing costs and other costs. The obtained values are discounted to the present value at the cost of capital rate. According to this method, the value of the brand is based on the profit generated from the sale of branded products. The following formula is used for this (Romić & Milenković, 2015, p. 62):

Branded product profit – Similar non-branded product profit
= Profit realized on the basis of the brand

The excess earnings method (or the residual profit method) expresses the value of an intangible asset (brand) as the present value of the cash flow attributable to the intangible asset after excluding the portion of the cash flow attributable to other assets. Residual profit is calculated according to the formula:

Residual profit attributable to the brand =
Total realized profit – (return on other intangible assets + return on working capital)

4. PRODUCT BRANDING AND AGRIBUSINESS IN SERBIA

Contemporary conditions of agricultural and food production are characterized by constant changes in the market, among suppliers, competitors, technologies and consumers (Šojić, 2017). In recent decades, brands in Serbia have been gaining more and more importance. Brands are a reflection of the company's vision, values and philosophy of the organization (which attracts customers), but also the company's most valuable asset and the strongest weapon in the fight against competition (Bušatlić & Plojović, 2014). For many companies, most of the value comes from the growing strength of their brands, so management is constantly challenged to monitor brand capitalization, i.e. increase in the value of the company considering the increase in the value of the brand (Romić & Milenković, 2015). Bearing in mind that local enterprises are an instrument through which innovations and knowledge are introduced into development processes, knowledge accumulated in enterprises and organizations is one of the pillars of development, whereby the local environment can serve as an incubator of innovations (Miljanović, 2015).

Manufacturers and companies in Serbia are aware that the brand is an important part of marketing, with the help of which value is created for consumers on the market. That's why it needs to be managed. This is precisely why manufacturers invest significant financial resources, in order to build a brand that will distinguish their product from the products of other manufacturers, emphasizing its recognition, differentiation and easier identification, as well as strengthening ties and developing partnership relations with consumers (Šojić, 2017). The attractiveness of a product brand in Serbia is primarily based on (Aleksandrić, 2013):

- Comprehension (presence, awareness and knowledge);
- Comparative advantage (diversity, respect, performance, advantage and acceptability);
- History (heritage and nostalgia);
- Preferences (loyalty, intentions, value for money, overall consumer attitude, brand expansion potential);
- Relevance (persistence and activity of consumers in purchasing the brand).

Branding of the area is also very important, because it indicates quality to consumers, and it is used when the product has attributes or reputation that indicate the origin and quality of the product itself, thus adding value to the product. Thus, the importance of geographical origin in Serbia is best presented in the market of the food industry. In Serbia, the food and beverage market is characterized by a growing trend in demand for products. They are characterized by authenticity and tradition, i.e. additional value, which derives from the value of their quality, method of production, or specificity of the climate from which they come (Ministry of Agriculture, Forestry and Water Management, 2023). Thus, the geographical origin protection system represents one way of branding food and beverages, which are highlighted on the packaging. The team gives exclusivity to the product and directs the customer to a specific region or place and to the specifics that the product has.

In Serbia, 48 agricultural and food products have been protected by designation of origin or geographical indication at the national level so far (Sinadinović, 2022). Some of them are Užice bacon, Srem kulen, Srem homemade sausage, Srem salami, Pozarevac sausage, Rtanj tea, Krivovir cheese, Homolj sheep cheese, Homolj goat cheese and Homolj cow cheese. Vršac champion beer, Kladovo caviar, Apatin deer beer, Leskovac barbecue meat, Svrljig cheese, Futoski fresh and pickled cabbage, Homolj honey, Svrljig Belmuž are also protected by name of origin or geographical indication (Table 2).

According to the Ministry of Agriculture, Forestry and Water Management (2023), two types of labels are protected:

- Name of origin is the name of a specific place, region, or country, which marks the agricultural or food product that originates from there.
- A geographical indication is a name used to mark an agricultural or food product that originates from a certain place, region, or country and whose quality, reputation, or some other characteristic is due to its geographical origin.

Table 1. Certified food and agricultural products in Serbia, 2021.

Product with the designation of geographical origin	Tag type	Name of association/producer
Arilje raspberry	Name of origin	Association „ARILjSKA MALINA“, Arilje
Begeč Carrot	Geographical indication	General agricultural cooperative "Begečki povrtari", Begeč
Zlatar cheese	Name of origin	Zlatarski sir Association of Zlatarski Sir
Oblačinka from Oblačina	Name of origin	Association "OBLAČINSKA VISNJA", Merošina
Petrovska sausage	Name of origin	Miloš Pajić PR, production of meat products Small butcher Pajić, Bački Petrovac
Pirot cheese made from cow's milk	Name of origin	Mlekarska škola "Dr Obren Pejić", Pirot
Kulen of Srem	Name of origin	BUT & CO", Laćarak, Sremska Mitrovica
Fruškogorski linden honey	Name of origin	Association of beekeepers "JOVAN ŽIVANOVIĆ", Novi Sad
Futog fresh and sauerkraut	Name of origin	Association "FUTOŠKI KUPUS", Futog
Homolj honey	Name of origin	Beekeeping cooperative "HOMOLJE MED", Žagubica

Source: Ministry of Agriculture, Forestry and Water Management, 2023.

5. CONCLUSION

Today's agricultural production is significant for the financial and economic value of the Serbian economy. The food crisis has shown the importance of agribusiness for economic development in countries in transition to which the Republic of Serbia belongs. It is necessary to look at and determine the company's value parameters, through brand valuation, given that there are numerous examples of branded agricultural and food products. Given that added value is realized by selling on the market, the most common domestic brands refer to the following products: meat, cheeses, wines, beer, water, honey and many other products obtained by processing domestic fruits and vegetables.

References

Abratt, R., & Bick, G. (2003). Valuing Brands and Brand Equity: Methods and Processes**.** *The journal of applied management and entrepreneurship*, 8(1), 21-39.

Aleksandrić, J. (2013). Merenje vrednosti brenda-specifični aspekti brendiranja. Beograd: Center for career Development.

Bušatlić, S., & Plojović, S. (2014). Potencijal brenda u agrobiznisu.Naučna konferencija sa međunarodnm učešćem. Internacionalni Univerzitet. Novi Pazar.

Capon, N., & Hulbert, J. (2001). Marketing Management for the 21stCentury, Upper Saddle River: Prentice Hall.

Christodoulides, G., & Chernatony, L. (2010). Consumer-based brand equitz conceptualization and measurement. *International Journal of Market Research*, 52 (1), 43-66.

Gobe, M. (2006). *Emocionalno brendiranje*, Beograd: Mass Media Int.

International Valuation Standards Council. (2022). *International Valuation Standards*, Page Bros, Norwich, United Kingdom, available at: www.ivsc.org

Keegan, J. W., & Green, C. M. (2008). *Global Marketing*. London: Pearson Education Ltd.

Keegan, W. (2013). Global Marketing Management, 8th editon, New Jersey: Prentice Hall. Knežević, G., Stanišić, N., & Mizdraković, V. (2013). Analiza finansijskih izveštaja. Beograd: Univerzitet Singidunum.

Kocić, M., Šapić, S., & Kijevčanin, V. (2013). Strategic implications of Internet marketing plan, *Proceedings of the 2nd International scientistic conference: Contemporary issues in economics, business and management* (p. 217-226.), Kragujevac: Ekonomski fakultet, Univerzitet u Kragujevcu.

Kotler, F., & Keller, K. L. (2006). *Marketing Menadžment*, Beograd: Data Status.

Marinković, V. (2016). *Model upravljanja brendom u funkciji zasnivanja dugoročnih odnosa sa potrošačima*, doktorska disertacija, Beograd: Fakultet organizacionih nauka, Univerzitet u Beogradu

Miljanović, M. (2015). Model izgradnje brenda kao odrednice privrednog razvoja. Doktorska disertacija. Novi Sad: Fakultet tehničkih nauka Univerziteta u Novom Sadu.

Ministry of Agriculture, Forestry and Water Management. (2023). Poljopivredni i prehrambeni proizvodi sa zaštićenim geografskim poreklom. http://www.minpolj.gov.rs/ministarstvo/sektori/sektor-za-poljoprivrednu-politiku/grupa-za-kvalitet-deklarisanje-i-oznacavanje-hrane/grupa-za-oznacavanje-hrane-i-seme-kvaliteta-poljoprivrednih-i-prehrambenih-proizvoda/poljoprivredni-i-prehrambeni-proizvodi-sa-zasticenim-geografskim-poreklom/?script=lat

Pavlek, Z. (2008). *Branding – Kako izgraditi najbolju marku,* Zagreb: MEP

Romić, L., & Milenković, I. (2015). Finansijsko vrednovanje marke (brenda). *Ekonomski pogledi*, vol.17(4): 47-66.

Sinadinović, Z. (2022). Ajvar, malina, kulen, kobasica, sir – šta još može na spisak "zaštićenih", Beograd: Radio televizija Srbije.

Šojić, S. (2017). Kreiranje brenda organskih poljoprivredno-prehrambenih proizvoda u Republici Srbiji. Doktorska disertacija. Novi Sad: Poljoprivredni Fakultet Univerziteta u Novom Sadu.

Vranješ, M., Jovičić, D., & Drinić, D. (2016). Vrednovanje brenda iz perspektive potrošača. *Marketing*. 47(2), 129-136.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.149

Management of Land Consolidation Projects

Žarko Nestorović[1]
Milan Trifković[2]
Miroslav Kuburić[3]
Bogdan Bojović[4]

Received: September 9, 2023
Accepted: September 11, 2023
Published: October 30, 2023

Keywords:
Environment;
Decision making;
Leader;
Manager

Abstract: *Land consolidation (LC) is a complex process conducted to rearrange the land property, or more precisely, rearranging the parcel shape and position including optimization of roads and irrigation systems. LC includes a lot of activities provided in a very sensitive and unpredictable environment because it deals with land property and land owners (farmers) who could behave in concordance with their perception of land property value and their value system. Bearing in mind the long period of land consolidation projects, the land owners could change their initial opinion formed at the beginning of land consolidation projects' realization. All these facts additionally increase the complexity of the land consolidation process. The lack of literature in the domain of leadership and management during the land consolidation process inspired authors to open discussion about that issue.*

1. INTRODUCTION

Land consolidation is a complex lasting process with great importance and effectiveness in the domain of sustainable development (Wójcik-Leń et al., 2019). This process is also burdened by different sources of risk (Marinković et al., 2015) and with its specific characteristics (Nestorović, 2012). The main focus of literature related to land consolidation is directed at decision-making about project selection (Goran et al., 2021); integration of different assessments for land consolidation (Marinković et al., 2019) and cadastral municipalities ranking (Marinković et al., 2016). These researches imply that all steps in land consolidation projects are at risk and that the success of land consolidation projects is closely related to good leadership and good management (Trifković & Nestorović, 2017). Bearing in mind that land consolidation projects are realized under strict legal rules and principles it could be concluded that there is not too much place for managing land consolidation projects. The practice showed that this conclusion might be erroneous. To reduce the risks from the sources caused by unpredictable environment the authors state that establishing good management and leadership in the process of land consolidation could significantly contribute to the successful realization of land consolidation projects.

2. PROBLEM DEFINITION AND PROPOSED SOLUTION

Land consolidation may be considered as a process of transforming the actual state of land ownership and parcel shape to the more optimal one. In other words, it is necessary to transform the organization and shape of the parcel from the actual to the desired state. Figure 1 illustrates the transformed organization of parcels before and after land consolidation in Pirot municipality, Republic of Serbia.

1 Electric Power Company of Serbia PC EPS, Belgrade, Branch Djerdap, Kladovo, Serbia
2 Faculty of Civil Engineering, Subotica, Serbia
3 Faculty of Civil Engineering, Subotica, Serbia
4 Faculty of Civil Engineering, Subotica, Serbia

Figure. 1. Organization and shape of parcels before and after land consolidation
Source: Google Earth

The transformation from the actual state to the desired state of parcel shape and organization is illustrated in Figure 2.

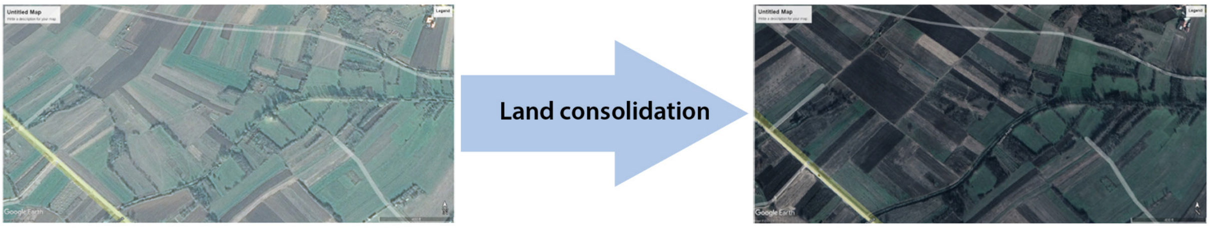


Figure 2. The transformation of shape and organization of parcels by land consolidation

It is obvious from Figure 2 that after land consolidation the shape and organization of the parcel are changed significantly and a road network is also implemented. This illustration does not stress the complexity and potential problems during land consolidation project implementation but only shows the state before and after land consolidation. In order to illustrate the complexity it is necessary to investigate the environment of land consolidation projects. The land consolidation project is usually realized in the environment of legal regulation, participants (land owners), local authorities, technical resources, LC goals, and natural limitations. Figure 3 illustrates the environment of the LC project.

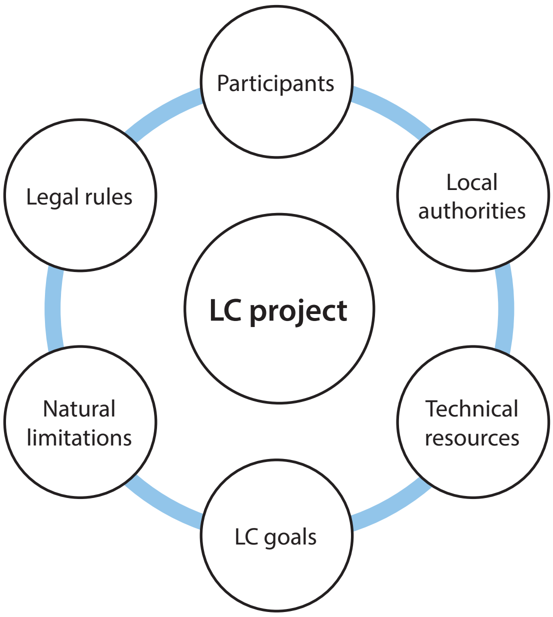


Figure 3. The environment of the LC project

The participants as a part of the environment are the most complex factor of the land consolidation process. Before all, the abundance of participants, that could count thousands of participants in the certain land consolidation process and subjectivity of the valuation of their land property. Another problem is the level of uncertainty: participants enter their land property which they know well in order to obtain some benefits after land consolidation but with some doubt (risk) if they really will obtain promised benefits after land consolidation. This can be a source of obstacles that could lead to the decision that the LC project is unfeasible.

- Legal rules mean that some conditions must be fulfilled which means that some institutions must be formed and they must work according to law.
- Local authorities also are an important part of the LC environment because they should provide the logistics for LC realization.
- Technical resources are mostly related to the number of experts, knowledge, experiences, technical staff, and other necessary elements for LC realization.
- LC goals might significantly limit the choices of solutions during LC project realization.
- Natural limitations are related to the topography, permanent plantings, and other objects (roads, railroads, irrigation systems, rivers, etc.).
- The environment could be described as complex and potentially turbulent and unfriendly. Hostility of the environment might be caused by the level of uncertainty about the benefits of LC.

Most of the problems and activities in the LC process are structured and predictable. This kind of activity could be covered by general management principles: planning, organizing and control. The manager of the LC project shall take care of the logistics and regulated part of the process. The manager should be an expert in managing of LC project mostly in the domain of legal rules, and technical knowledge and shall be able to harmonize the activities. The unstructured problems are mostly connected with the process of negotiating and the unpredictability of participants' reactions as well as with the appearance of problems that were unforeseen and could escalate. This analysis leads to the conclusion that including management and leadership in the project of land consolidation shall increase the probability of the successful realization of the LC project (Figure 4).

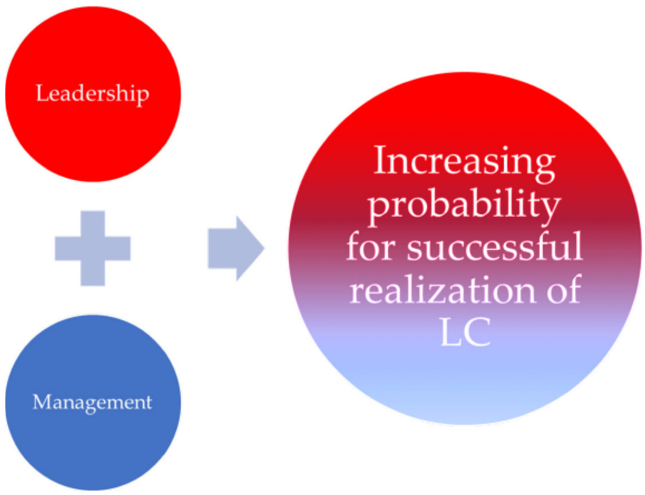


Figure 4. Relation between leadership, management and LC project

Considering the difference in knowledge and skills which shall have leader and manager it could be stated that both leader and manager shall have the same set of knowledge and skills but on a different level. For example leader shall be able to understand the context, shall be skilled in communication with external participants (farmers), and shall have human and social knowledge. Technical knowledge about LC is desired for the leader but he is not expected to organize the work on site. Managers, on the other side, must be experienced and skilled in providing LC projects which implies technical knowledge, organizational skill, and knowledge about regulation in the domain of LC while human and social knowledge is of less importance. Figure 5 illustrates the leadership and management in LC projects.

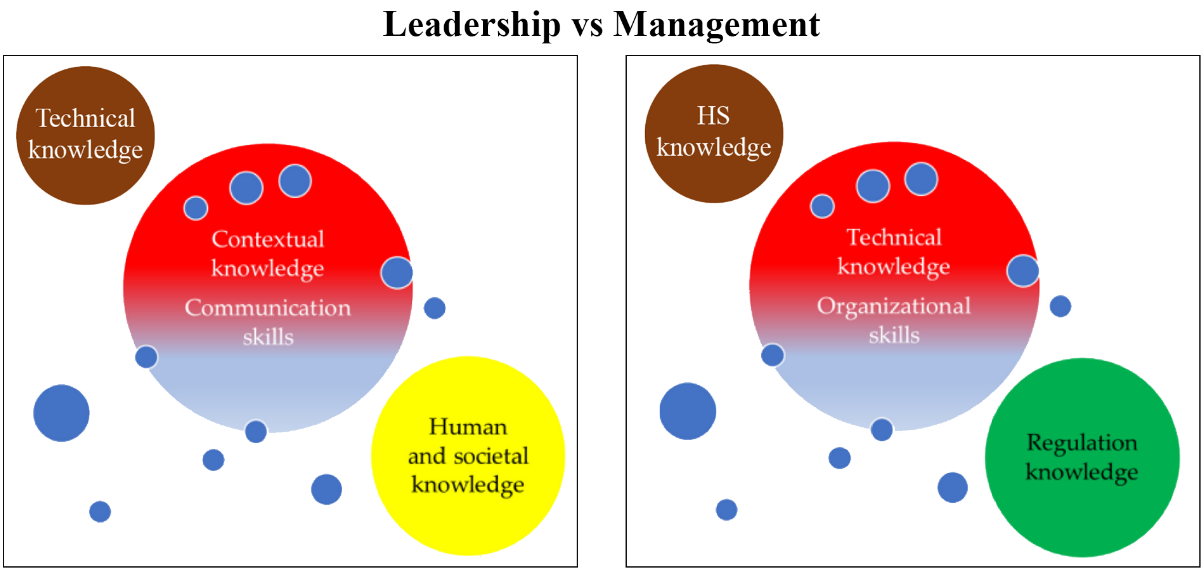


Figure 5. Leadership and management in LC project realization

Former discussion based on authors' experience implies that LC projects are still not fully explored and that there is still a lot of area for investigation.

3. CONCLUSION

Starting from the fact that land consolidation (LC) is a necessary activity from different aspects (from increasing effectiveness of agricultural production to sustainable development issues) and its complexity authors were inspired to research the issue of leadership and management of LC projects. The results of theoretical consideration and practical experience imply that including principles of management and leadership in LC, projects shall increase the probability of their successful realization. This issue deserves further research because of the lack of literature and theoretical consideration.

References

Goran, M., Borisov, M., Mijić, N., Milan, T., & Jelena, L. (2021). Automatization of the Ranking Process of the Land Consolidation Projects. *Advanced Technologies, Systems, and Applications V*, 185-199. https://doi.org/10.1007/978-3-030-54765-3_12

Marinković, G., Lazić, J., Morača, S., & Grgić, I. (2019). Integrated assessment methodology for land consolidation projects: Case study Pecinci, Serbia.

Marinković, G., Morača, S., Trifković, M., & Lazić, J. (2015). Model risk identification in project of land consolidation. Zbornik radova Građevinskog fakulteta, Subotica, (28), 113-122.

Marinković, G., Ninkov, T., Trifković, M., Nestorović, Ž., & Pejičić, G. (2016). ON THE LAND CONSOLIDATION PROJECTS AND CADASTRAL MUNICIPALITIES RANKING. Tehnicki vjesnik/Technical Gazette, 23(4).

Nestorović, Ž. (2012). Land consolidation projects characteristics. Zbornik radova Građevinskog fakulteta, Subotica, (21), 69-73.

Trifković, M., & Nestorović, Ž. (2017). Liderstvo i menadžment u komasaciji, Zbornik radova LIMEN 2017, pp. 758-762, http://mediacontent.limen-conference.com/2019/03/388888466-zbornik-limen-2017-final-version.pdf

Wójcik-Leń, J., Leń, P., Mika, M., Kryszk, H., & Kotlarz, P. (2019). Studies regarding correct selection of statistical methods for the needs of increasing the efficiency of identification of land for consolidation – A case study in Poland. *Land Use Policy, 87*, 104064. https://doi.org/10.1016/j.landusepol.2019.104064

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.155

Multi-Criteria Decision Analysis and Land Consolidation Projects Ranking

Goran Marinković[1]
Žarko Nestorović[2]
Zoran Ilić[3]
Marko Božić[4]

Received: September 8, 2023
Accepted: September 11, 2023
Published: October 30, 2023

Keywords:
Competing projects;
Budgeting;
Projects ranking;
Complex process

Abstract: *Land consolidation as a power tool for land management is a resource-demanded process that requires sensitive decision-making from the beginning of the process to its finish. The beginning of the process of land consolidation starts with the decision of how to distribute the limited resources on competing projects of land consolidation. Since its numerous benefits and the natural process of land property fragmentation land consolidation should be provided permanently but it is not possible because of limited resources including finance. This implies that decision-making about the distribution of a limited budget on competing projects (or which project should be realized) is the first decision-making before starting with land consolidation project realization. This is not an easy decision because land consolidation is long long-lasting projects and resources captured for the realization of one project could not be utilized for another one. In this paper, multi-criteria decision-making is discussed as a model for decision-making about the ranking of land consolidation projects.*

1. INTRODUCTION

Land consolidation is a complex process that is recognized for its importance and effectiveness in the domain of sustainable development but it is also expensive and long-lasting (Wójcik-Leń et al., 2019). The necessity of land consolidation also arises from the natural trend of land property fragmentation. According to Niroula and Thapa (2005), it is found the fragmentation of small landholdings and tiny land parcels is detrimental to land conservation and economic gain, thereby discouraging farmers from adopting agricultural innovations. Land fragmentation is also limiting agricultural production and more broadly rural development in many countries across the world (Jürgenson, 2016). In the research, the different types of land consolidation are defined and their potential impacts are assessed including numerous positive effects of land consolidation (Thomas, 2006). Land consolidation is used as a tool for rural development in several countries in Europe, with main utilization (at the moment of research conducted) in Germany, the Netherlands, France, Belgium, Luxembourg, Austria and Switzerland as well as Finland, Norway and Sweden (Vitikainen, 2004). The fragmentation of land properties is an important aspect of farm structure resulting from population pressure and partible inheritance (Burton & King, 1982). In their research, Crecente et al. (2002) stated that arable area is declining and that "a high population density, a large number of scattered settlements, a dominant traditional agricultural economy and a historical tradition of property inheritance by sub-division within families, have produced a high degree of land fragmentation, with a mean cadastral parcel of 2500 m^2."

[1] Faculty of Technical Sciences, University of Novi Sad, 21000 Novi Sad, Serbia
[2] Public Company of Electricity Production – EPS, Branch "Djerdap", Kladovo, Serbia
[3] Academy of Technical and Educational Vocational Studies, Aleksandra Medvedeva 20, 18000 Nis, Serbia
[4] Meixner d.o.o., Hermanova 16/G, 10000 Zagreb, Croatia

This research stresses two important facts: land fragmentation is a natural and inevitable process that decreases the effective utilization of land and land consolidation is the main tool for solving problems of effective utilization of arable land including the problems of sustainable development.

The decision-making process about land consolidation project ranking i.e. about the decision on how to determine the priorities between competing land consolidation projects could be generally divided into qualitative and quantitative methods. Qualitative methods are based on analyzing different factors that could not be accurately explicated in numbers and the decisions are made according to experts' preferences (for example SWOT and DELPHI methods). Quantitative methods are based on factors explicated in numbers and the ranks of competing projects are obtained by using certain algorithms of multi-criteria decision-making methods (for example: AHP, TOPSIS, VIKOR, etc.).

2. LITERATURE REVIEW

The multi-criteria decision-making analyses (MCDMA) are based on the definition of alternatives, factors and their weights for decision-making and choice of algorithm. Among different approaches, some methods are most known and researched. One of the first methods for multi-criteria decision-making analysis was the active hierarchy process (AHP) introduced by Saaty (1990, 2008). After that, numerous methods were developed as follows: Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) (Hwang et al., 1981); Multicriteria Optimization and Compromise Solution (VIKOR) (Opricović, 2009), simple additive weighting (SAW) (Sembiring et al., 2019). The different research proved the applicability of MCDMA methods in land consolidation projects ranking (Marinković et al., 2016). In their research, Marinković et al. (2019) proposed an integrated assessment for land consolidation projects. Combining different methods and their analysis by statistical methods to determine the ranking of competing land consolidation projects should lead to better reliability in the process of decision-making (Marinković et al., 2022).

3. PROBLEM DEFINITION AND PROPOSED SOLUTION

The development of different methods for multi-criteria decision-making analysis implies that there is no one best method for utilization in the process of decision making and utilization of different methods can make one decision. This fact inspired the authors to research the possibilities for combining different MCDMA methods in order to check the ranking of competing land consolidation projects.

In this research, fifteen alternatives and ten factors were analyzed. The alternatives were the cadastral municipalities in the municipality of Zrenjanin, Vojvodina region, Republic of Serbia (competing land consolidation projects): Banatski Despotovac, Elemir, Ečka, Jankov most, Klek, Lazarevo, Lukićevo, Mihajlovo, Orlovat, Slovački Aradac, Srpski Aradac, Srpski Elemir, Stajićevo, Taraš and Tomaševac.

The chosen factors were as follows:

F1: The participation of arable land related to the total area of the cadastral municipality;
F2: Average area of the parcel in the cadastral municipality;
F3: Number of parcels per participant;
F4: The average area per participant in land consolidation;
F5: The percent of farmers with property over 5 hectares;

F6: The participation of public land in the cadastral municipality;
F7 : Active farmers;
F8: The cost of the land consolidation project;
F9: The state of survey;
F10: The area of State-owned land for rent.

The ranking results are given0 in the following table.

Table 1. The prioritization of land consolidation projects

Alternative/Method	AHP	TOPSIS	VIKOR	SAW	Av. Rank	σ
Taraš	1.0	1.0	1.0	1.0	1.0	0.0
Orlovat	2.0	3.2	2.0	3.0	2.6	0.6
Tomaševac	3.2	3.8	3.6	3.2	3.5	0.3
Mihajlovo	4.2	4.4	4.0	4.4	4.3	0.2
Jankov Most	5.2	5.2	4.8	5.4	5.2	0.3
Elemir	7.2	6.4	6.4	5.8	6.5	0.6
Srpski Elemeir	7.6	6.6	8.2	7.2	7.4	0.7
Slovački Aradac	7.8	7.6	8.4	7.6	7.9	0.4
Banatski Despotovac	8.2	8.2	8.8	8.4	8.4	0.3
Lazarevo	8.8	9.6	8.8	9.4	9.2	0.4
Srpski Aradac	12.0	10.4	10.6	10.6	10.9	0.7
Lukićevo	12.4	13.2	11.6	12.2	12.4	0.7
Stajićevo	12.6	13.4	13.6	13.4	13.3	0.4
Klek	13.4	13.4	13.6	13.6	13.5	0.1
Ečka	14.4	13.6	14.6	14.8	14.4	0.5

Source: Authors

According to the obtained results, the maximal standard deviation of ranking obtained by different MCDMA methods is $\sigma_{max} \leq 0.7$ and it could be concluded that in this case, the decision about land consolidation projects ranking is reliable. Further analysis, in this case, is not necessary but in other cases, it might be necessary if a larger difference appears.

4. CONCLUSION

Land consolidation in theory and practice is recognized as a power tool for the improvement of arable land management including arable land sustainable development. The inevitability of land fragmentation and caused declining effectiveness of land utilization requires consideration of the projects of land consolidation. On the other hand, the budgeting of land consolidation is limited by available resources and lack of resources causes the necessity of land consolidation projects prioritization. The reliable auxiliary tool in the process of prioritization of land consolidation projects are MCDMA method. Bearing in mind that MCDMA methods also could be limited and that there is no one best MCDMA method, the authors proposed the utilization of multiple MCDMA methods and their statistical analysis to increase the reliability of land consolidation projects prioritization.

Acknowledgments

The research has been conducted within the project "Scientific theoretical and experimental research and improvement of educational process in the field of civil engineering", developed at the Department of Civil Engineering and Geodesy, Faculty of Technical Sciences, University of Novi Sad, Serbia.

References

Burton, S., & King, R. (1982). Land fragmentation and consolidation in Cyprus: A descriptive evaluation. *Agricultural Administration, 11*(3), 183-200.

Crecente, R., Alvarez, C., & Fra, U. (2002). Economic, social and environmental impact of land consolidation in Galicia. *Land use policy, 19*(2), 135-147.

Hwang, C. L., Yoon, K., Hwang, C. L., & Yoon, K. (1981). Methods for multiple attribute decision making. Multiple attribute decision making: methods and applications a state-of-the-art survey, 58-191.

Jürgenson, E. (2016). Land reform, land fragmentation and perspectives for future land consolidation in Estonia. *Land Use Policy, 57*, 34-43.

Marinković, G., Ilić, Z., Trifković, M., Tatalović, J., & Božić, M. (2022). Optimization Methods as a Base for Decision Making in Land Consolidation Projects Ranking. *Land, 11*(9), 1466. https://doi.org/10.3390/land11091466

Marinković, G., Lazić, J., Morača, S., & Grgić, I. (2019). "Integrated assessment methodology for land consolidation projects: Case study Pecinci, Serbia." *Archives for Technical Sciences 2019, 20*(1), 43-52

Marinković, G., Ninkov, T., Trifković, M., Nestorović, Ž., & Pejičić, G. (2016). ON THE LAND CONSOLIDATION PROJECTS AND CADASTRAL MUNICIPALITIES RANKING. *Tehnicki vjesnik/Technical Gazette, 23*(4).

Niroula, G. S., & Thapa, G. B. (2005). Impacts and causes of land fragmentation, and lessons learned from land consolidation in South Asia. *Land use policy, 22*(4), 358-372.

Opricović, S. (2009). Compromise in cooperative game and the VIKOR method. *Yugoslav Journal of Operations Research, 19*(2), 225-238.

Saaty, T. L. (1990). How to make a decision: the analytic hierarchy process. *European journal of operational research, 48*(1), 9-26.

Saaty, T. L. (2008). Decision making with the analytic hierarchy process. *International journal of services sciences*, 1(1), 83-98.

Sembiring, B. S., Zarlis, M., Sawaluddin, Agusnady, A., & Qowidho, T. (2019). Comparison of SMART and SAW Methods in Decision Making. *Journal of Physics: Conference Series, 1255*(1), 012095. https://doi.org/10.1088/1742-6596/1255/1/012095

Thomas, J. (2006). Property rights, land fragmentation and the emerging structure of agriculture in Central and Eastern European countries. eJADE: electronic *Journal of Agricultural and Development Economics, 3*(853-2016-56129), 225-275.

Vitikainen, A. (2004). An overview of land consolidation in Europe. *Nordic Journal of Surveying and real Estate research, 1*(1).

Wójcik-Leń, J., Leń, P., Mika, M., Kryszk, H., & Kotlarz, P. (2019). Studies regarding correct selection of statistical methods for the needs of increasing the efficiency of identification of land for consolidation—A case study in Poland. Land Use Policy, 87, 104064. https://doi.org/10.1016/j.landusepol.2019.104064

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.159

Analysis of the Number of People Employed in Research and Development in the Countries of the European Union in the Period 2011 – 2020

Ľubica Hurbánková[1]

Received: April 14, 2023
Revised: September 12, 2023
Accepted: September 14, 2023
Published: October 30, 2023

Keywords:
Number of people employed;
Contribution method;
Suslov´s structural similarity coefficient;
Countries of the European Union

Abstract: *The paper deals with the analysis of the number of people employed in research and development. The aim is to find out how R&D employment is doing in EU countries and what changes have occurred between 2011 and 2020. We will specifically analyze the number of scientific employees using the FTE (full-time equivalent) indicator.*

In recent years, the number of researchers in the European Union has increased – in 2011 there were 1.38 million (full-time equivalent), in 2020 their number grew to 1.89 million, which is an increase of 36.96%.

In Greece and Hungary, the number of researchers almost doubled during the observation period. Using the contribution method, we found that the highest increase in researchers in 2020 compared to 2011 was in Poland, 94.28% and the lowest was in Finland, 4.26%. Germany had the largest share in the total number of researchers in 2011 (24.62%), which contributed with the highest share, 8.23%, to the total increase (37.59%). The value of Suslov´s structural similarity coefficient (0.0045) confirmed that the changes in the structure were minimal and the structure of the number of researchers in each EU country differed only slightly in 2011 and 2020.

1. INTRODUCTION

The number of people employed in research and development consists of all individuals employed directly in the field of research and development (R&D), including persons providing direct services, such as managers, administrators, and clerical staff.

Almost 2.00 million researchers (in full-time equivalent (FTE)) were employed in the European Union in 2021. In this year, their number increased by 627,000 compared to 2011. In Poland and Sweden, their number more than doubled during this period, with 135,700 researchers in Poland and 100,100 researchers in Sweden in 2021. In Hungary, their number increased by 88%, in Greece and Belgium by 79%. Among all the states of the European Union, only Luxembourg saw a decrease, namely by 22%.

There were 2.28 million researchers from non-EU countries in China (excluding Hong Kong) in 2020. In 2020, compared to 2011, their number in this country increased by 73%, in Turkey it more than doubled, in South Korea it increased by 55%, and in Japan by 5.1%. In the United States, the number of researchers increased by 27% in 2019 compared to 2011.

In the EU in 2021, there was a high proportion of researchers in the business sector (56%). They were 32% in the higher education sector, and 11% in the government sector. In Sweden, the Netherlands, Belgium, Austria, Finland, France, Hungary and Germany, three-fifths or more

[1] University of Economics in Bratislava, Dolnozemská cesta 1, 852 35 Bratislava, Slovak Republic

of all researchers were employed in the business sector. The highest proportion of researchers working in the higher education sector was in Latvia (60%), Slovakia (55%), Lithuania (54%), Portugal, Ireland, Croatia, Malta (51%) and Greece (50%). The most researchers working in the government sector were in Romania (34%), Bulgaria (29%) and Croatia (23%).

In terms of gender, in 2019 in the European Union, men had a 67 % share of researchers. Among all EU countries, women made up more than 50% only in Latvia (51%). The biggest gender gap was found in France, Germany, the Netherlands, Luxembourg and the Czech Republic. In these countries, women made up less than 30% of all researchers (Eurostat, 2023).

2. METHODOLOGY

In this paper, we will use the contribution method to find out which European Union country contributed the most to the total increase in the number of researchers and Suslov´s structural similarity coefficient that tells us whether there has been a change in the structure of the number of researchers.

2.1. The Contribution Method

We need an additive indicator to use this method. The additive indicator is the sum of individual components, while (Hindls et al., 1997):

$$Y_t = \sum_{i=1}^{n} y_t^i \qquad (1)$$

where: Y_t is additive indicator,
y_t^i are individual components.

The following procedure must be followed when applying the contribution method (Hurbánková & Sivašová, 2018):

1. The relative increase of the additive indicator is calculated. It expresses the relative increase of this indicator in the current period compared to the previous one:

$$k_{\Delta t} = \frac{Y_t - Y_{t-1}}{Y_{t-1}} \qquad (2)$$

2. We calculate the relative increase of the individual components. It will tell us what relative increase the individual components had:

$$k_{\Delta t}^i = \frac{y_t^i - y_{t-1}^i}{y_{t-1}^i} \qquad (3)$$

3. Consequently we calculate the structural numbers which tell us what share have the individual components on the additive indicator. These numbers are calculated in the previous period (*t–1*):

$$s_{t-1}^i = \frac{y_{t-1}^i}{Y_{t-1}} \qquad (4)$$

4. As a final step we calculate how the individual components contributed to the relative increase of the additive indicator as the product of the relative increase of the individual component and the share of this component on the additive indicator in the previous period:

$$k_{\Delta t}^i \cdot s_{t-1}^i \qquad (5)$$

When we add up the contributions of the individual components, we get the relative increase of the additive indicator (Hindls & Hronová, 1997):

$$\sum_{i=1}^{n}\left(\frac{y_t^i - y_{t-1}^i}{y_{t-1}^i}\right) * \frac{y_{t-1}^i}{Y_{t-1}} = \frac{1}{Y_{t-1}}\sum_{i=1}^{n}\left(y_t^i - y_{t-1}^i\right) = \frac{1}{Y_{t-1}}\left(\sum_{i=1}^{n} y_t^i - \sum_{i=1}^{n} y_{t-1}^i\right) = \frac{Y_t - Y_{t-1}}{Y_{t-1}} \tag{6}$$

2.2. Suslov´s Structural Similarity Coefficient

Like the contribution method, Suslov´s coefficient is also used for the analysis of additive indicators. Based on this coefficient, we analyze the similarity of the structures. When calculating it, we apply the following procedure. First, we determine how many components the analyzed additive indicator has and we define the current period t and the previous period t-1.

We calculate the structural numbers x_i and y_i, whether $\sum_{i=1}^{n} x_i = 1$ and $\sum_{i=1}^{n} y_i = 1$ (Kahounová, 1994).

Then follows the calculation of absolute differences of paired structural numbers belonging to the i-th component in situations t and t-1:

$$\left|x_i - y_i\right| \tag{7}$$

Finally, we calculate the Suslov´s structural similarity coefficient:

$$d_{sus} = \frac{1}{n}\sum_{i=1}^{n}\left|x_i - y_i\right| \tag{8}$$

The Suslov´s coefficient takes on values from the interval $\langle 0;\ 2/n\rangle$. If its value approaches the lower limit (0), it means that the similarity of the compared structures increases. If its value approaches the upper limit (2/n), the similarity of the compared structures decreases. If Suslov´s coefficient takes on the value 0, the analyzed structures are the same, and with a value of 2/n the structures are completely different (Karpov, 2007).

Suslov´s coefficient expresses how many percentage points, on average, one component of the structure in situation t differs from situation t-1 (Pozdniaková, 1981).

3. ANALYSIS OF THE NUMBER OF PEOPLE EMPLOYED IN RESEARCH AND DEVELOPMENT

Figure 1 shows the number of EU countries' people employed in research and development in full-time equivalent in 2011, 2014, 2017, and 2020, ranked according to the achieved values in 2020 from the best countries to the worst. We can see how the number of research workers (FTE) developed between 2011 and 2020. In Greece and Hungary, their number almost doubled. The same thing happened in Poland, where there were already 124,600 researchers in 2020, which is 60,467 more than in 2011.

By applying the contribution method, we will find out in which country there was the largest increase in researchers in 2020 compared to 2011, and also what trend and position our country has. The calculation of the contribution method can be found in Table 1.

From the calculations, we found out that the highest increase in researchers in 2020 compared to 2011 occurred in Poland, by 94.28%, and the lowest increase was recorded in Finland, by

4.26%. Slovakia recorded an increase of 12.72%, which is an unflattering result compared to neighboring countries. Germany had the largest share of the total number of researchers in 2011 (24.62%), which contributed to the overall increase (37.59%) with the highest share, namely 8.23%. Slovakia had only a 1.11 percent share and a contribution of 0.14%. Among all EU countries, Lithuania contributed the least, only 0.01%.

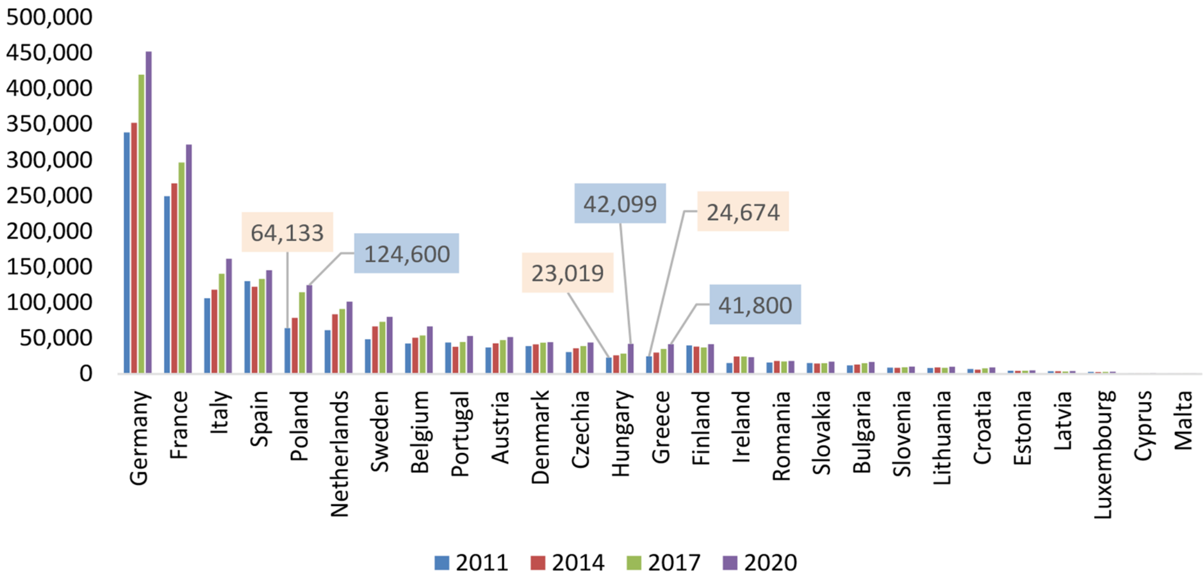


Figure 1. The number of people employed in research and development (FTE) in EU countries in 2011, 2014, 2017 and 2020

Source: Eurostat, 2023; own processing in Excel

Table 1. The calculation of the contribution method of the number of people employed in Research and development (FTE) in the Countries of the European Union in the years 2011 and 2020

Country	Relative increase	Structural number	Contribution
Austria	0,3957	0,0270	0,0107
Belgium	0,5612	0,0310	0,0174
Bulgaria	0,4024	0,0087	0,0035
Croatia	0,3309	0,0050	0,0016
Cyprus	0,6521	0,0007	0,0004
Czechia	0,4408	0,0223	0,0098
Denmark	0,1371	0,0285	0,0039
Estonia	0,1310	0,0033	0,0004
Finland	0,0426	0,0291	0,0012
France	0,2901	0,1812	0,0526
Germany	0,3341	0,2462	0,0823
Greece	0,6941	0,0179	0,0125
Hungary	0,8289	0,0167	0,0139
Ireland	0,5423	0,0111	0,0060
Italy	0,5218	0,0772	0,0403
Latvia	0,0317	0,0029	0,0001
Lithuania	0,2098	0,0061	0,0013
Luxembourg	0,0880	0,0021	0,0002
Malta	0,3592	0,0005	0,0002
Netherlands	0,6515	0,0446	0,0291
Poland	0,9428	0,0466	0,0440
Portugal	0,2070	0,0320	0,0066
Romania	0,1400	0,0117	0,0016

Slovakia	0,1272	0,0111	0,0014
Slovenia	0,1687	0,0064	0,0011
Spain	0,1162	0,0947	0,0110
Sweden	0,6445	0,0354	0,0228
EU total	0,3759	1,0000	0,3759

Source: Eurostat, 2023; own calculations

In the next step, we will observe how and whether the structure of the number of researchers changed in 2020 compared to 2011. Table 2 shows the calculation of Suslov's structural similarity coefficient. After examining the structure numbers, we found that:

- Germany had the highest share of the total number of researchers in both monitored years (2011 and 2020) (24.62% and 23.88%) and Malta had the lowest (0.05%),
- Slovakia had a share of 1.11% in 2011 and only 0.91% in 2020,
- the largest absolute deviation was found in Poland (1.92 p.p.),
- the smallest absolute deviation was in Malta (0.01 p.b.),

Table 2. The calculation of Suslov´s structural similarity coefficient of the number of people employed in research and development (FTE) in EU countries in 2011 and 2020

The number of people employed in research and development	x_i	y_i	$\|x_i - y_i\|$
Austria	0,0270	0,0274	0,0004
Belgium	0,0310	0,0352	0,0042
Bulgaria	0,0087	0,0088	0,0002
Croatia	0,0050	0,0048	0,0002
Cyprus	0,0007	0,0008	0,0001
Czechia	0,0223	0,0234	0,0011
Denmark	0,0285	0,0235	0,0049
Estonia	0,0033	0,0027	0,0006
Finland	0,0291	0,0220	0,0070
France	0,1812	0,1699	0,0113
Germany	0,2462	0,2388	0,0075
Greece	0,0179	0,0221	0,0041
Hungary	0,0167	0,0222	0,0055
Ireland	0,0111	0,0124	0,0013
Italy	0,0772	0,0854	0,0082
Latvia	0,0029	0,0022	0,0007
Lithuania	0,0061	0,0054	0,0007
Luxembourg	0,0021	0,0016	0,0004
Malta	0,0005	0,0005	0,00001
Netherlands	0,0446	0,0535	0,0089
Poland	0,0466	0,0658	0,0192
Portugal	0,0320	0,0281	0,0039
Romania	0,0117	0,0097	0,0020
Slovakia	0,0111	0,0091	0,0020
Slovenia	0,0064	0,0054	0,0010
Spain	0,0947	0,0768	0,0179
Sweden	0,0354	0,0423	0,0069
EU total	1,0000	1,0000	0,1203

Source: Eurostat, 2023; own calculations

The resulting value of Suslov´s structural similarity coefficient is 0.0045. In our case, the coefficient can take values from the interval ⟨0;0.0741⟩. As it is close to zero, it is evident that the changes in the structure were minimal and the structure of the number of researchers differed only slightly in individual EU countries between 2011 and 2020.

4. CONCLUSION

We can draw the following conclusions from the performed analyses:

- The highest increase in researchers in 2020 compared to 2011 occurred in Poland, by 94.28%, and the lowest increase was recorded in Finland, by 4.26%. This indicator increased in the analyzed period by 37.59%. Germany made the highest contribution to this increase (8.23%). Slovakia had a contribution of 0.14%. Among all EU countries, Lithuania contributed the least, only 0.01%.
- Using Suslov´s structural similarity coefficient we found out that the changes in the structure of the number of researchers were minimal and the structure differed only slightly in individual EU countries between 2011 and 2020.

Acknowledgements

This paper was supported by the Grant Agency of Slovak Republic – VEGA grant No. *1/0561/21: The impact of the COVID-19 crisis on business demography and employment in the Slovak Republic and the EU.*

References

Eurostat. (2023). Data browser - Science and technology. Retrieved from https://ec.europa.eu/eurostat/data/database; https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_personnel#Researchers
Hindls, R., & Hronová, S. (1997). Vývoj hrubého domácího produktu z hlediska přispění jednotlivých faktorů. *Politická ekonomie, 45*(5), 699-707. https://doi.org/10.18267/j.polek.299
Hindls, R., Kaňoková, J., & Novák, I. (1997). Metody statistické analýzy pro ekonomy. Praha: MANAGEMENT Press.
Hurbánková, Ľ., & Sivašová, D. (2018). Hospodárska štatistika I. Bratislava: Vydavateľstvo EKONÓM.
Kahounová, J. (1994). Měření podobnosti struktur. Praha: VŠE PRAHA.
Karpov, A. (2007). Measurement of Disproportionality in PR System. Moscow: State University - Higher School of Economics.
Pozdniaková, I. (1981). Některé způsoby vyhodnocovaní změn struktury a jejich vypovídací schopnost. Statistika, 11, pp. 490-499.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.165

Quality of Employment: Statistical Review on Safety and Ethics at Work in Serbia

Koviljka Banjević[1]
Dragana Gardašević[2]

Received: April 19, 2023
Revised: September 1, 2023
Accepted: September 11, 2023
Published: October 30, 2023

Keywords:
Physical health;
Mental health;
Pay gap;
Equal opportunities;
Discrimination

Abstract: *Quality of employment is a multidimensional concept with multiple importance. Its meaning and components may be varied and depend on an evaluator. The literature abounds with examples of different indicators for measuring the quality of employment, but the authors use the indicators developed by the United Nations Economic Commission for Europe for this paper. The authors` main idea is to investigate all indicators of quality of employment, but the study would be large in scope. Regarding the previous, in this paper focus is on the indicators of one dimension – Safety and ethics at work. Data were collected from national and European sources, and by applying descriptive statistics actual situation in Serbia is systematically presented. Obtained data could be interesting for employees, employers, and individuals, as well as for present and future research.*

1. INTRODUCTION

During the different historical periods, approaches to the concept of ‘‘work'' were changed following changes in technology and society (Grint, 2005). Consequently, the meaning and meaningful of work occupied the number of ‘'psychologists, sociologists, economists and organizational scholars'' (Rosso et al., 2010, p. 92). According to Taylor (2004, p. 30), work can be observed as ‘‘paid employment and unpaid domestic labour''; or as ‘'own-use production work, employment, unpaid trainee work, volunteer work and other work activities'' (ILO, 2013, p. 3). Hence, work can occur in different forms, but for this paper work is considered in the form of employment that comprises ‘'work performed for others in exchange for pay or profit'' (ILO, 2013, p. 3). This definition refers to the fact that quality of employment is not only important for organizations and individuals but also for governments, policymakers and overall society (UNECE, 2015).

‘'The quality of employment is a subjective and multidimensional concept'' (Johri, 2005, p. 1), and definitions and components may vary depending on an assessor (UNECE, 2015). Organizations may observe the quality of employment through an effective and efficient workforce (Johri, 2005). For society it can refer to the potential of achieving ‘'smart, sustainable and inclusive growth'' (Pot et al., 2012, p. 261) and social cohesion (UNECE, 2015). Individuals may rate the quality of employment by the amount of salaries, working conditions, interesting job, job autonomy, job security, opportunities for advancement, interpersonal relations, etc. (Seashore, 1974; Johri, 2005; Davoine & Erhel, 2006; Janssens et al., 2017; González et al., 2021).

Quality of employment has been examined in many studies concerning different indicators, as well as from different aspects. In this paper, the authors use the indicators developed by

[1] ATSSB, Department of Belgrade Polytechnic, Katarine Ambrozić 3, Belgrade, Serbia
[2] ATSSB, Department of Belgrade Polytechnic, Katarine Ambrozić 3, Belgrade, Serbia

UNECE (2015). This Commission identified seven dimensions, twelve sub-dimensions of quality of employment, and statistical indicators for measuring each (UNECE, 2015). There is no hierarchical order among dimensions i.e., each dimension is equally important, and the *Statistical Framework* is adjusted for ''measuring quality of employment from individual`s perspective'' (UNECE, 2015, p. 17).

Regarding the number of dimensions, sub-dimensions and space limitation, the main objective of this paper is to present available statistical data on the (first) dimension - safety and ethics of employment, in Serbia. This study does not aim to judge ''high'' or ''low'' quality, but only shows the actual situation and determines the existence of a trend in the five years 2018-2022. Data were collected from national and European sources, and the research method included descriptive statistics.

2. CONCEPT AND CONTEXT OF SAFETY AND ETHICS AT WORK

Safety at work refers to physical safety and health and mental well-being (UNECE, 2015). The first study in occupational medicine was noticed in 1717, but the interest in the influence of working conditions (working hours, ventilation, heating, shift work, and training) on productivity dates back to the early years of the twentieth century (Bridger, 2008). Almost at the same time, ILO in its Constitution Act (1919) promoted the protection of the worker as a fundamental human right (ILO, 2008). In the following years, safety and health at work were in focus not only by the ILO but also by other international organizations – the United Nations, the World Health Organization, and the International Social Security Association (ILO, 2008). Consequently, the rules and standards were established. Globalization, technological revolution, demographics and climate change have caused many challenges related to the labour market and working conditions. Nowadays, international and national regulations and legislations oblige governments, as well as employers to provide a safe and healthy workplace (UN, 1948; ILO, 1981, 1985, 2006). Nevertheless, 1.9 million people die from work-related causes (WHO, 2021), and ''402 million people suffer from non-fatal occupational injuries'' each year (ILO, 2022a, p. 1).

Ethics at work is a complex issue and it could be observed from different aspects, as well as it could be affected by different factors. Ethical principles could be varied among different cultures, religions and/or business patterns (Kelley, 1999). However, in the eighteenth century, the German philosopher Immanuel Kant suggested the general ethical principle that could be applied in any organization – ''one should always respect the humanity in others, and that one should only act in accordance with rules that could hold for everyone'' (Jankowiak, n.d.). Hence, ethics at work could be described as ''doing the right thing'' (Kelley, 1999, p. 7), or like the implementation of actions and behaviours that ensure productive work with fair income, equal opportunities, and treatment, security at work, social protection and integration, programmes for personal development, participation in decisions that affect employee lives and the right to express personal opinions (ILO, n.d.). Ensuring ethical principles in the workplace has become the global objective, and until now many documents that support this issue have been established. For this paper, ethics at work is observed as fair treatment i.e., equal opportunities in relation to payment and participation in decision-making, and non-discrimination practice at work (UNECE, 2015).

Safety and ethics, as the dimension of quality of employment, is not only important for ensuring physical and mental health at an individual level, it is also significant at organizational and national level. Good working conditions contribute to increasing productivity, cost reduction in the sense of health care and compensation, workforce participation, employee retention and trust, good relationships between business, government and workers, and sustainability of economies (WEF, 2022; ILO, 2022a).

The Republic of Serbia has been a member of ILO since 2000. This means that Serbia has ratified ILO standards and fundamental conventions (ILO, 2022b). The relations between employer and employee are primarily regulated by labour law, as well as by the other laws of specific areas. According to the labour law a person above the age of 15 can be regularly employed; the working week lasts five days; full-time includes 40 hours per week; part-time jobs, night and shift work are regulated; overtime is limited to a maximum of eight hours per week. The same law indicates that an employee has the right to appropriate wage, safety and health at work, health care, protection of personal integrity, personal dignity and other rights in case of illness, …, daily break and weekly rest (Labour Law, 2018). Besides labour law, the area of safety and health at work is regulated by the law on safety and health at work. Strategic actions and activities related to this area are under the authority of the Directorate for Health and Safety at Work of the Ministry of Labour, Employment, Veterans and Social Affairs (n.d.).

Equality and non-discrimination practices at work are regulated by a comprehensive body of legislation. The basic pillar of this legislation is the labour law which stipulates the prohibition of direct and indirect discrimination in the sense of employment conditions and selection, working conditions, education, training and personal development, professional advancement, and termination (Labour Law, 2018). Additionally, the issues related to equal opportunities and prohibition of discrimination are regulated by the Law on Gender Equality and the Law on prohibition of discrimination (both adopted in 2009), as well as other laws related to vulnerable groups. In order to enforce anti-discrimination practices and to ensure equality, the Republic of Serbia established The Commissioner for Protection of Equality, in 2009.

Based on the previous information, it is clear that Serbia has been committed to providing safe and healthy work, as well as equal opportunities for everyone and non-discrimination behaviours at all levels.

3. METHOD

Research design: In order to describe the state of safety and ethics at work in Serbia, descriptive statistics was used. The research design involved four steps: 1) analysis of concept and context; 2) selection of sub-dimension and indicators, 3) exploration of data sources and data collection; 4) statistical analysis and data presentation.

Sub-dimensions and indicators: Based on an extensive literature review, the authors decided to use the comprehensive instrument developed by UNECE (2015). According to this *Handbook on Measuring Quality of Employment,* the dimension safety and ethics at work includes three sub-dimensions: 1) safety at work, 2) child and forced labour, and 3) fair treatment in employment. Each sub-dimension is defined by a certain number of indicators. The indicators of the first sub-dimension are fatal and nonfatal occupational injuries, and exposure to physical and mental health risk factors (UNECE, 2015). Regarding the definitions of child labour (for more details see: ILO, 2008) and forced labour (for more details see: ILO, 1930), and official reports of Serbia, these occurrences are not characteristic in Serbia and this sub-dimension is not observed in the study. Fair treatment in employment is measured by the following indicators: pay gap, access to managerial occupations, and discrimination at work (UNECE, 2015).

Data sources and data collection: As expected, not all data for the specific sub-dimension were available at one source. Additionally, some data were missing or varied within a certain report and/or among different reports of the same source. Because of that, the authors used different sources. In this sense, the following national and European sources were used:
- Statistical Office of the Republic of Serbia;
- Directorate for Health and Safety at Work of the Ministry of Labour, Employment, Veterans and Social Affairs (the Republic of Serbia);
- The Government of the Republic of Serbia;
- The Commissioner for Protection of Equality (the Republic of Serbia);
- Eurofound (European Foundation for the Improvement of Living and Working Conditions);
- European Agency for Safety and Health at Work (OSH Barometer);
- Publications Office of the European Union;
- Eurostat.

In accordance with availability, data were collected for the period of last five years.

Statistical analysis and data presentation: In order to systematize data from several different sources, the authors applied descriptive statistical analysis. To calculate the rate and index the authors applied a formula suggested by the *Handbook* (UNECE, 2015). The other data were taken from the reports, infographics and/or institution websites.

4. THE STATE OF SAFETY AND ETHICS AT WORK IN SERBIA

For the purpose of better understanding the actual situation of safety and ethics at work in the Republic of Serbia, some context information is necessary.

Table 1. Context information of the Republic of Serbia

	2018	2019	2020	2021	2022
Size of population 15+	5 942 800	5 912 900	5 882 800	5 838 300	5 769 800
Size of active workforce	3 233 900	3 252 300	3 241 900	3 224 100	3 179 800
Number of employed persons	2 817 400	2 938 200	2 920 900	2 917 400	2 888 700
Number of unemployed persons	416 600	314 100	321 000	316 700	291 100

Source: Statistical Office of the Republic of Serbia, n.d. a

Table 1 indicates that the total number of active workforce and therefore total number of employed persons decreased in the observed period, along with the size of the population aged 15 and above.

4.1. Safety at Work

The state of safety at work is described by the following indicators: fatal occupational injuries, nonfatal occupational injuries, exposure to physical risk factors and exposure to mental risk factors.

Fatal and nonfatal occupational injuries are presented in Table 2 and Table 3. Data show the rate (number of accidents) per 100,000 employed persons. Data were collected from one report that presented two different sources.

Table 2. Rate of fatal occupational injuries

Year	Number of employed persons	Directorate for Health and Safety at Work Number of fatal occupational injuries	Rate	National Health Insurance Fund Number of fatal occupational injuries	Rate
2018	2 817 400	7	0.25	40	1.42
2019	2 938 200	14	0.48	36	1.22
2020	2 920 900	11	0.38	34	1.16
2021	2 917 400	12	0.41	45	1.54
2022	2 888 700	11	0.38	64	2.22

Source: Statistical Office of the Republic of Serbia, n.d. a; Directorate for Health and Safety at Work, n.d.

According to the Directorate for Health and Safety at Work, Table 2 indicates that the rate of fatal occupational injuries has been in the range of 0.25-0.48 in the last 5 years, and is not in decreasing trend. On the other hand, the data obtained by the National Health Insurance Fund refer to a higher rate of occupational injuries with its maximum in 2022. The explanation of differences could be in the method of data collection by the mentioned institutions. As noted in the reports, the Directorate for Health and Safety at Work collected data from employers. The data collection method of the National Health Insurance Fund is not known.

Table 3. Rate of nonfatal occupational injuries

Year	Number of employed persons	Directorate for Health and Safety at Work Number of nonfatal occupational injuries	Rate	National Health Insurance Fund Number of nonfatal occupational injuries	Rate
2018	2 817 400	9875	350.50	25639	910.02
2019	2 938 200	12695	432.07	22958	781.36
2020	2 920 900	9849	337.19	18610	637.13
2021	2 917 400	10776	369.37	21013	720.26
2022	2 888 700	12085	418.35	21800	754.67

Source: Statistical Office of the Republic of Serbia, n.d. a; Directorate for Health and Safety at Work, n.d.

Like in the case of the previous indicator, Table 3 shows significant differences in data between the two sources. According to data from the Directorate for Health and Safety at Work, the rate is in the range of 350.50-432.07 and does not have a trend in the observed period. In the case of the second source, the rate varies from 637.13 to 910.02, also without the trend in the observed period.

Table 4 presents the general situation in Serbia in relation to exposure to the factors that can affect physical health. These factors involve physical risks and physical demands (EWCTS, 2022).

Table 4. Exposure to physical risk factors (%)

Physical risks	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
Exposure to chemical products or substances	53.3	11.9	13.8	9.6	11.3
Exposure to infectious materials	77.0	8.1	5.2	3.2	6.5
Exposure to loud noise	37.2	18.4	19.8	14.2	10.5
Physical demands	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
Carrying or moving heavy loads	43.2	14.7	18.6	13.4	10.0
Lifting or moving people	87.0	4.5	4.5	1.8	2.2
Tiring or painful positions	24.9	15.2	27.3	18.2	14.4
Repetitive hand or arm movements	23.0	5.7	8.1	27.2	36.0

Source: Eurofound, 2023.

Table 4 indicates that the highest percent of employees are exposed to repetitive hand or arm movements (columns ''Often and Always''). The second place is tiring or painful positions, while the smallest percent of employees are constantly exposed to lifting or moving people. Comparing these data with average percentages at the EU level, the situation is the same. The greatest number of employees are exposed to repetitive hand or arm movements and tiring or painful positions, respectively, while the smallest number are exposed to lifting or moving people (for more details see: Eurofound, 2023).

Mental health can be affected by varied factors that can be found in different dimensions of a job. Table 5 presents the general situation in Serbia concerning exposure to the factors that can affect mental health. According to UNECE (2015), risk factors include those related to any kind of intimidation and discrimination, time pressure and/or work overload.

Table 5. Exposure to mental risk factors (%)

Time pressure and overload of work	**Never**	**Rarely**	**Sometimes**	**Often**	**Always**
Working at very high speed	14.3	11.5	29.0	25.2	20.0
Working to tight deadlines	19.5	14.9	28.8	23.4	13.4
Emotionally disturbing work	24.4	24.1	32.4	14.6	4.5
Working in free time to meet work demands	29.8	30.0	20.3	11.5	8.4
Working at night (at least 2 hours between 22.00 and 05.00)	55.5	15.2	12.8	11.7	4.8
Long working hours (48 or more in the main job)	**Less than 48 hours (%)**		**More than 48 hours (%)**		
	70.9		29.1		
Intimidation and discrimination	**No**		**Yes**		
Verbal abuse at work in the last month	92.8		7.2		
Unwanted sexual attention at work in the last month	99.0		1.0		
Physical violence at work in the last 12 months	93.3		6.7		
Discrimination at work in the last 12 months	83.5		16.5		

Source: Eurofound, 2023.

Table 5 shows that the largest number of people work at very high speed and to tight deadlines (columns ''Often and Always''). Additionally, the data indicate that the smallest number of respondents work at night. In relation to intimidation and discrimination, more than 90% were not exposed to verbal abuse, unwanted sexual attention and physical violence, in the mentioned period. In the case of discrimination, this percentage is smaller, but at a satisfactory level. The average values of all-mentioned variables are very similar at the EU level (for more details see: Eurofound, 2023). Like in Serbia, EU employees are the most exposed to working at very high speed and to tight deadlines. About Intimidation and discrimination, the results are almost the same.

4.2. Fair Treatment

This sub-dimension includes the following indicators: pay gap, access to managerial occupations and discrimination at work.

The pay gap presents differences between the average monthly earnings of two subgroups, mentioned by gender (Table 6) and by region (Table 7). In some cases, the pay gap may indicate the degree of equality in terms of pay. The pay gap index is calculated according to the formula suggested by UNECE (2015).

Table 7 and Table 8 show differences in earnings between mentioned subgroups. The pay gap is more emphasized between regions than between genders. These differences do not necessarily refer to inequality in terms of pay. Firstly, data are observed at the national level and average earnings are considered, then many other factors can be the causes of differences.

The next indicator is related to the participation of women in decision-making at national and local levels (Table 8), as well as in enterprises. Regarding this indicator, the participation of women in National Parliament, as well as in Minister and heading positions in Local Government, is given for the years when Parliamentary elections were carried out.

Table 6. Gender pay gap

	2022	2021	2020	2019	2018
Male	N.A.	95178	86622	78029	69120
Female	N.A.	83908	77826	69730	62792
Pay gap index (%)	-	11.84	10.15	10.64	9.16

Note: Values are in Serbian dinars

Source: Statistical Office of the Republic of Serbia, n.d. b

Table 7. Region pay gap

	2022	2021	2020	2019	2018
Serbia-North	N.A.	99437	90881	81795	72601
Serbia-South	N.A.	77683	71469	63978	57738
Pay gap index (%)		21.88	21.36	21.78	20.47

Note: Values are in Serbian dinars

Source: Statistical Office of the Republic of Serbia, n.d. b

Table 8 indicates insufficient participation of women in the mentioned positions at the national and local levels. In relation to 2017, data shows a slightly increasing trend at the local level.

Table 8. Participation of women in government at republic and local level

	2022		2020		2017	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**
National Parlament (members)	161 (64.4%)	89 (35.6%)	152 (60.8%)	98 (39.2%)	157 (62.8%)	93 (37.2%)
Minister position	19 (67.9%)	9 (32.1%)	13 (56.5%)	10 (43.5%)	17 (81%)	4 (19%)
Local Government (Heading position)	154 (88.5%)	20 (11.5%)	154 (88.5%)	20 (11.5%)	157 (92.9%)	12 (7.1%)

Source: The Commissioner for Protection of Equality, n.d.; The Government of the Republic of Serbia, n.d.

According to SBRA (2023), there were 33.7% (101184) women of the total number of 300250 entrepreneurs in 2022. The same percentage was in 2021, but this rate was 33.5% in 2020. In 2022, women represented 25.8% of (co)founders/(co)owners of companies, which was a slight increase compared to 2021 (25.6%) and 2020 (25.4%). In the domain of top management functions, out of a total number of 115272 top managers, there was 24.2% of women (27896). This rate was 24.1% in 2020 and 2021. As members of the board of directors, supervisory or executive boards, women were represented by 30.6%, 24.0%, and 33.6%, respectively, in the last three years.

The last indicator is related to discrimination at work which is described as the share of employed persons who are subject to discrimination at work, according to their perception (UNECE, 2015). This perception is a subjective measure, based on individual opinions. Table 9 presents the number of cases of discrimination at work in Serbia.

Table 9. Discrimination at Work

	2018	2019	2020	2021	2022
Number of complaints	947	711	674	686	681
Complaints related to employment procedures or working conditions	197 (20.5%)	229 (32.2%)	184 (27.3%)	169 (24.6%)	141 (20.7%)
Complaints against employers	219 (23.1%)	137 (19.3%)	172 (25.6%)	154 (22.4%)	238 (34.9%)

Source: The Commissioner for Protection of Equality, n.d.

Table 9 indicates the decreasing trend of complaints related to the employment procedure or working conditions in the period 2019-2022, and the increasing number of complaints against employers (from 19.3% in 2019 to 34.9% in 2022).

5. FUTURE RESEARCH DIRECTIONS

This paper provides some directions for future research. Primarily, the quality of employment includes other dimensions and each deserves to be investigated. The paper presents general information at the national level, but the research can be conducted at the organizational and individual levels. Additionally, a deeper analysis of each mentioned indicator is possible and it can be done for the different subgroups. Finally, it would be interesting to make a comparison among countries.

6. CONCLUSION

Safety and ethics at work have been in focus by many theorists and practitioners. In the first half of the 20th century, they were recognized as fundamental human rights. Over time, approaches to these issues have been adjusted to changes in the environment, but their importance has not been diminished. Nowadays, the 187 states are the members of International Labour Organization, and by working together they are determined to provide decent work. Since 2000, the Republic of Serbia has been a member of ILO. This means that Serbia has been committed to implementing ILO standards and fundamental conventions.

Regarding the previous, this review paper investigated the state of safety and ethics at work in Serbia. Collected data show that there is no trend in fatal and nonfatal injuries; the highest percentage of employees are exposed to repetitive hand or arm movements and tiring or painful positions; most people work at very high speed and to tight deadlines; about 90% of employees were not exposed to intimidation and discrimination in the certain period. These findings are very similar to those at the EU level. Concerning fair treatment data indicate that the pay gap is more emphasized between regions than between genders; insufficient participation of women in decision-making at national, local and organizational levels; decreasing trend of complaints related to the employment procedure or working conditions; and increasing number of complaints against employers.

The main challenge of this study was to collect data, and this challenge reflected the major contribution of this paper = information related to safety and ethics at work in Serbia was gathered in one place. Thus, this information may be useful for future research.

References

Bridger, R. S. (2008). *Introduction to Ergonomics* [eBook edition]. CRC Press. https://www.google.rs/books/edition/Introduction_to_Ergonomics_Third_Edition/tmTNBQAAQBAJ?hl=en&gbpv=1&dq=Introduction+to+Ergonomics&printsec=frontcover

The Commissioner for Protection of Equality. (n.d.). *Regular Annual Report for the 2020 and 2022.* https://ravnopravnost.gov.rs/en/reports/

Davoine, L., & Erhel, C. (2006). Monitoring Employment Quality in Europe: European Employment Strategy Indicators and Beyond, *HAL SHS* https://shs.hal.science/halshs-00272015

Directorate for Health and Safety at Work of the Ministry of Labour, Employment, Veterans and Social Affairs, Republic of Serbia. (n.d.). *Izveštaji o radu za godine 2018 do 2022*. https://www.minrzs.gov.rs/sr/dokumenti/izvestaji/uprava-za-bezbednost-i-zdravlje-na-radu-0

Eurofound. (2022, November 29). *Working conditions in the time of COVID-19: Implications for the future,* European Working Conditions Telephone Survey 2021 series, Publications Office of the European Union, Luxembourg. https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef22012en.pdf

Eurofound. (2023, February 27). *European Working Conditions Telephone Survey 2021*, Dublin. [Data set]. https://eurofound.link/ewcts2021data

González, P., Sehnbruch, K., Apablaza, M., Méndez Pineda, R., & Arriagada, V. (2021). A multidimensional approach to measuring quality of employment (QoE) deprivation in six central American countries. *Social Indicators Research*, *158*(1), 107-141. https://doi.org/10.1007/s11205-021-02648-0

The Government of the Republic of Serbia. (n.d.). *Government websites archive*. http://www.arhiva2.srbija.gov.rs/vlada/sastav.php

Grint, K. (2005). *The Sociology of Work: Introduction* [eBook edition]. Polity Press. https://books.google.rs/books?hl=en&lr=&id=KenoerlBqrgC&oi=fnd&pg=PR5&dq=The+Sociology+of+Work:+Introduction&ots=gId4tTE0pk&sig=S72h6Wv_wOmDk7S2_EX_1pbWhds&redir_esc=y#v=onepage&q=The%20Sociology%20of%20Work%3A%20Introduction&f=false

International Labour Office. (2009, April 28). *Health and life at work: A Basic Human Right*. https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/publication/wcms_108686.pdf

International Labour Organization. (n.d.). *Decent Work*. https://www.ilo.org/global/topics/decent-work/lang--en/index.htm

International Labour Organization. (1930, June 28). *Convention concerning Forced or Compulsory Labour.* https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID,P12100_HISTORICAL:312174,Y:NO

International Labour Organization. (1981, June 22). *The Occupational Safety and Health Convention (No. 155).* https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:::NO:12100:P12100_ILO_CODE:C155:NO

International Labour Organization. (1985, June 25). *The Occupational Health Services Convention (No. 161).* https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C161

International Labour Organization. (2006, June 15). *The Promotional Framework for Occupational Safety and Health Convention (No. 187).* https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C187

International Labour Organization. (2008, December 5). *Resolution concerning statistics of child labour.* http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/

resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_112458/lang--en/index.htm

International Labour Organization. (2013, November 21). *Resolution concerning statistics of work, employment and labour underutilization.* https://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_230304/lang--en/index.htm

International Labour Organization. (2022a, April 14). *Enhancing social dialogue towards a culture of safety and health – What have we learned from the Covid-19 crisis?* https://www.ilo.org/global/topics/safety-and-health-at-work/resources-library/publications/WCMS_842505/lang--en/index.htm

International Labour Organization. (2022b). *About the ILO in Serbia*. https://www.ilo.org/budapest/countries-covered/serbia/WCMS_468114/lang--en/index.htm#:~:text=Serbia%20has%20been%20a%20member,ILO%20since%20[th]e%20year%202000

Jankowiak, T. (n.d.). Immanuel Kant. *Internet Encyclopedia of Philosophy* https://iep.utm.edu/kantview/#:~:text=Kant's%20ethics%20are%20organized%20around,that%20could%20hold%20for%20everyone

Janssens, H., Braeckman, L., De Clercq, B., De Bacquer, D., & Clays, E. (2017). The relation between indicators of low employment quality and attendance behavior in countries of the European Union. *Journal of Public Health*, *39*(4), e127-e133. https://doi.org/10.1093/pubmed/fdw112

Johri, R. (2005). Work values and the quality of employment: A literature review. New Zealand: *Department of Labour.* https://thehub.swa.govt.nz/assets/documents/Work%20values%20and%20[th]e%20quality%20of%20employment,%20a%20literature%20review.pdf

Kelley, B. (1999). *Ethics at Work* [eBook edition]. Gower. https://www.google.rs/books/edition/Ethics_at_Work/wKjah8RUxxoC?hl=en&gbpv=1&dq=Kelley,+B.+(1999).+Ethics+at+Work.+USA:+Gower&pg=PA44&printsec=frontcover

Labour Law. (2018). *Zakon o radu (Labour Law of the Republic of Serbia)*. http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/skupstina/zakon/2005/24/1/reg

Pot, F., Dhondt, S., & Oeij, P. (2012). Social innovation of work and employment. In *Challenge Social Innovation: Potentials for Business, Social Entrepreneurship*, *Welfare and Civil Society* (pp. 261-274). Berlin, Heidelberg: Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-32879-4_16

Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical integration and review. *Research in organizational behavior*, *30*, 91-127. https://doi.org/10.1016/j.riob.2010.09.001

Seashore, S. E. (1974). Job satisfaction as an indicator of the quality of employment. *Social Indicators Research*, *1*(2),135-168. DOI: 10.1007/BF00302885

Serbian Bussiness Registers Agency (SBRA). (2023, March 8). *Zastupljenost žena u privrednim subjektima*, Infografika detalji. https://www.apr.gov.rs/%D0%B8%D0%BD%D1%84%D0%BE%D0%B3%D1%80%D0%B0%D1%84%D0%B8%D0%BA%D0%B5.4318.html?infoId=140

Statistical Office of the Republic of Serbia. (n.d. a) *Labour Force Survey, IV quarter for the years 2018-2022*, https://www.stat.gov.rs/en-US/oblasti/trziste-rada/anketa-o-radnoj-snazi

Statistical Office of the Republic of Serbia. (n.d. b). *Statistical Yearbook* for the 2020 and 2022. https://www.stat.gov.rs/en-us/publikacije/

Taylor, R. F. (2004). Extending Conceptual Boundaries: Work, Voluntary Work and Employment. *Work, Employment and Society*, *18*(1), 29–49. https://doi.org/10.1177/0950017004040761

UN. (1948). *Universal Declaration on Human Rights.* https://www.un.org/en/about-us/universal-declaration-of-human-rights

United Nations Economic Commission for Europe. (2015, October). *Handbook on Measuring Quality of Employment: A Statistical Framework*. https://unece.org/DAM/stats/publications/2015/ECE_CES_40.pdf

World Economic Forum. (2022, May 17). *The Good Work Framework: A new business agenda for the future of work*. https://www.weforum.org/whitepapers/the-good-work-framework-a-new-business-agenda-for-the-future-of-work/

World Health Organization. (2021, September 17). *WHO/ILO joint estimates of the work-related burden of disease and injury, 2000-2016: Global monitoring report*. https://www.who.int/publications/i/item/9789240034945

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.177

Selected Aspects of Education Transformation

Vojtech Kollár[1]
Silvia Matúšová[2]

Received: April 24, 2023
Accepted: August 28, 2023
Published: October 30, 2023

Keywords:
Education transformation;
Education management;
Competency;
Digitization of education;
Innovation

Abstract: *The paper aims to point out the requirements for quality increase in higher education, in terms of a concentrated and effective connection between higher education and practice, and the transformation of education harmonized with the requirements of the economic and social environment. The biggest challenge in the transformation of education is brought about by the combination of educational technologies and teaching methods with well-equipped digital learning materials and tools that help the student in autonomous learning, the development of communication, cooperation, and leadership in group projects, in the use of highly interactive online learning tools and the use of communication on the social media platform. The transformation of education is a principal breakthrough in the formation of new universal competencies for the 21st century. The new vision of education transformation at universities requires a new set of foundational literacies, competencies, and character qualities.*

1. INTRODUCTION

We have become part of globalization processes that brought us to the threshold of a new technological revolution, which will fundamentally change the way we live, work, and communicate with each other. In its degree, scope and complexity, this transformation will be as fundamental for humanity as any technological and social change that has taken place so far. The development of this change is difficult to predict, but it will certainly be integrated and comprehensive, involving all parties involved in the public and private sectors, public institutions, academia, and civil society.

The paradigm Industry 4.0 is the digital revolution, which is characterized by the integration of technologies that blur the boundaries between the physical, digital, and biological realms. This transformation is determined by the speed, scope and impact on all sectors and branches of the economy, including education. Its development is accompanied by an exponential rather than a linear pace with a global impact. The breadth and depth of these changes have an impact on the transformation of the entire reproductive process and its management systems.

The possibilities of connecting an unlimited number of mobile devices, with high performance and data capacities, create access to new knowledge. These are supported by artificial intelligence, robotics, the Internet of Things, nanotechnologies, biotechnology, composite materials, and innovative ways of obtaining and storing energy, accompanied by the transition from a linear economy to a circular one.

1 Bratislava University of Economics and Management, Furdekova 16, 851 04 Bratislava, Slovak Republic
2 Bratislava University of Economics and Management, Furdekova 16, 851 04 Bratislava, Slovak Republic

2. CURRENT CHALLENGES ON THE WAY TO AN INNOVATIVE ECONOMY

Digitalization of the economy and Industry 4.0 offer new opportunities and challenges. New technologies can generate increased productivity and facilitate market transactions. They create new assets and services with near-zero or zero marginal costs. In addition, these changes and new technologies create new work activities and occupations for the labour market but also threaten a significant part of the activities traditionally performed by human labour. This has consequences on the overall level of employment, unemployment, and the structure of work, and on the level of income inequality. New work activities, based on digital skills, have the potential for growth and a high-income rate.

The deepening of the imbalance in the income rate relates to the existence of many low-income activities that new technologies will not replace soon, e.g., social services. These tendencies can lead to significant changes in society and to an increase in inequalities in both opportunities and outcomes. The overall impacts of digitization and automation on working conditions and the number of jobs are therefore not unambiguous, they are conditioned by the structure of the economy, dominant sectors, and the composition of the workforce and depend on education and retraining policies at the level of the state, sector, and company.

Digital connectivity will improve efficiency, accelerate innovation, and introducing new business models that can be implemented faster. The dynamic changes require a systemic transformation of education, the output of which is attained education suitable for employment in the physical, virtual, and socially interconnected world.

As stated by Lisý et al. (2016, p. 584), *an accompanying impact of globalization upon an innovative economy leads to the growth of foreign investments, the flow of multinational companies, the development of international relations, and the growth of global trade.*

Piovarčiová (2013, p. 1) added that *globalization trends will first manifest themselves through significant changes in financial or capital markets because these markets are the carriers of globalization*.

The signs of globalization may include the technological, informational and communication revolution, poverty, the global cultural industry, and the global network of financial markets. Concerning the economy, Collins (2015) assumes that globalization stimulates competition, enhances lowering consumer prices, increases economic growth, removes barriers to free trade, etc. Among the positive factors of globalization, the reduction of poverty in the world could be included. Thanks to information technologies, costs and time are saved. As a result of growing competition, the quality of goods increases and costs decrease, the pressure to develop technologies increases, and economic growth increases through liberalization and the expansion of world trade. World trade is growing faster than global production, and the internationalization of business leads to the development of the economy, on which the growth of countries' living standards depends.

Procházková (2015, p. 205) pointed out that the negative factors of globalization include increasing social differences, the globalization of terrorism, and crime. As a result of the necessary dependence and interconnectedness of countries, unexpected and more prone fluctuations arise, and thus the economies of individual countries are more quickly infected by crises and shocks.

The global imbalances are increasing, and the global economy is affecting the distribution of wealth among countries. Unemployment is increasing, as there is a gap between the creation of new jobs and the liquidation of traditional jobs in inefficient productions. Cheap labour from other countries is utilized, which creates sudden fluctuations and shocks in the markets due to inadequate reactions of investors.

According to Collins (2015), free access to information, increasing living standards, new job opportunities, increasing supply and demand for goods, including their quality, reducing production and sales prices, and increasing communication possibilities are considered positive factors of globalization. On the other hand, the negative aspects of globalization include the deteriorating environment, income inequalities, and the increase in economic, ecological, and political migration. Hunger, poverty, and the number of military conflicts are growing.

The economy in the world is more prone to unexpected collapses and it is also affected by various multinational companies. We include here also the problem of the functioning of transnational institutions, the emergence of ecological problems and environmental protection issues, and the inequality in the standard of living. International companies are abusing their market position, thereby causing an increase in poverty in developing countries.

With the process of globalization, the power of multinational companies is growing, which is associated with the following facts:

1. because of their enormous power, conflicts arise with national governments,
2. there is a huge competition among them,
3. competition arises between national governments because of the need to attract and acquire foreign investors,
4. huge financial resources are invested in information and computing technologies,
5. there is a pooling of financial resources due to the financial demands of research processes.

3. EDUCATION MANAGEMENT

The changes identified above also significantly affect educational processes and management within educational institutions. The result of the educational process is attained education degree, as a complete set of knowledge and competences about the world in which we live. The constant development of digital and online educational opportunities, being present in the higher education system, calls on the management of education to adapt the strategies and teaching forms of the educational institution to new trends that are closely related to technology and digitalization.

According to Jankelová (2022, p. 13), the traditional approach to management is based on the role of management *to set goals from top to bottom, build a hierarchy, enforce rules, control people, maintain stability and achieve results. The current approach, on the contrary, emphasizes the need for constant changes, innovations, adaptation, proactivity, and the search for differences and uniqueness.*

A new perspective on education management from the aspect of the development of digital infrastructures is characterized by Bygstad et al. (2022) who emphasize the combination of bottom-up and top-down management because a key aspect of digital infrastructures is the interplay of user-level capabilities and interconnected technologies. A new view of management in the 21st century as a kind of superstructure imposed on the traditional view is coming to the fore in the rapidly changing world. According to Jankelová (2022), it means the creation of such an environment in which employees see a deeper meaning in their work and feel responsible for the results of the organization, but also for its operation in the environment in which the organization is located.

According to Lesáková (2021), innovations and the availability of new technologies are changing the direction of education. They "replace" or "displace" existing educational models by disrupting the functioning of established educational models. She assumes that *first, they improve them and then provide new ones. Innovation replaces existing methodologies, and ways of transferring knowledge and opens new educational alternatives.* In the area of innovation and digitization, there is a huge potential for using technology to deepen and support learning processes.

According to statistics from the platform Statista (2023), *the most successful educational systems will be those that can adapt to new technologies and offer their students access to digital infrastructure.*

The new way of managing educational institutions also affects several external factors, which mainly include financial resources, increased demands on the quality of management of educational institutions and factors involved in the professional, business, extracurricular and lifelong education of adults.

Jankelová (2022, p. 536) stated that managers in the 21st century operate in conditions of foundational changes in society. Achieving success, fulfilling organizational goals, and maintaining competitiveness in the knowledge society requires *new strategies that must consider the factor of sustainable development, elements of new technologies, the fourth industrial revolution and the digitalization and robotization associated with it.*

New educational models and educational alternatives also bring new challenges for higher education institutions, which were identified by Burrell (2021). The new challenges first require coping with a new approach, based on a strategy that takes advantage of the cultural, work, and technological changes of the digital transformation. These changes were marked by Grajek and Reinitz (2019), who considered them primary indicators of digital transformation, which are closely related to the main goal of a new educational model, which is the creation of digital educational space and its continuous improvement.

Grajek and Brooks (2020) stated, the management of education is a new way of management, which affects the digital transformation of an educational institution, and it should fulfill the following tasks:

a) consider institutional strategic priorities as a set of big, new, and important challenges that also relate to the wider ecosystem of higher education (referred to as a "set of big challenges"),
b) create and adopt a new "grand strategy" that can provide a coherent principle, define a vision, consider the resources of an educational institution, and focus on priorities,
c) consider the digital transformation, by means of which they can progress with the fulfillment of the university's strategic goals (educational goals) to a higher level, fulfill strategic goals by rebuilding the institutional culture, modernizing workforce practices, and applying new technologies to manage higher education.

A well-executed updated education strategy enables higher education institutions to achieve their goals, which are new, more flexible, and relevant educational opportunities and other qualification programs within the new strategy that can attract a new population of students, thereby strengthening higher education. The goal of a new educational model is the development of a digital educational space and its constant update, which can be provided only by proper management and a well-functioning information technology department of an educational institution. Digital transformation in higher education was defined by Martin and Xie (2022) as the use of digital technologies for significant improvements in education, the experience of students and teachers, and the creation of new teaching models.

Radó (2017, p. 41) summarized the expectations of the 21st century and the requirements for education in several points: personalization, motivation, intensive involvement of the environment in teaching, use of digital trends, education based on cooperation, on the feeling of personal safety, satisfying the interest and curiosity of students, using diverse resources for strengthening knowledge on multiple threads (links), diversity and interoperability of learning methods and contexts, continuous and progressive assessment, feedback, space for creativity.

Based on the new approach and new definitions considering the digital transformation of society, it can be stated that in the 21st century, the management of education is expected to implement a new educational model in higher education. In this connection, Grajek and Brooks (2020) stated that educational management in grand challenges must set goals, in grand strategy define the approach, and digital transformation will provide methods that will enable higher education institutions to achieve their goals.

The key management activities of education management can be visible:
- in determining new directions and strategies for achieving the goals of educational institutions,
- in planning the individual steps of the educational program,
- in organizing available resources (people, time, sources),
- in control of the implementation process,
- in establishing and improving organizational standards.

Educational management can be defined as a set of coordinated activities aimed at managing an educational institution that creates a modern, inclusive educational model based on a pedagogically controlled technological foundation. The strategy of creating a new educational model uses the cultural, work, and technological changes of the digital transformation, applies new and emerging technologies, and manages the education of learners from the aspect of their professional growth and development while being guided by pedagogical experiences. The concept of educational management must be stable, formable, viable, and should create a value offer for students, the community, and partners of the university. Educational management is a way of managing higher education institutions, the result of which, like attained education, leads to the integration of education and society.

According to Bolgarová (2021), the key demands of globalization and Industry 4.0 place new requirements on education, including individualized education, focused more on the education of the individual, not on the education of the whole group. The education of teachers must be a priority, as teachers should be constantly trained and able to work with the most modern technologies. The education of students must include increased flexibility in the learning process, as well as a change in student assessment. It also includes a change in the role of the teacher, who is supposed to be a mentor and coach.

The educational management in the strategic planning of a new educational model must consider several areas for improving digital education. For educational management, it is necessary to analyse and assess seven aspects to improve digital education, which Martin and Xie (2022), and Gaebel et al. (2021) denoted as the digital transformation framework for higher education. Key aspects of improving digital education include the following areas a) digital educational technologies, b) teaching methods, c) support services, d) organizational strategy and planning, e) employee development, f) student development, and g) partnerships.

4. INNOVATIVE EDUCATIONAL MODELS

Effective and high-quality education in the higher education environment, in the form of a new educational model, requires a significant increase in infrastructure and stable technological security to support digital teaching and learning technologies, as stated by Fry (2022). Learning Management System (LMS) is software or a set of tools that ensure the provision and management of education. It helps create, manage, organize, and deliver online learning materials to students and educators. Manages communication within the educational system and stores information about assigned lessons, and courses. It is used to store all materials, modules, and activities. The teacher can send announcements, participate in discussions, prepare, and grade assignments and maintain an index in the LMS. Good use of LMS can also support remote work or teaching and some forms of distance learning. Many modern LMSs already include some features for artificial intelligence and learning analytics.

According to Pšenáková (2022, p. 21), technologies for synchronous learning, used to conduct online meetings in real-time, are considered as a subset of online teaching, when all students learn together at the same time and often in the same place, but the teacher is in another place. Videoconferencing or teleconferencing is used to connect the teacher and students digitally. These technologies include a variety of functions such as audio and video, text, screen sharing, polls, whiteboards, and breakout rooms for small group discussions. Technology functions help teachers maintain interactivity in online teaching, using a variety of applications.

Multimedia applications (according to Microsoft, 2023) help the teacher engage the students as they include audio, video, and other interactive elements. Multimedia software can be used to record lectures, demonstrations, orientations, etc. Some multimedia applications can be embedded directly into the LMS for easy access and use. Collaborative applications (NEXTECH, 2020) serve to support effective and productive teamwork. These are web or cloud applications for word processing, presentations, and social engagement that allow students to collaborate online with their classmates and the educator. Cloud technologies (Team Security on Net, 2020) represent a virtual space through which users create, share and work with a large amount of information of various types.

5. FUTURE RESEARCH DIRECTIONS

Future research directions should primarily focus on educational management, the cultural development of digital education, and the development of subjects in the education process. Educational management staff must be ready to finance technology, and to respond to the ability to use new technology given the new needs of society, which include *cooperation, digital literacy, analytical thinking, support for active education, leadership, the ability of complex problem-solving and effective communication, creativity, teamwork, emotional intelligence and problem-solving capacity* (Slovak Business Agency, 2022, pp. 48-49).

Educational management staff must ensure:

a) A group of information technology specialists for technological support and for maintaining networks and technologies for students and teachers, including individual support. Administrators of networks, information and communication technologies must be prepared to ensure the smooth flow of distance (online) education and to support face-to-face teaching and learning in various fields.
b) Support services for university staff, academics, and students. The college must provide access to services that can help with the digitization of learning and teaching, such as guidance, consultation, access to digital tools, and more.
c) Cooperation between managers, teachers, students and information technology workers and the opportunity to participate in the creation of an educational path, teaching and digitization of education and study programs is essential to ensure the achievement of goals.

Creating a culture that embraces proactive change in digital transformation is key. Leaders must foster openness to new ways of thinking and working, and the ability to make more effective data-driven decisions. When organizing planned activities and creating standards for teaching and learning according to the new educational model, management should be based on research-based procedures. Managers must consider a range of policies and standards such as teaching load, teaching criteria, performance, and assessment standards. Promotion of the digital transformation of teaching and learning in higher education requires the development and use of innovative digital learning tools and formats. However, this does not guarantee sustainable success. An important factor of sustainability is the development of a culture of digital education.

Building a digital culture is also necessary to address the gap between how an institution perceives its digital presence and what students expect. Building a culture of digital education begins with communication at all levels of the educational institution, the right choice and the effective introduction of digital technologies into teaching. According to Grajek and Reinitz (2019), the development of a culture of digital education requires *the cultivation of new forms of participation. Therefore, students, educators and IT administrators must work together to explore the emerging challenges and support the implemented changes due to digitization.*

This means that the use of digital tools in teaching practice should force educators to adapt their teaching habits and methods to innovations, as they provide many new possibilities and resources for learning. By the application of available digital tools, educators can support students in their digital skills development. Students will then be able to reflect on the results, and on the learning process itself. They develop their competences and build their independent learning habits, which can also be used in the process of lifelong learning.

In connection with the advancement of digital transformation, it is necessary to allocate, redistribute and stimulate resources for education and for the development of educators. As a result of the knowledge society, digital competencies are now widely understood as an interrelated set of competencies that are essential for success in the digital age. With the development of technology, in addition to digital competence, it became important to interpret information and data, communicate and collaborate, take care of the safety of one's person and data, create digital content, and solve problems, other topics relevant today came to the fore.

Nilson and Goodson (2021) consider it extremely important to address *disinformation and misinformation in social media and on news sites, the trend of datafication of internet services and applications (e.g. focus on how personal data is used), the interaction of citizens with artificial intelligence systems, new technologies such as the Internet of Things, environmental sustainability concerns (e.g. resources for technologies) and new emerging contexts (e.g. telework and hybrid work).*

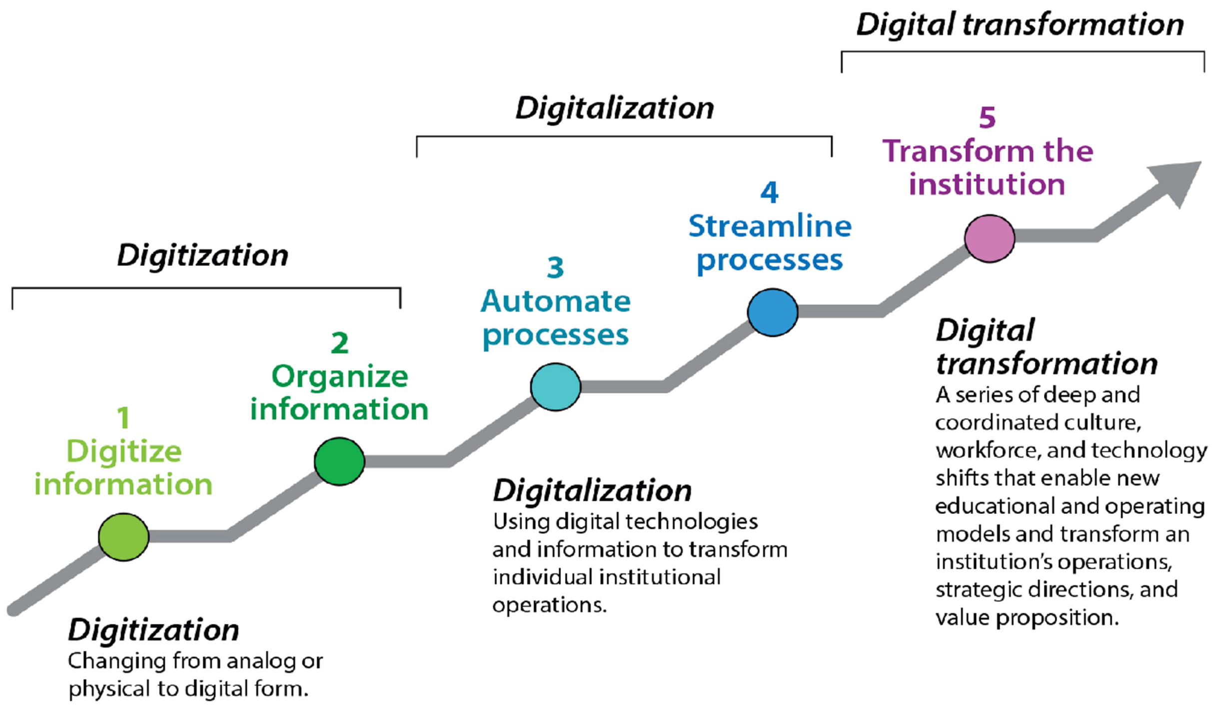


Figure 1. Digital transformation in context

Source: Brooks & McCormack, 2020. p. 5.

Educators must continuously adapt to digital and online teaching and learning formats, which they can only do if digital learning is part of their professional development. Above all, they must learn how to adapt digital technology to specific subjects, goals, and activities during teaching. Therefore, their professional education perspective must shift from skills acquisition to technological competencies mastery. The argument of Nilson and Goodson (2021) concerning the quality of teaching is in line with DigCompEdu - The European Framework for Educators' Digital Competence (Vuorikari et al., 2022) which provides a general reference framework to support the development of digital competences specific to educators in Europe, whereby the digital competences and skills development of educators should focus on technical skills, and how digital technologies can be used to improve and innovate education and training of students. Constant technological development and digitization require lifelong development of competences and skills from all teachers.

The key role of management in the strategic application of new technologies is to link the alignment of technical resources with the kind of change that a higher education institution needs. The technology aspect of digital transformation is obvious, but the other two elements - culture and workforce change are equally important. Technology without an intentional focus on culture and workforce will not promote the transformation that institutions desire or need.

The process when schools adapt to the changing world is called the digital transformation of the school. As digital transformation is often confused with digitization, it is necessary to distinguish between digitization, digitalization, and digital transformation (Figure 1).

6. CONCLUSION

Digital transformation is not just about adding new technology or automating processes. It is a process of using data and technology to transform an entire institution and especially a process of organizational change that requires a unique vision, perspective and set of leadership skills.

We must agree with Muddassir (2022) who stated that digital transformation in higher education should be understood as *the process of using digital technologies to enhance and improve the experience of students, by improving their interactions with instructional services, support teams and other areas of operation of the higher education institution*.

It was rightly emphasized by Brooks and McCormack (2020) that digital transformation could be seen as a series of fundamental and coordinated changes in culture, workforce and technology that enable new learning and operating models, and transform the operations, strategic direction, and value proposition of an educational institution.

According to Kimachia (2022), digital transformation is a broader term that includes not only the digitization process but also the organizational changes that accompany it. This transformation is a path that begins with the identification of processes that can be improved or replaced by digital solutions and the subsequent implementation of these solutions to maximize their impact.

Another definition of digital transformation, as stated by Westerman (2019), speaks more of a change process that requires a unique vision, perspective and set of leadership skills to be successful. However, some experts see digital transformation as a technical challenge rather than a leadership challenge. In effect, digital transformation describes a new value offer, the result of coordinated changes in culture, workforce, and technology that, when combined, provide a catalyst for lasting transformation that fundamentally changes the way an institution delivers service or meets the needs of its students, staff, and partners.

Grajek and Brooks (2020) emphasize that digital transformation plays a key role, whether it is the implementation of a new technological solution or the possibilities that technological progress enables. New technologies such as artificial intelligence, big data, robotics, and the Internet of Things also create opportunities for companies to improve their operations and better serve their customers.

Digital transformation that can help companies keep pace with these changes and remain competitive in today's business environment, is the future of higher education. The future will be the result of such strategies and coordinated changes that require strong management and commitment to institutional changes of the entire organization to bring about the expected result, education as an integral and complete physical, social and virtually interconnected aspect of life.

Acknowledgment

This paper was created under the international project 1/2021-M The Circular Economy as An Accelerator of the Transition to a Climate-neutral Economy (2021-2023) and the international project 3/2021-M Managerial Competencies and Innovations in Education in Post-COVID 19, funded by Bratislava University of Economics and Management, Slovak Republic.

References

Bolgarova, J. (2021, Mar 25). *Vzdelávanie 4.0 a Učiteľ 4.0*. https://medium.com/edtech-kisk/vzdel%C3%A1vanie-4-0-a-u%C4%8Dite%C4%BE-4-0-780a9823674c

Brooks, D. Ch., & McCormack, M. (2020, June 15). *Driving Digital Transformation in Higher Education*. https://library.educause.edu/resources/2020/6/driving-digital-transformation-in-higher-education

Burrell, S. (2021). *The CIO as Quantum Leader*. https://er.educause.edu/articles/2021/10/the-cio-as-quantum-leader

Bygstad, B., Øvrelid, E., Ludvigsen, S., & Dæhlen, M. (2022). From dual digitalization to digital learning space: Exploring the digital transformation of higher education. *Computers & Education, 182*, 104463. https://doi.org/10.1016/j.compedu.2022.104463

Collins, M. (2015). *The Pros and Cons of Globalization.*

Fry, A. (2022). *What is an LMS? Learning management systems explained*. https://moodle.com/news/what-is-an-lms-learning-management-systems-explained/

Gaebel, M., Zhang, T., Stoeber, H., & Morrisroe, A. (2021). *Digitally enhanced learning and teaching in European higher education institutions. European University Association absl.*

Grajek, S., & Brooks, D. Ch. (2020). *A Grand Strategy for Grand Challenges*. https://er.educause.edu/articles/2020/8/a-grand-strategy-for-grand-challenges--a-new-approach-through-digital-transformation

Grajek, S., & Reinitz, B. (2019). *Getting Ready for Digital Transformation*. https://er.educause.edu/articles/2019/7/getting-ready-for-digital-transformation-change-your-culture-workforce-and-technology.

Jankelová, N., et al. (2022). *Manažment.* Bratislava, Slovak Republic: Wolters Kluver.

Kimachia, K. (2022). *What Is Digitization vs Digitalization vs Digital Transformation?* https://www.channelinsider.com/business-management/digitization-vs-digitalization/

Lesáková, D. (2021). *Inovačné modely vzdelávania na vysokých školách*. *ACADEMIA*. Vol. 1/2022. Bratislava, Slovak Republic: CVTI.

Lisý, J. et al. (2016). *Ekonómia.* Bratislava, Slovak Republic: Wolters Kluver.

Martin, F., & Xie, K. (2022, September 27). *Digital Transformation in Higher Education*. https://er.educause.edu/articles/2022/9/digital-transformation-in-higher-education-7-areas-for-enhancing-digital-learning

Microsoft. (2023, Mar 23). *Používanie multimediálnych súborov v aplikáciách plátna*. https://learn.microsoft.com/sk-sk/power-apps/maker/canvas-apps/add-images-pictures-audio-video

Muddassir, S. (2022). *Leadership for Digital Transformation*. https://moodle.com/news/what-is-an-lms-learning-management-systems-explained/

NEXTECH. (2020). *Kolaboratívne nástroje*. https://www.nextech.sk/a/Kolaborativne--nastroje.

Nilson, L. B., & Goodson, L. A. (2021). *Online Teaching at Its Best*. Wiley.

Piovarčiová, V. (2013). *Súvislosť zmien v štruktúre kapitálu s globálnou finančnou krízou*. Finančné trhy. https://www.derivat.sk/index.php?PageID=2097

Procházková, K. (2015). Prienik a etablovanie start-upov v medzinárodnom podnikateľskom prostredí. p. 201-226. In: SLÁVIK, Š. a kol. 2015. *Podnikateľské modely a podnikateľské stratégie startupov I.* Bratislava, Slovak Republic: Ekonóm.

Pšenáková, I. (2022). *Desatoro online výučby*. Bratislava, Slovak Republic: VEDA.

Radó, P. (2017). *Az iskola jövője*. Budapest, Hungary: Noran Libro Kiadó.

Slovak Business Agency. (2022). *Inovatívne vzdelávanie v kontexte priemyslu 4.0*. Bratislava, Slovak Republic: SBA.

Statista. (2023, February 28). *Education in Europe*. https://www.statista.com/topics/3855/education-in-europe/

Team Security on Net. (2020. August 1). *Čo je to cloud a ako funguje?* https://bezpecnenanete.eset.com/sk/it-bezpecnost/co-je-to-cloud-a-ako-funguje/

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). DigComp 2.2: *The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes*. Publications Office of the European Union.

Westerman, G. (2019). *The first law of digital innovation.* https://sloanreview.mit.edu/article/the-first-law-of-digital-innovation/

Additional reading

European Commission. (2022) *The future of digital and online learning in higher education*, Publications Office of the European Union. https://data.europa.eu/doi/10.2766/587756

FORBS. (2015). The Pros And Cons Of Globalization, https://www.forbes.com/sites/mikecollins/2015/05/06/the-pros-and-cons-of-globalization/?sh=6fedda1eccce.

Grajek, S. (2022, October 31). *Top 10 IT Issues, 2023. Foundation Models.* https://er.educause.edu/articles/2022/10/top-10-it-issues-2023-foundation-models

Jackson, N. C. (2019). *Managing for competency with innovation change in higher education.* https://doi.org/10.1016/j.bushor.2019.08.002Get rights and content

KONTIS Slovakia. *Riadiaci systém vzdelávania*. https://www.kontis.sk/reseni.html

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.189

Comparison of Selected Indicators of Higher Education Financing in Slovakia in Disruptive Times

Dana Országhová[1]
Mária Farkašová [2]

Received: May 5, 2023
Accepted: July 7, 2023
Published: October 30, 2023

Keywords:
Higher education financing;
University;
Average wage;
Time series analysis

Abstract: *Universities are scientific-pedagogical institutions where teaching and research take place, and outputs of tertiary education are qualified graduates for the needs of social practice in the labour market. In Slovakia, the subsidy for wages and insurance premiums is the largest part of the financial subsidy provided from the state budget for universities, which is earmarked. Since 2011, this subsidy has been derived from the performance of a specific university, which is quantitatively expressed based on the number of students, the implemented teaching and outputs of publication and project activities. The main aim of this paper is to evaluate the development of selected indicators in the context of the financing of higher education institutions in Slovakia. Research data were collected from various sources; data available in the DataCube database and from the schedules of subsidies of the Ministry of Education of the Slovak Republic for universities. Data on universities, their financing and university teachers' salary conditions were evaluated using methods of time series analysis with the prediction of development in the future. Findings indicated changes associated with the efficiency in the utilization of monetary assets at universities. Analyses also include current years, which are referred to as disruptive times and are characterized by global economic problems.*

1. INTRODUCTION

Education is important for the whole society as well as for the lives of its members. Nowadays the university role is associated with three major areas: education, research, and active involvement in regional development. The university academic environment is based on pedagogues and scientific workers who are supported by the administrative section. University teachers must meet the demanding criteria of a good teacher with high-quality scientific outputs (Bhai & Horoi, 2019).

The prerequisite for the development of society is investment in human capital, which will be used for training and improving the qualifications of employees. There will be a decrease in the number of Slovak residents in productive age in the near future, while the rate of economic activity of inhabitants will increase. Currently, the biggest investments are made by companies in the digital skills of employees, and therefore the greatest demand will be for experts in the field of IT (ManpowerGroup, 2017). Tools of e-learning represent a flexible, financially acceptable, and well-organized form of employee and service development (Vančová & Kovačičová, 2018).

In advanced market economies, three basic models of higher education financing are applied. The first system, the so-called Anglo-American system is based on principles of the market mechanism; the Swedish tax-subsidy system is based on the redistributive function of the tax system, therefore higher education funding depends on the state; third – the Australian system

[1] Slovak University of Agriculture in Nitra, Faculty of Economics and Management, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia

[2] Slovak University of Agriculture in Nitra, Faculty of Economics and Management, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia

assumes the student's participation in financing the study costs. In Slovakia, the higher education financing system is a model of multi-source financing, while the state's financial participation and principles for multiple sources of financing are clearly defined.

The main source of funding for a public university is subsidies from the state budget. The Ministry of Education of Slovakia provides subsidies to public universities for the realization of accredited study programs, for research, development, or artistic activities, for the development of the university and the social support of students. To cover the necessary expenses, the public university also uses other sources (Beličková & Geško, 2006). The return on investment in education is usually long-term. Economic and social development is conditioned by an increase in spending from public budgets. In addition to determining the adequate amount of funds (e.g., through financial regulations) necessary to ensure the provision of educational services, it also includes the issue of their redistribution, allocation, and use (Koróny & Hronec, 2012).

Šipikal et al. (2015) present an analysis of the share of public subsidies and EU resources in the financing of Slovak universities in the period 2007 - 2014, with a focus on financing through the EU's cohesion policy. In the number of published articles registered in the SCOPUS database, universities have significantly improved in the program period 2007-2014 (the number of articles has more than doubled). Daňo (2022) presents the main changes in the financing of Slovak universities from 2022; changes include the introduction of performance contracts. Furthermore, the new system of periodic evaluation of scientific outputs of university employees, a novel approach to the study programs accreditation, the reform of university management, and the intention to concentrate excellent educational and research capacities.

2. DATA AND METHODS

The basis for this paper was data collected from various sources: the Database DataCube (2023), the schedules of subsidies of The Ministry of Education, Science, Research and Sport of the Slovak Republic (2023), Statistical Yearbook – Universities (2023) and results of financial analyses. Data on indicators aimed at the educational process, data on the financing of universities in Slovakia, and university teachers' salaries were evaluated using methods of time series analysis with the development prediction. Analysis and results interpretation were conducted through descriptive methods of mathematical statistics using graphic presentation of results. The subsidies on the salaries of university teachers were evaluated using the base index, which shows the development of changes in the period 2008-2023. Trend functions were used to estimate the development of the given indicators.

3. RESULTS AND DISCUSSION

3.1 Selected Indicators of University Education in Slovakia

After graduation from secondary school students can continue their studies at university in accredited study programs. Slovak universities provide higher education in first (bachelor's) degree, second (master's) degree, and third (Ph.D.) degree. The basic division of universities in Slovakia is as follows:

- public universities (public institutions established by law, number 20),
- state universities (military, police, medical, number 3),
- private universities (legal entities established with the approval of the government, number 10),
- foreign universities - education, but also the rights and obligations of students, are governed by the laws of the country where they are based (not included in Figure 1).

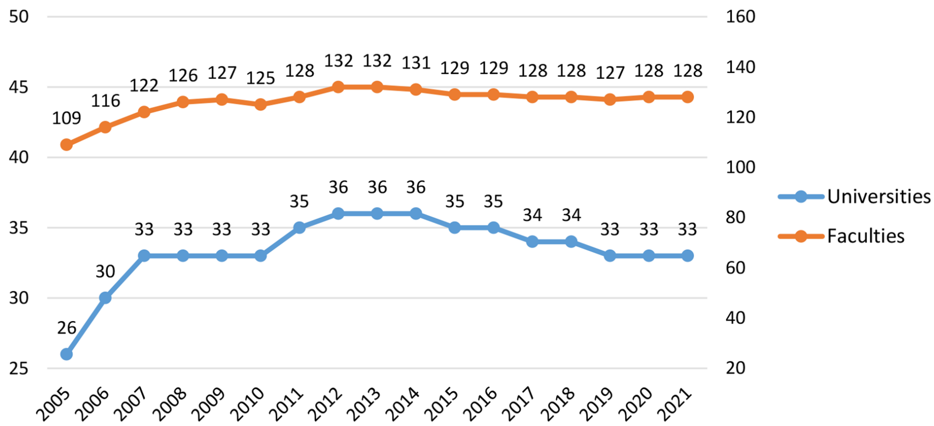


Figure 1. Number of faculties and universities in the Slovak Republic (2005 – 2021)
Source: DataCube (2023), own processing

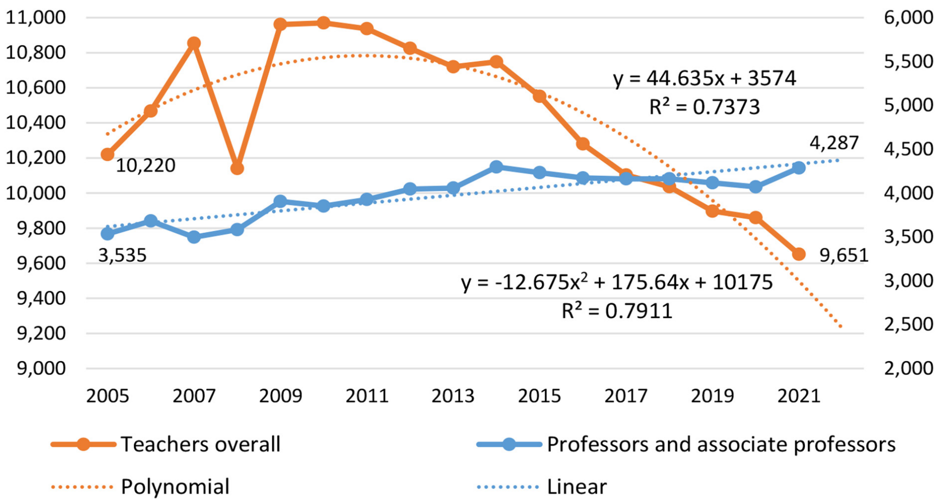


Figure 2. Number of teachers at universities in the Slovak Republic (2005 – 2021)
Source: DataCube (2023), own processing

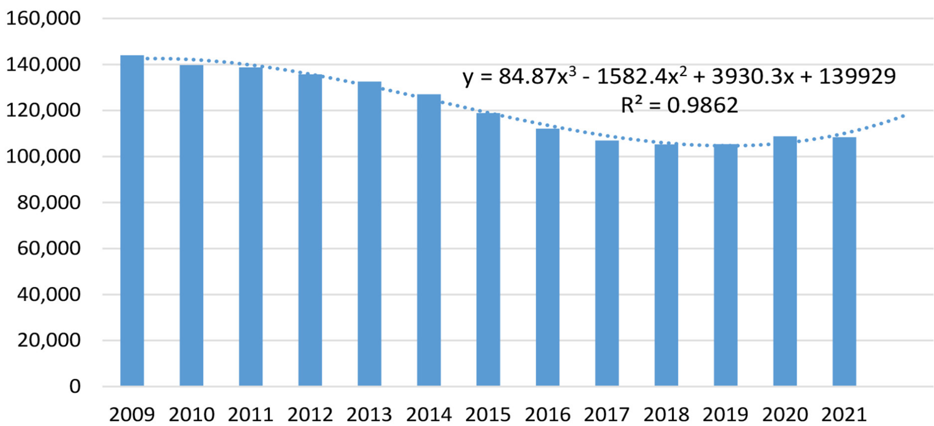


Figure 3. Number of students at universities in the Slovak Republic (2009 – 2021)
Source: DataCube (2023), own processing

The development of the number of faculties and universities in Slovakia proved that this sector is still in the process of change (Figure 1). Data show the increase in the number of faculties (period 2005 – 2012) that stopped in the year 2013. The same process is evident in the number of universities, and in the period 2013 – 2021, there was a moderate decrease.

In Figure 2 there is presented the development in the number of university teachers within the period 2005 – 2021. In the category of teachers overall, the process of development is approximated by a quadratic function, while the model assumes a decrease in the number of teachers in the following period as well. This trend relates to the decrease in the number of students at universities (Figure 3) and to changes in the financing of universities, which is based on the evaluation of teachers' performance. Estimate of the number of teachers (overall):

$$y = -12.675x^2 + 175.64x + 10{,}175; \; R^2 = 0.7911 \tag{1}$$

The development of the number of professors and associate professors is approximated by an increasing linear function. This situation relates to the increase in the qualification structure of pedagogues, which is necessary for accreditation and personnel guarantees of study programs. Estimate of the number of professors and associated professors at Slovak universities:

$$y = 44.635x + 3{,}574; \; R^2 = 0.7373 \tag{2}$$

Data shows that the number of university students was decreasing from 2009 until 2018 and then there was a slight increase. The number of students is also influenced by another factor, which is the possibility of studying at universities abroad (Figure 3). The departure of high school students to foreign universities often means that the graduates will not return to work in Slovakia after completing their studies.

3.2 Financing of Universities and Wages of University Teachers in Slovakia

Financing of public universities through The Ministry of Education, Science, Research and Sport of the Slovak Republic (2023) is realised based on Act no. 131/2002 Coll. about universities. The main factors for determining the amount of subsidy for universities are the educational, research, or artistic capacity of the university, furthermore, outputs in the field of science or art, the evaluation of the research, development, artistic and other creative activities of the university, and classification type of the university.

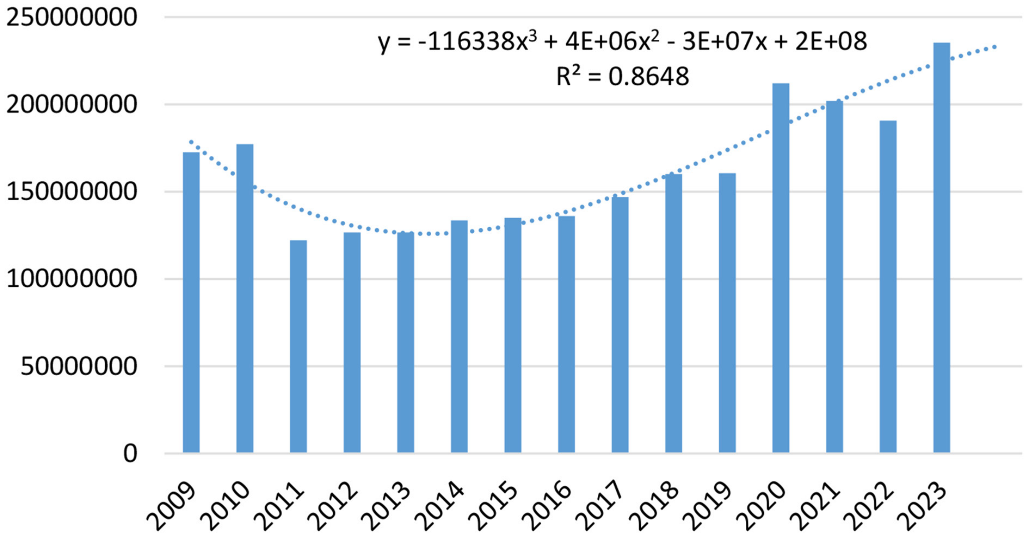


Figure 4. Breakdown of subsidies for university teachers' salaries

Source: The Ministry of Education, Science, Research and Sport of the Slovak Republic (2023), own processing

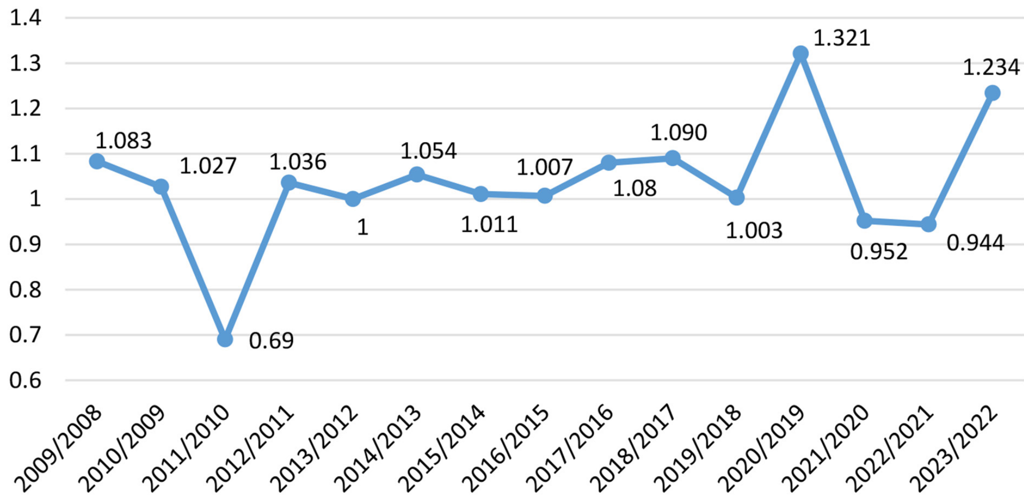
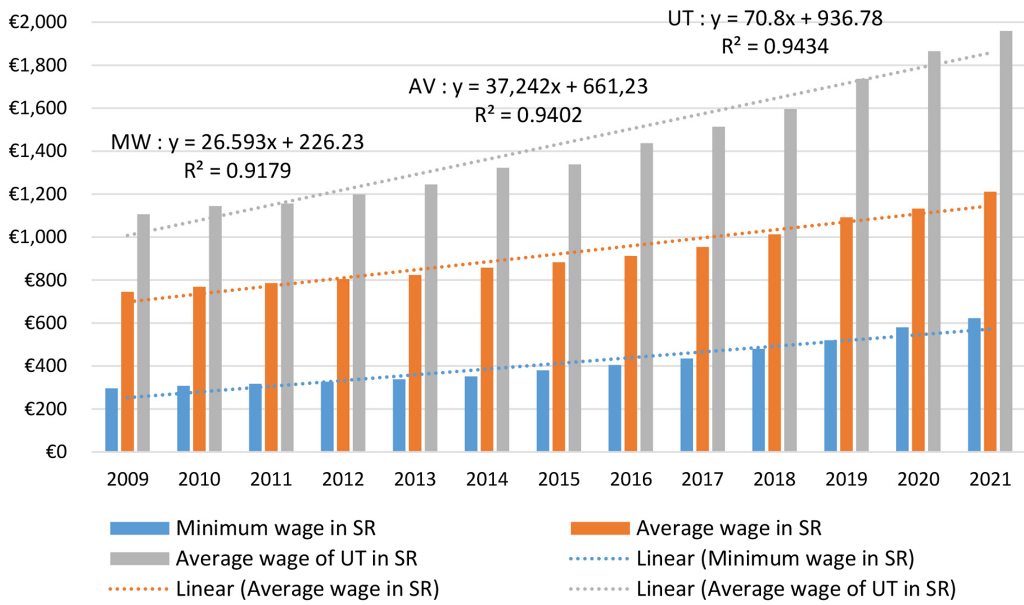


Figure 5. Comparing indices of subsidies for university teachers' salaries

Source: The Ministry of Education, Science, Research and Sport of the Slovak Republic (2023), own processing



Note: MW – minimum wage, AV – average wage, UT – university teachers, SR – Slovak Republic

Figure 6. Comparison of minimum wage, average wage, and average wage of university teachers in the Slovak Republic (2009 – 2021)

Source: Average wage 2023; Minimum Wage 2023; Statistical Yearbook – Universities, 2023; own processing

Figure 4 shows the subsidies for university teachers' salaries in absolute values in the period 2009 - 2023. The modifications are also related to the total number of teachers at universities, which also changed. A significant decrease in subsidies occurred between the years 2010 and 2011. In the graph there are visible two significant increases in subsidies: the first one between 2019 and 2020, and the second one between 2022 and 2023. The indices comparing two consecutive years (Figure 5) show either positive or negative changes in the provided subsidy for the salaries of university teachers. In the context of economic changes, the monetary crisis in 2009 is also reflected in the reduction of subsidies for universities. At the end of the analyzed period, the impact of the COVID-19 pandemic is visible, which caused a reduction in university subsidies (2021-2022).

In Slovakia, salary conditions are based on valid laws. The minimum wage means the lowest possible wage that must be paid for full-time work (approximately 4% of working people in Slovakia). In Slovak economic conditions, the minimum wage for 2023 is €700; in 2022, the minimum wage was €646. The minimum wage for 2024 is expected to be around €770. In the states of the European Union, the highest minimum wage is in Luxembourg and the lowest in Bulgaria. Some European countries do not have it in place (Minimum Wage, 2023). The term average wage means the arithmetic average of all wages in Slovakia. Approximately 70% of people earn less than the average wage in the national economy. Average salary data is important for calculating the future pension of each employee (Average wage, 2023).

The salaries of university teachers are determined by tables that consider the teacher's level of education and years of work. Figure 6 shows the development of the minimum and average salary in Slovakia and their comparison with the average salary of a university teacher. Mathematical models for all three types of wages have confirmed an increasing trend. The current energy crisis, significant increase in prices of goods and services, and rising inflation caused that in 2022 the total average wage in Slovakia fell the most in the last 12 years, by 4.5 percent after taking high inflation into account.

Education and research are two main activities at universities. The economic function of education is visible in its participation in the process of social reproduction and the formation of qualifications of the labour force (Žižková et al., 1989). The importance of education places new demands on the system of financing and organization of public educational services. The support of economic growth in the knowledge-based economy includes investments in innovation and research, investments in higher education and technological development (Hudáková, 2017; Paličková, 2014). The regional importance of the university is evaluated via university effects in the given locality, which includes the impact on the creation of new and innovative businesses (Hrivnák & Fáziková, 2017).

4. CONCLUSION

The main goal of education is to prepare qualified graduates for the labour market. The economic function of education is determined by the mutual relations between the economy and education. Also, for this reason, emphasis is being placed on the cooperation of educational institutions with enterprises and companies, which express themselves regarding the requirements for professional knowledge and competences of university graduates.

The quality of universities depends on university teachers, who need suitable conditions for educational and research work and adequate financial evaluation of their work. High demands are placed on teachers for the actuality and expertise of teaching, and a high rank in publications and projects, which are criteria for measuring the effectiveness and performance of teachers at the university. In the Slovak Republic, there are extreme cases where university teachers do not have sufficient salaries to be able to obtain a mortgage for their housing. Inadequate financial evaluation is reflected in the beginning shortage of teachers in primary and secondary schools.

The importance of universities in supporting the development of regions will increase in the future, especially from the point of view of innovation and research. Therefore, it is very important to pay attention to the way universities are financed. Social and economic shocks are reflected in the funding of universities, as demonstrated by the analyzed data (2009 economic crisis, COVID-19 pandemic).

5. FUTURE DIRECTIONS

Slovak universities have historical roots and provide tertiary education in various fields of study. The paper contains important results for university education in the context of the financial conditions of the educational process and its participants - university teachers. It is necessary to increase the attractiveness of the teaching profession and its financial evaluation. Sufficient financial remuneration for teachers is an important motivating factor for the young generation of educators. The next important fact is the feminization of education because salaries are not high enough for the main breadwinner.

Acknowledgment

This paper was written with the support of KEGA project "Implementation of the Physical Laboratories Virtualization by means of Control and Automation Systems in the Branch Mechanical Engineering" [grant number 012SPU-4/2023].

References

Act no. 131/2002 Coll. about universities.

Average wage. (2023). https://www.minimalnamzda.sk/priemerna-mzda.php

Beličková, K., & Geško, M. (2006). *Budgets of public universities as part of the budget of the public administration of the Slovak Republic*. http://hdl.handle.net/10195/35103

Bhai, M., & Horoi, I. (2019). Teacher characteristics and academic achievement. *Applied Economics*, 1-19. DOI: 10.1080/00036846.2019.1597963

Daňo, F. (2022, June). *The budget of universities in Slovakia*. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwj2_czfg8r9AhVIR_EDHQIcBjcQFnoECAkQAQ&url=https%3A%2F%2Fwww.srk.sk%2Fimages%2Fpodujatia%2F2022_Podujatia%2F6_SRKCKR_-_F._Dano_3.6.2022.pdf&usg=AOvVaw3mQVYKtajEgvypynQi3dci

DataCube. (2023). Universities. https://datacube.statistics.sk/#!/view/sk/VBD_SLOVSTAT/sv2005rs/v_sv2005rs_00_00_00_sk

Hrivnák, M., & Fáziková, M. (2017). On the trail of university knowledge - what we already know about it 's dissemination in space? *Proceedings of 20th international colloquium on regional sciences*, Brno: Masaryk University (MUNI), 229-237. DOI: 10.5817/CZ.MUNI.P210-8587-2017-29.

Hudáková, J. (2017). Research and development support and economic growth. *Proceedings of 20th international colloquium on regional sciences*, Brno: Masaryk University (MUNI), 209-214. DOI: 10.5817/CZ.MUNI.P210-8587-2017-26

Koróny, S., & Hronec, Š. (2012). *Analysis of the efficiency of higher education institutions in Slovakia. Banská Bystrica: Matej Bel University.* https://www.academia.edu/download/50081624/Analyza_efektivnosti_vysokych_skol_na_Sl20161103-11830-182drtr.pdf

ManpowerGroup. (2017). Skills revolution: from consuming labour to building talent. https://www.manpowergroup.cz/revoluce-dovednosti-2/

Minimum Wage. (2023). https://www.minimalnamzda.sk/

The Ministry of Education, Science, Research and Sport of the Slovak Republic. (2023, April). Financing of higher education. https://www.minedu.sk/financovanie-vysokeho-skolstva/

Paličková, I. (2014). Influence of the knowledge economy on the economic growth and economic level of the countries. *Acta Academica Karviniensia*, vol. 2014, no. 3.

Šipikal, M., Pisár, P., & Varga, M. (2015). Public support and financing of universities. *Financial stability and sustainable growth in the European Union: current state and perspectives*. https://www.ef.umb.sk/konferencie/kfu_2015/prispevky%20a%20prezentacie/Sekcie/%C5%A0ipikal_Pis%C3%A1r_Varga.pdf

Statistical Yearbook – Universities. (2023, March). Centre of scientific and technical information of the SR. https://www.cvtisr.sk/cvti-sr-vedecka-kniznica/informacie-o-skolstve/statistiky/statisticka-rocenka-publikacia/statisticka-rocenka-vysoke-skoly.html?page_id=9596

Vančová, M. H., & Kovačičová, Z. (2018). Sharing Knowledge and Information Through Corporate e-Learning. *Agile Information Business*, 255-274. Springer, Singapore.

Žižková et al. (1989). *Economics of the non-production sphere - socio-economic aspects of education and educational system.* Prague: Prague University of Economics and Business (in Czech).

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.197

Students Return after COVID-19 Crisis

Man Carmen Mihaela[1]
Slave Camelia[2]

Received: April 15, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
Pandemic;
Crisis;
University;
Students

Abstract: *The pandemic caused by the SARS-COV-2 virus led to social distancing measures in this context, universities temporarily closed in Romania and most states of the world. The educational process has moved to the online environment, taking place through online platforms. According to General Comment No. 13 of the Committee for Economic, Social and Civil Rights 140, education is characterized by four elements in an interdependent relationship, namely availability, accessibility, acceptability, and adaptability. Thus, the state must provide institutions and educational programs, which provide libraries and digital facilities, accessible to students. The accessibility of educational institutions refers to three aspects: non-discrimination, accessibility from a geographical point of view, and accessibility from an economic point of view, which implies that education does not involve too high costs. Acceptability concerns aspects related to the form and content of education, from teaching methods to the curriculum, and adaptability represents how the educational process can adapt to the needs of changing societies.*

1. INTRODUCTION

The global crisis triggered by the pandemic COVID-19 has affected all fields of activity. From the way goods are produced, how we spend our free time, and the way we build plans, all aspects of life day to day have been significantly modified. The system of education could not be untouched by developments from this year, and the consequences can be, in the medium term and long, significant (Comisia Naţională a României pentru UNESCO, 2020).

According to the data provided by UNESCO, about the impact of the Coronavirus on education, as of March 15, 2020, the closing of universities affected 91.3% of the number of students worldwide, i.e. 1,575,270,054 students (UNESCO, 2020). A very large part of students from all over the world did not have access to alternative learning methods. The closure of the universities was decided through the prism of the decision to stop the spread of the COVID-19 pandemic. 100 countries have decided to close schools across the board countries, affecting more than half of the world's students.

UN chief António Guterres, in his speech, stated that the decisions taken now will affect over a long period hundreds of millions of people and influence the development of their countries. "We are facing a generational catastrophe that could squander untold human potential, undermine decades of progress, and exacerbate entrenched inequalities," Also school closures due to the COVID-19 pandemic have affected nearly 1.6 billion students around the globe, with immediate and long-term repercussions. In the video message on the occasion of the introduction of the policy document on education and COVID-19, the UN General Secretary said that it is a

[1] University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania
[2] University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania

defining moment for children and young people around the world. "The decisions that governments and partners make now will have a lasting effect on hundreds of millions of young people, as well as on the prospects of development of countries for decades". The health emergency has exacerbated the disparities that already exist in education, and prolonged school closures could reverse the progress of the past five years, especially regarding the education of girls, adolescents, and young women. Projections indicate that nearly 24 million students from elementary school to university could drop out of classes because of the economic impact of the health crisis (UNESCO, 2020). The Secretary-General's policy paper calls for preventing the existing learning crisis from turning into an irreparable calamity (UNESCO, 2020).

According to statistical data, the COVID-19 pandemic has changed the educational process around the world in two ways: through the complete closure of schools at all levels and through the economic crisis due to the measures to combat the pandemic. "The pandemic had a profound impact on education, closing schools almost everywhere on the planet – the biggest shock to all education systems in our life. The damage will become even more severe as the emergency of health will escalate into a deep global recession," according to the UN report. There are no areas that are not affected by the consequences of the spread of COVID-19.

The impact of COVID-19 on the education system differs from one country to another, having its particularities (Comisia Naţională a României pentru UNESCO, 2020). However: the pandemic has put universities in difficult conditions, forcing them to adapt in the shortest possible time to the transition online, to spend significant funds for the often accelerated digitization, and to make decisions without taking into account the possible consequences for the students.

2. MATERIAL AND METHODS

Teachers are the backbone of education systems and the key to achieving goals of learning, regardless of context and situation. As part of the containment measures related to COVID-19, universities and professors quickly mobilized and innovated to make necessary means available to students' distance teaching, with or without the use of digital technologies. In addition, teachers had a role essential for communicating measures that prevent the spread of the virus, ensuring that students are safe and supported. With the reopening of universities, their role becomes important. Education systems around the world face a combination of common and unique challenges following the COVID-19 pandemic. It is found that in most countries there is a decrease in the number of active cases, leading to the reopening of universities. Great importance will be given to the way of reopening in safety (United Nations Development Programme, n. d.).

There is no perfect or absolute set of answers to problems related to re-entry within universities. For this reason, each university will have to establish its own optimal and minimum conditions for reopening.

Each school will consider how they can best apply decisions related to the return of students to universities must be made through social dialogue and strategies of communication with immediate effect. Teachers, have to be actively involved in establishing policies and plans for the reopening of universities, and in fulfilling the measures of safety and health in the educational process. Another issue is related to equity, a component of awareness to encourage the return to the university of vulnerable students, including those with disabilities. Posts must accept the challenges specific to students who have lived through painful experiences in families related to

COVID-19. In the case of selective return or staggered, the information can explain the reason for the decision and the proposed calendar for those who continue to learn at home.

A systemic approach to communications can be adopted, including local/educational authorities, organizations of teachers, universities and the health sector.

Concern for the well-being of teachers and students is at the heart of the process of decision-making, balancing the desire to return to universities. Health and safety policies and practices must be developed together with their representative staff and organizations. Teachers must be prepared for the different ways in which the COVID-19 pandemic can affect both teachers and students. Teachers and students may go through psychological distress and socio-emotional as a result of prolonged isolation. Psychological and socio-emotional distress can lead to teacher burnout, expressed by high rates of absenteeism or even physical or mental wear and tear, undermining efforts to strengthen school resistance.

University-wide responses may include ongoing psychological and social-emotional assessments and support for teachers and students. Teachers must be free to address their own needs, take care of themselves, and manage their stress. University management can contribute to the development of teachers' skills stress management and coping mechanisms. This is essential to ensure that teachers can teach effectively and provide much-needed psychosocial support to students. At the beginning of the pandemic, it was found that teachers switched to digital teaching. Students were the beneficiaries of distance education, and teachers abandoned the classical form of lessons. Digital solutions in the field of education were not previously used as actively as they might seem. The pandemic put the stress test to the test, and the aggravation of "digital inequality" was confirmed, because 40% of the world's population still does not have access to the Internet (Kamarianos et al., 2020).

The return to universities represents a second significant change in teaching and learning for students as well as teaching staff. To manage the process, teachers and teaching assistants must receive training and information appropriate professionals to assume the responsibilities and fulfill the expectations in the effort to return to the amphitheaters.

Training, mutual learning and collaboration with other teachers, both within the university and more widely, will be essential. Such support is particularly important when additional pressure may be placed on teachers' time if they are required to provide both face-to-face and distance education.

The key role of teachers in recognizing educational gaps and formulating pedagogical responses remains essential. As ensuring quality instruction may have been a challenge during the pandemic, teachers will need to assess learning that has taken place at home, online or offline and make adjustments to ensure that those left behind are helped. Flexible approaches will be required of teaching and learning, accelerated learning and remedial educational strategies to ensure that the needs of all students are met. This is especially true for vulnerable groups, those with special needs, ethnic or cultural minorities and those who live in remote rural areas without access to distance education.

Decisions to reopen depended on the context and the universities' ability to plan, obtain or mobilize budgets and the resources needed to activate hygiene protocols and security measures, ensuring physical distancing and strengthening the capacity of teachers and teaching support staff to deliver learning outcomes. The reopening of universities will require effective monitoring, evaluation and adaptations to implementation, as is considered necessary. Based on tools from ministries of education, universities must adapt and use simple frameworks to measure progress.

The roles of teachers in the quality teaching process and the promotion of a safe learning environment. The university is a complex institution, a fact that made the management complex and not without problems during the pandemic and after it. In the event of a change in the pace of teaching and student assessment, the university infrastructure will change, to support the educational process. Also if the rate of digitization of learning and student assessment accelerates, it will be necessary to change the support infrastructure of the educational process.

In the context of the pandemic, some subjects were difficult to transfer to the online environment, especially in the fields of technical sciences, health, and sciences vocational.

One of the key solutions is the implementation of hybrid education (blended learning) by conducting online courses, carrying out physical practical activities, as well as integrating into the process of learning the possibilities generated by Open Educational Resources.

Universities must perfect themselves in terms of online education. In the situation where it is difficult to predict the evolution of the pandemic and its impact in the future, the accelerated transformation of the teaching process, increasing online teaching capacity and narrowing the digital divide. The implementation of hybrid education assumes that students and teachers have high-performance electronic devices. In this context, it was the "Euro 200" program that proposed the granting of financial aid for the purchase of electronic devices (United Nations Development Programme, n. d.).

In Romania, following the opinion polls carried out in universities, the following wishes of the students are found: 50.8% want the university to provide the opportunity to follow all courses in an online format, even after the pandemic is over. The number of those who are neutral or do not want this is 47.4%. In conclusion, the problem of university education face to face fully and online, divided the students into two categories, approximately 50 want the resumption of physical qualities, while the other side is proficient in the online environment. This phenomenon must be taken into account in the development of policies in the field of university education. Another problem from the pandemic period showed that 66% of students believe that the teachers were sufficiently prepared, well, or very well prepared for online education. While 32.6% consider that there were teachers who did not adapt to online teaching. Also, 30.1% of students studied more during the period of the pandemic, 31.3% studied little, and 19% of students studied as much during the pandemic as before it (UNICEF, 2020).

3. CONCLUSION

It was found that during the pandemic there was, at first, a decrease in the quality of university education. This was largely due to the lack of distance learning systems and their adaptation to the needs imposed by the COVID-19 crisis. There was also a lack of software resources.

In many situations, University websites could not work due to increased logging in a HUGE number of students. During the online period, there were problems with the applications during the seminars and courses. Work was done on the Zoom platform, Google Meet, or other applications. There were hacker attacks, emerging the concept of Zoombombing. This concept characterizes actions related to the violation of online spaces, including the hacking of virtual classrooms.

In March 2020, UNESCO organized a video conference with the participation of 70 member states. The objective of this conference was to create a support group for its members. The Ministries of Education launched online courses, TV lessons, and digital platforms so that education does not stop due to the COVID-19 crisis. For teachers, this was a new challenge. Teachers face an unexpected challenge. It was necessary to guarantee learning with the help of new methods. The educational process should face the requirements and challenges that should reduce the negative impact produced by the pandemic.

It is desired that all the states of the world react promptly so that the educational process recovers quickly, the damages are minor, and in some cases, the recovery can be transformed into new methods of distance learning. To achieve the objectives, three stages are necessary: “coping policy”, “continuous management” and “improvement and acceleration”.

Data provided by UNESCO show that 826 million students worldwide do not have personal computers, while 706 million do not have access to the Internet, representing 43% of the total number of students (Comisia Naţională a României pentru UNESCO, 2020).

The pandemic generated by the SARS-CoV-2 virus represented a global challenge, showing that we live in an interconnected society. No country, no society, and no community could tackle alone this issue. The pandemic represented a “test for the system, values, civilization, for all humanity”.

References

Comisia Naţională a României pentru UNESCO. (2020). https://www.cnr-unesco.ro/uploads/media/Brosura%20UNESCO%20COVID.pdf

Kamarianos, I., Adamopoulou, A., Lambropoulos, H., & Stamelos, G. (2020). TOWARDS AN UNDERSTANDING OF UNIVERSITY STUDENTS’ RESPONSE IN TIMES OF PANDEMIC CRISIS (COVID-19). *European Journal of Education Studies, 7*(7). doi: http://dx.doi.org/10.46827/ejes.v7i7.3149

UNESCO. (2020). https://www.unesco.org/en/articles/un-secretary-general-warns-education-catastrophe

UNICEF. (2020). https://www.unicef.org/romania/media/2836/file

United Nations Development Programme. (n. d.). https://www.undp.org/european-union/covid-19-pandemic

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.203

Application of the Internet in Teaching about the Environment

Jasmina Kurpejović[1]
Ibro Skenderović[2]
Suada Aljković-Kadrić[3]

Received: March 6, 2023
Accepted: March 28, 2023
Published: October 30, 2023

Keywords:
Computer;
Internet;
Children;
Environment;
Research approach

Abstract: *The usage of the internet is increasing very fast and it is expected that it will continue to grow as it becomes a common means of everyday life.*

This paper deals with questions such as how much time and for what purposes children use the internet and digital technology, as well as how much it is used for educational purposes. It seems that children spend less and less time outside, in parks and playgrounds. There are pros and cons to everything, so using media and the internet in the right way can make our lives a lot easier as there are many good sides to it. Losing control over the internet and media usage can bring us into the vicious circle of negative circumstances of contemporary technology. This is why it is very important to monitor children's activity on the internet but at the same time to keep up with contemporary technology development.

1. INTRODUCTION

In the modern world, media has a great influence on entire humanity. Children are especially vulnerable and sensitive to its negative messages and content. The media has a strong influence on children's development, behavior and education. Especially in the modern era, the question of media influence on children's development and behavior is becoming more and more worrying not only to parents but also to psychologists, sociologists and pedagogues. There are, of course, good sides of media that can provide children with a wide range of information valuable to their education and development. Numerous researchers deal with questions such as how good and beneficial the influence of media can be on children's and adolescents' development and health. The importance of mass media for understanding modern, industrially developed societies is evidenced by the fact that mass communications are both the cause and the consequence of these changes. They claim that adequate content and selection of adequate content, and control of that content by parents but also educators and pedagogues, play a crucial role in establishing positive attitudes in education and upbringing. If an adequate program is chosen for the child to watch if adequate content on the Internet is chosen that is available to the child, the child will enjoy the charms of the media, and will receive all the adequate information that was once not so easily available, and will make the process of upbringing and education significantly easier and more interesting. For the fastest communication to take place, the Internet is used, which is a communication system of networks that use standardized protocols (Vlahović, 2012).

Parents must pay attention to what their child is exposed to through the media but also acquire additional knowledge and educate themselves about numerous issues through the media. If used correctly, the media can help parents and be their ally in an adequate upbringing and education, but if they are used negatively, the media can leave significant negative consequences on the process of raising a child.

1 International University of Novi Pazar, Serbia
2 International University of Novi Pazar, Serbia
3 International University of Novi Pazar, Serbia

2. ORIGIN AND DEVELOPMENT OF THE MEDIA

Various media are crucial for the progress of modern society as it exists today and therefore for the protection of the entire democracy and its values. The media is essential for the functioning of a large number of social institutions that are responsible for providing public services and maintaining the established social and political order. The media are also important for the proper functioning of modern societies and their most important product - **democracy**. Free media guarantees that every society is heard, that it expresses itself, and that it explains the problems it faces, but also provides the opportunity to get to know one society with another, brings different social groups closer together, and thus provides a valid basis for education in the modern age. Modern means of communication largely stifle human creativity and creative activities, they are suitable for the development of a consumer mentality, passive hedonism and a certain type of conservatism due to uncritical consumption of what is offered – all this favours the development of deviant behaviour in students (Jovanović, 2004).

After the local and national media appeared, global media emerged. The first major mass media were newspapers. The rise of the press and literacy, along with the accompanying development of journalism, were an integral part of the modern understanding of information. That is why telegraphic international news agencies were the first significant form of global media. They produced news and sold it to news outlets. Two new media technologies – moving images and radio – contributed to the development of global media. The film industry was the first media industry to serve a global market. The first radio appeared around the 1920s, and the broadcasting of radio programs had an international character. The shift to digital communication and other technological advances break down barriers between traditional media industries. New universal media appeared. "The speed at which today's news is transmitted and changes occur exceeds the historical experience that points to the accumulation of influence and evolution. It is about a revolution in mass communication and a revolution in culture" (Zindović-Vukadinović, 1994). Based on the consumption of media content, traditional media - television, radio and press, differ according to the place of consumption of the content, the time or the moment of consumption, but also the content itself that is consumed. The consumption of media content largely depends on the very characteristics and means of expression of each media. The content in the media depends on the way of financing, laws, customs, and cultural standards in the area where the media houses operate. The content of traditional media has undergone significant changes and adapted to the new digital environment, especially the Internet. Television, radio and press today and their content, have adapted and changed under the influence of digitization.

3. INTERNET

The Internet was created in the 1960s as a way for government researchers to share information. Computers in the 1960s were huge and couldn't be moved, and to use the information stored in any computer, it was very important to either travel to the computer site or have magnetic computer sticks sent through the conventional postal system. Another important segment in the creation of the Internet was the warming of the Cold War. The launch of the Sputnik satellite by the Soviet Union prompted the US Department of Defence to consider ways in which information could be shared even after a nuclear attack. This led to the creation of the ARPANET network, which is at the very end of growing into what we now know as the Internet (Kastels, 2009, p. 12). ARPANET was a huge success, but participation was limited to a few academic and research researchers who held contracts with the Department of Defence. In response to this, other communication networks were formed. January 1, 1983, is considered the birthday of the Internet. Besides, the complicated computer networks had no normal way of communication. A new communication protocol was created, Transfer Control Protocol/Internet Work Protocol (TCP/IP). It allowed all kinds of computers on opposite networks to "communicate" with each other (Kastels, 2009).

During the 80s, this protocol was fully tested and accepted by a large number of networks. The Internet has spread in all directions at an enormous speed. At the global level, a connected global network has finally come into use. It continued to be used extensively by researchers, scientists and programmers to share messages and information. It came about thanks to Tim Berners-Lee who introduced the Web - as the Internet is now known and used today (WWW-World Wide Web). The Internet has grown from simply exchanging messages from one computer to another to form an accessible and intuitive way for people to explore what was initially a collection of interconnected websites.

Modern parents may feel completely in control of the computer and internet capabilities of children; a large number of parents cannot understand that these new media are a key component of modern literacy. This is a new era and the Internet represents a very powerful tool in the education of a child, but also a dire need of a child to master the world in which they live. Parents should not hold them back from exploring the possibilities of the Internet, but they must be vigilant when children use the Internet to explore the world around them. The threats of this relatively uncontrolled "wireless" world are large and varied, but largely undetectable. These threats should be recognized and smart parents will learn how to keep their children safe by controlling the media and using advice from the many resources that are designed to keep children safe while allowing them to use the wide range of amenities in a safe environment. The educator has wide opportunities to give parents and children support and advice on how to use the Internet and how to use it wisely in the process of upbringing and education. The Internet has important opportunities to allow children and young people access to educational information and can be considered as a large library located at home. The Internet represents a universal sea of useful information that can help parents with their child's upbringing and education, during the child's progress and development. On the other hand, there are also negative aspects of such a developed uncontrolled system. Nevertheless, parents are in a position to use technology that prevents children from accessing illegal and inappropriate content on the Internet, but they need to know that this technology cannot be a substitute for their control or guidance. The Internet can be a useful tool for educating parents on how and in what way they can best act in the upbringing and education of a child, but also to open up a world of possibilities outside the home and classroom to the child himself.

4. THE TASK OF THE MEDIA DURING CHILDREN'S EDUCATION

The influence of the media on children, and therefore the task of the media in their development, is constantly growing to create new and more sophisticated types of media that could be used by all people. The media enabled freer access and therefore a special influence on the process of raising and educating children. The benefits of media in the upbringing of children include early preparation for learning, educational diversity and the acquisition of diverse and broad educational opportunities, the ability to watch or be part of the communication about specific tasks regarding the world they are surrounded by, getting acquainted with art, music, etc. Bad effects can be the result of the promotion of examples of aggressive actions, showing subtle or inappropriate sexual content, showing wrong body images, showing bad health habits, as well as numerous other negative effects that the media can have on the child and his upbringing and education process. These messages can create negative images in the process of raising a child and can be deeply rooted in the early development of the child. „The educational process has two functions: to transfer the culture, values and knowledge of previous generations to the present and to prepare children for the world in which they will live“ (Ristanović, 2002).

Media that promote family discussions about news and events can be helpful to parents in the process of education and upbringing. Games with the appropriate content that promotes physical activity and social interaction in real life are also excellent for children, for their overall physical and psychological development. These kinds of games have a positive effect on cognitive abilities and motor skills, and they have a positive effect on the overall growth and development of the child. Parents must always be careful with programs and content on the Internet that are too fast, violent, or mature for children of a certain age because they harm their health and development, and therefore their education.

5. THE RESEARCH APPROACH TO GETTING TO KNOW THE ENVIRONMENT

The research approach to the study of teaching content is based on a constructive educational paradigm based on the attitude that learning is an independent activity of an individual. The essence of cognitive development is the action of the organism on the environment and vice versa. The factors that influence the cognitive development of a person are: biological maturation (age), experience, social transmission and balance. The maturation of an organism is a natural process of development that is genetically determined and we cannot influence it. A child's cognitive development is conditioned by his maturity, and the product of maturation is "knowledge about the world into which the child comes spontaneously“. Another factor of cognitive development is the activity of the individual. By observing objects, the child checks his thoughts and ideas, notices change, establishes some laws and organizes his knowledge of information from the outside world (environment) passively, but actively tries to understand things, structure his experience and introduce stability (balance) into the world around him. The new educational paradigm implies a different partnership between child and teacher in work, where the teacher plans, designs, initiates and supports students' independent learning. Having this in mind, the primary goal of learning is not "acquiring knowledge" but the skills, and habits needed for permanent and independent construction.

The primary goal of education according to Piaget is to form people who can create new objects, and not just restore what generations before them did - imaginative people who come up with discoveries and ideas. Another goal is to form critical brains, that can examine and not just accept everything that is offered to them without thinking and checking. Children's innate curiosity and need for research and study of their immediate natural and social environment should be nurtured, and they are supposed to be encouraged for intellectual efforts and commitments.

6. CONTRIBUTIONS OF MEDIA TECHNOLOGIES TO CHILDREN'S DEVELOPMENT

Children who use computers and the Internet from an early age, with minimal involvement of adults, master its use very easily. Bearing in mind the characteristics of preschool children, their curiosity, and their openness to new knowledge, the preschool period can be considered particularly sensitive when it comes to new media. Educational software that allows a child to draw, colour, design different things, learn letters, numbers and different concepts and think logically is most often recommended for children up to 6 years of age. Colbert believes that information and communication technologies stimulate children to write or tell stories that are richer in the choice of theme, content and characters.

The media activates all children's senses, which is particularly specific for audio-visual media where besides content that children can see on the screen, they can also hear text that follows. This intensifies impressions and helps children visualize specific images of the world that surrounds them.

Mass media have enslaved the free time of modern man. As some mass media appeared, it suppressed the popularity of its predecessor. The development and ubiquity of mass communication have become characteristic features of modern society. Mass media are characteristic of modern society, and their development follows various social changes. The importance of mass media for understanding modern, industrially developed societies is evidenced by the fact that mass communications are both the cause and the consequence of these changes. Media are typically used at the primary group level: among families, among peers, among friends, and so on. That is why they act on human consciousness and produce cumulative effects. Young people are therefore the most receptive audience of mass media - they are very sensitive, susceptible and sometimes just socially protected (Radojković, 1993).

The most frequently cited consequences that the mass media have on modern man is represented by the fact that these media emphasize the individual but at the same time reduce his contact with reality. Recognizing and understanding these consequences, as well as understanding the connected actions of the media, communication, man and the world, is one of the first steps that heralds the possibility of media education.

The computer as a medium, among other things, encourages greater engagement and motivation of children, contributes to more immediate clarity, and better organization of various exercises, continuously provides feedback and direct communication between the teacher and the child, contributes to the development and formation of critical thinking according to the content being studied: it directly activates and engages children in work and ultimately enables effective control and a more objective evaluation of accomplished educational achievements.

It is important to mention that from an early age, it is necessary to work on raising the awareness of children but also parents about safety on the Internet. It is also necessary to educate them about the correct use, about which there are adequate materials on the websites of competent ministries, organizations of the non-governmental sectors, etc.

7. INTERNET AS A MEANS OF FAST AND EFFICIENT INFORMATION

In our life, the Internet has become an everyday thing. Correct use of the Internet makes our lives easier, faster and simpler. There are many ways to use the Internet, however, the use of the Internet in everyday life depends on the needs and tasks of each person. The Internet represents a certain means of providing and exchanging information between parents and numerous institutions, primarily preschool and school institutions. In addition, the internet in homes provides parents with the opportunity for a more adequate upbringing and education of their children (Alić, 2010).

In a short period, the Internet has become one of the most important tools for storing, searching and utilizing various information. Schools are gradually providing the conditions for building a comprehensive system of resources for learning and teaching. In this way, the school can change in the direction of a "virtual school", which is freed from all paradigms of learning and teaching, able to meet the needs of the learning society, enabling individuals to realistically understand and reasonably accept changes, to act creatively and adapt.

The Internet is an effective tool in providing certain information, especially to new parents. If we look throughout history, by custom, women asked their mothers for help with the role of parents in the new family, but the movement of people made it difficult to implement such a support system. Mothers became isolated and remained without the constant support they previously had from their families and other close relatives. A large number of women mention another type of problem related to the constant pace of changes in modern society, namely the information they receive from their mothers or older relatives is "outdated". Their knowledge and skills are no longer valid in the modern world, and the time-honored sequence of education passed from generation to generation is interrupted. In addition, families are forced to believe the information they gather from all the theorists, in literature, in parenting newspapers, on television, and most of all on the Internet (Radojković & Miletić, 2005).

At the same time, modern parents are no longer satisfied with simple descriptions of parenting, but they need more information based on experience and learning gained from the experiences of others in the same situations as them. At the same time as this development, a large number of family sociology researchers consider the fact that "family" as a way of life and as a collective noun also changes with age. The postmodern family can no longer be presented as a closed social unit but as a group of close ties. Globalization, the increased rate of divorces and the increasingly complicated number of reconciled families have led to a trend of increasing the number of family members and the geographical spread of immediate family members. Here, modern information technology plays an increasingly important role in the sense that it can preserve emotional connections and communication that are so important in the daily relationships and lives of every child.

The Internet provides parents with adequate and instant information related to the entire process of raising and educating a child. The digital age will have a significant impact on education and will radically change the existing learning and teaching process, and in this way, teaching will be even more adapted to the interests, needs and capabilities of students. The development of the global network, the Internet, led to the creation of a new way of learning.

This type of communication allows parents to create adequate conditions for home education and upbringing of the child, to create adequate ways of interacting with the child and to understand the problems of their child in just two clicks. In addition, the Internet provides certain information and education to parents about parenting itself, exchanges experiences between parents, and thus creates a global network in which every parent in every location can get involved in a specific issue in which they are interested.

The mass use of computer technology, as an indispensable part of modern times, has brought many changes in the daily lives of most people on the planet. These changes concern almost all aspects of life (work, family, travel, free time), and as a result, they had a change in all spheres of communication, communication in every possible form, interpersonal and global level. The

Internet is something without which life cannot be imagined nowadays. Everyone uses it, only for different purposes. A variety of its usage goes from business to entertainment purposes. Every day more and more people of different ages use the Internet, and consequently, it is used more and more by children. Its popularity, as a new and increasingly accessible media, is growing due to the opportunities it provides in the fields of entertainment and socialization. The illusion of anonymity and protection on the one hand, and great freedom on the other, which are the characteristics of the Internet, make it very attractive for young people. As can be seen from the numerous types of research carried out on the subject, only a small number of young people see the possibilities of education and information that the Internet offers and they mostly use it exclusively for entertainment, playing games, or downloading various entertainment content. In addition to the numerous advantages of the Internet, there are also disadvantages, such as abuse due to content inappropriate for young people or people's false introduction, encouragement of peer violence, theft, extortion, human trafficking, etc. Today, questions like the right to freedom of speech and thinking are very popular in the world. It is precisely such rights that have enabled the existence of incorrect content on the Internet, especially on WEB portals. WEB portals with illegal content such as Nazi, sectarian and pornographic content operate illegally but also publicly and offer various forms of mental abuse. Legal norms become ineffective here, and due to the right to freedom of thought and speech, these types of abuses are not prevented. Parents become powerless in the face of this type of content. Authors of WEB portals do not bear any responsibility because they do not force others to visit their portals or read illegal content, which automatically removes responsibility from the author. Considering all these facts, it is obvious that the Internet has become a significant factor in the free time of young people and therefore deserves a deeper study. It greatly influenced the changing of traditional media. Today, every television and radio station as well as newspaper and advertising media have its website, Facebook page and Twitter account. Very often, when Internet magazines achieve success, they also introduce a printed edition, although the reverse situation is more common.

Communication is at the heart of the relationship between the family and the school, especially the preschool institution. Constant, two-way communication is connected with the upbringing of the child and lays the foundation for the overall progress and development of each child. In the computer era, the internet means a chance for better communication between family and school. Research conducted so far shows that a large number of families and educators are interested in using e-mail and websites to communicate. In addition, it is increasingly recognized that preschool and school websites, blogs, and e-mail are becoming increasingly popular Internet-based forms of communication; modern social networking technologies, such as blogs, include modern capabilities for communication between parents and educators. Such technologies can reduce organizational disruptions caused by old forms of communication between family and preschool, can transfer data to multiple families simultaneously, and can usefully share and store information about child improvement, preschool policies and goals, tips for family integration and other numerous topics. In this way, parents can be adequately informed in just two clicks about the activities of preschool and school institutions, get to know what curriculum of the school, and be involved in interaction with other parents. The Internet provides all these to parents from their homes, while they are on the job, that is, they can have access to all the necessary information regarding their child, his upbringing and education from any location.

Namely, Internet-based communication can also be a challenge. Websites and email communication can be complicated for school and preschool institutions to maintain, they can pose certain obstacles to some parents who prefer to talk face-to-face, and most importantly, many families still do not have access to Internet technology, or do not know how to use it. Virtually all families least likely to be part of education will also be least likely to be able to use the Internet, and thus take advantage of some of the full benefits that the Internet has to offer. The Internet is a very useful social media, it represents an inexhaustible source of information for parents, for children, but also for all other persons who directly take care of the upbringing and education of a child.

8. CONCLUSION

The research that was carried out within this work aimed to bring us closer to the idea of using the Internet in learning about the environment and to explain one part of the phenomenon of free time of young people, namely the one related to the use of the Internet as a way of spending that time. Free time activities can have different functions, from rest, leisure, recreation, personality development and so on, and for that very reason, it is important to register those activities that are frequent in the daily life of young people, to establish their relationship with numerous segments of the institutional upbringing and education. Thanks to technological progress and the advantages offered by the Internet, students can improve their knowledge, to research information on practically all topics. It should be remembered that the use of the Internet provides access to databases, the use of various software, the transfer of information and the exchange of data.

The media, but primarily television and the Internet, thanks to which the global world comes into people's lives, have become very important for almost every individual. This comes from the assertion that these media groups include a large number of territories, that is, the whole world. Television shows particularly interesting content and affects a large number of senses at the same time, which means that they completely move the viewer. The Internet now tends to compete with TV which gives us a chance to watch different television content. It is also widely used for listening to music, playing games, chatting with others and meeting people. Using media takes up a large amount of time and neglects other, more important ways of using free time. A large number of authors believe that big media, where they single out television and the Internet, can have a double effect on children, and therefore can influence the process of raising and educating a child. They can positively influence the child by expanding knowledge and showing appropriate, acceptable, patterns of behaviour.

Numerous studies, as well as psychologists, pedagogues and sociologists, are trying to educate the general public about the harmful effects that inadequate media content can have on children. This type of problem is particularly visible in traditional countries and less developed countries, which is also the case with Serbia, where media content is often uncensored for the younger population, certain inappropriate content is within reach of every child, and parents must make an extra effort to protect their children from such content and preserve certain values that they consider crucial in the process of raising their children.

References

Alić, S. (2010). *Najava filozofije medija*, Zagreb: McLuhan.
Jovanović, N. (2004). Sredstva masovne komunikacije i devijantno ponašanje učenika; u: Komunikacija i mediji u savremenoj nastavi (310-316), Učiteljski fakultet u Jagodini, Institut za pedagoška istraživanja u Beogradu.
Kastels, M. (2009). Moć komunikacija. Beograd: RTS Izdavaštvo.
Radojković, M. (1993). Obrazovanje za masovne komunikacije; u (prir.): *Obrazovanje i masovne komunikacije* (29-34). Beograd, Ministarstvo prosvete.
Radojković, M., & Miletić, M. (2005). *Komuniciranje, mediji i društvo*. Novi Sad: Stylos.
Ristanović, D. (2002). Pravci razvoja primene kompjuterske tehnologije u obrazovanju, *Nastava i vaspitanje*, br. 5, 441-449.
Vlahović, B. (2012). Obrazovanje u društvu umrežene kulture (61-64, 381-386). Beograd: Srpska akademija obrazovanja.
Zindović-Vukadinović, G. (1994). *Vizuelni jezik medija, značenje i razumevanje*, Institut za pedagoška istraživanja, Beograd.

Additional reading

Aničić, O., & Đekić-Lović, J. (2010). Elektronsko učenje i mogućnosti primene u školama; *Zbornik radova sa nacionalne konferencije Elektronsko učenje na putu ka društvu znanja*, 148-151. Univerzitet Metropolitan.
Mandić P., Radovanović, I., & Mandić, D. (2000). *Uvod u opštu i informatičku pedagogiju*, Učiteljski fakultet u Beogradu. Centar za usavršavanje rukovodilaca u obrazovanju.
Tomić, Z. (2000). *Komunikologija*, Filološki fakultet Univerziteta u Beogradu: Čigoja štampa.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.213

People with Schizophrenia Out of Social Isolation: A Didactic Perspective to Increase the New Well-Being

Barbara Galbusera[1]

Received: April 13, 2023
Revised: September 15, 2023
Accepted: September 18, 2023
Published: October 30, 2023

Keywords:
Schizophrenia;
Education;
COVID-19;
Inclusion;
Well-being

Abstract: *The outcome of this pedagogical interview conducted in a Day Care Service found that the pandemic from COVID-19 favored in a group of schizophrenia people social isolation, a flattening of interests, and an increase in additional anxiolytic drug therapy. Thanks to an educational activity carried out with a group of patients who showed before the pandemic period a common interest in watching films, an educational path has been structured that, after six months, allowed them to decrease the need for anxiolytic therapy, resume old hobbies, going out of home and rekindle relationships in the context of belonging. The positive results of this experience underline how, in the treatment paths, it is important to encourage educational interventions to allow patients with schizophrenia to improve their self-being in the world (also reducing the need for support from national health service professionals to access the living environment) and to become an active member of the community.*

1. INTRODUCTION

The theme of human well-being has been the subject of many authors, including Sen (1992, 1993). The scholar stimulated a reflection on that set of personal abilities that allow each individual to have self-esteem and take part in community life. Also, the philosopher Nussbaum (2007), studied the same object of research. She elaborated the concept of capacity through ten domains that include dimensions such as *good health, the integrity of the body, participation in creative activities, and the ability to plan one's life rationally…* all areas that, already at the beginning of the twentieth century thanks to Basaglia (1968, 2014), have become working dimension for psychiatric service workers dealing with patients with mental illness. In particular, according to Fett et al. (2011) and Mete (2018), this attention should be paid to patients diagnosed with schizophrenia, whose disease impacts self-care, social relations, cognitive and emotional abilities, perception, thoughts, behaviors, and quality of life.

In this historical period, as the working groups Wang et al. (2020), Liu et al. (2017), Tarquet et al. (2020), Rajkumar (2020) and Bartali et al. (2021) argue, with the advent of the pandemic from COVID-19, even patients with schizophrenia have had a greater economic and social disadvantage, an important stress (also resulting from social isolation) and an increase in anxious and depressive symptoms. In conformity with Galbusera (2018, 2022) it is therefore important to invest in the care and education of the person so that he can return to greater well-being. One of the elements that can lead schizophrenic people to reflect on their well-being to improve is the introduction of a constructive dialogue on their life story also analyzing personal passion such as, for example, watching movies. This passion can become the engine that activates the change necessary for the subject to become an active part of his life and well-being.

[1] ASST Lecco, Via Eremo 9/11, Lecco, Italy

2. CINEMA EDUCATIONAL FRAMEWORK

Cinema is used as a tool for the care, well-being and education of the person. This concept was well described by Aristotle (1341) when speaking of *catharsis* he argued that the vision of shows allows the viewer to rest, lift the soul and suspend the effort[2]. From the mid-twentieth century onwards, many scholars have increasingly described how cinema can contribute to the well-being of the viewer and have declined its potentiality. Authors such as Marzi (1953), for example, have said that film studio enthusiasts have been interested in the suggestions that cinema exerts on all individuals, including psychiatric patients. Volpicelli (1949) argued that cinema can become a teaching tool only if organized. Calò (1953) considered it important to encourage a cognitive reflection on the film in the viewer in such a way that, through an intellectual education, the projection could become for the person an opportunity for reflection. On the same idea was Laporta (1953) who expressed the importance for the person to be trained to have a critical mentality towards the films viewed. Tarroni (1950) also spoke about the educational importance of the film instrument. She pointed out how the viewer's personal experience affects their perception of the film. Speaking of the theme of emotional involvement-learning Flores d'Arcais (1953) argued that a greater emotional involvement of the looker to the film can both stimulate the person to learning and facilitate his way of living the surrounding world. Within an important book by Malavasi et al. (2005), Cesare Scurati described cinema as a tool that can guide the viewer towards the "culture of life"; a means that can guide the person in the development of his intellectual and moral capacities and his belonging to civil life. Reading cinema through a phenomenological approach, Rodari (2001) analyzed it as a tool that allows the observer to relate and read reality. In his studies, Rivoltella (1998) indicated the methodological aspects useful for organizing the viewing and analysis of films so that for the observer it becomes a moment of personal training. Franza and Mottana (1997) and Mottana (2002), referring to the studies of Riccardo Massa, through the description of a "method of the film", show how the vision of the film can become a sort of an active exercise of psychosocial type and it can be a tool that allows the viewer to do decentralization exercise by themselves so that the person can rediscover himself through a new point of view. Finally, Pavone (2016) defined it as a tool that helps people (even those with different abilities) to improve their well-being and quality of life.

That this tool is powerful in creating well-being in people, which allows them to maintain a good psychic compensation and, above all, a good functioning of cognitive abilities has also been indicated by many scientists who have specifically cared for schizophrenia people. It is worth mentioning, in fact, the working group of Tu et al. (2019) and Gurcan et al. (2021) who discussed the viewing of film as an opportunity to provide patients with an improvement of brain processes from a neurophysiological frame. Then there is Niemiec (2020) who spoke about the theme of cinema as a therapy. In this case, the vision of the film becomes an opportunity for the person to look within. While viewers observe their models on the screen, Niemiec (2020) argues that people can reflect on how to improve their skills and this action can also affect their way of being in the social context. Finally, there is the working group of Gelkopf et al. (2006). The scientists demonstrated how the use of cinema has a positive impact on the mental health of these people.

From an educational frame, in order for the viewing of the film to improve the well-being of the person with schizophrenia, according to Merinder (2000), the operator must be able to use this tool in a didactic way. In fact, with this mode of intervention, the trader can transform a simple vision of a film into training for the person. Clearly, if the person benefits from this intervention

[2] In Book *I* of the *Metaphysics* Aristotle argues the human being knows *in primis* through the organ of sight.

his state of health improves and his requests for support from caregivers and psychiatric workers may decrease. This can have a positive impact on the social and health costs that are usually incurred for the treatment, education and rehabilitation of psychiatric patients.

3. PROJECT

In light of what has been described, an intervention has been structured that has allowed a group of people with schizophrenia to access an educational path where the correlation of the *educational vision of the film-subjective well-being of the patient*.

- The work was conducted in Day Care in the years 2021-2022.
- The activity was divided into five parts, the first two were preparatory to the intervention program.

First part

- Preparatory work for the activity. (Duration of the activity: two months).
- A pedagogical interview was carried out with every single patient of Day Care (40 people). The history of life and the cognitive and emotional implications that the person has experienced in the pandemic period and the interests have been investigated and whether these have been interrupted in the last two years.
- From the first work, it emerged that 5 male patients (from 35 to 60 years diagnosed with schizophrenia, according to the DSM-5, Q.I in the norm, no signs of neurological pathology, in good psychopathological compensation and no hospitalization for a year) have always had a passion for watching movies (an activity that has always been carried out not only at home). It became clear in the story of each patient that the COVID-19 pandemic froze both their desire to go to the cinema and to watch television preferring to occupy the day in the bedroom to rest. The change in living habits has occurred for some reasons that have been both personal (psychophysical health) and social (national devices adopted to contain the pandemic by COVID-19). All patients have argued that during the last two years, they have acknowledged that they have less competence in concentration skills, in understanding the plot of the films both from a cognitive and emotional point of view and a greater difficulty in sitting for a long time on the chair. They also reported a greater sense of apathy, a need for relational isolation (both from family members and acquaintances) and social (with less desire to leave their bedroom)[3]. They reported an increase in the intake of anxiolytic therapy prescribed "to need" by the psychiatrist[4].

Second part

- Preparatory work for the activity. (Duration of the activity: 1 time per week for a month).
- Four group meetings lasting 45 minutes were arranged. In the first group, in addition to an introduction of the individual members who would have participated in the "cinema project", as been reconstructed how the passion for watching films in each patient was born. In the second group meeting some elements were shared, among which, the motivation of the patient to participate in the project and why everyone thought that the cinema could provide

[3] In this regard, many of them claimed to have occupied much of the day in the bedroom, sleeping or simply remarrying, and to have had an increase in disturbing thoughts.

[4] The prescribed therapy is taken if the person manifests a psychological discomfort difficult to contain with the drug therapy taken daily.

them well-being[5]. The third meeting concerned the definition of the intervention setting (place, frequency, duration of the activity) and the objectives of the intervention[6]. At the end of the meeting, participants were given a task: for the next meeting, each patient was asked to write on a sheet the title of the films they wanted to see and their motivation. In the fourth meeting, three actions were carried out. The first action is the sharing of the tasks entrusted to the participants in the previous meeting and the drafting of the calendar of the screening of films. The second was the programming of the films that would be viewed and the sharing of the topics that would be discussed during the meetings (from friendship to the difficulties in everyday life). The third area was the stipulation of the educational-rehabilitation intervention contract; the action needed to start the activity. It was shared that the group would meet weekly at Day Care for six months and that at the end of watching each film, there would be a moment of discussion in which a "diary" of the activity would be written.

Third Part: T-0 (Duration of the activity: 1 meeting per week for six months).

- Watching films and compiling the activity diary.

Part Four: T-1 (Duration of the activity: Six months after T-0).

- Finally meeting with all participants to evaluate the experience and to identify in subjective terms the achievement of the objectives set in the group. Interview each patient to gather what effects this path has produced in the person and to understand if the activity of the cinema can really contribute to his psychophysical well-being both in the *hic et nunc* and in the long term. It was also investigated if at home each patient could watch films in the manner introduced to the group, that is to maintain concentration while watching the film, understand the contents, make a critical analysis and share with others (family, friends, acquaintances) the fruits of the experience.

Part Five: T-2 (Duration of the activity: Six months after T-1)

- Six months after the intervention, monitoring was carried out. The elements that emerged during the review achieved in the third phase were evaluated both through a group discussion activity and through an interview with each patient.

---

5 In the working group it emerged from the patients that when they concentrate on watching the film they manage to contain disturbing thoughts. They also argued that the "film project" carried out within the Day Care Service would allow him: to activate the motivation to go to the cinema like all other people; to identify himself in the protagonist (*watch movies where characters lead an adventurous, positive and happy life allows you to think that even each of them could have lived such a life*); to change mood (*cinema can be like a therapy that leads to well-being, for example, after a bad day, I am watching a relaxing movie I can change the perception of the day*); to change my clothing (*when I look at how the characters are dressed I stimulated to change clothes and give me an ideas to buy and wear clothes*); to be curious about the place presented in the film and to mature the desire to visit them; to meet other cinema attendances and possibly in the long run to meet new friends; to leave my bedroom and home (*in this way I can do a different activity from those I usually do*). Editor's note: Words in italics were taken from patient comments.

6 The objectives shared in the group were: to maintain the physical presence during the activity; to have the mind concentrated in the activity; to listen to the opinion of the other; to get in touch with the group as a part of it and not as an individual who does an activity in the group; to encourage the knowledge that could favor the attendance of patients outside the Day Care; to identify any relevance between the story presented in the film and his own life story. Finally, it was shared the need for a final interview with the operator (to express the judgment on the activity and to share if the latter has contributed to improve their perception of well-being) and a final meeting in the presence of all participants. (See THIRD PART of the project).

4. DISCUSSION

In the six months of activity (T-1) the group has viewed 26 comedy films. The patients regularly visited the group and they maintained motivation. Each of them has made one absence. This happened in conjunction with a physical illness (flu, fever). From the observations conducted by the operator in the setting of the intervention, from the interview with the patients, and from the discussion carried out in a group, some elements emerged that are intended to decline. First of all, in the course of the activity, while watching films, patients managed to stay seated[7]. In some cases, they said they had concentration[8]. They showed more attention to clothing and personal hygiene[9]. During the discussion, patients, initially focused only on themselves, began to take an interest in the other's point of view, sometimes finding contact points[10]. All the participants have matured the desire to go back to see a film at a public cinema (better if accompanied by the operator or a caregiver)[11]. They also expressed a desire to leave their room and/or apartment more frequently. As for the psychophysical health, doing daily monitoring, each patient said he had fewer moments of anxiety[12] and therefore the anxiolytic therapies taken in case of need have been reduced.

Monitoring was carried out six months after activity (T-2). The observations made in T-1 were confirmed. It emerged both in the interview with each patient and in the discussion with the working group that watching films can be an activity that creates well-being and can become a self-therapy that contains any disturbing thoughts and/or psycho-physical tensions. Each participant stated that they live in less social and relational isolation, to carry out more activities outside home, to have maintained the ability to discuss with family members of films seen on television and to have reduced the anxiety therapy prescribed by the psychiatrist in case of need. In each of them, there was a greater motivation to see the films outside the Day Care and the observation of the previous months was confirmed, namely that each participant prefers to be accompanied to the cinema by the operator or by the caregiver.

5. CONCLUSION

Field experiences show that organizing an educational activity based on the interests of schizophrenic patients can help them improve their well-being. In particular, the educational viewing of the cinema has allowed these people to enrich their cognitive and emotional skills, improve their perception of themselves, reduce social isolation and decrease moments of anxiety. These elements, in a chain, have allowed the person himself to experience a change in his life habits

---

7 It was agreed in the activity of meeting preparation that would be a break of ten minutes in the middle of the film.

8 This often happened when the person arrived at the center claiming to have had problems with insomnia or health problem concerns of some parents.

9 They started that they were often spurred by the clothing worn by the actors.

10 It is believed that all this was possible thanks to the diary of the activity completed after each meeting. This tool has in fact served to create a greater union among the participants and has helped to establish a group identity. Over the months a climate of mutual trust was born in the group. There was also concern about the health of the other if a participant was not present in the group.

11 Patients say that going to the cinema accompanied by the operator or a care giver provides more safety. This is especially in the event that, for some reason, the person thinks he may experience some moment of discomfort in that environment.

12 Especially the same evening of the activity. They also claim to have decreased over the months the intake of anxiolytic therapy prescribed in case of need.

(from passivity and rituality to active),[13] in his being in the world and in the way of interacts with others and this has also had a considerable impact on his request for assistance with psychiatric service and of a caregiver because autonomizing himself and experiencing less moments of anxiety/anguish patient has requested less healthcare (including drugs) and social benefits.

6. LIMITATIONS AND FUTURE PROJECT

This study has some limitations because it has no randomized control trials. Its strength, however, has been to use a didactics method to treat uneasiness that occurs in the condition of life in a different way from the usual one; that is to look for the drug or the isolation to sedate the malaise. For these patients, the experience of cinema has become an opportunity to train the person. In this process, the patient with schizophrenia has moved away from his identity as a patient (sick and in need of treatment because he has discomfort that must be saturated) and has approached the status of a person (who has a malaise and seeks to improve its well-being first of all through an educational perspective that makes it proactive towards itself). It is precisely this last concept that should be further investigated.

Conflict of Interest Statement

The author has declared that there are no conflicts of interest in relation to the object of this study.

References

Aristotle. (1341). Politica, Q7, b 32-1342 a 16.

Bartali, S., Nibbio, G., & Vita, A. (2021). Schizophrenia during the COVID-19 pandemic. *Current Opinion in Psychiatry, 34*, 203-210.

Basaglia, F. (Ed.). (1968). *L'istituzione negata*, Torino, Einaudi.

Basaglia, F. (2014). *L'utopia della realtà*, Milano, Fabbri Publishing.

Calò, G. (1953). Cinema ed educazione intellettuale. In Atti del convegno internazionale sulla stampa periodica cinematografica e radio per ragazzi (pp. 156-165). Milano: Giuffré Milano.

Fett, A. K. J., Viechtbauer, W., Dominguez, M. G., Penn, D. L., Os, J. V., & Krabbendam, L. (2011). The relationship between neurocognition and social cognition with functional outcomes in schizophrenia: a meta-analysis. *Neuroscience and Biobehavioral Reviews, 35*, 573-588.

Flores d'Arcais, G. (1953). Il cinema. Il film nella esperienza giovanile. Padova: Liviana.

Franza, A., & Mottana, P. (1997). Dissolvenze, Le immagini della formazione. Bologna: Clueb.

Galbusera, B. (2018). TOURISM AND SCHIZOPHRENIA: AN ITALIAN CASE STUDY. *3rd International Thematic Monograph - Thematic Proceedings: Modern Management Tools and Economy of Tourism Sector in Present Era*, 441-448. https://doi.org/10.31410/tmt.2018.441

Galbusera, B. (2022). Person with Schizophrenia and Negative Symptoms in COVID-19 Era: A New Evolution for Treatments and Economy. International Scientific Conference ERAZ - Knowledge Based Sustainable Development. https://doi.org/10.31410/eraz.2022.325

Gelkopf, M., Gonen, B., Kurs, R., Melamed, Y., & Bleich, A. (2006). The Effect of Humorous Movie on Inpatients With Chronic Schizophrenia. The Journal of Nervous and Mental *Disease, 194*(11), 880-883.

[13] The patient has changed his organization of the day and his being in the world from a rigid and repetitive mode to a more dynamic.

Gurcan, M. B., Yildiz, M., Patir, K., & Demir, Y. (2021). The Effects of Narrative and Movie Therapy on the Theory of Mind and Social Functioning of Patients with Schizophrenia. *Archives of Neuropsychiatry, 58*, 108-114. https://doi.org/10.29399/npa.27291.

Laporta, R. (1953). Esempio di lezione sul film spettacolare. In Luigi Valpollicelli (Ed.), Il film e i problemi dell'educazione (pp. 121-131). Roma-Milano: Bocca.

Liu, N. H., Daumit, G. L., Dua, T., Aquila, R., Charlson, F., Cuijpers, P., Druss, B., Dudek, K., Freeman, M., Fujii, C., Gaebel, W., Hegerl, U., Levav, I., Munk Laursen, T., Ma, H., Maj, M., Elena Medina-Mora, M., Nordentoft, M., Prabhakaran, D., … Saxena, S. (2017). Excess mortality in persons with severe mental disorders: a multilevel intervention framework and priorities for clinical practice, policy and research agendas. *World Psychiatry, 16(*1), 30-40. https://doi.org/10.1002/wps.20384

Malavasi, P., Polenghi, S., & Rivoltella, P. C. (Eds.). (2005). Cinema, pratiche formative, educazione. Milano: Vita e Pensiero.

Marzi, A. (1953). Il cinema nell'educazione popolare. In Atti del convegno nazionale su "I problemi della formazione dei giovani lavoratori" (pp. 17-27). Bari: Ente pugliese di Cultura popolare e di Educazione Professionale.

Merinder, L. B. (2000). Patient education in schizophrenia: a review. Acta Psychiatrica Scandinavica, 102, 98-106.

Mete, L. (2018). Şizofrenide Muayene. In A.E. Danacı, Ö. Böke, M.C. Saka, A. Erol, S.U. Kaymak (Eds.), Şizofreni ve Diğer Psikotik Bozukluklar (pp. 51-80). Ankara: Türk Psikiyatri Derneği Yayınları.

Mottana, P. (2002). L'opera dello sguardo. Bracci di pedagogia immaginale. Bergamo: Moretti e Vitali.

Niemiec, R. M. (2020). Character strengths cinematherapy: Using movies to inspire change, meaning, and cinematic elevation. *Journal of Clinical Psychology, 76*(8), 1447-1462. https://doi.org/10.1002/jclp.22997

Nussbaum, M. (2007). Le nuove frontiere della giustizia. Bologna: Il Mulino.

Pavone, M. (2016). Cinema, disabilità, Qualità della Vita. L'integrazione scolastica e sociale, 15(4), 361-369.

Rajkumar, R. P. (2020). COVID-19 and mental health: a review of the existing literature. Asian Journal of Psychiatry, 52, 102066.

Rivoltella, P. C. (Ed.). (1998). L'audiovisivo e la formazione. Metodi per l'analisi. Padova: Cedam.

Rodari, G. (2001). Grammatica della fantasia: Introduzione all'arte di inventare storie. Torino: Einaudi.

Sen, A. (1992). Inequality Reexamined. Oxford: Oxford University Press.

Sen, A. (1993). Capability and well-being. In M. Nussbaum and A. Sen (Eds.), The Quality of Life. New York: Oxford University Press.

Tarquet, M., Luciano, S., Geddes, J. R., & Harrison, P. J. (2020). Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of 62,354 COVID-19 cases in the USA. Lancet Psychiatry, 8, 130-140.

Tarroni, E. (1950). Filmologia pedagogica. Milano: Viola.

Tu, P.-C., Su, T.-P., Lin, W.-C., Chang, W.-C., Bai, Y.-M., Li, C.-T., & Lin, F.-H. (2019). Reduced synchronized brain activity in schizophrenia during viewing of comedy movies. Nature, 9, 12738. https://doi.org/10.1038/s41598-019-48957-w.

Volpicelli, L. (1949). Dibattito sul cinema didattico. Cinema didattico e pedagogia. Bianco e nero, 1949(10-12), 34-39.

Wang, C., Horby, P. W., Hayden, F. G., & Gao, G. F. (2020). A novel coronavirus outbreak of global health concern. The Lancet, 395, 470-473.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.221

Consequences of the Pandemic COVID-19 on Transport and Tourism

Marija Lakićević[1]
Danijela Pantović[2]
Milica Žarevac Bošković[3]

Received: April 4, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
COVID-19 pandemic;
Transport;
Tourism;
Economic consequences;
New forms of tourism

Abstract: *The global economic crisis was caused by the COVID-19 virus, the beginnings of which date back to December 2019. Is not an ordinary crisis, but belongs to the phenomenon that can only be compared to the crisis of 1929. Transport and tourism are among the economic sectors that were most affected by this crisis due to the quarantine measures that were present in all countries of the world. The complete lockdown caused by the COVID-19 virus prevented the movement of people and goods and thus completely prevented the functioning of traffic and tourism. The impossibility of traffic and tourism around the world contributed to a significant decrease in the income of these economic branches, as well as the gross social product at the national and global levels. The impact of the COVID-19 pandemic significantly encouraged the development of new forms of tourism as well as the expansion of rural tourism, eco-tourism, and wellness. The final consequences of the COVID-19 pandemic on transport and tourism will only be seen in the coming years.*

1. INTRODUCTION

The beginning of the pandemic caused by the COVID-19 virus in March 2020 contributed to a sharp slowdown in economic activity at the global level, the restrictions, and the complete suspension of transport during the quarantine in countries around the world. The aforementioned complete lockdown in countries around the world had the greatest impact on economic activities such as transport and tourism (Chang et al., 2020, p. 218; Więckowski, 2021, p. 1). The indirect impact of the absolute suspension of transport and tourism at the global level has significantly affected other economic sectors as well, reducing the profits of companies that participate in the supply chain of hotels with food, drinks, various services, etc. During the COVID-19 pandemic, workers in the transport and tourism sectors faced, in addition to an enormous decrease in passenger and tourist traffic, the biggest job losses compared to the post-World War II period (WBG, 2020, p. 5).

Analyzing the year 2018, before the COVID-19 pandemic, the transport and tourism sectors employed around 319 million workers globally (Ranasinghe et al., 2021). The largest number of employees were employed in transport companies and hotel chains.

Before the beginning of the COVID-19 pandemic, transport and tourism were one of the leading branches that exerted a dominant influence on the world market from the beginning of the XXI century until the biggest pandemic of the new millennium. The pandemic caused by the

[1] University in Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja, Serbia, Vojvođanska 5a, 36210 Vrnjačka Banja, Serbia
[2] University in Kragujevac, Faculty of Hotel Management and Tourism in Vrnjačka Banja, Serbia, Vojvođanska 5a, 36210 Vrnjačka Banja, Serbia
[3] Academy of Professional Studies Sumadija, Department in Kragujevac, Kosovska 8, 34 000 Kragujevac, Serbia

COVID-19 virus and its consequences represent the biggest challenge because they have so far dealt the biggest blow to transport and tourism. The work aims to present the economic consequences of the COVID-19 pandemic on transport and tourism, as well as the development of new forms of tourism in the post-pandemic period with special reference to the Republic of Serbia (MTTT, 2020, p. 32).

2. ECONOMIC CONSEQUENCES ON TRANSPORT AND TOURISM DURING THE PANDEMIC OF COVID-19

At the beginning of the COVID-19 pandemic, there was a sudden decrease in passenger traffic and the cancellation of tourist reservations around the world, and the introduction of quarantine measures led to a complete suspension of transport and tourist traffic. These measures contributed to the fact that most airlines around the world first reduced their fleet by 75%, and then completely grounded their planes with massive layoffs. Among the first airlines that stopped operating flights were Emirates, Fly Dubai, Turkish Airlines, Flybe, etc. (Akbar & Kisilowski, 2020).

Based on data from the International Air Transport Association (IATA), it is estimated that quarantine measures and restrictions on entry into certain countries of the world after the lifting of the lockdown contributed to the financial losses of airlines of 252 billion dollars in 2020. According to data for the year 2020 by the United Nations World Tourist Organization (UNWTO, 2020), the arrivals of foreign tourists, viewed from the aspect of transport as an economic branch, recorded a decrease of 70% - 75% compared to 2019 (Development Bank-ADB, 2020, p. 16). This has resulted in a loss of nearly $450 billion in tourism sector revenue globally. Since these are only estimates, it is assumed that the losses caused by the COVID-19 virus pandemic in the transport and tourism sectors are much higher than estimated.

Table 1. Statistics of International tourist arrivals and Worldwide Airline Passenger departures

	2019	2020	2021	2022
International tourist arrivals (million)	1465.8	409.1	454.8	917
- change over the previous year (%)	3.7	-72.1	-69	-37.4
Worldwide Airline Passenger departures (million)	4543	1807	2277	3432
- change over the previous year (%)	3.8	-60.2	26	50.7

Source: UNWTO, 2023; IATA, 2023.

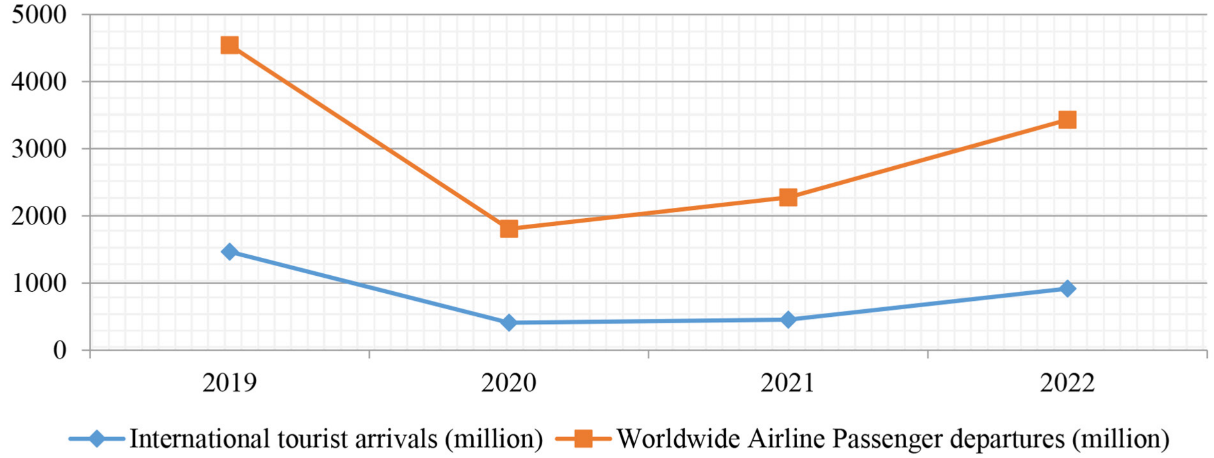


Figure 1. International tourist arrivals and Worldwide Airline Passenger departures
Source: Authors

The volume of transport and traffic of tourists has significantly decreased at the global level, as well as in the Republic of Serbia (Mandarić et al., 2022). The impact of the COVID-19 pandemic in the Republic of Serbia recorded an 82% decrease in transport during the period January-October 2020. Middle Eastern countries recorded a 73% decrease in tourist traffic, while African countries recorded a 69% decrease in tourist arrivals in the same period. Tourist traffic in Europe and the United States of America recorded a 68% decrease in traffic compared to 2019 (UNWTO, 2020). Seen from the point of view of the Republic of Serbia, the measures introduced by the Government, such as the closing of borders, and later the restrictions related to the entry of tourists into the country, had a direct impact on the reduction of the volume of transport and tourist traffic. The number of visits by foreign tourists to the Republic of Serbia for the first 9 months of 2020 recorded a decrease of 72% compared to the same period in 2019 (RIS, 2021).

3. HYPOTHESES

Based on the goal of this article presented in the Introduction, hypotheses will be set to be tested within the framework of research related to the consequences of the COVID-19 pandemic on transport and tourism.

The basic (main) hypothesis reads:

H0: The consequences of the COVID-19 pandemic on transport and tourism significantly affected the decrease in tourist demand.

Auxiliary hypotheses:

H1: New forms of tourism emerged as a consequence of the post-epidemic crisis caused by the COVID-19 virus.

H2: To eliminate the effects of the economic consequences of the COVID-19 pandemic within the framework of transport and tourism, a medium-term period will be necessary.

4. RESEARCH METHODOLOGY

For the preparation of this article, relevant secondary data based on scientific articles, conducted research, studies, reports of the World Tourism Organization and the Statistical Office of the Republic of Serbia, and interviews conducted with employees in the transport and tourism sector were used. During the investigation of the economic consequences caused by the COVID-19 virus on transport and tourism, descriptive, qualitative, quantitative, analytical, and comparative methods were used. During the preparation of the paper, to present the real situation in transport and tourism, a descriptive analysis of the state of transport and tourism, as well as other sectors that enable their smooth functioning, was carried out.

5. RESEARCH RESULTS

Based on the available data, the impact of the pandemic caused by the COVID-19 virus had the biggest consequences on the economies around the world after the Second World War. The economic effects of the COVID-19 pandemic can be measured by the consequences that were visible after the Great Economic Depression that lasted from 1929 to 1933. Transport and tourism represent two economic branches, for the functioning of which it is necessary the existence of movement of people, the openness of borders without the existence of political and health barriers, etc. Given that after the declaration of the COVID-19 pandemic, state borders were closed and transport was suspended both between states and within national territories, transport and tourism experienced a complete collapse. This is supported by the fact that the total collapse of transport and tourism was contributed to by the situation when all the countries of the world closed their state borders and airspaces, and tourist destinations banned visits or introduced extremely strict restrictions due to the expansive spread of the COVID-19 virus (Development Bank-ADB, 2020).

The economic crisis caused by the COVID-19 virus has caused a significant reduction in the volume of transport and tourist traffic around the world. The economic consequences of the COVID-19 pandemic first hit and completely devastated the national economies of countries in which the transport and tourism sectors were the leading economic branches and the main participants in the creation of the social gross product. One of the first destinations that faced the strong economic consequences of the COVID-19 pandemic is the countries of Latin America and the Caribbean, as well as certain island states in the Indian Ocean and the Pacific. The countries that first felt the effects of the economic recession due to the COVID-19 virus pandemic are Mexico, Cuba, Maldives, Seychelles, Egypt, Tunisia, Kenya, India, China, Japan, Sri Lanka, Dominican Republic, Madagascar, Brazil, Australia, and New Zealand (CHTA, 2020).

With the beginning of the COVID-19 pandemic in March 2020 and during the following months, an increasing number of countries completely closed their national borders and airspace, so that transport and arrival of tourists were completely impossible. With the beginning of the pandemic, the flow of tourists decreased in March by more than 50% compared to the same period in 2019, while in April 2020, tourist traffic was almost 0% (Panetta, 2020).

To see more clearly the consequences of the COVID-19 pandemic on the transport and tourism sectors, it is necessary to point out that in the period from 2010 to 2018, these economic sectors achieved growth of 7.8% on average on an annual basis. An even more unfavorable situation in the tourism sector was contributed by very restrictive restrictions that came into force while cruise ships and tourist ships were on their cruises. A large number of countries refused to allow the entry of ships carrying tourists on cruises into their ports because there were passengers who were infected. Some countries, such as the USA, issued a decree issued by the US State Department to prohibit navigation in US waters from March 14 to July 24, which caused mass layoffs. Based on the research carried out by the Association of Hoteliers of Caribbean Countries, the recovery of transport from the USA, Canada, and Europe is primarily expected, followed by recreational tourism, Caribbean business, and recreational tourism (CHTA, 2020). According to the collected data from the UNWTO, visits by foreign tourists to African countries recorded a decrease of 35% in the period from January to April 2020. Countries such as Uganda, South Africa, Egypt, Morocco, Kenya, and other tourist destinations across Africa have canceled numerous arrangements and thus called into question the survival of numerous local tourist agencies. Due to the pandemic caused by the COVID-19 virus, African countries in which the transport and tourism sectors are the basis of the economy were forced to borrow at unfavorable interest rates from international financial institutions and foreign creditors, which further increased their poverty rates. An example of the above is the Republic of South Africa, which, due to the consequences of the pandemic, borrowed 4.3 billion US dollars from the International Monetary Fund for the first time (Issahaku, 2020).

Table 2. Correlations between International tourist arrivals and Worldwide Airline Passenger departures

Correlations		Inttour_arr	Pass_dep
Inttour_arr	Pearson Correlation	1	0.989*
	Sig. (2-tailed)		.011
	N	4	4
Pass_dep	Pearson Correlation	0.989*	1
	Sig. (2-tailed)	0.011	
	N	4	4

* Correlation is significant at the 0.05 level (2-tailed).

Source: Authors

Countries within the European Union that before the COVID-19 pandemic had tourist traffic in which the arrivals of foreign tourists participated with more than 40% significantly affected. The countries of the European Union that experienced a significant collapse in transport and tourism due to quarantine measures include Spain, Italy, France, Greece, etc. Transport and tourism contribute to the GDP of countries of the European Union by 10%. Within the framework of transport and tourism in the countries of the European Union, before the start of the COVID-19 pandemic, about 2.4 million economic entities operating, of which 90% were small and medium-sized enterprises with 12% of the total number of employees in the European Union.

Although perhaps not only closely related to tourist flows, the correlation of international arrivals (Inttour_arr) and air travel (Pass_dep) can be seen in Table 2. The correlation is so strong and statistically significant that it shows the very high importance of air traffic for tourist movements.

The number of employees in the transport and tourism sector in the countries of the European Union was about 23 million workers, of which 37% were under the age of 35. With the beginning of the COVID-19 pandemic, in the first three months, the number of tourist reservations decreased by 90% compared to the same period of the previous year (UNWTO, 2020).

In the countries of the European Union, about 6 million workers lost their jobs in the transport and tourism sectors. Quantitatively looking at the consequences of the COVID-19 pandemic, hotels, travel agencies and transport by train and cruise ships saw a decrease in traffic of 85%, while air transport recorded a decrease in traffic of as much as 90% (Praščević, 2020). The above-mentioned facts and data confirm the basic or main hypothesis of this paper that the consequences of the COVID-19 pandemic on transport and tourism have significantly influenced the reduction of tourist demand (Milojević et al., 2018).

The pandemic of the COVID-19 virus, as well as globally, also affected the reduction of the volume of transport and tourist demand in the Republic of Serbia. In 2019, the Republic of Serbia achieved a 7% increase in the number of foreign tourist arrivals and the same percentage increase in the number of overnight stays. During 2019, the realized income from tourism in the Republic of Serbia amounted to 1.4 billion euros compared to 1.2 million euros realized in 2018. Given that the previous two were extremely successful, it was expected that such a trend would continue in 2020 as well, given that in the first two months of 2020, the Republic of Serbia achieved a 21% increase in the number of foreign tourists and a 22% increase in the number of overnight stays. However, due to the declaration of a state of emergency in mid-March 2020, there was a sudden cancellation of the reservations of a large number of domestic and foreign tourists and the closure of travel agencies. As a result of the quarantine measures, many employees in the transport and tourism sector have lost their jobs, and travel agencies have gone bankrupt or lost their licenses to carry out tourism activities.

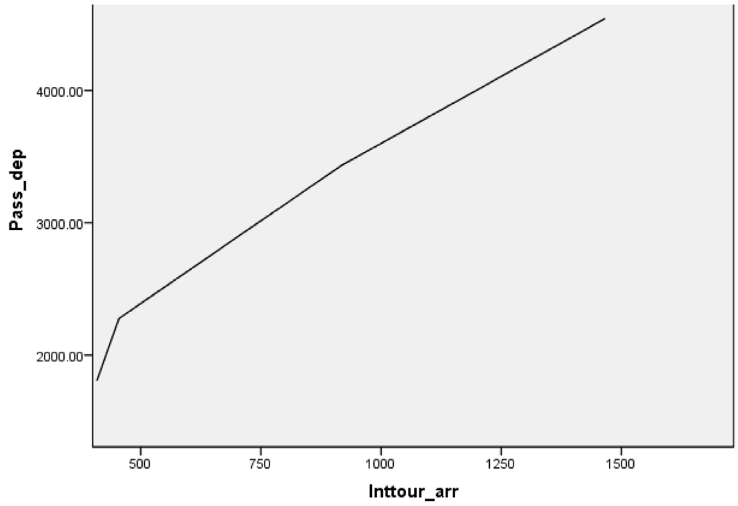


Figure 2. Relationship between international tourist arrivals and passenger departures – worldwide
Source: Authors

Transport and tourism in the Republic of Serbia achieved extremely poor financial results in 2020 as a result of quarantine measures and rigorous measures when entering and exiting the country. The aforementioned had a significant impact on the foreign exchange inflow from domestic and foreign tourists recording a decrease of 35.3% or 114 million euros, i.e. by 33.1% compared to the same period in 2019. In the second half of 2020, the number of domestic tourists influenced the recovery of tourism in the Republic of Serbia to a certain extent. However, this was not quite enough to remedy the consequences of the COVID-19 pandemic, i.e. to compensate for the absence of foreign tourists (MTTT, 2020). In 2020, 6.2 million overnight stays were achieved in the Republic of Serbia, or 38.4% less than in 2019. What stands out as a trend that followed after 2020 is reflected in new forms of tourism that have become very popular, especially after the lifting of quarantine measures (China-CEE Institute, 2020, p. 2). A new form of tourism that has become very popular is digital nomads who represent freelancers for whom the constant availability of the Internet is one of the most basic conditions for staying in a certain destination. Apart from digital nomads who advertise a certain tourist destination via social networks Facebook, Instagram and TikTok, the most popular forms of tourism are wellness and rural tourism. Based on the previously presented data, it can be concluded that the first hypothesis was confirmed, which is that new forms of tourism arose as a result of the post-epidemic crisis caused by the COVID-19 virus (Praščević, 2020, p. 14).

In the previously presented text, and based on relevant facts and information, it can be concluded that the consequences of the COVID-19 pandemic on transport and tourism are still unfathomable. Although three years have passed since the beginning of the COVID-19 pandemic, the real negative effects on economic sectors such as transport and tourism cannot yet be seen. Transport and tourism are extremely sensitive tertiary economic branches that depend on the free movement of people, and to a significant extent on their standard of living. Given that a large number of people lost their jobs due to the COVID-19 pandemic, it can be concluded that there has also been a violation of the standard of living, i.e. less allocation of financial resources for travel, recreation, and vacation.

Based on estimates of economic trends after the COVID-19 pandemic, most economists believe that it will take up to 5 years of stable economic growth to achieve the results in traffic and tourism that were before the start of the COVID-19 pandemic. Based on the above, it can be concluded that the second auxiliary hypothesis has been confirmed, which states that a medium-term period is needed to eliminate the economic consequences of the COVID-19 pandemic within the framework of transport and tourism.

6. FUTURE DIRECTIONS OF RESEARCH

Future research related to the consequences of the COVID-19 pandemic on transport and tourism should focus on new trends that have emerged in response to the post-pandemic crisis. New trends are particularly represented in the field of tourism in the form of virtual presentations of tourist destinations and tourist offers. In addition to virtual presentations of tourist destinations, an increasing number of employees decide to do online business during their stay at a certain tourist destination. This form of business has contributed to a new business trend in the form of digital nomads. Also, an increasing number of travel agencies offer their clients the possibility of online reservation arrangements without going to the agency. Based on the mentioned trends of the increasing number of online reservations and the growing trend of digital nomads, the question of the survival of travel agencies in the future arises. Further research should be focused on the physical survival of travel agencies, given that an increasing number of tourists independently book airline and bus tickets through the websites of airline and bus companies, as well as accommodation through platforms such as Booking, AirBnB, Trivago, and Lock Trip.

7. CONCLUSION

Quarantine measures as well as restrictive measures that were in force after the end of the COVID-19 virus pandemic had a significant impact on service activities, especially in the transport and tourism sectors. According to UNWTO data, the restriction on the movement of people has had the greatest impact on transport and tourism compared to other service activities. Observed at the global level, the number of passengers in the second half of March and during April 2020 was reduced to zero, which was also the case with transport and tourism in the Republic of Serbia. After the COVID-19 pandemic, transport, and tourism at the global level managed to achieve positive growth rates to a certain extent, especially during 2022.

The positive growth rate of transport and tourism was also influenced by new forms of tourism, such as digital nomads, who, by promoting tourist destinations through social networks, contributed to increasing tourist traffic in certain destinations around the world. The tourism industry of our country, in cooperation with the Tourist Organization of Serbia, in the coming period, needs to make a significant effort in promotional activities, which will be directed towards village, rural, and recreational tourism, and wellness. It is necessary that the Tourist Organization of the Republic of Serbia, with its promotional activities, animates tourists from the region, as well as foreign tourists from countries such as the Middle East and Asia. It is believed that the mentioned measures at the world and national levels will significantly affect the recovery of transport and tourism in the years to come.

Acknowledgment

This paper was published as part of the research program of the Faculty of Hotel Management and Tourism in Vrnjačka Banja, University of Kragujevac which is funded by the Ministry of Science, Technological Development and Innovation, Republic of Serbia.

References

Akbar, Y. H., & Kisilowski, M. (2020). To bargain or not to bargain: Airlines, legitimacy and nonmarket strategy in a COVID-19 world. *Journal of air transport management,* 88, 101867.

Chang, C. L., McAleer, M., & Ramos, V. (2020). The future of tourism in the COVID-19 era. *Advances in Decision Sciences*, 24(3), 218-230.

China-CEE Institute. (2020). Struggles of the tourism sector in Serbia during the COVID-19 pandemic. Weekly Briefing Vol. 34, No.2, pp. 1-3

CHTA (Caribbean Hotel and Tourism Association). (2020). CARICOM's Trade and Economic Council approves strategy for the re-opening of regional economies".

Development Bank–ADB. (2020). The Impact of COVID-19 on Developing Asia: The Pandemic Extends into 2021. ADB Brief. No 159, p. 5.

IATA (International Air Travel Organization). (2020). COVID-19: Updated Impact Assessment, 14 April, Montreal.

IATA. (2023). https://www.iata.org/en/iata-repository/publications/economic-reports/airline-industry-economic-performance---october-2021---report/

Issahaku, A. (2020). Covid-19 and Tourism in Africa: An Unprecedented Shock. Italian Institute for international political studies, october 2020.

Mandarić, M., Sekulić, D., & Davidson, R. (2022). A study of the influence of the COVID-19 pandemic on tourist behaviour and expectations: A case of Serbia. *Hotel and Tourism Management*, *10*(1), 53–65. https://doi.org/10.5937/menhottur2201053M

Milojević, S., Skrucany, T., Milošević, H., Stanojević, D., Pantić, M., & Stojanović, B. (2018). Alternative Drive Systems and Environmentaly Friendly Public Passengers Transport. *Applied Engineering Letters, 3*(3).105-113.

MTTT (Ministry of Trade, Tourism and Telecommunications of the RS). (2020). Statistical data on tourist traffic in the Republic of Serbia for the period January - August 2020.

Panetta, G. (2020). Cruise ship bookings for 2021 are already on the rise despite multiple COVID-19 outbreaks. Business Insider, Apr 12.

Praščević, A. (2020). The economic shock of the COVID 19 pandemic - a turning point in global economic trends. 12-14.

Ranasinghe, R., Karunarathne, A. C. I. D., & Herath, J. (2021). After corona (COVID-19) impacts on global poverty and recovery of tourism based service economies: An appraisal. *International Journal of Tourism and Hospitality*, *1*(1), 52-64.

RIS (Republic Institute of Statistics). (2021). Hospitality and tourism statistics. Announcement No. 24, LXXI.

UNWTO. (2020). COVID-19 Related Travel Restrictions: A Global Review for Tourism. Second Report as of 28 April 2020.

UNWTO. (2023). https://www.unwto.org/tourism-data/global-and-regional-tourism-performance

WBG (The World Bank Group). (2020). Covid-19 and tourism in South Asia. Regional Brief, Washington, pp. 4-5.

Więckowski, M. (2021). Will the consequences of COVID-19 trigger a redefining of the role of transport in the development of sustainable tourism?. *Sustainability*, *13*(4), 1887. https://doi.org/10.3390/su13041887

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.229

Support for Tourism Development in the Balkan Region after the Pandemic

Teodora Rizova[1]

Received: February 19, 2023
Revised: September 25, 2023
Accepted: September 26, 2023
Published: October 30, 2023

Keywords:
COVID-19 pandemic;
Transport;
Tourism;
Economic consequences;
New forms of tourism

Abstract: *The article analyses tourism peculiarities of the Balkan region in Europe and the untapped potential for the development of specialised types and forms of tourism. There are measures suggested to support the tourism sector in the modern post-COVID conditions. The support of the new approaches to the management of tourism activity in the EU has been envisaged for the 2021 – 2027 programming period through the implementation of a total of 11 programmes varying in their orientation, ultimately related to carrying out better and more adequate tourism management. The main strategic directions in supporting the tourism business in the Balkans are outlined.*

1. INTRODUCTION

At the outset of the initial measures to combat the pandemic, it has become clear that unless the public authorities provide the necessary support, the tourism business in the EU countries will not be able to recover and take the place it used to have in national economies before the pandemic restrictions.

Within the working process, both at the EU and national level, various approaches related to the support of tourism have been developed taking into consideration different hypotheses related to the development of the epidemic situation and its impact on national economies. Despite the variety of proposals in this area, the national support measures in the EU countries render different results. This is related not only to the difference in the significance of tourism activity in the economies of individual countries but also to the scope of the tourism business, the availability of its own reserves funds and the impact of many factors beyond the pandemic.

Thus, one cannot fail to note the impact on the tourist business of Russia's military aggression against independent Ukraine, as well as the expected and justified measures related to the introduction of sanctions to Russia. These factors have a direct impact on the tourism business, especially on tourism in the countries near the conflict, as is the case with Bulgaria, Greece and Romania (Economist, 2022a). Consequently, the particular tourism support measures have to be considered in the context of regional characteristics, the impact of individual factors on tourism and the economy of individual countries or groups of countries, as well as the development prospects of the tourism markets. It is the regional approach that can be significantly more effective in choosing the appropriate support measures and in selecting its most appropriate forms.

[1] New Bulgarian University, Sofia, Bulgaria

2. THE STATE OF TOURISM IN THE BALKANS

One of the tourism sectors most affected by the consequences of the pandemic is those of the countries of the Balkan region. This is due both to the grave development of the situation in individual countries like Bulgaria and Greece and to the importance of tourism for the national economies of the countries of the region. Although some European economies like those of Italy, France, Germany, etc. also suffered serious losses in the tourism industry, they had an opportunity to compensate for the losses for their national economies through the development of the industrial sector and the sector of other services. However, in countries like Bulgaria and Greece, a substitution of such nature is not possible due to the relatively limited nature of the national economy.

Special attention should also be paid to the peculiarities of the administration and management of the state aid characteristic of the majority of the member states of the Balkan Peninsula. In most cases, the well-known and established management practices that exist in most of Western Europe lack them. Even without considering the corruption factor, the very model of managing these funds is quite cumbersome and bureaucratised. Moreover, tourism requires an even greater degree of flexibility on the part of both the entities engaged in this field and the controlling authorities, especially in providing immediate financial support.

Tourism in the Balkans also has purely peculiarities related to its products. The region is characterised by its rich history which unites in many ways the peoples of the countries there. Although some of them are members of the EU, while others are not part of the Union, their history, population and culture are closely intertwined. Therefore, the preferences of many tourists are related to visiting not only a country of the region but several, within one tourist trip.

Along with this, it can be noted that both the management and financing of the relevant tourist destinations and their support within the post-pandemic period have been poorly coordinated. The reasons are due to both the weaknesses of the relevant public bodies in individual countries regulating tourist activities and the entities of the tourism business that direct the issue of assistance to the national regulatory bodies and, to a relatively low degree, draw on the experience of neighbouring countries.

One of the characteristic features of the tourist business in the Balkans is that, in most cases, the individual companies working in this area have a relatively weak interaction with the representatives of the local authorities and lack jointly implemented programmes for the development of both tourist activity and the development of the region.

In the Balkans, there is also untapped potential for developing certain types of tourist activities, especially rural, culinary, sports, and many other types of tourist activities. However, their development is relatively limited due to the lack of sufficient resources, both financial and professional, capable of starting the business in the relevant direction.

The pandemic, which had gripped the Balkan Peninsula for two years, took a serious toll on tourism. Practically, individual economic entities exhausted those operating reserve funds that existed within the first year. The weaker coherence of the fiscal policy and the policy of some of the public agents did not make it possible to limit the relatively constant costs of the companies concerned and, what's more, their income was extremely limited. The low degree of interaction between tourist companies in the individual countries of the region created serious difficulties in the process of regulating tourist flows after the end of the pandemic restrictions.

In practice, immediately after lifting the restrictions on the tourist business in the region, Russia's aggression against Ukraine began to have an extremely unfavourable impact. The fact that the military conflict practically also includes the waters of the Black Sea creates additional uncertainty and concerns on the part of tourists. The proximity of most Balkan countries makes it difficult enough to plan and manage tourism during the conflict. It is expected that after its completion, the consequences will have an adverse impact on the tourism industry for a long time.

An additional consequence of the military conflict is the drastic reduction of tourists from two established and well-developed markets of the countries like the markets of Ukraine and Russia. Tourists from these two countries occupied their specific product-price niche, which in modern conditions can hardly be filled (at least in the short term) by tourists from other countries (Economist, 2022b).

The above-mentioned peculiarities of tourism in the region should be taken into account when determining measures to support the tourism industry, as well as for its orientation in those areas which, due to the circumstances, will become promising shortly.

3. POSSIBILITIES TO SUPPORT TOURISM IN THE CURRENT CONDITIONS

As practice shows, the opportunities and programmes used before the pandemic and the war can no longer satisfy the needs of the countries of the region in supporting tourism. The new conditions require a search for new approaches, which, on the one hand, is to change the approach to the management of the tourist activity itself and, on the other hand, is to provide opportunities to find new forms of support.

According to the opinion expressed by the European Court of Auditors (2021), new conditions require a new approach, first of all to the tourist product, which can be applied in the countries of the Union. The new tourism products should meet some basic requirements including the following:

- The new tourist products should be based on personalised travel. It implies the choice of both a specific place of accommodation and an individualised travel programme to meet the individual needs of the tourists concerned;
- The possible tourist trips should be based on the well-being of both the tourists and the enterprises that offer the relevant tourist services. Well-being is precisely that factor due to which high-quality tourist products can be realised;
- One of the main characteristics of European tourism is its sustainability. This implies the development of tourist products in such a way that they not only satisfy the needs of tourists and meet the economic profiles of tourist companies but also take into account the development needs of the regions, natural features, environmental standards, etc.;
- Tourist products should be focused on closer destinations, increasing the security of tourists on the one hand, and, on the other, providing the opportunity to reduce transport, administrative and other risks that may arise during the trip;
- Tourist products should guarantee the health and safety of tourists, and to this end, standards that take into account the conditions of the trip and the possibility of preserving the health of tourists to the greatest extent are developed;

- When offering tourist products, the informatisation and digitalisation of the tourist trip should be of leading importance, providing tourists with maximum and complete information about the features and conditions of the trip and staying in the respective tourist destination. The tourist product should be accompanied by relevant information products that meet the highest standards in the field of digitalisation (Xiang et al., 2022);
- The new tourist products should be based on cultural events, as well as those that emphasise the local identity of the tourist region. In this case, special attention should be paid to the specific forms of tourism like event, cultural, religious, gastronomic and other types of tourism, which to the greatest extent can integrate the characteristics of the local population and region. In the process of organisation and carrying out the tourist activity, it is recommended to integrate the local authorities as well as non-governmental and non-profit organisations from the region to the maximum extent.

Following the new requirements for tourist products, changes should also be made to the organisational structures that relate both directly to the organisation of tourist activities and to the interaction of tourist organisations with public administration bodies and non-governmental organisations.

Fiscal policy, as well as public administration bodies, should create conditions for the implementation of new types of tourist products, as well as for their promotion on the domestic and international markets.

The support of the new approaches to the management of tourism activity in the EU has been envisaged for the 2021 – 2027 programming period through the implementation of a total of 11 programmes varying in their orientation, however, ultimately related to carrying out better and more adequate tourism management. These programmes include the following:

a) Funds received under the Recovery and Resilience Mechanism. The funds provided under this mechanism are within the responsibility of the national governments and are determined by the relevant national programmes. In the Republic of Bulgaria, such a national programme is the Strategy for the Sustainable Development of Tourism in Bulgaria 2014-2030 (Ministry of Economy and Energy, 2014), which defines the main priorities in the development of tourism, especially areas such as:
    - development of tourist products;
    - development of the country's national infrastructure, including the one directly related to the service of tourist activity;
    - tourist zoning;
    - institutional framework.

Naturally, its premises were based on certain conclusions drawn before the pandemic and the aggressive actions of Russia in the region, presupposing that a significant part of it has to be updated and is to be subjected to further amendment.

b) European Regional Development Fund (ERDF) and Cohesion Fund (CF).

The main emphasis on the financial support of the tourist activity is placed in the process of financing by the CF. The projects that are financed from this source are related to the development of tourism. Although the ERDF is mostly aimed at overall regional development, for countries such as the countries of the Balkan Peninsula, these funding sources often refer specifically to tourism infrastructure and better interaction between local authorities and tourism companies.

c) European Social Fund Plus (ESF+). The financing offered by the fund is related to the development of employment, the main emphasis being placed on accompanying environmental projects, as well as those that are directly related to the digital transition. Although in this case, it is not directly about the support of the tourism activity, the projects of the fund affect such an essential element as the training of the staff for tourism.

d) European Maritime, Fisheries and Aquaculture Fund (EMFF). The funds provided by EMFF are intended for the development of eco-tourism, fishing tourism, gastronomic tourism, as well as other types of marine tourism. Funds are also earmarked to support various partnerships involved in coastal tourism.

e) LIFE programme is designed to finance tourism projects based on sustainable ecological principles as well as projects that combine the adaptation of tourism to climate change.

f) Horizon Europe makes it possible to finance innovative and ecologically sustainable projects that are related to cultural tourism.

g) Creative Europe programme encompasses the European Capitals of Culture project and many other projects that are related to festival and cultural tourism, the development of the fashion industry, as well as targeting event tourism and the implementation of various other projects uniting tourism with the manifestations of culture.

h) Just Transition Fund makes investments in fixed capital or intangible assets of tourist enterprises whose main focus is the presentation of the cultural heritage in the respective destination. An important aspect of the fund's activity is the support of the tourist business in the process of adaptation to the changing market conditions.

i) The Digital Europe Programme focuses on setting up a pan-European data space for the cultural heritage of the countries of the Union. The most complete digital transformation of cultural heritage in all member countries is of leading importance. The main focus of the programme is in the field of cultural tourism, but in the presence of specific projects, other types of tourism activities can benefit from the funds of the programme, such as, for example, religious tourism, congress tourism and many others.

The extent to which the member states can benefit from the above-mentioned depends on the work of the specific planning structures and the level of financial discipline in the public administration bodies.

4. MAIN STRATEGIC DIRECTIONS IN SUPPORTING THE TOURISM BUSINESS IN THE BALKANS

Starting from the current state of tourism in the Balkans and from the main challenges facing tourism, several strategic guidelines can be outlined in which tourism activity can be supported, including the following:

a) Creation and administration of tourist projects of a transnational nature

As already stated, there are numerous common points between the countries of the Balkan region, uniting the peoples of the region through their history and culture. This feature should be used for the development of particular tourist products to be carried out via the participation of business entities from several countries. Thus, it is possible to increase the quality of the tourist product based on competitive offers and to use the potential of the tourist market in more than one country.

The basis of such a proposal should be the overall diversity of the cultural heritage of the peoples of the region. At the same time, no limitation should be allowed solely based on cultural artefacts and, accordingly, the realisation of cultural or recreational-cultural tourism.

Significant reserve funds in this regard can be sought in the development of new types of tourist activities, such as culinary and sports tourism, and the study of various traditions and customs of the peoples of the region.

The development of tourist activity within the framework of religious tourism which has not received sufficient development yet, especially in the peripheral regions of the Balkan countries, should not be neglected.

The creation of integrative tourism products with a high degree of individuality, oriented towards relatively small groups of users, who have a high degree of interest in receiving an individualised product is of great significance. This is the way to go in the development of small tourism businesses that are flexible enough to offer relevant customised tourism products.

In the creation of such tourism products, not only member countries, but also other countries of the region should be included, thus using funding from different sources, using different financial programmes both of the EU and those that are built at the national level.

In the development of projects with transnational participation, setting up associations of small enterprises, including those from different countries, should be encouraged in every possible way to develop standards for the activities of tourist enterprises in individual types of tourist activity. The functions of such associations should also include activity on on-the-ground forecasting of the possibilities for development and improvement of the relevant tourist products, as well as the development of new, unique tourist products, the basis of which can be the culture of the peoples of the region.

b) Changes in the relationship between the tourism business and public administration bodies

This aspect of the assistance should include both a significant simplification of administrative procedures, a reduction in the service time of tourist enterprises, and a serious shortening of the procedural chain that tourist enterprises go through when receiving assistance (both financial, informational and administrative) by the national governing bodies and by the EU institutions.

An important aspect of the work of the administration should be not only the implementation of control and administrative functions but also the process of information and communication support for the tourism industry, especially for its small enterprises. Active use should be made of the possibilities of the state and municipalities related to advertising individual types of tourist products both in the country and abroad, interaction in the field of qualification and retraining of personnel, orientation of the transport and information infrastructures to the needs of the small tourist businesses and introduction of new tourism products.

c) Development of electronic services and activity in the field of e-tourism

The remaining strategic support models are difficult to implement in the traditional information and communication environment. Therefore, one of the main tasks related to supporting tourism is the active development of digital services.

One of the forms in which the tourist business from the Balkans can be supported is the creation of products in the so-called e-tourism. E-tourism is an online platform providing sales of tourism products to end users of tourism services and bringing together manufacturers, tour operators and intermediaries.

In the framework of e-tourism, a preliminary opportunity is included to acquaint tourists with the relevant sights of the destination they will visit. They can take a virtual tour of the destination, familiarize themselves with the sights they will meet during their tourist trip, independently assess the optimal routes for them, and choose additional services or animation during their trip. An essential aspect of today's tourism is the possibility, through e-tourism, for tourists to be aware of the risks that may arise during their trip and how these risks can be avoided (Hassan, 2022).

Setting up such an integrated system is not within the capabilities of individual business entities from the tourism sector in the Balkan region, but it has to be carried out thanks to the commitment of the public administration. Various EU funds can also be attracted as the efficiency of such a system will allow a significantly higher degree of flexibility for both large and small business entities working in tourism, and this, accordingly, is to increase user satisfaction.

5. CONCLUSION

The proposed measures to support tourism in the post-COVID-19 period will stimulate the use of the potential of tourist destinations and develop specialized types and forms of tourism. The Balkans as a European region needs the implementation of the eleven programs of the European Union with the aim of adequate management, promotion of tourist destinations and expansion of tourist markets.

References

Economist. (2022a). *Tourism in 2022.* The Economist Intelligence Unit Ltd.

Economist. (2022b). *How the War in Ukraine Will Affect Tourism.* The Economist Intelligence Unit Ltd.

European Court of Auditors. (2021). Special Report. *EU Support to tourism. Need for a fresh strategic orientation and a better funding approach.*

Hassan, A. (Ed.). (2022). *Digital Transformation and Innovation in Tourism Events.* Routledge.

Ministry of Economy and Energy. (2014). *Strategy for sustainable development of tourism 2014-2030.* Sofia.

Xiang, Z., Fuchs, M., Gretzel, U., & Höpken, W. (Eds.). (2022). *Handbook of e-Tourism.* Springer.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.237

The Positive Impact of the COVID-19 Pandemic on Tourism: A Case Study of the Ribnica Destination

Gašper Krže[1]
Anton Vorina[2]

Received: April 4, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
COVID–19 pandemics;
Ribnica;
Tourism

Abstract: *Our analysis aimed to examine the impact of the COVID-19 pandemic on the tourism industry, with a focus on smaller and less well-known destinations. During the COVID-19 pandemic, the world came to a near standstill, and the tourism industry suffered its most significant decline in history. Despite this, there remained a desire for some forms of tourism, and many well-known tourist destinations had already adapted or integrated new routes for visitors even before the pandemic. However, smaller and less well-known destinations were unable to do so due to a lack of funds. In light of these challenges, Ribnica has taken proactive steps to adapt to the pandemic and implement positive methods to support its tourism industry. During the pandemic, Ribnica developed a new tourism strategy, updated its tourist image, and introduced new products to attract visitors. Additionally, Ribnica has integrated tourism best practices to maintain the safety of visitors and locals during the pandemic.*

It is worth noting that while Ribnica's efforts have been successful in attracting visitors during a challenging time for the tourism industry, the pandemic has had an overwhelmingly negative impact on travel destinations worldwide. Thus, it is essential to continue implementing positive strategies and best practices to support the recovery and growth of the tourism industry.

1. INTRODUCTION

The COVID-19 pandemic had a profound impact on the tourism industry worldwide, causing a significant slowdown. However, some destinations, like Ribnica, used the pandemic period as an opportunity to implement good practices aimed at reviving tourism.

The objective of our research is to address three main questions:
1. What positive effects did the COVID-19 pandemic have on travel destinations globally?
2. How did Ribnica adopt and implement positive methods to mitigate the impacts of the COVID-19 pandemic?
3. In what ways did the integration of best tourism practices benefit Ribnica in the aftermath of the COVID-19 pandemic?

We utilized various online platforms, including Google Scholar, Google Browser, and YouTube, to search for relevant academic articles, industry reports, and expert opinions. The criteria for selecting sources included publication date, relevance, and credibility. Through this analysis, we were able to identify key trends, challenges, and opportunities facing the tourism industry in the aftermath of the pandemic.

[1] Erudio School of Sustainable Tourism, Litostrojska cesta 40, 1000 Ljubljana, Slovenia
[2] Celje School of Economics, Higher Vocational College, Mariborska 2, 3000 Celje, Slovenia

2. LITERATURE REVIEW

Through our research, we discovered several articles that explore the positive effects of the COVID-19 pandemic on the tourism industry. One such article, titled "Coronavirus has changed the travel industry. Here's how it might have a positive impact," highlights the pandemic's positive impact on nature. The authors discuss how improved water quality and increased wildlife sightings are among the positive outcomes of reduced human activity during the pandemic. Additionally, carbon emissions have decreased due to decreased travel and transportation (Kinsman, 2020).

Another paper we analyzed, titled "Positive and negative impact of COVID-19 virus on tourism," explores the contrasting positive and negative effects of the pandemic on the tourism industry. The authors discuss how lockdown measures have led to an increase in domestic travel, including nature-based tourism, and have stimulated national tourism in some regions (Briciu et al., 2020).

The lockdowns and travel limitations imposed during the COVID-19 pandemic resulted in a significant increase in domestic tourism, leading to an uptick in tourist flow to domestic destinations. This shift in travel patterns has led to the emergence of new tourist destinations and has changed the image of existing destinations. Furthermore, the pandemic has led to a sudden increase in family outings to nature-based tourism, driving growth in rural and agro-tourism. This trend has coincided with an increase in health, travel, communication, shopping, and sanitation standards to ensure the safety and comfort of tourists and visitors (Chiranjib, 2022).

Moreover, the pandemic has led to a greater awareness of nature, culture, and ecology, promoting the conservation of biodiversity and discouraging the trade of wild animals. Additionally, there has been a push to promote organic products and change the eating habits of tourists. Overall, the pandemic has stimulated domestic and national tourism, encouraging a greater appreciation for local destinations and the unique experiences they offer. The COVID-19 pandemic has resulted in a decrease in the purchasing power of tourists, with many opting to forego long trips and destinations due to financial constraints. Additionally, the pandemic has caused a sense of fear and anxiety, leading to what some researchers have termed "tourist psychosis." (Chiranjib, 2022)

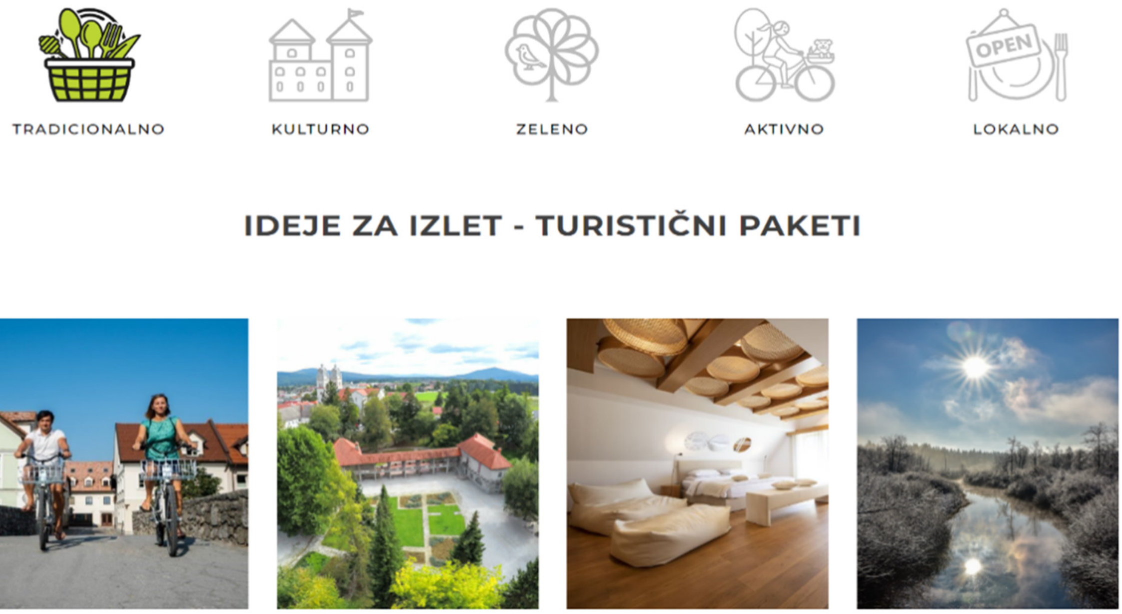
Furthermore, the pandemic has led to visibly slow exports and job losses in the unorganized tourism and alternative accommodation sector, which has been hit hard by the decrease in tourism. The negative impact on the balance of payments has been compounded by the increase in domestic tourism, which has not compensated for the loss of revenue from international tourism.

Overall, while the pandemic has had some positive effects on the tourism industry, it has also had negative effects, particularly in terms of the financial impact on tourists, job losses, and the negative impact on cultural diversity and international relations (United Nations Environment Programme, 2020).

In the scholarly article titled "Tourism Sustainability and COVID-19 Pandemic: Is There a Positive Side?", it is evident that the pandemic has instigated transformative thinking among tourism experts in terms of surpassing ecological thresholds, addressing climate change, and mitigating socio-cultural strains, arising from current economic systems that generate significant disparities and unfairness. The prevalence of such transformative perspectives in academia is also a favorable outcome of the pandemic, which can lead to the discovery of methods and mechanisms to guarantee the comprehensive sustainable development of tourism (Seabra & Bhat, 2022).

In the paper titled "Strategy for the Sustainable Development of Tourism in the Municipality of Ribnica 2022-2028," it is evident that Ribnica has aligned its tourism strategy with contemporary global trends (picture 1), emphasizing the significant inclusion of boutique tourism and sports tourism in nature in its offerings. The strategy outlines that in 2019, a total of 3,808 overnight stays were recorded in the Ribnica area, while by the tenth month of 2022, there have already been 3,013 overnight stays, reflecting a positive trend towards increased tourism in the region (Novak & Marn, 2022).

During the pandemic, Tourism Ribnica developed new guidelines for the sustainable development of tourism in Ribnica, which were categorized into four sections: traditional, cultural, green, and active tourism (Picture 1). These categories were combined to create a unique, locally-experienced tourism product.



Picture 1. Trip ideas - tourism packages.

Source: Turizem Ribnica, n. d.

Picture 2. The awards ceremony of the "My Country - Beautiful and Hospitable 2022" competition

Source: TZS, 2022.

Picture 3. Bear in the nature
Source: Gizmo turizem, n. d.

In the article "Awards ceremony of the competition 'My country - beautiful and hospitable 2022'" we can observe that the Municipality of Ribnica has been recognized for the first time with the 3rd place award among smaller tourist towns. The competition was conducted via a survey on the website of the Tourist Chamber of Slovenia.

In Picture 2, we can see Mrs. Tina Peček, the director of the Ribnica Handicraft Center, accepting the award on behalf of Tourism Ribnica.

The local tourism agencies have also adapted to the current trend of nature tourism, as demonstrated in the above image of a local travel agency promoting wildlife (Picture 3) viewing experiences in natural habitats.

In the article "Move Over, Sustainable Travel. Regenerative Travel Has Arrived.", it is explained that the pre-pandemic mass tourism has resulted in nature recovering and reviving during the pandemic. Therefore, sustainable tourism is considered the most suitable for further development, and a new trend called "regenerative travel" has emerged, which aims to leave a positive impact on both the environment and local communities (Glusac, 2021).

In the video "Turizem Ribnica" available on YouTube (https://youtu.be/O9_-lf8ZuLg), it is evident that the Municipality of Ribnica has invested significant time and resources in a new, more locally-focused, and sustainable tourism campaign. The video showcases the tourism strategy that emphasizes green boutique tourism, sports tourism, such as hiking and cycling, and cultural tourism. It also features the production of "SUHA ROBA," a traditional wooden product of Ribnica.

It can be observed that during the COVID-19 pandemic, the number of overnight stays in Ribnica was significantly lower. For instance, in August 2020, which is typically the busiest month for tourism, there were only 431 overnight stays recorded. However, after the pandemic, the number of overnight stays almost doubled in the same month in 2021, with the total number of overnight stays reaching 790. This represents an increase of over 50% compared to the previous year (Statistical Office RS, n. d.).

3. RESULTS - ANSWERING THE RESEARCH QUESTIONS

The following results were obtained in response to the research questions:

Research question 1: What is the impact of the COVID-19 pandemic on tourism in Ribnica?
The COVID-19 pandemic had a significant impact on tourism in Ribnica. In August 2020, which is considered the peak month for tourism, there were only 431 overnight stays, a sharp decline compared to previous years. However, in August 2021, the number of overnight stays almost doubled to 790, representing a more than 50% increase from the previous year.

Research question 2: How has tourism in Ribnica changed in response to the pandemic?
In response to the pandemic, Tourism Ribnica developed new guidelines for the development of tourism in Ribnica. The guidelines were divided into four sections: traditional, cultural, green, and active tourism. The local tourist agencies have also adapted to the new trend of nature tourism, promoting activities such as wildlife viewing. The municipality has invested in a new, more local and greener tourism campaign, with a focus on green boutique tourism, sports tourism, and cultural tourism.

Research question 3: What is the potential for sustainable tourism in Ribnica?
There is significant potential for sustainable tourism in Ribnica, given the municipality's investment in green tourism and the natural resources available in the region. Regenerative tourism has been identified as a viable approach to ensure the sustainable development of tourism in the area. Furthermore, Ribnica was recognized in the Moja Dežela – Lepa in Gostoljubna 2022 competition, receiving 3rd place for smaller tourist towns, indicating a positive trend towards sustainable tourism.

4. CONCLUSION

After researching the effects of the COVID-19 pandemic on tourism, it has been observed that there are several positive impacts of the pandemic on the industry.

Although there have been both positive and negative effects, the positive impacts outweigh the negative ones. These include the promotion of organic products, rural environments, sports tourism, improving health, biodiversity, and promoting regional tourism.

In the post-pandemic period, the main areas of tourism development are traditional, green, cultural, local, and active tourism. Local tourism agencies have successfully adapted to these new guidelines, as demonstrated by Gizmo Tourism's offer to see wild animals in nature, which promotes green, carbon-free tourism and encourages the local community.

The Municipality of Ribnica is an example of a region that has followed the new tourism strategy after the pandemic, incorporating the new guidelines and steadily increasing its presence, earning the visit and overnight stays of tourists, as well as recognition from the Tourist Association of Slovenia for being a hospitable and well-organized small town.

In the future, it would be beneficial to obtain local statistics to compare the changes in the development of tourism guidelines at an international level.

References

Briciu, A., Briciu, V. A., & Csiki, A. (2020). Positive and negative impact of COVID-19 virus on tourism. ResearchGate. Retrieved November 22, 2022, from https://www.researchgate.net/figure/Positive-and-negative-impact-of-COVID-19-virus-on-tourism_tbl3_351014663

Gizmo turizem. (n. d.). Retrieved November 22, 2022, from https://gizmo-turizem.com/gizmo-special/

Glusac, E. (2021). Move Over, Sustainable Travel. Regenerative Travel Has Arrived. The New York Times. Retrieved December 12, 2022, from https://www.nytimes.com/2020/08/27/travel/travel-future-coronavirus-sustainable.html

Kinsman, J. (2020). Coronavirus has changed the travel industry. Here's how it might have a positive impact. Conde Nast Traveller. Retrieved November 21, 2022, from https://www.cntraveller.com/article/positives-future-travel

Novak, M., & Marn, I. (2022). Tourism development strategy in Ribnica municipality, Vol. 41, p. 9-137.

Seabra, C. M., & Bhat, N. V. (2022). Tourism Sustainability and COVID-19 Pandemic: Is There a Positive Side?. Sustainability, 14(14), 8723. Retrieved December 12, 2022, from https://www.mdpi.com/2071-1050/14/14/8723

Statistical Office RS. (n. d.). Tourism. Retrieved November 22, 2022, from https://pxweb.stat.si/SiStatData/pxweb/sl/Data/-/2164466S.px/chart/chartViewColumn/

Turisticna Zveza Slovenije. (2022). Podeljena priznanja natečaja moja dežela – lepa in gostoljubna 2022. Retrieved November 22, 2022, from https://turisticna-zveza.si/novica/moja-dezela-lepa-in-gostoljubna-koncni-rezultati

Turizem Ribnica. (n. d.). Retrieved November 22, 2022, from https://turizem.ribnica.si/turisticni-paketi/

United Nations Environment Programme. (2020). *Transforming Tourism for a resilient and sustainable post COVID world*. Retrieved November 21, 2022, from https://youtu.be/aHeBUoEbNhc

Additional reading

One Planet. (n.d.). Retrieved December 11, 2022, from https://www.oneplanetnetwork.org/tran

Visit Ribnica. (n.d.). Retrieved December 12, 2022, from https://www.facebook.com/turizemribnica

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.243

Natural Tourism Resources in Gabrovo District (Bulgaria)

Vanya Vasileva[1]
Dora Kabakchieva[2]

Received: March 20, 2023
Accepted: June 29, 2023
Published: October 30, 2023

Keywords:
Sustainable development;
Protected territories;
Valorization

Abstract: *Stara planina tourist area covers the central part of the country, along the mountain with the same name. It includes 32 municipalities from 10 districts. Gabrovo district is the only one that falls entirely within Stara planina tourist region. Stara Planina tourist region is one of the most attractive regions for tourism in Bulgaria and one of the few that have almost year-round tourist activities. The outline of the area includes the mountain of the same name, but also the Pre-Balkan. This fact predetermines the exceptional richness and diversity of natural tourist resources. The region specializes mainly in mountain tourism, including recreation, mountain trekking, rural and ecotourism. There is an urgent need to identify and evaluate the prospects for sustainable development of tourism in the region. The purpose of the present study is to valorize the natural tourist resources of Gabrovo district and to provide guidelines for their sustainable use.*

1. INTRODUCTION, PURPOSE AND METHODOLOGY

Stara Planina tourist region is in central Bulgaria, along the mountain of the same name. It includes 32 municipalities from 10 districts. Only the Gabrovo district falls entirely within the considered tourist area, and four other districts are represented by only one municipality. The primary objective of this study is to leverage the natural tourist assets in the Gabrovo district and offer guidance for their sustainable use.

A combination of research methods was used to achieve the set objective. Field research is a basic approach for geographical (including tourist-geographical) research of territorial units diverse in scope and rank, including tourist areas. In this case, it was conducted in a long-term period, which makes it possible to note the changes that have occurred in the studied territory from a touristic perspective. A combination of general methods such as analysis, comparison, induction, deduction, etc. was used to present the obtained results.

2. CHARACTERISTICS OF THE NATURAL ENVIRONMENT

Stara planina is the longest mountain range in Bulgaria, part of the Alpo-Himalayan mountain system. It is a typical mountain range that stretches across the central part of the country, starting at its easternmost point near the Black Sea and continuing almost in a straight line west to the border with Serbia. The mountain is 530 km long and about 15 km wide (in its middle part). The area it occupies is 11,596 km^2. It is referred to as the “backbone of Bulgaria” because it naturally bisects the territory of the country into north and south.

This gives the high parts an alpine look, which makes them attractive for hiking and mountaineering. The longest tourist hiking route in Bulgaria, Kom–Emine (almost 600 km), runs along the main Stara Planina ridge. The road from Mount Kom (the westernmost point of the mountain)

[1] Konstantin Preslavsky University of Shumen, 115 Universitetska str., Bulgaria
[2] Konstantin Preslavsky University of Shumen, 115 Universitetska str., Bulgaria

to Cape Emine (its easternmost point) is the Bulgarian part of the international trans-European tourist route E-3, which crosses the Pyrenees, Ardennes, Eifel, Erzgebirge, Decinski Snezhnik, Mala Fatra, the Tatras, the Carpathians and Stara Planina and connects the Atlantic Ocean and the Black Sea. On the territory of Bulgaria, the E-3 route is well organized despite the neglect of a large part of the tourist infrastructure in the 90s years. Recently, there has been a growing interest in this transition and restoration of sites‘ marking along it.

Stara planina is the windiest and foggiest mountain in Bulgaria. The average annual wind speed on its peaks reaches 10 m/s. The meteorological station at the highest of them - Mount Botev (2,375.9 m) - claims it is the windiest place in the country.

Each of the separate areas of Stara Planina tourist region has its distinctive natural resources. On the one hand, they mark the main accents in the relevant tourist offers and, on the other hand, mark the directions for sustainable development of the territory.

Gabrovo district is located in the central part of the Stara Planina tourist region. To the north and east, it borders the Veliko Tarnovo district. To the south is Stara Zagora district, and to the west - Lovech district.

3. VALORIZATION OF NATURAL TOURIST RESOURCES

Gabrovo district is the only one that falls entirely within the Stara planina tourist area with all 4 municipalities (Gabrovo, Dryanovo, Sevlievo, Tryavna). It is characterized by a diverse semi-mountainous and mountainous relief. It falls within the scope of both Pre-Balkan and Stara planina.

Tourism in the district is not one of the leading branches of the local economy, but it is of particular importance given the sustainable management of tourism resources in terms of environmental impact and potential contribution of social benefits to the local community. There is a clear trend towards the positioning of the branch in areas with places suitable for ecological and rural tourism.

An important place as a resource and component of the tourist offer of the region is occupied by the area of Uzana, which is located 22 km southwest of Gabrovo at the foot of Mount Ispolin (1524 m), amidst a beautiful natural environment and characteristic relief. It is located at the transition between the Central Balkans and the Eastern Stara Planina, in a strategic location in the geographical center of Bulgaria, measured in 1991. Since 2009, the Uzana area has the status of a resort complex. A detailed development plan was also adopted. As of 2021, 10 accommodation places with a total capacity of 444 beds are registered here.

The resort offers excellent opportunities for relaxation throughout the year and interesting activities during the day and evening. Hotels and villa complexes provide the most diverse and interesting opportunities for rest. For those who practice winter sports, there is a well-built infrastructure and facilities - 8 towpaths and 8 ski tracks of varying difficulty with a total length of about 3 km. Access to the ski area is easy. The average altitude of most ski slopes is 1,300 m - 1,400 m, and the maximum elevation difference is 256 m.

The resort complex is part of the territory of “Bulgarka” Nature Park. The forest fund is over 80% of its total area. An additional advantage for the tourist attractiveness of the protected area is that only about 20 km away, on its western border, is located one of the three Bulgarian national parks - “Central Balkan”. The part of the European tourist route E3 (Kom - Emine) passes along the southern border of the nature park (Uzana area - Shipka peak – the huts Buzludzha, Bulgarka, Krastets, Gramadliva and Predela - Prohoda na Republikata). In the area of the Park, there are many and varied pedestrian, educational and exploring routes, reaching various natural and cultural-historical attractions. Information, visitor and interpretive infrastructure has been built, but in recent years, due to a lack of maintenance (especially of the information facilities - signs, maps), its condition is unsatisfactory. The main reason is the low funding for the park (Bulgarian Swiss Cooperation Programme, n.d.).

Ecotourism activities are among the few that have the potential to achieve economic benefits without damaging the protected areas included in the territory of the district. Uzana Polyana Fest is one of the first ecological festivals in Bulgaria. It is held annually in July, and its duration is 2-3 days. The first edition of the festival was in 2011. The diverse program, the various ecological challenges, the many eco-exhibitors and the bazaar of organic products provoke increased interest from different audiences - people dedicated to the “green” way of life, mountaineers, environmentalists, representatives of institutions, people looking for emotion in nature, fans of the musicians, participating in the concerts, shopping, etc. Over the years, the festival had good attendance, both from the country and from abroad. In 2021, the statistics indicate that over 150 individuals were participating as attendees, exhibitors, and speakers, while the number of visitors reached approximately 10,000 people.

The list of the Regional Inspectorate for the Protection of the Environment and Forests of Gabrovo region comprises 15 protected areas (Bozhentsi - Tryavna municipality, Studeniyat Kladenets and Lgut - Sevlievo municipality, the lands around Dryanovsky Monastery, Sokol Monastery, Batoshevsky Monastery, etc.) and 4 natural sights (Bacho Kiro cave - Dryanovo municipality, Vikanata skala and Skalniy Venets - Tryavna municipality, Bilyakovets lake - Gabrovo municipality) (Oblast Gabrovo, n.d.; Vasileva & Sabrieva, 2023).

Bacho Kiro cave is located near Dryanovsky Monastery. It is a complex four-story labyrinth of cave galleries and branches with a total length of about 3,600 m. A well-laid-out part of 700 m has been made for visitors. It is formed in three main directions - east, northeast and southeast - by underground rivers flowing in strong orgone limestones. Geomorphological studies give reasons to assume that its formation lasted 1.8 million years. There are 6 cave halls. This is the first refined cave in Bulgaria (1937). Spectacular lighting offers visitors the opportunity to see the whimsical formations of nature, named after what they resemble: Rain Hall, Stone Flower, Poplars, Lake of Happiness, Jellyfish, Bear Slide, Bear Meadow, Elephant, Cave Ear, Purgatory, Throne, Cave Eagle and others. The tourist site “Destination Dryanovo” calls the cave “home of the first intelligent people in Europe” because some of the oldest traces of Homo sapiens on the old continent have been found here, dating to the transition years between the Middle and Late Paleolithic. In 1962 it was appointed as a natural landmark, and in 2002 the paths and lighting were renewed (Destination Dryanovo, n.d.; Zhalov, 2006).

Gabrovo district is also widely known for its climate-healing mountain resorts - Dryanovo, Tryavna, Plachkovtsi, Tsareva livada and Lyuljatsi, which have a beneficial effect on diseases of the respiratory and cardiovascular systems, on the musculoskeletal system, etc.

4. CURRENT STATE OF TOURISM AND GUIDELINES FOR SUSTAINABLE DEVELOPMENT

The highlights and guidelines for the sustainable development of tourism in the Stara Planina region reflect and require additional strategic priorities and support the work of local authorities and interested communities in the development of a set of measures, means and actions for their achievement. The area offers a variety of opportunities for active recreation, attractive activities and outdoor experiences for people with a wide range of interests and needs.

Tourism in Gabrovo district is an important complementary sector in the local economy. Effective utilization of available opportunities contributes to job creation and the development of local supply chains. The geographical location of the areas with tourist potential, as well as the cultural and historical landmarks, create conditions for the beneficial influence of the development of tourism on the depopulation of the territories (Strategy for sustainable development of tourism in Gabrovo municipality 2021-2027).

The main problems and limitations stem from insufficient and unsatisfactory baseline information and a lack of data on:

- tourist resources and sights on the territory of many municipalities;
- service providers and the quality of the tourist offer;
- the number of visitors who are tourists.

Such deficits hinder research studies and the preparation of in-depth analyses. A serious limiting factor is the absence of traditions in the field of tourism and the purposeful development of the sector in many municipalities.

Both at the national and the European level, it is planned to promote the creation of the so-called biodistricts where tourists will be able to learn more about organic farming. Organic farming and other local activities can make some areas that are not traditional tourist destinations attractive for tourists. Such type of tourism is particularly applicable to the larger protected areas, including meadows and pastures, forest areas, arable lands, rivers, etc., where tourist activities can be developed in compliance with the regimes of the protected areas, at the same time offering access to the natural features of these sites, as well as to the local bioproducts.

In the Strategy for the Sustainable Development of Tourism in Bulgaria until 2030, a special place is allocated for all forms of alternative tourism - eco, rural, balneo, ethnic, bio, spa, gourmet, wine, etc., which can successfully bring to the fore the rich natural resources of Stara Planina tourist area to turn them into a competitive product, even on international markets (Ministry of Economy and Energy, 2014; Ministry of Tourism, n.d.).

Alternative tourism is gaining more and more popularity and attracts significant tourist flows due to its diversity, personal attitude towards tourists, and rich opportunities for diverse experiences. Gabrovo district has the potential for the development of quite a few types of alternative tourism: adventure, rural and ecotourism, caving, hunting, photo safaris, etc. The creation and offering of diverse and specialized tourist products aimed at these types of tourism requires activating the resources of the municipalities and building an adequate infrastructure for the needs of the attractions - defining, shaping and marking tourist (eco-) paths and health paths, paths for climbing, riding and cycling, off-road routes, picnic areas, signposts, information centers, etc.

For their promotion, there is a need for creative marketing and advertising activities, as well as for the integration of the tourism offer, to be able to cover specific market niches and contribute to the improvement of income in the local economy. At the same time, an increased care is necessary for:

- sustainable use and protection of natural resources and environment and improvement of their effective management;
- increasing tourist culture and awareness;
- improving connectivity, mobility and access;
- creation of common tourist products and marketing activities;
- digitization of tourist services, etc.

The state of the general infrastructure is among the most serious obstacles to the utilization of the existing opportunities for tourism development. Its regional and municipal part is most often poorly built and unmaintained, the water supply network is outdated, the sewage network in small settlements is insufficient, there are no purification facilities, garbage collection and processing of household waste is inefficient, transport is inaccessible to some of the places for tourism.

In the time of the global COVID-19 crisis, Stara Planina tourist area reveals its potential. COVID-19 is having an extraordinary effect on domestic tourism – on the interest and growing popularity of the area. According to NSI data, the total number of overnight stays for 2021 in the Gabrovo region (the only one of the 10 regions that falls entirely within its scope) is more than 147,000 (8,000 of them by foreigners). Revenues are over BGN 5 million (including foreigners - nearly BGN 440,000). The growth of overnight stays compared to the previous year was 24.6% and revenues were 30.7% (NSI, n.d.).

Maintaining this trend requires serious and intense activities not only to promote the area, but also to ensure the possibility of a longer stay - offering additional attractions and creating new routes, information and communication and last but not least - ensuring access to the tourist sites, on the one hand, and their preservation, on the other. These are the key elements that can guarantee the development of local entrepreneurship in the field of tourism and employment in small towns and villages (Sabrieva, 2019).

5. CONCLUSION

The tourist area of Stara Planina has great potential, as it combines natural sights and diversity with a rich cultural-historical and architectural heritage, unique Bulgarian traditions, customs, crafts, folk holidays, and national and international festivals. The rich potential of natural and anthropogenic tourism resources of high quality suggests that these resources should be “composed and packaged” into unique and attractive tourism products. However, their creation, growth and imposition on the market require professional and competent communication and marketing activities.

The development of tourism is a prerequisite to preserve, keep, and further develop the existing potential of natural tourist resources, as well as to ensure the development of the economy, increase employment and income, to create conditions for recreation and recovery, not only for tourists but also for residents. Considering the situation with the COVID-19 pandemic, it is very likely that there will be a change in tourist flow - from mass tourism to individual tourism.

Based on the assumption that individual tourists are interested in less urbanized and unpopular destinations offering clean and preserved nature, local cuisine, adventures, etc. opportunities should be created for tourism to become a livelihood for the local population and to develop alternative tourist offers aimed at developing specialized types of tourism, following the characteristic features and tourist capacity of the area.

In order to achieve better economic results, it is necessary to direct efforts towards full and year-round use of accommodation, to improve the variety and quality of services, to increase the qualification of the staff, and to do targeted marketing.

Acknowledgment

This research was supported by the Department of Biology of Konstantin Preslavski University of Shumen under the project " An integrative approach to solving environmental problems - phase 1" (RD-08-113/20.02.2023)

References

Bulgarian Swiss Cooperation Programme. (n.d.). http://parks.bg/wp-content/uploads/2016/01/1-23.04.2013-Predstavyane-na-proekta.pdf

Destination Dryanovo. (n.d.). http://destinationdryanovo.com/package/cave-bacho-kiro-dryanovo/

Ministry of Economy and Energy. (2014). The National Strategy for Sustainable Development of Tourism in the Republic of Bulgaria 2014 – 2030. Sofia

Ministry of Tourism. (n.d.). Eco and rural tourism, https://www.tourism.government.bg/bg/kategorii/informacionni-materiali/broshuri-na-bulgarski-ezik

NSI. (n.d.). https://www.nsi.bg/bg

Oblast Gabrovo. (n.d.). https://www.riosvt.org/docs/bio/2014/04/ZT-oblast-Gabrovo.pdf

Sabrieva, S. (2019). Specifications of tourist infrastructure and superstructure in North Central planning region. – In: SocioBrains, International Scientific refereed online Journal with Impact Factor, Issue 54, February 2019, (pp. 462 – 472.) Publisher: www.SocioBrains.com

Vasileva, V., & Sabrieva, S. (2023). Protected areas in Stara planina tourist region – current state and prospects for tourism development, Acta Scaentifica Naturalis.

Zhalov, A. (2006). Caves and Speleology in Bulgaria.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.249

Sustainable Tourism Actions from the National to the Local Level

Éva Erdélyi[1]

Received: July 14, 2023
Accepted: September 4, 2023
Published: October 30, 2023

Keywords:
Tourism development policy;
Case study;
Hungary;
Hortobágy

Abstract: *Areas rich in natural resources make up most of their tourism attractiveness for visitors. The environmental aspect of Sustainability is essential when it comes to natural tourism attractions. Sustainability theory is comprised of a very broad framework that includes economic, environmental, and socio-cultural issues. following the "think globally – act locally" strategic argument. Real actions and change begin with each country and each community adapting their practices and setting up appropriate policies to regulate touristic activity. The present study sets out to describe the Tourism Development Policy of Hungary on the national, and local governance level, analyze its sustainability, and apply a case study method of qualitative and interpretative nature. A high impact of the local-level management of tourism attractions is observed in a given example of the World Heritage Site Hortobágy National Park, representing the final sustainability outcomes of the selected area.*

1. INTRODUCTION

Tourism activity has important social and environmental effects on the visited destinations and their communities and is a major force in the world's economy. Sustainable Tourism is a concept born from the growing concern about these social and environmental issues, and it has only been expanding since the very first protection societies were born in the early 1900s. Today, sustainability is at the very center of the tourism industry development and a possible key to the industry's recovery to pre-pandemic standards. Some countries are doing a better job than others, managing to make sustainability easy and profitable, and thriving from the development of an "Eco-Tourism" industry. This raises the question, however, of why other countries with a similar abundance of natural resources and protected regions of touristic attractivity have failed to do the same. In this study, the case of Hungary is examined.

After a short introduction Hungary's National Policy Framework is summarised, and to understand how the Sustainability of Tourism is managed at a local level, a World Heritage Site, the Hortobágy National Park was chosen and evaluated its sustainability actions. This showcases not only the way National policy translates locally but also might reveal the importance of the local community and businesses when it comes to the Sustainability of the Tourism sector. The present study is relevant because, in the context of rapid climate change, it is of utmost significance for the Tourism Industry to have up-to-date research upon which to build better policies and sustainable development practices. The methods can be applied to other destinations, as well.

[1] Budapest Business University, More Innovation Talent Orientation Research Group, Markó utca 29-31, H-1055 Budapest, Hungary

2. LITERATURE REVIEW

2.1. Sustainable Tourism Indicators

Sustainable Tourism definitions are varied, and its framework is wide, containing economic, environmental, and socio-cultural issues, as well as many sub-types of tourist activity. The leading management practices for Sustainable Tourism are those described by the United Nations World Tourism Organization (UNWTO). Their guidelines are the most agreed-upon and exhaustive, the most well-known of them being the 2030 Agenda for Sustainable Development, along with the Sustainable Development Goals (SDGs). Creating comparative indicators of sustainable tourism has always been a challenge. It becomes easier to measure if we focus only on one specific type of tourism, such as eco-tourism, and we see some authors create a framework for its evaluation (Stronza et al., 2019). However, Sustainable Tourism, in general, does not have only one definition and besides deciding on the indicators themselves, the problem lies in measuring them, too.

The European Union is the international organism that was closest to success in creating a list of comparative indicators for sustainable tourism that included all relevant components. However, these indicators have been created with European countries in mind, which are easier to compare because of the existence of a European System of Accounts (ESA) and other unified statistical databases that facilitate the study and comparison between any two European countries, like Romania and Croatia (Bob et al., 2010). Some authors have tried to apply these indicators in other non-EU countries, such as Serbia, with modestly successful results (Jovicic & Ilic, 2010). Other authors have pointed out that there are incompatibilities between what academics and policymakers need when developing a sustainable tourism indicator, so the indicators may become scientifically relevant but too complex to be operational, or that political aspects interfere with the scientific validity of the indicators (Tanguay et al., 2013). Because of this trade-off, the authors conclude that, while core indicators can be identified, these need to be adjusted to match the destination's policy framework to guarantee their usability. This is the strategy that will be applied in the present study.

2.2. Sustainable Tourism Policy

Sustainable Tourism policy design, implementation, and the role it plays both in Sustainable Tourism and in Tourism Development are current issues of great academic interest. There are studies about the relationship between sustainable tourism policies and other policies in general that may have prompted or inspired them. Interestingly, as one research found, oftentimes "Sustainable tourism-related policies co-evolved with, and through, policies for community well-being, actor participation, and sustainable development" (Mellon & Bramwell, 2016). This might mean that the success or lack thereof in developing a strong sustainable tourism sector may be connected not only to the specifically tourism-related policies but also to other more general ones, at the national level. This is one of the hypotheses that the present work will either help prove or refute. Finally, we do find many comparative works that study Sustainable Tourism Policy across different countries but as previously mentioned, most are done between European countries. A recent and comprehensive study is that of Wanner et al. (2020), who made an impressive assessment and comparison of European policies, frameworks, and plans related to sustainable tourism.

In the Hungarian case, tourism policy and tourism development have been well-researched, however mostly separately and in the specific area works, as well as published in Hungarian. We can find works specialized in one type of tourism and/or one region of Hungary. A case in point is the study of Lakner et al. (2018). The authors study the Hungarian sustainable rural tourism development and the potential methods and policies needed to further its progress and lessen environmental conflicts that tourism development often creates. This case is limited to a sub-type of tourism (rural tourism) and a regional sphere (Balaton Lake area). There are plenty of other works to be found that are specialized and focused on one of the many sub-types of tourism popular in Hungary, such as recreational and wellness (Csirmaz & Pető, 2015), geotourism (Bujdosó et al., 2015), or rural tourism (Panyik et al., 2011). In contrast, the present work aims to study the National Tourism Strategy and how it is applied to tourism in general, with the local-level case study being an aid to exemplify this policy and with sustainability as the main framework.

We must note that although the present study will focus on Tourism Policy, this is not the only factor affecting the development of tourism activity and its sustainability. Many studies focus on the visitor attitudes and/or the locals' perspective, as these groups can also have an impact on the development or lack thereof of sustainable tourism. Raffay-Danyi and Formadi (2022) recently published an analysis of visitor attitudes toward sustainability awareness-raising initiatives by using the Street Music Festival in Veszprém, Hungary. Interestingly, both participants and organizers of the event had a high awareness of sustainability needs but a low level of commitment to sustainability in their consumption practices.

Some indexes or rankings aim to score or measure many countries' sustainability. One of them is The Economist's "Sustainable Tourism Index" (2017), which was indeed comprehensive on its scale, with five categories studied (political and regulatory environment, environmental sustainability, socio-economic sustainability, economic sustainability, and travel and tourism industry). Relevant specific case study works on Sustainable Tourism Policy include that of Maxim (2016) about sustainable tourism implementation in urban areas of London, that of Mycoo (2006) about the use of policy tools such as the Green Certification in Barbados, and that of Muangasame and McKercher (2014) about the challenge of implementation of tourism policies in Thailand. The main goals of this study are developed in three stages: description, comparison, and analysis. Hungary's sustainable tourism policies at the national and regional levels are introduced.

3. RESEARCH METHODOLOGY

The present empirical study is of a qualitative and interpretative nature. Its objective is descriptive inference, to be understood as the systematic observation of a phenomenon to increase our understanding of it. The index is comprised of four subindexes, 14 pillars, and 90 individual indicators, distributed among the different pillars. Shown below (Figure 1) are the main indexes and pillars.

Travel and Tourism Competitiveness Index			
Enabling Environment	**T&T Policy and Enabling Conditions**	**Infrastructure**	**Natural and Cultural Resources**
- Business Environment	- Prioritization of Travel and Tourism	- Air Transport Infrastructure	- Natural Resources
- Safety and Security	- International Openness	- Ground and Port Infrastructure	- Cultural Resources and Business Travel
- Health and Hygiene	- Price Competitiveness	- TouristService Infrastructure	
- HR and Labour Market	- Envirinmental Sustainability		
- ICT Readness			

Figure 1. Travel and Tourism Competitiveness Indexes

Source: World Economic Forum, 2020.

The pillars of interest to the purpose of the present work are Environmental Sustainability and Natural Resources, under the indexes of "T&T Policy and Enabling Conditions" and "Natural and Cultural Resources" respectively.

The pillars are measured with a 1-to-7 scale. The survey data is derived from responses to the World Economic Forum's Executive Opinion Survey that range in value from 1 (worst) to 7 (best). To analyze the variable of the Sustainable Tourism Policy Framework, the following indicators are established:

- Policy at the National level: legislations, executive orders, proclamations, or policy plans at the national level.
- Policy at the Regional level: to get a sense of the policy and its impact on the local level, we will choose a National Park for each case to study the sustainability of their administration, functioning, and specific actions or activities.

The case of the Hortobágy National Park was selected to see how the National policy translates locally. Regarding the task of cultural protection, which is mainly focused on traditional herding practices, a semi-structured interview was arranged with Dr. Zsolt Molnár, botanist, ethnoecologist, scientist, academic, and leader in the field of Hungarian traditional ecological knowledge, to ask him about the scientific community's point of view regarding the sustainable development of Hortobágy.

Sustainable Tourism is considered "tourism that takes full account of its current and future economic, social, and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities" (UNWTO, 2020). It requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building (UNWTO, 2020). It is important to note that a country's overall sustainability may come from more than just the state's actions and policies, given that the private sector and the civil society's actions have huge impacts at the national level. In the Travel & Tourism Competitiveness Index, sub-index "Environment-related treaties in force", Hungary scored 27 out of 29 points, (World Economic Forum, 2019).

4. HUNGARY'S NATIONAL POLICY FRAMEWORK FOR SUSTAINABLE TOURISM

Hungary participated in the 2018 edition of the Voluntary National Reviews, and this remains the most updated review from the country. Hungary reported on all 17 of the 2030 SDG goals and their progress toward their achievement. Hungary included a final section describing the partnerships, dialogues, and consultations established as well as defined Stakeholder engagement on these projects. On the national level, we can identify several types of policies, projects, and initiatives. Hungary's tourism framework is fairly linear. The overall responsibility for tourism was recently transferred from the Ministry of National Development to the Cabinet Office of the Prime Minister, which shows the increasing importance of the sector for the country. The Hungarian Tourism Office is then tasked with the responsibility of the management and development of tourism. The main tasks are designing the tourism strategy and allocating the resources according to the budget, but the Office also engages with private, academic, and civil society sectors. The delivery of this strategy is underpinned by the following principles:

- Tourism developed in balance with local communities and the natural environment.
- An emphasis on family-friendly tourism facilities and experiences.
- A focus on accessible tourism, particularly for visitors with disabilities.

- A clear offer and comprehensive guide for visitors, including multi-lingual information, signage, etc.
- The creative and innovative use of technology through digital applications and support to businesses.

The values represented in these main principles are inclusion, innovation, and Sustainability in all three dimensions (NTDS, 2030). We can see social and environmental aspects of sustainability indirectly mentioned in the so-called "Horizontal intervention area H1: Cooperative tourism", as the goal is described as allowing visitors to live together with local communities in harmony with the environment. Economic considerations are also included, as providing high-quality, accessible experiences, utilizing new solutions, providing a favorable and inclusive career path, and contributing to local communities and national values.

Aside from the goals established, we see several pieces of legislation have been introduced in the country that promote social sustainability and fulfill the principle of accessibility mentioned in the NTDS as a central value. Such legislation could be very beneficial for the tourism sector, which typically offers flexible and diverse employment opportunities for different types of people and is used to provide a welcoming environment for all visitors and employees. The assessment criteria are divided into seven main categories, each with several indicators to which a weight and a score were assigned. The main categories are as follows:

1. Description of the document and elaboration process;
2. Situation analysis and programming;
3. The grade of enhancement on a sustainable approach to tourism in policies;
4. Participation of institutions in tourism management;
5. Sustainable development of tourism businesses, supply of services, and special enhancement addressing nature-protected areas;
6. Tourism strategy measures;
7. Financing and Implementation of the National Tourism Strategy.

The total score is divided by the maximum score and multiplied by 100 to obtain a final percentage in which the national strategy fulfills the given indicators. The final percentage for the Hungarian National Strategy is 44,66%, which earns the "intermediate" result.

The areas in which Hungary scored highest include, for example, the linkage of tourism to other sectors. Health policy, environmental policy, agriculture and forestry, regional and rural development policy. Another indicator fulfilled with maximum points relates to whether there are responsibilities determined for the strategy implementation for ministries, local and regional governments, tourism-based associations, the non-governmental sector, environmental institutions, etc. In contrast, one of the lowest points in the National Strategy was the lack of reference to important sustainable tourism agreements, conventions, protocols, or EU policy toward the development of sustainable tourism and nature conservation. Another area of improvement identified is the grade of incentive and encouragement to sustainable practices in tourism companies. In this case, Hungary has sustainable policy and relevant legislation for energy efficiency, water management, and waste management, but the legislation does not provide alternatives for the usage of these resources, nor do they stimulate sustainable practice with financial benefits.

5. THE CASE OF THE HORTOBÁGY NATIONAL PARK, A WORLD HERITAGE SITE

In the next section, the study focuses on a specific tourist attraction, a case of a protected natural area, - the Hortobágy National Park, a World Heritage site - to get some impressions of how the Sustainability of Tourism is managed at a regional or even local level. This might reveal the importance of the local community and businesses when it comes to the Sustainability of the Tourism sector.

Hortobágy National Park, the biggest National Park in Hungary, is located in the Hajdú-Bihar County, to the northeast of Hungary. The main goal behind the Park's creation was described in 1990 as the protection of the area's natural flora and fauna, the safeguarding of the migration and procreation of the region's birds, and the authentic preservation of the Hortobágy traditional way of life as well as their cultural values, practices, and historical monuments. The Hortobagy Park's attractions are many and varied. Amongst the cultural attractions, we find thermal and medicinal baths, museums, visitor centres, and cultural activities centres (such as ceramics, handcrafts, etc.). As for the natural sites, the animal reserves stand out, as well as the Tisza Lake, the Tiszakürt Arboretum, and the Cégénydányád Castle Park. (Tikász, 2004).

According to a study by Martonné Erdős and Vasvári (2012), there were twenty-one sustainable tourism development projects implemented in Hortobágy between the years 2000 and 2013. Amongst them, the authors emphasize the Eco touristic commercial products that are already generating a notable difference in the growth of touristic demand in the region, and they conclude that this development was made mostly within the sustainable development framework and guidelines.

An interview was carried out with a local scientist and researcher, an expert in the area. Interestingly, in Dr. Molnár's opinion, it is more difficult to protect a cultural heritage site than a natural one, due to the intangible nature of this type of heritage. Additionally, he considers the herding traditions preserved in Hortobágy to be in a precarious state, but not particularly due to the touristic activity. In this case, the expert expressed that tourism is not a strong threat to the ecological and cultural conservation of the park because the area is not fully open to the public, and the visits are limited and restricted to brief periods. "If it were a mountainous area, in which mountain hiking or cycling was practiced, and more infrastructure was needed, such as bathrooms, etc., the natural integrity would be more endangered. However, in Hortobágy the people do not walk too much, and the natural area of the park is extensive and restricted to the common public", explained the professor.

He believes that the protection policy in place, as well as the governmental actions, could be greater. In the first place, he outlines the fact that some local scientists, as well as governmental actors, prioritize the protection of wildlife over human traditions, even though the two are intrinsically connected. To his opinion, the Park could increment regulations that protect the traditional herding practices. For example, requiring herding to be done by a traditionally trained professional, or the use of electric fences. This modern practice eliminates the need for the shepherd and harms the preservation of traditional knowledge on the caretaking of the herd. On the other side, the centuries-old practices lack support, visibility, or marketing as a product of national artisanal quality. The communities themselves, according to Dr. Molnár, invite the shepherds to the traditional festivities, highlighting the importance of this figure, their traditional dress, in short, their symbolic appearance, over the knowledge that is the true value of the practice.

Lastly, the scientist commented on the need for better organization and unionization of the shepherds themselves to protect this immaterial good that is their knowledge and practices. Surprisingly, there is no shepherd's union either in Hortobágy or in Hungary itself that would serve to raise their voices, concerns, and claims for better working conditions and inclusion like there are in other countries. The shepherds do not participate in any committee or working group within the National Park despite being a group of major importance in the area. In countries like Australia or Canada, explains Dr. Molnár, it is a common practice for members of the shepherding community to be included and consulted in the decision-making process. These are the biggest areas of opportunity for the Hortobágy National Park concerning achieving better protection of its heritage, aligned with the standards of other countries with similar traditions.

6. CONCLUSION

It is vital that the countries create a cohesive, detailed, and clear national tourism strategy, at the national level. If sustainability in all areas is not made a priority, or if goals are set without a clear plan on how to achieve them, the country is likely to fail in establishing a clear destination image. Additionally, the country is most likely to succeed if deadlines are established, and if the progress is followed throughout the plan's execution. When it comes to the regional level, we conclude that the actions taken not only have a direct effect on how tourism develops but also on what kind of tourist is attracted which, in turn, affects the tourism destination. The suggestion would be to establish the so-called "Smart Goals", this is, goals that are specific, measurable, attainable, relevant, and time-based. It is encouraged and advised for the country to make use of international cooperation and communication in order to learn from others and apply solutions that work in similar countries.

At the regional level, we distinguish the importance of the smaller institutional actions that can create real change. The way that all National Parks studied were managed, made a notable difference in the impact of the visitors, especially in the environmental aspect. The most important and impactful practice observed was the visitor management strategy. Hungary is a good example of good conservation practices as well, both cultural and environmental. We highlighted particularly the numerous areas restricted to visitors as well as the well-defined "influence zone" or "buffer zone" that prevents negative impacts on the area. Locally, it is also important to distinguish between a tourism attraction whose main goal is to be a source of income, from a protected area that is part of the natural and cultural heritage and that also can serve as a tourism attraction. Because in the latter, there needs to be a priority on conservation, non-modification, and protection, rather than just attempting to mitigate the negative effects of mass visitation.

Reference

Bob, C., Ghita, S., & Saseanu, A. (2010). A comparative territorial study on Sustainable Tourism. Romanian vs Croatian case. In *Tourism & Hospitality Management, Conference Proceedings* (pp. 33-46).

Bujdosó, Z., Dávid, L., Wéber, Z., & Tenk, A. (2015). Utilization of Geoheritage in Tourism Development. *Procedia - Social and Behavioral Sciences, 188*, 316-324.

Csirmaz, É., & Pető, K. (2015). International Trends in Recreational and Wellness Tourism. *Procedia Economics and Finance, 32,* 755-762.

The Economist. (2017). The Sustainable Tourism Index: Enhancing the global travel environment. [Online] The Economist Intelligence Unit. Available at: https://eiuperspectives.

economist.com/sites/default/files/Sustainable_Tourism_Index.pdf [Accessed 18 March 2023].

Jovicic, D., & Ilic, T. (2010). Indicators of sustainable tourism. *Glasnik Srpskog geografskog drustva, 90*(1), 277-305.

Lakner, Z., Kiss, A., Merlet, I., Oláh, J., Máté, D., Grabara, J., & Popp, J. (2018). Building Coalitions for a Diversified and Sustainable Tourism: Two Case Studies from Hungary. *Sustainability, 10*(4), 1090. https://doi.org/10.3390/su10041090

Martonné Erdős, K., & Vasvári, M. (2012). HORTOBÁGY TURISZTIKAI FEJLESZTÉSEINEK EREDMÉNYEI ÉS HATÁSAI. *Földrajzi Közlemények, 136*(3), 293–305.

Maxim, C. (2016). Sustainable tourism implementation in urban areas: a case study of London. *Journal of Sustainable Tourism, 24*(7), 971-989.

Mellon, V., & Bramwell, B. (2016). Protected area policies and sustainable tourism: influences, relationships and co-evolution. *Journal of Sustainable Tourism, 24*(10), 1369-1386.

Muangasame, K., & McKercher, B. (2014). The challenge of implementing sustainable tourism policy: a 360-degree assessment of Thailand's "7 Greens sustainable tourism policy". *Journal of Sustainable Tourism, 23*(4), 497-516.

Mycoo, M. (2006). Sustainable Tourism Using Regulations, Market Mechanisms and Green Certification: A Case Study of Barbados. *Journal of Sustainable Tourism, 14*(5), 489-511.

NTDS. (2030). https://mtu.gov.hu/dokumentumok/NTS2030_Turizmus2.0-Strategia.pdf?v=0.157

Panyik, E., Costa, C., & Rátz, T. (2011). Implementing integrated rural tourism: An event-based approach. *Tourism Management, 32*(6), 1352-1363.

Raffay-Danyi, Á., & Formadi, K. (2022). Are we there yet? An analysis of visitor attitudes towards sustainability awareness raising initiatives. *Society & Economy, 44*(1), 102–118. doi: 10.1556/204.2022.00003.

Stronza, A., Hunt, C., & Fitzgerald, L. (2019). Ecotourism for Conservation? *Annual Review of Environment and Resources, 44*(1), 229–53.

Tanguay, G., Rajaonson, J., & Therrien, M. (2013). Sustainable tourism indicators: selection criteria for policy implementation and scientific recognition. *Journal of Sustainable Tourism, 21*(6), 862-879.

Tikász, E. (2004). Tourism-Based Analysis and Development Potentials in Hortobágy. *Acta Agraria Debreceniensis*, (13), 272-278.

UNWTO. (2020). Mujeres en Turismo en la Argentina. [Online] Tourism for SDGs. Available at: https://tourism4sdgs.org/research/mujeres-en-turismo-en-la-argentina/ [Accessed 20 May 2023].

Wanner, A., Seier, G., & Pröbstl-Haider, U. (2020). Policies related to sustainable tourism – An assessment and comparison of European policies, frameworks, and plans. *Journal of Outdoor Recreation and Tourism, 29*, 100-275.

World Economic Forum. (2019). The Travel & Tourism Competitiveness Report 2019: Travel and Tourism at a Tipping Point. Geneva: World Economic Forum.

World Economic Forum. (2020). Assessing Regional Opportunities and Challenges in the Context of COVID-19. Latin America and Caribbean Travel & Tourism Competitiveness Landscape Report. [Online] Available at: http://www3.weforum.org/docs/WEF_LAC_Tourism_Compet_Report_2020.pdf [Accessed 17 March 2023].

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.257

Emergence of Wine Destinations and Wine Products: For a Few Wine Experiences More

Patrik Kubát[1]

Received: June 15, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
Destination attributes;
Wine tourism;
Development;
Winescape

Abstract: *Wine destinations appeared as places where anyone can come to enjoy nature, food, cultural habits, food, and wine, whether they consume it or not. The intersection and combination of two different sectors (viticulture and tourism) became a new type of tourism and a new marketing tool to attract tourists, consumers, and customers to wine destinations as places of new experiences. Similarly, Sergio Leone had no idea of the story of the sequel to his famous Spaghetti Western. Just as wine destinations had no idea of the possible interconnection of different sectors and how this development would evolve. Was that development intended or was it made more spontaneously by actors on the side of supply and participants on the side of demand, or cooperation of both as prosumers? In retrospect, this development can be evaluated as natural, as evidenced by the continued interest in this phenomenon. The article is a kind of contemplation and discusses the emergence and development of wine destinations from a regional, national, and international perspective in the context of wine tourism. The method of synthesis is used to capture the connection of parts to a whole. The whole in this case is a wine destination composed of various attributes (as a destination), activities (as a product and services), people (as a place to work), and values (as a catalyst for emotions and experiences). The so-called research from the table includes both the theoretical controversy and a look at the current wine tourism and wine destinations from a different angle in the field of marketing, management, or sustainability.*

1. INTRODUCTION

In Europe is tourism more closely related to the development of the creative sector than in the previous periods of its development. It is not surprising that creative tourism is already the subject of scientific literature and offers tourists opportunities to develop creative abilities through active participation in learning about local special skills, traditions and unique qualities (Moritz et al., 2023). Interest in movie tourism is also stimulated by the supply side because movies attract a large number of tourists to destinations (Moritz et al., 2023).

Wine tourism and the emergence of wine destinations have become increasingly popular in recent decades, with significant growth at the regional, national, and international levels (Dixit, 2023). Regionally, wine destinations have emerged in various areas around the world that have a strong wine culture and production. In Europe, regions such as Bordeaux, Tuscany, and Rioja have long been associated with wine tourism, attracting visitors to their vineyards, wineries, and historic towns. In the Americas, regions such as Napa Valley, Willamette Valley, and Okanagan Valley have also become popular wine destinations, with a focus on boutique wineries, scenic landscapes, and local cuisine.

[1] Mendel University in Brno, Department of Marketing and Trade, Faculty of Business and Economics, Czech Republic

At the national level, governments and tourism boards have recognized the economic benefits of wine tourism and have invested in the development of wine destinations. For example, countries such as New Zealand, Australia, and Chile have developed national wine tourism strategies that promote their wine regions and create a cohesive brand identity (Kubát & Kerma, 2022). In the United States, the WineAmerica organization works to support and promote the American wine industry, including wine tourism (WineAmerica, 2012).

Internationally, wine tourism has become a significant contributor to the global travel industry, with a growing number of tourists seeking wine experiences in different parts of the world. Organizations such as the World Tourism Organization (UNWTO) have recognized the importance of wine tourism and have worked to promote sustainable wine tourism practices and cross-border collaboration. As wine tourism continues to grow, it will be important to maintain sustainable practices and support the cultural and environmental preservation of wine regions around the world (UNWTO, 2001).

Movie tourism is one of the most rapidly developing subsectors of creative tourism in the 21st century. Many studies have examined tourists' motivations and behaviors toward movie tourism, as well as tourists' psychological and emotional motivations, participation, and experiences (Moritz et al., 2023).

2. INTERCONNECTION

Movie and wine are linked in several ways. They share the ability to capture us and transport us (the participants) to different worlds. Both offer a form of escape that can be enjoyed alone or with friends, family, colleagues, neighbors, friends, etc. Both are often associated with relaxation and pleasure. Many people enjoy a glass of wine while watching a movie at home, or visit a vineyard to enjoy the scenery with a glass of wine. Furthermore, both can be cherished and appreciated for their complexity, depth, and nuance.

Both movies and wines have the power to create emotions and create experiences. Like movies, great bottles of wine can take us to different places and times, creating a memorable sensory experience. Both can tell stories. Movies can tell the story through plots, characters, and visuals; wine bottles can tell the story through origins, grape varieties, and the process of making wine, and it will be complemented by other activities in the context of the development of the wine tourism industry.

Movies and wines can also serve as links to connect and are catalysts for social interaction and socialization. Whether a gathering with friends to watch a movie or sharing a bottle of wine at a meal, both can facilitate social interaction and create a sense of community that can be an easy starting point for establishing friends, strengthening relations and creating new friends. In general, movies and wines are entertainment and leisure forms that can create unique and pleasant experiences.

3. FOR A FEW DOLLARS MORE

In general, "For a few dollars more" is a very important movie for several reasons. First, it is considered an essential work of Western genres, particularly the 1960s Spaghetti Western subgenre, which challenged traditional Hollywood Western conventions (Leone, 1965).

The movie's use of non-American actors, locations, and themes was a departure from the typical Western formula, and its exploration of moral ambiguity and antiheroism challenged the simplistic hero/villain dichotomy that had been a staple of the genre. Furthermore, the movie's innovative cinematography, including its use of close-ups and slow-motion shots, helped to establish new visual techniques that would go on to influence moviemakers for decades to come (IMDb, n.d.; Leone, 1965).

In addition, the movie's soundtrack, composed by Ennio Morricone, is considered a masterpiece and a symbol of movie history. The use of non-conventional instruments and techniques such as soaring guitar and the haunting whistle created a unique sound that perfectly complemented the movie's visual style. Overall, "For a Few Dollars More" was a major movie that influenced Western cinema, later moviemakers, and cinematographic art (IMDb, n.d.).

4. EMERGENCE OF WINE DESTINATION

The concept of a wine destination encompasses more than just the wine itself. It is a complex ecosystem that involves various attributes, activities, people and values that contribute to the overall experience of visiting a wine region (Dixit, 2023; Kubát & Kerma, 2022). Attributes refer to the physical and tangible elements of the wine destination, such as vineyards, wineries, and natural landscapes. These elements provide the backdrop for wine tourism activities and create a sense of place and identity for the destination. Activities encompass products and services offered to tourists, such as wine tastings, vineyard tours, and food and wine pairings. These activities are designed to provide visitors with unique and memorable experiences that highlight the best of the destination (Kubát & Kerma, 2022). People are also an important part of the wine destination, offering hospitality, expertise and passion, making the experience special. Winemakers, sommeliers, tour guides and staff from the hospitality industry all play a role in creating a friendly and informative environment for visitors. Value is an intangible element of the wine destination that creates emotional connections and experiences for visitors. These may include the region's history and cultural significance, the dedication and passion of winemakers and grape growers, and the sense of community and connection that is nurtured by wine tourism.

Wine destinations are not just about the wine itself, but about the whole package of experiences, emotions, and connections that are created through the interaction of all of these elements (Kubát, 2021). As wine tourism continues to evolve, it will be important to continue to develop and nurture each of these components in order to create truly exceptional wine destinations.

The development of wine destinations has been driven by a variety of factors, including the growth of the global wine industry, the increasing popularity of wine consumption and appreciation, and the desire for unique and authentic travel experiences. Wine destinations have evolved from simple wine tastings to immersive experiences that involve vineyard tours, food and wine pairings, cultural and historical tours, and even accommodation in vineyards and wineries (Hall et al., 2000).

5. EXPERIENCES, WHETHER FROM MOVIES OR WINE

At first glance, it may not seem like there is a direct connection between the movie "For a Few Dollars More", but also generally between movie and wine destinations. However, there are a few potential ways in which they could be connected:

i. Firstly, tourism and movie location: The movie was filmed in various locations in Spain, many of which have become popular tourist destinations for fans of the movie. These locations may also have vineyards or wineries nearby, which could contribute to the development of wine tourism in the region.
ii. Secondly, aesthetic experience: "For a Few Dollars More" is known for its innovative cinematography and use of visual and auditory elements to create a unique aesthetic experience for viewers. Similarly, wine tourism often involves experiencing the sensory elements of wine, such as taste, smell, and sight, as well as the aesthetics of the vineyards and surrounding landscapes.
iii. Thirdly, cultural and historical connections: The movie is part of the Spaghetti Western genre, which emerged in Italy in the 1960s and challenged traditional Hollywood Westerns. Italy is also known for its wine culture and has many wine regions that attract tourists. Similarly, many wine destinations have a rich cultural and historical background that is intertwined with the production and consumption of wine.

Overall, while the relationship between "For a Few Dollars More" and wine destinations is somewhat weak, there are some potential overlap points that can be further investigated, as explained in this paper. The connection between places, history and products can be the driver of the emergence of any kind of tourist destination.

6. CONCLUSION

Interconnections in various sectors such as wine, tourism, hospitality, and agriculture may have developed spontaneously as actors recognized the potential for collaboration and mutual benefit. For example, wineries may partner with local restaurants to provide a wine- and food-centric experience, and tourism commissions may work with farmers to promote agriculture and approach agriculture tourism. Overall, the development of wine destinations and their interaction with other sectors is probably the result of intentional planning and the spontaneous actions of both suppliers and users. As for the supply side, actors such as wine producers, tourist boards and local governments may deliberately seek to create wine destinations to promote their products and attract tourists. They recognized the potential of wine tourism to bring economic benefits to the region and worked to develop infrastructure and marketing strategies to do so. Tourists and wine enthusiasts are working to find unique experiences to contribute to the development of niche markets and thus contribute to the evolution of wine destinations. When they discover new wines and regions, they can share this information with others and help create excitement and demand for these destinations.

The development of wine destinations as new types of tourism and marketing tools is likely to be the result of conscious efforts by supply actors (wineries, tourism organizations, regional governments, etc.) and spontaneous actions by demand participants (tourists and wine enthusiasts). It is likely that the effort to cooperate between supply and demand will be to create and form the concepts of wine tourism and the present-day wine destination, working together as "prosumers".

Similarly, the development of the sequel to Sergio Leone's famous Spaghetti Western could be the result of both deliberate planning by the moviemakers and spontaneous creative decision-making during filming. Both factors can play a role in shaping the final product. In addition, the development of wine destinations and the creation of film sequels are complex processes involving many factors and actors. Although some planning has been involved, these developments are likely to have been shaped by a combination of intentional and spontaneous actions by the actors on the supply side and the participants on the demand side.

In general, the emergence and development of wine destinations is a positive trend for the wine industry and the tourism industry, bringing economic benefits to the region and creating memorable experiences for tourists. In addition, linking other sectors such as movie and wine tourism industry and other types of tourism could be beneficial to both sectors, implementing new activities in their normal patterns, and stimulating both sectors with new impulses that could be exchanged between the two parties. Interdisciplinarity could thus be a means to revitalize and develop all tourism destinations.

Acknowledgment

This paper was supported by the Internal Grant Agency of the Faculty of Business and Economics of Mendel University under grants IGA-PEF-DP-22-014.

References

Dixit, S. K. (2023). *Routledge Handbook of Wine Tourism*. https://doi.org/10.4324/9781003143628

Hall, C. M., Sharples, L., Cambourne, B., & Macionis, N. (2000). *Wine Tourism Around the World*. Butterworth-Heinemann.

IMDb. (n.d.). *For a Few Dollars More*. Retrieved from https://www.imdb.com/title/tt0059578/?ref_=ext_shr_lnk (Accessed on May 26, 2023)

Kubát, P. (2021). Wine Tourism and its Application in the Context of Localization and Implementation Factors. In *VI International Scientific Conference Challenges of Globalization in Economics and Business: Proceedings* (pp. 181-189). Ivane Javakhishvili Tbilisi State University. https://dspace.tsu.ge/handle/123456789/930

Kubát, P., & Kerma, S. (2022). Preconditions of Wine Tourism Development in Slovenia and the Czech Republic - Selected Aspects. In *6th International Scientific Conference EMAN 2022 - Economics & Management: How to Cope with Disrupted Times: Selected Papers,* (pp. 135-143). Association of Economists and Managers of the Balkans. https://doi.org/10.31410/EMAN.S.P.2022.135

Leone, S. (Director). (1965). *Per qualche dollaro in più* [For a few dollars more] [Motion picture]. Italy: Produzioni Europee Associati.

Moritz, P., Hrivnák, M., Mazúchová, Ľ., & Sándorová, Z. (2023). Who take a part on film tourism? The analysis of determinants of visiting film locations. *International Journal of Tourism Research*, 1–14. https://doi.org/10.1002/jtr.2573

UNWTO. (2001). *Gastronomy and Wine Tourism*. https://www.unwto.org/gastronomy-wine-tourism

WineAmerica. (2012). *The Wine Industry's Voice in Washington DC*. Retrieved from http://wineamerica.org/

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.263

The Advantages and Disadvantages of Virtual Travel

Anton Vorina[1]
Gašper Krže[2]

Received: April 4, 2023
Accepted: August 28, 2023
Published: October 30, 2023

Keywords:
Travel;
Virtual travel;
3D virtual reality;
Tourism;
Sustainability

Abstract: *This article explores the concept of virtual tourism and addresses four key questions: What is virtual travel? Can virtual travel replace real travel? What are the benefits of virtual travel? And what is the future of virtual travel?*

Virtual travel has been around in various forms since the 1850s when pictorial materials such as postcards were used to invite people to a destination. Today, the COVID-19 pandemic has accelerated the development of virtual reality technologies that attempt to replicate the tourist experience. However, while virtual tourism offers a sustainable alternative to traditional travel, it cannot provide a full sensory experience. Despite predictions that the virtual tourism sector will grow to $19 trillion by 2027, it is unlikely to replace real travel entirely. Nevertheless, virtual tourism has significant potential benefits, including a 94% reduction in carbon footprint, increased advertising opportunities, and improved accessibility for people with mobility impairments.

1. INTRODUCTION

The purpose of this article is to examine the concept of virtual tourism and answer important questions regarding its potential benefits and limitations. Specifically, we aim to answer the following four questions: Can virtual travel ever replace real travel or is it best seen as a complement to physical travel? What are the advantages and benefits of virtual travel, particularly in terms of sustainability and accessibility? What does the future hold for virtual tourism and what technological advancements can we expect to see in this field?

We explore the growing popularity of virtual tourism, which has been accelerated by the COVID-19 pandemic, and how it has the potential to serve as an alternative form of tourism during and after the pandemic. Additionally, we discuss the positive effects of virtual tourism in terms of sustainability, particularly in reducing carbon emissions and waste. Moreover, we examine the benefits of virtual tourism for people with disabilities or limited mobility who may not have the opportunity to experience physical travel. Finally, we consider the future of virtual tourism and the potential technological advancements that could enhance the user experience, such as 4D or 5D experiences. Overall, this article aims to provide a detailed analysis of virtual tourism, its benefits and limitations, and its potential future in the tourism industry.

This article draws on a range of sources, including Google Scholar, the Google browser, and the YouTube platform, to provide an analysis of virtual tourism from 2016 to 2023. There are also positive effects in terms of advertising, acceptance of others, and, most importantly, people with reduced mobility can also enjoy traveling, even if only virtually.

[1] Celje School of Economics, Higher Vocational College, Mariborska 2, 3000 Celje, Slovenia
[2] Erudio School of Sustainable Tourism, Litostrojska cesta 40, 1000 Ljubljana, Slovenia

2. LITERATURE REVIEW

The following is a comprehensive literature review on virtual travel in recent years.

Djurdjić (2016) explains that the development of visualization, particularly in virtual reality and spatial video, has led to the emergence of virtual tourism. This allows individuals to explore remote locations from the comfort of their own homes. Lazzarus (2020) also discusses the psychological aspect of virtual tourism, highlighting that it offers a realistic experience through the use of sound effects, music, text, and accompanying visuals.

Fredericks (2021) describes virtual tourism as an immersive experience that utilizes various technologies, such as virtual reality, still images, video, audio, narration, interactivity, and other multimedia formats to provide users with a destination experience that they cannot get through images or websites alone. However, Wein (2021) argues that virtual tourism cannot replace traditional tourism as it lacks the physical contact and experience that comes with visiting a destination in person.

Chen (2020) reports that virtual travel has grown in popularity by 60% since December 2020, as many individuals are unable to travel due to pandemic-related restrictions. However, the cost and discomfort associated with virtual reality equipment make it less appealing than real-life travel.

Bruce (2023) notes that virtual tourism offers accessibility to individuals who cannot afford to travel due to their social situation. Additionally, virtual reality tours provide tourists with a 3D preview of their destination, allowing them to plan their trip more effectively.

Skirka (2019) discusses the potential of virtual travel to replace real-life travel in the future, while also acknowledging its limitations. Bruce (2023) highlights the cost savings associated with virtual travel, as well as the positive impact on the environment.

Fromat (2022) argues that virtual travel is a sustainable alternative to traditional travel, as it does not contribute to greenhouse gas emissions. Tilly (2021) suggests that virtual reality can be used to enhance the travel experience by providing educational content, cultural exchange, and a glimpse of faraway destinations.

Finally, Lopez (2022) predicts that the global virtual tourism market value will grow (Figure 1) from 5 trillion dollars in 2021 to over 24 trillion dollars by 2027.

Overall, the literature suggests that virtual travel has grown in popularity, particularly during the pandemic, but it cannot replace the physical experience of traditional travel. However, virtual reality technology can enhance the travel experience, provide accessibility, and offer a sustainable alternative to traditional travel.

The article titled "Virtual Technology - A Game Changer for the Future of Travel?" examines the potential impact of virtual technology on the tourism industry, with a specific emphasis on the realm of business travel. The article suggests that virtual meetings may soon transcend the limitations of Zoom apps and allow attendees to participate as avatars in virtual space (Eagan, 2022).

According to researcher Sablich (2019) in the article "The Future Is Here, Almost: Virtual Travel Becomes More of a Reality," virtual travel trends will prioritize the experience, particularly in scenarios where showcasing certain aspects, such as the presentation of food in a restaurant, proves challenging.

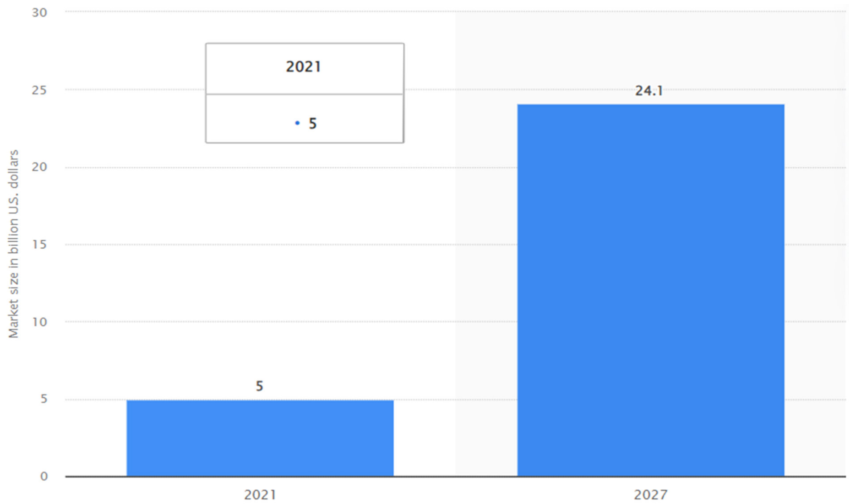


Figure 1. Market size of the virtual tourism industry worldwide in 2021, with forecast for 2027

Source: Lopez, 2022.

3. ANSWERING THE RESEARCH QUESTIONS

3.1. What is Virtual Travel?

Virtual tourism refers to the ability to visit remote locations from the comfort of one's own home through the use of visualization techniques, according to Djurdjić (2016). Lazzarus (2020) highlights the psychological aspect of the experience, noting that virtual travel can be achieved using sound, real audio recordings, and text. Fredericks (2021) discusses various types of virtual tourism, all of which share the common feature of interactivity.

Picture 1. Virtual Roma

Source: Kumar, 2020.

3.2. Can Virtual Travel Replace Real Travel?

Wein (2021) reports that the tourism industry has lost 4.5 trillion dollars and 62 million jobs worldwide in the last year. As a result, immersive experiences were developed to help the more than 2000 museums recover at least some of their losses. Although brands invested 64% in virtual experiences and gained over 50% of customers, they concluded that virtual tourism can never replace traditional tourism due to the psychological aspect of physically visiting a destination. Chen (2020), writing for the National Geographic travel guide, observes that despite the 90% closure of tourist destinations and increased use of virtual travel, the equipment necessary for realistic observation is expensive, heavy, and uncomfortable, resulting in an unrealistic depiction of the tourist destination.

Picture 2. Virtual vs. traditional
Source: Remote tourism (n.d.)

Skirka (2019) discusses the potential of virtual travel as a form of entertainment and advertising, noting that while users may experience some disorientation and nausea, it can still be a positive experience. However, Skirka emphasizes that virtual travel cannot fully replace the benefits of real travel and should not be viewed as a substitute. Nonetheless, the potential for virtual travel continues to expand and it may not be long before individuals can climb Mount Everest from the comfort of their own homes.

3.3. Where Are the Benefits of Virtual Travel?

Bruce (2023) notes that virtual travel is cost-effective compared to real travel and can provide a 3D virtual tour of a destination to help plan visits to local attractions. It can also help individuals with disabilities “travel” and experience destinations they might not otherwise be able to visit. Fromat (2022) argues in Luxiders magazine that virtual travel has a positive impact on the environment by avoiding the destruction of natural landscapes and reducing carbon footprints. Tilly’s (2021) blog highlights the educational content and improved communication between people of different nationalities that virtual reality provides, making it a powerful tool for advertising and marketing purposes.

3.4. The Future of Virtual Tourism?

Lopez (2022) predicts that virtual tourism will grow from $5 trillion in 2021 to over $24 trillion in 2027. Eagan (2022) describes the evolution of virtual business travel from Zoom meetings to virtual worlds where users interact with avatars. Sablich (2019) emphasizes the importance of focusing on the experiential aspect of virtual travel to make it more competitive with traditional travel.

Picture 3. Benefits of virtual travel
Source: Tilly, 2021.

Picture 4. The future is here
Source: Bruce, 2023.

4. CONCLUSION

Extensive research has been conducted on the topic of virtual travel, resulting in numerous articles, papers, and blogs. It is evident that virtual tourism has been around in various forms since the 1850s when the first photograph was taken, and it has evolved to its current form, where video content can be accessed on wearable devices. Despite its growth, virtual tourism cannot replace real tourism, as the primary psychological aspect of not physically being at the destination remains a significant motivator for travelers.

However, the virtual travel market is expected to grow by $19 trillion from 2021 to 2027, highlighting the priority destinations place on its development. Over 2000 museums and sites worldwide have utilized virtual travel during and after the pandemic, indicating its sustainability as a travel option. The benefits of virtual travel include reduced costs, lower carbon footprint, improved ecosystem, and increased accessibility for individuals with disabilities. Additionally, it can be utilized for educational purposes and bridging cultural gaps.

The future of virtual tourism lies in the growth of global revenues, with experts predicting virtual business journeys where individuals will choose avatars for virtual meetings. However, to compete with real tourism, there is a need to improve the user experience, potentially incorporating senses such as taste and smell to make it more realistic.

Overall, virtual travel is in full swing and expected to increase in popularity, providing an alternative means of travel for those unable to physically travel or seeking a more sustainable option.

References

Bruce, D. (2023). *The Rise of Virtual Reality in Tourism: Benefits and Examples*. Knowledgenile. Retrieved on January 3, 2023 from https://www.knowledgenile.com/blogs/the-rise-of-virtual-reality-in-tourism-benefits-and-examples/

Chen, A. (2020). Is virtual travel here to stay, even after the pandemic subsides?. *National Geographic*. Retrieved on January 4, 2023 from https://www.nationalgeographic.com/travel/article/can-virtual-reality-replace-real-tourism-during-pandemic-and-beyond

Djurdjić, V. (2016). Virtualni turizem. *Journal of Monitor turizem*. Retrieved on January 3, 2023 from https://www.monitor.si/clanek/virtualni-turizem/173223/

Eagan, K. (2022). Virtual technology – a hype or the future of travel? *Tourism Review*. Retrieved on January 5, 2023 from https://www.tourism-review.com/travel-tourism-magazine-is-virtual-reality-the-future-of-travel-article2784

Fredericks, L. (2021). The Complete Guide to Virtual Tourism, 2021. *Cvent Hospitality*. Retrieved on January 4, 2023 from https://www.cvent.com/en/blog/hospitality/virtual-tourism

Fromat, E. (2022). Virtual Tourism: The Sustainable Way To See The World. *Luxiders Magazine*. Retrieved on January 3, 2023 from https://luxiders.com/virtual-tourism-the-sustainable-way-to-see-the-world/

Kumar, M. (2020). *Virtual Roma. 13 Brilliant Virtual City Tours You Can Take From Home*. Retrieved 21.1.2023 from https://travel.earth/13-brilliant-virtual-city-tours-you-can-take-from-home/

Lazzarus, L. (2020). Everything You Need To Know About Virtual Travel. *The Travel: Lifestyle*. Retrieved on January 3, 2023 from https://www.thetravel.com/what-is-virtual-travel/

Lopez, A. M. (2022). Global virtual tourism market value 201-2027. *Statista*. Retrieved on January 5, 2023 from https://www.statista.com/statistics/1312254/virtual-tourism-market-size-worldwide/

Remote tourism. (n.d.). Virtual vs. traditional. Retrieved 21.1.2023 from https://visitfaroeislands.com/en/about1/marketing-development-campaigns/remote-tourism

Sablich, J. (2019). The Future Is Here, Almost: Virtual Travel Becomes More of a Reality. *The New York Times*. Retrieved on January 5, 2023 from https://www.nytimes.com/2019/02/22/travel/virtual-reality-airlines-restaurants-travel.html

Skirka, H. (2019). The reality of virtual travel: could it replace actual holidays? *The National*. Retrieved on January 5, 2023 from https://www.thenationalnews.com/travel/2019/02/06/the-reality-of-virtual-travel-could-it-replace-actual-holidays/

Tilly, S. (2021). Benefits of Virtual Reality in Tourism: How to Integrate VR in Your Tours and Activities. *Orioly*. Retrieved on January 3, 2023 from https://www.orioly.com/benefits-of-virtual-reality-in-tourism/

Wein, J. A. (2021). Virtual tourism will never replace traditional travel. *Tourism Review*. Retrieved on January 3, 2023 from https://www.tourism-review.com/virtual-tourism-has-grown-in-popularity-news12020

Additional reading

Armstrong, M. (2016). *The Worldwide Virtual Reality Market Is Set To Be Huge*. Acquired 21.1.2023 from website https://www.statista.com/chart/6677/the-worldwide-virtual-reality-market-is-set-to-be-huge/

The Guardian. (2009). *The birth of tourism*. Retrieved on January 3, 2023 from https://www.theguardian.com/travel/gallery/2009/oct/30/photography-cultural-trips-history

Lopez, A. M. (2023). *Market size of the virtual tourism industry worldwide in 2021, with forecast for 2027*. Retrieved 5.1.2023 from https://www.statista.com/statistics/1312254/virtual-tourism-market-size-worldwide/

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.271

The Use of GIS Technologies in the Monitoring Grapevine Plantation

Slave Camelia[1]
Man Carmen Mihaela[2]

Received: April 15, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Keywords:
Agriculture;
Management;
Wine;
Plantation;
Precision

Abstract: *Precision agriculture represents a management approach for the entire agricultural area of a county, in this case, Ialomita county. Precision agriculture uses geographic information technology, positioning satellite data (GNSS), remote sensing and proximal collection of data. Precision agriculture is an agricultural management concept based on the observation, measurement and control of crops. Another term used to describe precision agriculture is the term crop management. Precision agriculture uses information technology to ensure that the soil and crops receive exactly what they need in the quantities required for health and productivity over time. Also, this ensures profitability, sustainability and protection of the environment, which is why it presents only benefits. In the near future using information technologies will play an increasingly important role in agricultural production and resource management.*

1. INTRODUCTION

The concept of precision agriculture appeared in the early 80s in the United States of America. Precision agriculture uses the technology offered by geographical information systems in agriculture, maximizing the results obtained in the vineyards. Automation brings a lot of benefits, by processing data, creating topographic maps, and checking the state of the soil and plantations. Precision agriculture and the technology offered by geographic information systems have become indispensable, even more so when we talk about their impact on the monitoring of vineyard plantations in Romania.

Precision agriculture includes three basic components:
1. Acquisition of data at appropriate scale and frequency;
2. Data analysis and interpretation;
3. Implementation of management measures at the appropriate scale and time (Anisi et al., 1998).

Geographical Information Systems offer programs intended for spatial analysis and data. With the help of the software, data can be obtained on the size and quality of the crop and the factors that affect the development of plants. These factors include soil fertility, disease, pest and weed control, rainfall distribution, temperature, altitude, etc. Moreover, GIS technology ensures planning actions, necessary to eliminate the factors that can limit the use, number, or quantity of chemical preparations in agriculture, primarily, pesticides by preventing their application, when not it is necessary (Todiraş, 2003).

[1] University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania
[2] University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania

Hopkins (2015) defined Geographic Information Systems software as intended to coordinate the data generated at different times. This software provides the interpretation of geographic data to create maps of the study areas.

Relationships in the database are given in coordinates on the Globe (UTM, longitude/latitude or grid X, Y coordinates). GIS technology combines digital maps, functions from the database of data, and viewing geographic information. GIS software cannot confirm the quality of the entered data and the interpretation of the obtained values. This function requires an operator familiar with the digital information used (Anisi et al., 1998).

There are two categories of data in GIS:

1. Spatial data – are those that describe geographic forms and specific positions in the database. Data spatial are represented by points, lines, or polygons.
2. Attributive data – describe spatial data. For example, the boundary of the study area shows a polygon and it may have attributes characteristic of the land, insolation, or irrigation.

Biological data can also be considered as assignment data of the study area.

The practice of precision agriculture represents great potential for the practice of agriculture. More and more farmers are turning to the latest technologies in the field (automated GPS systems and monitors, sensors, monitoring and control systems, etc.) to ease their work and achieve outstanding results with controlled distributed resources. Precision agriculture used in viticulture can be used for the entire area of Ialomita county, as well as in individual vineyards (Hedley, 2013; Santesteban et al., 2012).

2. MATERIAL AND METHODS

2.1. Study Area

Ialomiţa County is one of the oldest territorial administrative units of Romania. It is located in the southeast, occupying a part of the eastern subdivision of the Romanian Plain, Bărăganul. The total area of the county is 4453 km$^{2.}$ of which: 3,736 km^2 is agricultural area, 258 km^2 area with forest vegetation, 389 km^2 is land for other purposes, and almost 69 km2 is unproductive land. The county is at the intersection of old trade routes that still give it the character of a transit area between the East (via Constanţa) and the West. Ialomiţa County is crossed by the lower course of the river with the same name, but also by the Danube River, between its branches Borcea and Old Danube, there is a large area with high agricultural potential.

The county seat is the municipality of Slobozia. The county borders the counties: Prahova, Buzău, Brăila (to the north), Constanta (to the east), Călăraşi (to the south), and Ilfov (to the west). (Figure1)

The relief of Ialomița County bears the imprint of its location in the eastern division of the Romanian Plain – Bărăganul, being dominated by extensive tabular fields and meadows. About 65% of the county's surface belongs to the Bărăganu Plain, 15% to the Danube Meadow, 9% to the Vlăsia Plain and 11% to the Ialomița meadow and the Argeș-Buzău rambling plain. From a geological point of view, the area of Ialomița is a marine lacustrine sedimentation basin. Altitude-wise, the relief in the county unfolds in steps from north to south and from west to east.

The highest area - 91 m is on the Hagienilor Plateau, near the village of Platonești, joined by Piscul Crăsani - 81 m and Câmpul Grindu - 71 m. The minimum altitude is 8 m, in the north of the dammed enclosure of Borcea Arm (Mutihac, 1990).

The climate of Ialomița county is temperate-continental characterized by very hot summers and very cold winters, by a relatively large annual and diurnal thermal amplitude, and by precipitation in small amounts. The average annual duration of sunshine is between 2.100 and 2.300 hours, and the annual number of days with clear skies is 110.

Figure 1. Map of the study area

From a pedological point of view, in Ialomița county there are the following types of soils: chernozems (193,000 ha.), cambic soils (25,000 ha.), brown-reddish chernozems (1,000 ha.), alluvial soils (36,000 ha.) and saline soils - solonceacura and solonets (800 ha.). Most of the soils are favorable for agriculture, constituting one of the riches of Ialomița county. The lithology is mainly made up of loess and loessoid deposits of alluvial-colluvial and secondary aeolian origin. The soils of the area belong to the chernozeomic mollisols of the plateaus: chestnut chernozems, cambic chernozems, argiloiluvial chernozems, leached chernozems, peaty and gray soils, regosols, psammosols and anthropogenic soils. The physical and chemical properties of these types of soil recommend them as very favorable for grapevine culture (Rusu & Niță, 2004).

In broad terms, the wine-growing region is a large-scale habitat that presents the same characteristics in terms of ecological conditions, soil types, assortment of varieties and maintenance technologies applied to vines and winemaking (Virgin Wine Online, n. d.).

The study area is part of the “Danube Terraces”. The “Danube Terraces” are located in the southern part of Romania, on the left side of the Danube River, starting from Zimnicea town, which is part of Teleorman county (the most southern wine-growing center of the country) and ending with Insuraţei - Brăila county, which is located in the east of the Bărăgan Plain.

The quality of the wines with the Geographical Indication “Terasele Dunării” is ensured by the geographical environment, with its natural and human factors, the natural conditions encountered here being among the most favorable for the cultivation of vines. The wine-growing region of the “Danube Terraces” includes two vineyards, Ostrov (Constanța county) and Greaca (Giurgiu County), to which are added 4 independent wine centers: Giurgiu (Giurgiu County), Zimnicea (Teleorman County), Feteşti (Ialomiţa County) and Insuraţei (Brăila County). The Ostrov vineyard also includes the Ostrov, Băneasa, Oltina and Aliman wine centers. All these vineyards and wine centers are characterized by somewhat similar features, determined by the geological structure and production directions (Mutihac, 1990). (Figure2)

The main form of relief on which the vine plantations are cultivated is the terrace, and the transition to the next terrace is made through a slope with southern exposure, without erosion processes. The Danube Terrace System constitutes a distinct geomorphological unit and had as its cause the accumulation of loessoid deposits and the phenomenon of continuous uplift of the Burnaz Plain. The relief of the region is therefore made up of flat terrace surfaces and slopes, including terrace fronts, towards the Danube valleys, but also includes a plain area parasitized by wind-swept sands (Insuraţei). Most of the wine plantations are located on the lower step and the slopes of its Danube slope and the slopes, torrential valleys arranged in terraces. The altitude at which the plantations are located is low and does not exceed 150 m.

The wine-growing region of the “Danube Terraces” is characterized by a transitional temperate continental or excessively temperate continental climate, with a high caloric balance, large amplitudes (77.7°C) of the air temperature (with warm summers and frosty winters), quantities of relatively low rainfall, with torrential rains in the summer and periods of drought sprinkled throughout the year, but also with influences due to the proximity of the Danube river and the lakes in the area, which determine the simultaneous accumulation of sugars, anthocyanins and tannins. Some of the highest values of heliothermic resources in the country are found here. The winds influence the vegetation and the production differently, the masses of strongly continentalized air during the vegetation period positively influence the ripening of the grapes and therefore the quality of the wines obtained.

The average annual temperature is 10.9°C (-1°C in January and +22°C in July), the average temperatures during the growing season are between 10.5-22°C, the sum of the temperatures in the period of vegetation registering a multi-year value between 3451°C (Insuraţei) and 3861°C (Zimnicea). The highest temperature values during the summer are recorded in the wine-growing centers of Giurgiu and Zimnicea, where the average maximum temperature in August is 29.9°C, but it can also reach values of 42.9°C this month. The conditions of microclimate and relief with microslopes cause temperatures in winter to drop relatively frequently and up to -10-18°C (absolute minimum of -34.8°C), except for the Ostrov vineyard, which benefits from longer winters mild with minimum extremes as low as -24°C.

3. SPATIAL ANALYSIS OF THE STUDY AREA

For the execution of maps, geographic data was used for extraction for the analysis of the elements. Images SRTM Shuttle RadarTopography - The Mission to Map the World, [Available online] URL: http://dds.cr.usgs.gov/srtm/, at 30 and 90 m resolution, vector data Corine Land Cover - European Environment Agency, 2010, Corine Land Cover 2000 seamless vector data - version13 (02 / 2010), [Available online] URL: http://www.eea.europa.eu/data-and-maps/data-#c12=corine+land+cover+version+13. (used to land use map and subsequently to make susceptibility calculations), generic data sets vector of Romania, (2009), [Available online]| URL:http://earth.unibuc.ro/download/romania-seturi-vectorial

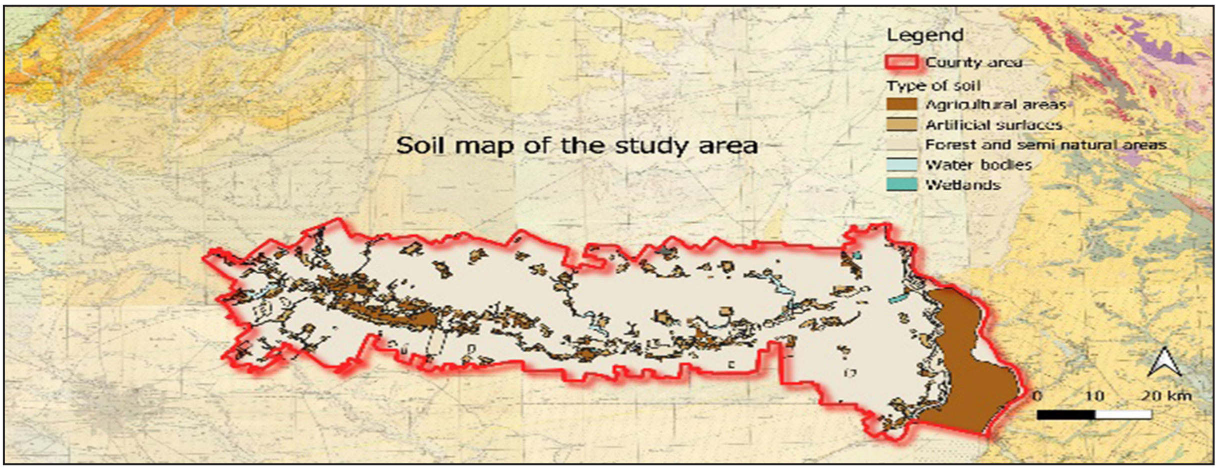


Figure 2. Soil map of the study area

Tables 1 and 2 show the productions obtained in Ialomita county, according to the statistical data provided online by the National Institute of Statistics. The analyzed period is 2015 – 2021.

According to the data provided by the National Institute of Statistics (Table 1): the most productive year was 2017 with a production of 5862 kg/ha. The year in which the lowest production was recorded is 2021. It is also observed that there is a sharp tendency to decrease production starting in 2018.

From Table 2 we can see that the highest production was obtained in 2017 both in the private sector and the individual sector. In the case of hybrid vines, it was found that 2017 was the most productive year. The year 2021 is considered to have the lowest production regardless of the form of ownership.

Table 1. Average production of grapes per hectare

Vineyard	Year						
	2015	2016	2017	2018	2019	2020	2021
	UM: Kg/ha						
	Kg	Kg	Kg	Kg	Kg	Kg	Kg
Total vineyard on fruits	3916	3778	5862	3929	3637	3540	3080
Grafet vineyard on fruits	4014	2354	5579	5078	3490	4624	4600
Hybrid vineyard on fruits	3914	3808	5868	3909	3639	3532	3070

Source: National Institute of Statistics, 2021.

Table 2. Total grapes production by property forms (tonnes per year)

	Forms of ownership	2015	2016	2017	2018	2019	2020	2021
Vineyard	Total	12344	11894	18414	12050	11725	11413	9859
	Private sector	12344	11894	18414	12050	11725	11413	9859
	Individual farms	12175	11832	18252	11889	11634	11320	9858
Vineyard on the fruits	Total	277	153	318	259	178	118	92
	Private sector	277	153	318	259	178	118	92
	Individual farms	111	93	158	99	87	86	92
Hybrid vineyard on the fruits	Total	12067	11741	18096	11791	11547	11295	9767
	Private sector	12067	11741	18096	11791	11547	11295	9767
	Individual farms	12064	11739	18094	11790	11547	11234	9766
Table grapes	Total	49	38	90	49	40	64	43
	Private sector	49	38	90	49	40	64	43
	Individual farms	49	38	75	34	32	32	43
Wine grapes	Total	12295	11856	18324	12001	11685	11349	9816
	Private sector	12295	11856	18324	12001	11685	11349	9816
	Individual farms	12126	11794	18177	11855	11602	11288	9815

Source: National Institute of Statistics, 2021.

4. CONCLUSION

Precision agriculture is starting to gain more and more ground, becoming a branch of traditional agriculture. Precision agriculture has technologies offered by geographic information systems, it also uses different types of sensors that can provide data in real-time, use of agricultural surfaces through satellites, remote sensing, drones, GIS software, soil mapping, etc.

Precision agriculture is correlated with agricultural land resource management, and land use planning, including assessment and interpretation of soil information, land use, integrated with agroclimatic resources, needs crops and other environmental factors, which influence the production potential, to determine limits and potential of agricultural production (Todiraş, 2003).

Varieties of grapes for wine grown in the wine-growing region of The Danube Terraces: Crâmpoşie, Feteasca Regală, Feteasca Albă, Riesling Italian, Riesling de Rhin, Pinot Gris, Pinot Blanc, Sauvignon, Chardonnay, Băbască Gri, Aligoté, Traminer Roz, Romanian Incense, Muscat Ottonel, Cabernet Sauvignon, Cabernet Franc, Merlot, Malbec, Negru de Drăgaşani, Pinot Noir, Black Girl, Black Girl, Sangiovese, Syrah, Dornfelder, Rebo.

References

Anisi, M., et al. (1998). A survey of wireless sensor network approaches and their energy consumption for monitoring farm fields in precision agriculture. In: Precision Agriculture. [online], Apr 2015, Vol. 16 Issue 2, pp. 216-238.

Hedley, C. (2013). The role of precision agriculture for improved nutrient management on farms. *Journal of the Science of Food and Agriculture*. https://onlinelibrary.wiley.com/doi/10.1002/jsfa.6734

Mutihac, V. (1990). Structura geologică a teritoriului României, Editura Tehnică, Bucureşti.

National Institute of Statistics. (2021). https://insse.ro/cms/en

Rusu, I., & Niță, L. (2004). Pedologie – Solurile României, Editura Eurobit, Timișoara.

Santesteban, L. G., Guillaume, S., Royo, R. B., & Tisseyre, B. (2012). Are precision agriculture tools and methods relevant at the whole-vineyard scale? Precision Agric. DOI 10.1007/s11119-012-9268-3

Todiraş, V. A. (2003). Agricultura de Precizie: Tehnologii geospațiale și informaționale în managmentul culturilor agricole. Chișinău, ISBN 9975-78-230-2, PP. 179

Virgin Wine Online. (n. d.). Romanian Wine Regions. https://www.virginwines.co.uk/hub/wine-guide/wine-regions/romanian-wine-regions/

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.277

Food Waste on Restaurant – A Circular Economy Approach

Jelena Jevtić[1]
Mirjana Antonijević Nikolić[2]
Dragana Ilić Udovičić[3]

Received: April 22, 2023
Revised: September 11, 2023
Accepted: September 14, 2023
Published: October 30, 2023

Keywords:
Food waste;
Management;
Restaurant;
Circular economy

Abstract: *Food waste is a serious environmental and economic problem. Some studies suggest that about 1/3 of the food produced for human consumption is wasted, amounting to about 1.3 billion tons per year. Considering the economic aspect, food waste means money losses, both for individual units and national economies. The circular economy is a general term that encompasses all activities that reduce, reuse, and recycle materials in the processes of production, distribution, and consumption. Organic components of food waste are of interest for further use because they contain large quantities of highly valuable molecules.*

This paper aimed to show that food waste from restaurants represents a resource that can be incorporated into other processes, which are the basic principles of the circular economy. Food waste in catering is caused by inadequate procedures, poor organization, or insufficiently trained workers, as well as specific and changing consumer demands. The circular economy model strives to return food as much as possible to the production chain and considers waste as a resource and raw material. Some possibilities are presented in this paper.

1. INTRODUCTION

Food waste is cited as a serious economic and environmental problem. The results of the conducted studies show that about 1/3 of the food produced for human consumption is wasted, which amounts to about 1.3 billion tons per year (FAO, 2011; Sakaguchi et al. 2018). It amounts to economic losses of $940 billion per year (FAO, 2015). Food consumption and waste generation are expected to increase as the world population increases (Tamasiga et al., 2022).

Food waste can be found at home (households) as well as in different segments of the food service sector, which is consumed outside the home (hospitality), for example, catering, canteens (in schools, businesses, hospitals, etc.), in hotels and restaurants. According to data from the European Environment Agency, food waste generated in households, retail and wholesale accounts for 61% of municipal waste (Pokimica et al., 2019). This type of waste is a worldwide problem (Okumus et al., 2020) and has an impact on the environment (Rios, 2015).

Along with rapid industrialization and population explosion, an increasing amount of municipal solid waste (MSW) is gradually becoming one of the significant bottlenecks limiting the sustainable development of the economy, environment and society (Heidari et al., 2019).

[1] Academy of Professional Studies Šabac, Department of Medical and Business-Technological Studies, Šabac, Serbia
[2] Academy of Professional Studies Šabac, Department of Medical and Business-Technological Studies, Šabac, Serbia
[3] Academy of Professional Studies Šabac, Department of Medical and Business-Technological Studies, Šabac, Serbia

Efficient sorting and separation of waste is a basic strategy for municipal waste and most of it is an effective way to increase the recovery rate of solid waste (such as the EU requirement of 65% recovery by 2030) (Calabrò & Satira, 2020). The MSW production rate is approximately 170 million tons per year in China (Zhou et al., 2014), of which 55% is biodegradable waste, compared to only 15.1% in the USA (Mukherjee et al., 2020).

For example, as an environmental leader in Asia area, more than 92% of municipalities have source-separated collection programs in Japan (Asano et al., 2011). Only 1% of MSW was a sanitary landfill after source separation. However, it took Japanese residents considerable time and effort to sort recyclable waste at home (Anh et al., 2020).

2. THEORETICAL BACKGROUND

Food waste can be categorized as waste that can be avoided (waste that is edible or potentially edible) and that cannot be avoided ("unavoidable food waste" waste that is not edible under normal circumstances) (Papargyropoulou et al., 2014). According to the food waste hierarchy (Figure 1), prevention of food waste is the most desirable option that can be achieved in the early stages of the food supply chain by avoiding the creation of excess food. The next preferred option for avoidable food waste that meets human consumption requirements is reuse through food-sharing arrangements and donations. Further options for avoidable food waste are recycling into animal feed, or composting as a secondary option. When recycling options are exhausted, the next preferred option is the treatment of food waste with energy recovery, such as anaerobic digestion. Sanitary landfilling is the least preferred option for food waste management (which is not allowed under the EU Landfill Directive, unless the waste undergoes pre-treatment) (Papargyropoulou et al., 2014.).

Figure 1. The food waste hierarchy
Source: Papargyropoulou et al., 2014.

In the CEVES, 2019 study commissioned by GIZ, significant business potentials for waste from the HORECA sector were determined. According to this study, about 40,000 tons of food waste is generated in Serbia every year. Currently, 99% of this waste is landfilled without any treatment (GIZ, 2019).

Even though food waste represents one of the most challenging economic and environmental issues of the 21st century, it also provides a vast array of valuable resources (Tamasiga et al., 2022).

In contrast to the business model based on the so-called linear economic system (take-waste-dispose), because both raw materials and products after use are irreversibly turned into waste that is disposed of in landfills, the circular economy (CE) model strives to maximize their return a part to the production chain and consider waste as a raw material (Borrello et al., 2017). This concept implies waste reduction through new business models, product design, greater production efficiency, changed consumer habits, extended product life, but also greater use of waste through increased recycling and almost eliminated disposal of waste in landfills (Bogetić et al., 2021). The aspiration is towards the sustainable use of resources and the elimination of waste (GIZ, 2019).

The first article on this was only published in 2015. Since then, there has been an increase in broader interest in circular economy and food waste (Tamasiga et al., 2022). The transition from a linear to a circular economic system requires a major change in the existing economic system. According to the European Environment Agency (2019), this transition is "a society-wide process, involving different interest groups and largely dependent on the emergence of innovations in technology, social practices, organizational forms and business models (GIZ, 2019).

Research conducted by the organization Food Loss + Waste Protocol in 1200 business locations in 700 companies and 17 countries shows some successful business practices in hotels and restaurants (Food Loss and Waste Protocol, 2018, 2019).

The Association of Hotels, Restaurants, and Cafes in Europe (HOTREC, 2017) and the European Federation of Food Banks (FEBA) are continuously educating stakeholders on ways to reduce food loss and waste from the hospitality industry's supply chains (Camilleri, 2017). HOTREC promotes responsible food production and consumption behaviors among its members, including small and medium-sized enterprises (SMEs) (Camilleri, 2021).

The main goal of using the circular economy is the regeneration of devastated natural resources, the retention of raw materials in use, and the extended life of products, and not to contribute to pollution. In Serbia, in total during the year, restaurateurs purchase 123.000 tons of food, of which 20% are immediately discarded because they are inedible parts (shells, skins, bones, etc.) and another 15% remain uneaten on plates and thrown away (United Nations Development Programme - Serbia, n.d.). However, as much as 99% of the waste generated by catering establishments ends up in landfills, where ethane and carbon dioxide are released into the air. This waste can be used in the production of biodiesel and bioethanol, animal feed, electricity from biogas, composting, etc. This type of waste can be used again in the economy to create new value and, which is particularly important, and employ new workers in environmental protection jobs. However, a major problem is the lack of infrastructure, from special containers for waste separation to adequate sanitary landfills. Serbia has only 10 sanitary landfills and more than 120 municipal ones that do not even meet minimum standards. In addition, there are as many as 2170 illegal landfills (although it is estimated that there are more than 3500) located near populated areas and watercourses (United Nations Development Programme - Serbia, n.d.). In practice, the biggest producers of food waste have been public institutions, first of all, health institutions, then facilities from the hospitality sector (Živković et al., 2021).

The goal of the research was to find out what the waste management strategy looks like in catering establishments in our country, to examine the methods and procedures that create the largest amount of food waste and to contribute to raising awareness in order to encourage them to engage in circular economy approaches. The results presented in the paper represent only one part of the research.

3. MATERIAL AND METHODS

The data for this research was gathered in hotels and restaurants in the area of Šabac. A total of 30 catering facilities participated, 6 hotels and 24 restaurants. Percentage-wise, according to the number of employees and according to the number of meals, catering kitchens in which the research was conducted are small capacity 33.3%, medium 46.66%, and large 20%. The research was conducted during November and December 2022 on a smaller sample (pilot research) using a questionnaire that served as an indicator of the adequacy of the sample size, the comprehensibility of the questions and the answers offered.

The method of field research that has been applied is the user survey method in the form of a structured survey using a questionnaire. The questionnaire was distributed via the Internet (using the program Google Drive).

The preliminary analysis showed that the questions were logically conceived and clear for the respondents, but following the plan, the sample size should be increased in the next phase of the research. The answers to the questions were given by the employees in the kitchen - cooks and chefs.

The questionnaire consisted of two parts. The first part of the questionnaire included questions regarding the socio-demographic characteristics of the respondents (gender, age, level of education, position and work experience). The second part of the questionnaire included questions related to waste from certain foods. When compiling the questionnaire, a review of the relevant literature was made. The questionnaire was created based on the determinations from the research model and based on other research with similar topics. In the second part of the questionnaire, the respondents were asked to respond to the statements offered by rating on a scale (Likert scale) from 1 to 5 (1 - do not agree at all, 2 - partially disagree, 3 - undetermined, 4 - partly agree, 5 - completely agree) mark the degree of agreement with the statements offered regarding the food waste disposal process. The obtained data were processed with descriptive statistics in Microsoft Office Excel.

4. RESULTS AND DISCUSSION

Of the total number of respondents, men make up about 73% and women about 27%. Most of the respondents are younger, up to 37 years of age. The level of education that they reported is usually high school and vocational studies around 75%. When asked what position they work in, 36% are junior cooks, F&B managers 27% and head chefs 18% of the total number of respondents.

Respondents answered a question related to the amount of food thrown away at the end of the shift. The results of the survey show that restaurateurs in the area of Šabac do not measure the amount of food waste they produce and these values were obtained based on the assessment of employees. According to their opinion (40%), 11 to 20 kg of waste is most likely thrown away at the end of the shift every day (Figure 2).

When asked where the most waste is generated, restaurateurs stated that the most food waste is generated as leftover food on a plate and food loss during preparation – food discarded during food preparation and cooking (e.g. damaged products, burnt food, leftover bread crumbs, fruit and vegetable peels, fruit cores, egg shells, bones, coffee grounds).

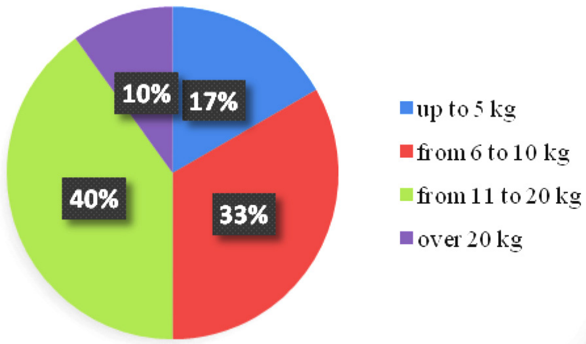


Figure 2. The amount of food that is wasted at the end of the shift, employee assessment
Source: Authors

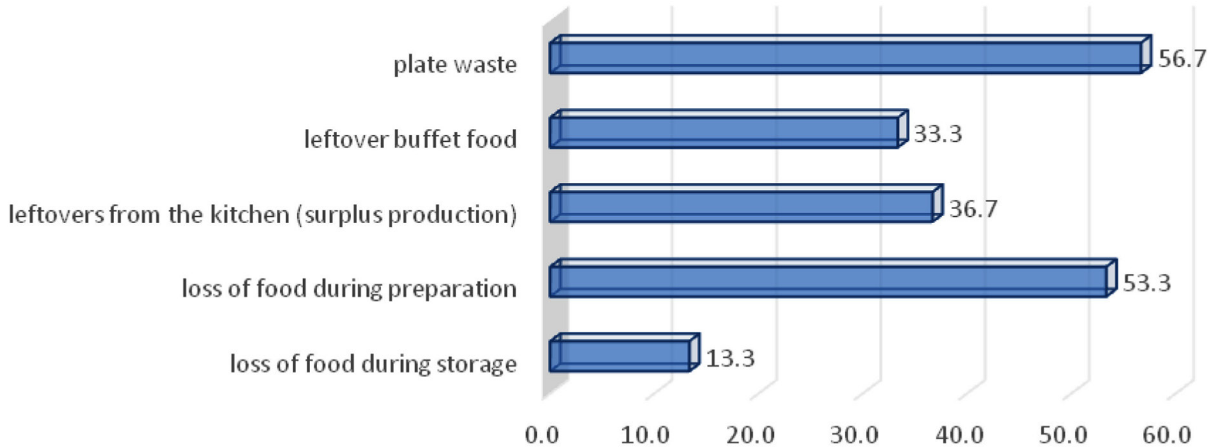


Figure 3. Where is produced food waste the most
Source: Authors

The most common causes of wasted food in the restaurant service sector include excessive portions and leftovers on plates, It would be desirable to favor the quality and presentation of food rather than abundant portions.

Excess food that is prepared can potentially be donated or given edible leftovers to restaurant employees and thereby influence the reduction of waste. In the structure of waste, according to the opinion of the employees in the kitchen, there are significant amounts of waste from the processing and preparation of vegetables and fruits (Figure 4).

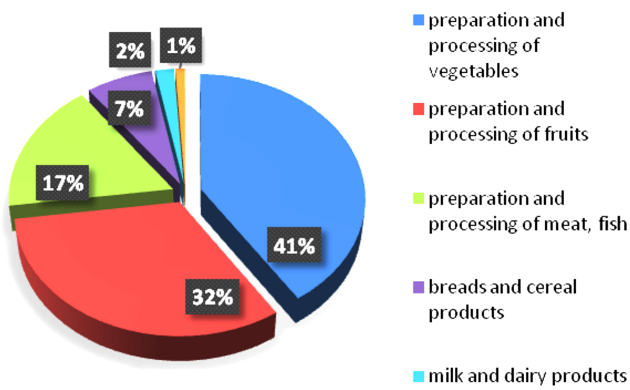


Figure 4. Morphological composition of food waste in the kitchen
Source: Authors

Kitchen waste is mostly raw food and can be used for industrial purposes. Food waste can become the substrate for feeding bio-refineries (Borrello et al., 2017), where biological materials are converted by degrees into bio-chemicals, plastics, medicines and fuel through cascading processes.

5. FUTURE RESEARCH DIRECTIONS

After the conducted research, questions remain and are asked that can be a trigger for some other research that would include: in addition to the sociodemographic characteristics of the respondents, psychographic characteristics.

Research can also be based on determining the possibility of catering facilities applying some form of proper waste disposal, but with special reference to limiting factors, availability of means for using recycling containers and training of employees. Also, subsequent research can be conducted on a larger sample in the Mačva district.

6. CONCLUSION

Measuring the amounts of occurring food waste, staff and customer education and preparing meals with portion sizes that are not too large are some of the possibilities for reducing waste. Reducing food waste has many positive environmental and socio-economic ramifications. Food waste may be used as feed for livestock and fish, as human food, as well as for the production of fertilizers.

This research suggests that hospitality could implement many responsible initiatives by introducing preventive measures and recycling practices to curb food loss and the generation of waste.

References

Anh, H. Q., Watanabe, I., Minh, T. B., Tue, N. M., Tuyen, L. H., Viet, P. H., & Takahashi, S. (2020). Polychlorinated biphenyls in settled dusts from an end-of-life vehicle processing area and normal house dusts in northern Vietnam: Occurrence, potential sources, and risk assessment. *Science of The Total Environment, 728*, 138823. https://doi.org/10.1016/j.scitotenv.2020.138823

Asano, Y., Saito, T., Ito, Y., Shiomi, K., Hirose, H., Matsumoto, T., Aoi, S., Hori, S., & Sekiguchi, S. (2011). Spatial distribution and focal mechanisms of aftershocks of the 2011 off the Pacific coast of Tohoku Earthquake. *Earth, Planets and Space, 63*(7), 669-673. https://doi.org/10.5047/eps.2011.06.016

Bogetić, S., Đorđević, D., Ćočkalo, D., Đorđević, L., & Bakator, M. (2021). Cirkularna ekonomija i izazovi globalnog tržišta. *Ecologica, 28*(101), 65-71. https://doi.org/10.18485/ecologica.2021.28.101.11

Borrello, M., Caracciolo, F., Lombardi, A., Pascucci, S., & Cembalo, L. (2017). Consumers' Perspective on Circular Economy Strategy for Reducing Food Waste. *Sustainability, 9*(1), 141. https://doi.org/10.3390/su9010141

Calabrò, P. S., & Satira, A. (2020). Recent advancements toward resilient and sustainable municipal solid waste collection systems. *Current Opinion in Green and Sustainable Chemistry, 26*, 100375. https://doi.org/10.1016/j.cogsc.2020.100375

Camilleri, M. A. (2017). "The rationale for responsible supply chain management and stakeholder engagement", J*ournal of Global Responsibility, Vol. 8* No. 1, pp. 111-126. https://doi.org/10.1108/JGR-02-2017-0007

Camilleri, M. A. (2021). Sustainable Production and Consumption of Food. Mise-en-Place Circular Economy Policies and Waste Management Practices in Tourism Cities. *Sustainability, 13*(17), 9986. https://doi.org/10.3390/su13179986

European Environment Agency. (2019). Retrieved February 5, 2023, from https://www.eea.europa.eu/data-and-maps/indicators/main-anthropogenic-air-pollutant-emissions/eea-2011

FAO. (Food and Agriculture Organization of the United Nations). (2011). Global Food Losses and Food Waste – Extent, Causes and Prevention. Rome: FAO. https://www.fao.org/home/en

FAO. (Food and Agriculture Organization of the United Nations). (2015). Food Wastage Footprint & Climate Change. Rome: FAO. https://www.fao.org/home/en

Food Loss and Waste Protocol. (2018). Retrieved February 25, 2023, from https://www.flwprotocol.org/wp-content/uploads/2018/04/Report_Hotels_The-Business-Case-for-Reducing-Food-Loss-and-Waste.pdf.

Food Loss and Waste Protocol. (2019). Retrieved February 10, 2023, from https://www.flwprotocol.org/wp-content/uploads/2019/02/Report_The-Business-Case-for-Reducing-Food-Loss-and-Waste_Restaurants.pdf

GIZ. (2019). Procena efekata uvođenja cirkularne ekonomije. Otpad od hrane u HORECA sektoru (Assessment of the effects of the introduction of the circular economy Food waste in the HORECA sector). https://www.giz.de/en/downloads/giz-sr-smernice-za-lanac-vrednosti-orijentisan-ka-ce-horeca.pdf

Heidari, R., Yazdanparast, R., & Jabbarzadeh, A. (2019). Sustainable design of a municipal solid waste management system considering waste separators: A real-world application. *Sustainable Cities and Society, 47*, 101457. https://doi.org/10.1016/j.scs.2019.101457

HOTREC. (2017). European Hospitality Industry Guidelines to Reduce Food Waste and Recommendations to Manage Food Donations. Hotels, Restaurants and Cafes in Europe. Retrieved February 11, 2023, from https://www.hotrec.eu/wp-content/customer-area/storage/

Mukherjee, C., Denney, J., Mbonimpa, E. G., Slagley, J., & Bhowmik, R. (2020). A review on municipal solid waste-to-energy trends in the USA. *Renewable and Sustainable Energy Reviews, 119*, 109512. https://doi.org/10.1016/j.rser.2019.109512

Okumus, B., Taheri, B., Giritlioglu, I., & Gannon, M. J. (2020). Tackling food waste in all-inclusive resort hotels. *International Journal of Hospitality Management, 88*, 102543. https://doi.org/10.1016/j.ijhm.2020.102543

Papargyropoulou, E., Lozano, R., K. Steinberger, J., Wright, N., & Ujang, Z. b. (2014). The food waste hierarchy as a framework for the management of food surplus and food waste. *Journal of Cleaner Production, 76*, 106-115. https://doi.org/10.1016/j.jclepro.2014.04.020

Pokimica, B., García-Conesa, M. T., Zec, M., Debeljak-Martačić, J., Ranković, S., Vidović, N., Petrović-Oggiano, G., Konić-Ristić, A., & Glibetić, M. (2019). Chokeberry Juice Containing Polyphenols Does Not Affect Cholesterol or Blood Pressure but Modifies the Composition of Plasma Phospholipids Fatty Acids in Individuals at Cardiovascular Risk. *Nutrients, 11*(4), 850. https://doi.org/10.3390/nu11040850

Rios, C. M. (2015). Innovation in organisational control systems: toward greater accountability. International *Journal of Business Performance Management, 16*(4), 373. https://doi.org/10.1504/ijbpm.2015.072235

Sakaguchi, L., Pak, N., & Potts, M. D. (2018). Tackling the issue of food waste in restaurants: Options for measurement method, reduction and behavioral change. *Journal of Cleaner Production*, *180*, 430-436. https://doi.org/10.1016/j.jclepro.2017.12.136

Tamasiga, P., Miri, T., Onyeaka, H., & Hart, A. (2022). Food Waste and Circular Economy: Challenges and Opportunities. *Sustainability*, *14*(16), 9896. https://doi.org/10.3390/su14169896

United Nations Development Programme - Serbia. (n.d.). https://www.rs.undp.org

Zhou, D., Zhao, S., Liu, S., Zhang, L., & Zhu, C. (2014). Surface urban heat island in China's 32 major cities: Spatial patterns and drivers. *Remote sensing of environment*, *152*, 51-61. https://doi.org/10.1016/j.rse.2014.05.017

Živković, D., Petrović, P., & Protić, M. (2021). Upravljanje otpadom od hrane kao deo cirkularne ekonomije: uticaj na ugostiteljstvo i hotelijerstvo. *Ecologica, 28*(102), 187-192. https://doi.org/10.18485/ecologica.2021.28.102.7

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.285

"Starry" Gastronomy. Michelin Stars

Man Carmen Mihaela[1]
Slave Camelia[2]

Received: April 15, 2023
Accepted: July 15, 2023
Published: October 30, 2023

Keywords:
Classification;
Food;
Gastronomy;
Guide;
Restaurants

Abstract: *Just like the Grammy Awards for music, the restaurant industry also has a star of recognition and that is the Michelin star. The dream of any chef is not necessarily to cook the best food but to have it appreciated by as many people as possible. And the appreciation doesn't come anyway but through a really special distinction: one star, two... or even three. We are, of course, talking about the famous Michelin stars which distinguish the best restaurants in the world. But how many know the story of the Michelin Guide, this Oscar of restaurants, and how it came to be made by a tire manufacturer?*

1. INTRODUCTION

Michelin stars are the classification system used in the guide with the same name to classify restaurants around the world. The Michelin star is an idea that has been known for more than 100 years and is part of the tire manufacturer's marketing strategy. From 1889, when the first Michelin Guide was launched, up to now there have been important changes in the publication. Firstly, it served to provide pieces of advice on routes, eating places, accommodation and service stops for cars. It focused mainly on France, the country where the initiative was born. The idea of the guide was to encourage people to buy cars (there were less than 3,000 cars in France at the time) and, implicitly, to increase the demand for tires.

The first edition of the Michelin guide was printed in 35,000 copies and was distributed free of charge: drivers could pick up the guide from hotels, restaurants, or mechanic workshops anywhere in France. In the following years, the Michelin brothers produced such guides for other areas of the French-speaking area such as Belgium (1904), Algeria, and Tunisia (1907), but also the Alps-Rhine area, including Northern Italy, Switzerland, Bavaria, and the Netherlands (1908), Germany, Spain and Portugal (1910), Great Britain (1911), North Africa, Southern Italy and Corsica (1911). In 1909, the first English version of the Michelin guide for France was also published.

The outbreak of the First World War stopped the publication of the guide, and in the years 1918-1920, older editions of it were republished. Only after that did the Michelin brothers decide to no longer distribute the guide for free, starting from the idea that people won't respect or trust something free. Then there were other changes in the format of the guide: from now on

1 University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania
2 University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Mărăști Blvd, Bucharest, Romania

restaurants were listed by certain categories and advertisements were abandoned. When they realized that the most popular section of the guide was the restaurant section, the Michelin brothers hired a team of inspectors to visit places and write reviews. As of today, these inspectors remained anonymous. In 1926, in response to restaurant owners who began feeling uneasy about not being listed in the guide, the rating star was established.

In 1936, a rating star was adopted, with the minimum being 1 star and the maximum being 3. According to the Michelin guide, stars are awarded according to one criterion: the food on the plate and anything else. But this food is carefully analysed and all elements are taken into account: the quality of the ingredients, the mastery of the chef, the creativity, the value of money and the compliance with the culinary standards.

The annual publication of the Michelin guide was again suspended during World War II, with one exception: in 1944, at the express request of the Allies, the French guide from 1939 was republished. The edition was printed in Washington especially for armies that landed in Normandy in June 1944 because the Michelin guide had the best maps of French territory. The publication of the guide was then resumed in the month in which the war ended, in May 1945 (Easter, 2022).

2. MATERIAL AND METHODS

Michelin imposes a maximum of 2 stars that can be awarded to a restaurant. Thus, step by step, the creation of brothers André and Edouard Michelin established itself as the maximum recognition in the restaurant sector, to transform the life of any chef and restaurant. While the focus is on starred restaurants, or stars as they are called, the guide also includes restaurants that - even if they don't have stars - are of superior quality.

The recognition process with a Michelin star is in the hands of 85 people. These people are called inspectors who, although they work in the utmost secrecy, have the knowledge and training to evaluate any restaurant in the world. Each inspector is responsible for eating at an average of 800 restaurants in his area. About 1,100 visits are made within this process, an experience that can reach over 30,000 km traveled during these visits. Inspectors have a reputation for being incorruptible, strict, and direct in their work. They have a clear idea of what they have to do and will do it without any problems (Lane, 2016).

But what does it take for a restaurant to be recognized with a Michelin star? The restaurant must be part of the community. It should not be an isolated entity. Inspectors take into account where the ingredients are purchased from and the restaurant's relationship with farmers and producers in the area. The use of indigenous, ingredients in each region in the preparation of dishes is also evaluated. Cheese and meat types must also come from the community. The idea is to promote sustainable development in the area where the establishment is located. A cuisine with international recognition needs quality ingredients. The fruits and vegetables used in Michelin-starred kitchens must meet the criterion of freshness, and the diversity of the dishes is defining.

The trend of the presentation is taken into account by each inspector. Based on the expression "we eat with our eyes", particular attention is given to the shape chosen to present each dish. The ingredients must be pleasant to eat and the arrangement on the plate must be close to perfection.

The chef's creativity and innovation give each restaurant's cuisine a unique personality. This is one of the most appreciated aspects by inspectors. The differentiating element of a dish, which is prepared by hundreds of restaurants all over the world, is an aspect to be taken into account.

Chefs, like scientists, must never stop improving their craft. Otherwise, they will stagnate, as the world evolves. It is important to get in touch with the world of cooking, to go to the root, to explore new cooking methods, new ingredients, and new ways of preparing, among other things. When a chef transforms a common dish, the inspectors of the Michelin Guide welcome it with pleasure (Brown, 2018).

As we have noticed above, a restaurant in the world can receive a maximum of three stars. The Michelin Stars Awards is an annual process. Stars are not for life, so if a restaurant is downgraded in terms of quality it will also lose its Michelin recognition (Easter, 2022).

Each star of the Michelin fame has the following meaning:

- 1 star: Very good cuisine. Firm proposal. It's worth stopping there to eat. When a restaurant receives a Michelin star it means that it serves the best quality food. And of course, in the spirit of the Guide, it means it's worth a stop on your already planned route.
- 2 stars: Exceptional cuisine. If the restaurant is not on your route, it is worth a detour to taste its dishes. Two Michelin stars mean that the restaurant that receives this rating promises exceptional food and it is worth a detour from the planned route. Two-star Michelin restaurants are even rarer, with just 414 worldwide at the start of 2020. Two-star restaurants offer consistent quality cuisine and are staffed by top chefs in the business. These are likely to be well-known establishments in the foodie world, and many of them will have long waiting lists for reservations.
- 3 stars: The highest category is awarded to restaurants with a unique proposal. Just eating there is worth the trip, no matter the distance. Three Michelin stars... that's a rarity. This qualification implies a unique cuisine, a unique menu and a complete dining experience. Therefore, this restaurant deserves a dedicated trip. That means you can plan your vacation around this culinary experience. As you might expect, booking a table in a Michelin 3-star restaurant can only be done many months in advance. Inspectors look at the quality, technique, personality and consistency of the food and ignore decor or service. The three-star restaurants offer the pinnacle of fine dining and are led by chefs recognized worldwide for their contribution to the culinary arts. These restaurants are as good as they come, offering a once-in-a-lifetime dining experience, and are always in high demand.

All three-star restaurants are remarkable in their way, but the restaurant that has retained this distinction the longest is *Les Prés d'Eugénie*, which first received three stars in 1977, and has been creating renowned cuisine in the entire world. *Les Prés d'Eugénie* is owned by patron chef Michel Guérard, one of the founders of nouvelle cuisine, and his wife Christine, and is part of a spa complex in the small French town of Eugénie-les-Bains.

To get a star, the restaurant is visited several times by local inspectors. A restaurant is evaluated according to five criteria: the quality of the ingredients used, the know-how of the food preparation, the association of flavours, the quality-price ratio and the consistency of the culinary standards, according to the visit of an inspector. In each of their visits, the results must be consistent. The first Michelin star requires the visit of 4 inspectors. To achieve the two stars, they receive up to 10 visits from national and French inspectors. To obtain the third star, because of the significance of this distinction, the establishment must be visited by inspectors from the respective country, but also by international inspectors. The result must be unanimous. If one of them does not agree, the restaurant will not get the third star.

An important element for the Michelin Guide, in the era of communication, is the opinion received from hundreds of people by e-mail. Their feelings are considered when planning a visit to any space.

Regardless of the country, region, or location of the restaurant, if you deserve this distinction, you will receive it. The Michelin Guide brings together the best of world cuisine and concentrates all its efforts on this point. This rule is evidenced by the recognition, in 2016, with a Michelin star, of the *Hong Kong Soya Sauce Chicken Rice and Noodle Restaurant* in Singapore, a street food stand that prepares dishes to the tune of 2 dollars. The preparation of the Hong Kong-style soy chicken, cooked more than 35 years ago by Chan Hon Meng, surprised the inspectors who awarded him this recognition. However, the restaurant lost its Michelin star in 2021, but it was later included in the Michelin Bib Gourmand. In addition to stars, the Michelin Guide awards the Bib Gourmand, which identifies good restaurants with prices for all budgets, and the Michelin Plat, the latest distinction for quality cuisine (Brown, 2018).

The guide is reader-centered and aims to provide the most up-to-date information for everyone. To do this, each award and recognition is reviewed annually. At the end of the year, restaurants can be ratified in their current position, receive new recognition and – in the worst case – lose part of those received.

Do Michelin stars transfer with chefs to new restaurants if they leave, and do restaurants lose stars if a new chef takes over? Considered by many to be the ultimate mark of culinary excellence, Michelin stars are awarded to restaurants seen as a particularly high standard. Rated restaurants can receive one, two or three stars, and this distinction is highly desired by chefs around the world, but chefs who run multiple restaurants can hold more than three stars. Chefs do not and cannot obtain Michelin stars. Michelin stars can only be awarded to a restaurant and not to an individual chef. The guide even states this: “There is no Michelin-starred chef”. If a chef leaves a restaurant, he also does not have the right to take the stars with him. On the contrary, the stars are considered the result of collective teamwork and remain attached to the restaurant where they were obtained. The record for most Michelin stars belonged to the late chef Joël Robuchon, who once held 32 Michelin stars in total. He is followed by Alain Ducasse, with 19 Michelin stars. He owns three restaurants with three Michelin-star restaurants in three different cities. In third place, we find Pierre Gagnaire, who has 14 Michelin stars, and the first one he got at the age of 26. The restaurant that bears his name, located on Rue Balzac in Paris, has managed to maintain its 3 stars for 20 years.

In France, gastronomy is something “sacred”. The country has always enjoyed an undisputed culinary reputation with various gastronomic styles from the French tradition. Over the centuries, French cuisine has evolved without straying from tradition, thanks to great chefs. Lovers of gourmet dishes do not hesitate to make trips to discover the delights of the chefs with a star in France. Many French chefs have stars in the Michelin Guide, their restaurants are references in French and world gastronomy. In fact, France holds the first place in the top ten countries with the most Michelin stars, with 662 restaurants, followed by Japan in second place, with 544 restaurants. Italy is the third place, with 372 restaurants, and Germany is the fourth place, with

323 restaurants. Spain ranks fifth, with 226 restaurants, followed by the United States, with 215 restaurants, and Great Britain, with 174 restaurants, in sixth place. Belgium, with 138 restaurants, the Netherlands, with 117 restaurants and Switzerland, with 111 restaurants complete the list of the top ten countries that have received the most Michelin stars (The MICHELIN Guide – France, 2023; MICHELIN Guide, 2023; Restaurant Imaginaire, 2023).

According to the Michelin Guide, worldwide there are 2563 one-star Michelin restaurants, 480 two-star restaurants, and only 129 three-star restaurants. The first positions in the Michelin restaurant list are occupied by locations in Spain (Azurmendi Restaurant), New York (Per Se and Le Bernardin restaurants), Macau (Robuchon Au Dôme Restaurant) and Great Britain (The Fat Duck Restaurant) (MICHELIN Guide, 2023).

As for the city with the most Michelin stars in the world, for 13 years the record has been in Tokyo: a title that is earned by hosting the incredible number of 226 Michelin-starred restaurants, listed in the 2020 Michelin Guide in Tokyo.

The Tokyo Michelin Guide has an impressive number of additions from year to year and currently has 11 restaurants with 3 Michelin stars, 49 restaurants with 2 Michelin stars and 166 restaurants with 1 Michelin star. The Japanese capital offers an eclectic mix of cuisines expressed at the highest level, from Chinese to French, and continues to represent a favorite destination even for foodies for its concentration of fine restaurants, putting it ahead of other iconic cities such as Paris, which occupies the second position, with 119 starred restaurants, Kyoto, with 108 restaurants, Osaka, with 98 restaurants and New York, the fifth Michelin starred city, with its 76 restaurants.

3. CONCLUSION

Fine gastronomy is a call for travels and discoveries. The starred chefs are among the most talented cooks and put all their know-how at the service of original and delicate cuisine. You then taste a menu elaborated from a great reflection and realized with a lot of technique, and discover dishes that arouse as much desire as curiosity. The star chef has mastered the art of sublimating the products we consume daily and associating them with rarer and less well-known foods. This subtle and tasty cuisine offers a unique culinary journey, where the authenticity, freshness and quality of the products are guaranteed. Eating in a starred restaurant is, therefore, an opportunity to live a unique experience, to discover original dishes, recipes and ingredients. Each chef is then distinguished by his personal touch, his technique and his implementation. French, Italian, or even African gastronomy, all cuisines are opportunities to travel around the world.

References

Brown, D. R. (2018). The Restaurant Manager's Handbook: How to Set Up, Operate, and Manage a Financially Successful Food Service Operation. Atlantic Publishing Group Inc.

Easter, G. (2022). *Michelin Star Restaurant Plating Demystified: A Source Book of Methods and Recipes: A Source Book*, Paperback Editions.

Lane, C. (2016). The Cultivation of Taste: Chefs and the Organization of Fine Dining. Oxford University Press.

MICHELIN Guide. (2023). https://guide.michelin.com

The MICHELIN Guide – France. (*2023). Restaurants (Michelin Red Guide),* Michelin Editions. Restaurant Imaginaire. (2023). https://www.restaurant-imaginaire.fr

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.291

The Success of the Informed Consent in the Context of the Negotiations

Lyubov Ivanova[1]

Received: May 8, 2023
Accepted: October 5, 2023
Published: October 30, 2023

Keywords:
Informed consent;
Information;
Communication;
Business negotiation

Abstract: *The purpose of the paper is to highlight the utmost importance of informed consent in the context of business negotiations. Informed consent is a new topic in business, imposed by globalization that began in the 1990s. Informed consent is found in all spheres of economy and public life. Informed consent is important in the field of medicine to obtain the patient's approval for a procedure that affects his life. For the client of the bank, this means getting to know all the conditions for raising a loan or depositing funds before the client signs the contract.*

Informed consent is giving consent to use the mobile operator's services most conveniently and acceptably for the client. In the field of tourism, this type of consent means the willingness to sign a contract on the consumption of proposed tourist services before their implementation. In all of the above situations, informed consent means that one party enters into a negotiation relationship with another, verbally or in writing, and gives permission to the other to use their data to obtain a certain type of service, in exchange for which the service provider undertakes to comply with certain ethical principles concerning the client or recipient and respect for his identity, without the right to export information.

The paper discusses the key components in the negotiation process, on which the effective finalization of the set goal depends, namely discussion, conflict, communication techniques as the main element in negotiations, the influence of the physical space, compliance with ethical principles and respect for multiculturalism.

1. INTRODUCTION

Informed consent originates in medicine and means a principle in medical ethics and medical law and media studies that a patient must have sufficient information and understanding before deciding on their medical care. Relevant information may include risks and benefits of treatment, alternative treatments, the patient's role in treatment and the patient's right to refuse treatment. In most systems, healthcare providers have a legal and ethical responsibility to ensure that the patient's consent is informed. This principle applies more broadly than healthcare intervention, for example, to conduct research and to disclose an individual's medical information. In medical or official circumstances, express consent by signature – usually relied upon as legal – regardless of actual consent is the norm. This is the case with certain procedures, such as a do-not-resuscitate directive that the patient signed before the onset of their illness (Woodruff, 1989).

The term informed consent has evolved in a historical and social context beyond ethical compliance laws. In the context of business communication, it means understanding and evaluating information about various risks and probabilities. The purpose of this research is to explain the role of informed consent in the field of business negotiations, which would not be possible without conditions of mutual consent.

[1] South–West University of Neophit Rilski, Department of Economics, Blagoevgrad, Bulgaria

2. INFORMED CONSENT

According to Lindsley (2019), properly executed informed consent (IC) is a continuous process, not a single event. "Process" includes ongoing, interactive discussions that provide volunteers with information sufficient to support and sustain informed decision-making and contains some required elements including the purpose of the study, risks, benefits, all procedures, costs, compensation, volunteering, withdrawal, and confidentiality.

Barrios (2009) states that informed consent is a process, not just a format, that consists of the express manifestation of a competent person (whose physical, mental and moral capacity allows him to make a decision) to participate in an investigation, in such conditions that can know the risks, benefits, consequences or problems that may arise during the development of the research. Informed consent means the act or effect of consent.

According to Gonzalez (2014), informed consent is a process that involves providing important information that has been given or received from another party. This means obtaining any information that could influence decision-making.

Informed consent can be complex to assess because neither expressions of consent nor expressions of understanding of the implications necessarily mean that the adult's full consent has been given, nor that full understanding of the relevant issues has been internalized (Murray, 2012).

For informed consent to exist, the following criteria must be met:
- There should be a principle of autonomy or freedom of decision-making;
- It is necessary to explain in detail and have the necessary competencies to make a decision.

Informed consent can be written, oral, or implied Gonzalez (2014). Consent may be implied within the normal subtleties of human communication rather than expressly agreed upon orally or in writing. In some cases, consent may not be legally possible, even if the person objects, really understands, and wants to. There are also structured instruments for assessing the capacity to give informed consent, although there is currently no ideal instrument.

For an individual to give valid informed consent, three components must be present: disclosure, capacity and voluntariness (Faden et al., 1986).

- Disclosure requires that the researcher provide each potential subject with the information necessary to make an autonomous decision, as well as ensure that the subject adequately understands the information provided. The last condition implies that the written consent form must be written in layman's language that corresponds to the subject's ability to understand, as well as an assessment of the level of understanding through conversation (being informed).
- The capacity refers to the subject's ability to both understand the information provided and form a sound judgment based on the potential consequences of his/her decision.
- Voluntariness refers to the subject's right to freely exercise his or her own decision without being subjected to external pressure such as coercion, manipulation, or undue influence.

Informed consent is a technical term first used by attorney Paul G. Gebhardt in a US medical malpractice lawsuit in 1957 (Pace, 1997). While different cultures in different places practice informed consent, the modern concept of informed consent was developed by people who drew influence from the Western tradition (Faden et al., 1986). The Western tradition is based on ethics and ethical principles.

Informed consent is a psychological process that respects the principle of the patient's autonomy, and thus his dignity. In the field of business, it is about respecting the dignity of negotiating partners by negotiators. He is obliged to evaluate the participants in the negotiations and their preferences. For this purpose, the presence of the already mentioned three components that would be effective for informed consent is necessary, and to them, we must also add the fourth - understanding, which is crucial for the final negotiations:

- Voluntariness – achieving the goal without external pressure, the partner must have time to think, consult, or make a decision.
- Capacity – the person must have the opportunity and be able to make a decision.
- Information – the user must have enough information to be able to make an efficient and informed decision.
- Understanding – to make sure that the other party has understood the given information.

Information related to the documentation or the agenda of the negotiations can be given in written or verbal form, with the aim that the person receiving the communication is fully informed. Only then will the negotiation process be fully approved or concluded by signing the consent documents. Signing means understanding everything that is being communicated.

Therefore, we can say that the process of informed consent is fundamental from a psychological point of view. It is a basic communication mechanism, the failure of which can become the basis for psychological negligence.

The concept of the importance of partner consent lies in the proper conduct of the business relationship. But it is of utmost importance when concluding a contract, in the context of business negotiations. If one party is not fully informed or all information is not disclosed, i.e. to play with open cards, the uninformed party at the end of the negotiation can refuse to enter into a contract or sign the contract without reading the fine print.

3. NEGOTIATIONS

Negotiations are an element of the organizational behavior of the company. Negotiations are the basis of communication in business and aim only to reach an agreement. Consent is reached when you are informed of the terms of the negotiations.

Negotiations are the process of bringing the views of the parties together under the most favorable conditions. To reach an agreement in negotiations, both parties must be in a position and willing to change the original terms. This means that they must always have at least one alternative proposal. Negotiations are conducted only if the interests of both parties coincide to a greater or lesser extent, i.e. the opponent is interested in your proposal (Arte-Rem, n.d.). The process of negotiation necessarily passes through several stages - *goal setting, information provision, practical development of the strategy, determination of tactics, identification and selection of techniques,* and *identification of skills,* therefore, informed consent is an indispensable part of the second stage, namely information provision. In other words, informed consent occurs when there is consent to an interaction or an action performed with knowledge or relevant facts such as the risks involved or any available alternatives.

In order to analyze the essence of informed consent in the negotiation process, its components must be highlighted. First of all, one must know whether there is equality between the two sides. If they are not equal, it means that one of the parties is harmed. A judgment is required as to whether there are objective possibilities for achieving equality. For this purpose, each party must know the other, especially to know the specific characteristics of their partner and the following:

- Cultural characteristics;
- Financial and economic status of the other party;
- Mentality - national characteristics;
- Political situation in the partner country;
- Social-economic characteristics: demographic specifics - history, lifestyle, etc.

Failure to achieve equality means that the weaker do not accept the arguments of the stronger and cannot assess the degree of loss, when it is greater, in realized or unrealized negotiations.

Negotiations can proceed differently with partners from different countries, given that there is a clash of cultures and nationalities. For example, in negotiations with partners from Serbia, North Macedonia and Albania, the chance for equality is greater for Serbia, considering the country's geographical position and size, as well as the country's socio-economic development. The basis is always socio-economic, but we should not ignore the fact that in the Balkans people are more emotional, even though they are all three Balkan countries, and emotion is the opposite of balance and tolerance.

Before the start of negotiations, each party must be thoroughly informed about the other, which means recognizing and considering all the possibilities, possible risks and benefits associated with the degree of success or failure of each detail of the negotiations, to achieve a positive outcome. In this case, we are talking about building trust in the seller-buyer or buyer-supplier relationship. To build trust, certain rights and ethical norms regarding informed consent must be respected.

Deliberately hiding information about the state of one of the parties can lead to a loss of trust in the other party, which can cause dissatisfaction, mild aggression, or refusal to continue negotiations. Lack of informed consent means negligent treatment of the other party, inappropriate behavior, or disrespect. In other words, there is a lack of respect for the principles of conducting negotiations. Lack of informed consent can lead to confusion on the part of the partner and making the wrong decision, which, in turn, can lead to dissatisfaction in achieving the desired goal. Therefore, during the discussion, both parties must present a realistic picture of the state of the companies they lead. Discussion is a type of communication, and informed consent is essentially communication. The head of the company can be an exceptional professional, but whether he will achieve the desired goal during negotiations and whether the partner will be satisfied with his negotiation skills depends on his communication skills. Active listening and the ability to present the agenda and requests in a way that reaches the partner is of utmost importance. This means that there is no room for speaking too fast, too high, or too low. All of these can mislead the receiver, destroying the quality of the message the sender is sending. It is preferable not to use negation in oral communication, denying the point of view of the other party, but to focus attention on the thesis of the other party. A moderate tone and the speaker's body language during the consent discussion are very important. Failure to follow these techniques can become a source of anxiety, discomfort, or confusion.

An informed consent discussion should be a reason to get the necessary information for possible options to decide to buy or sell. For this purpose, the partner must be presented with a complete and realistic picture of the company's financial condition and image. In the process of work, the contracting party may discover valuable and useful information and possibly worries caused by useless information. The transfer of information from the provider /buyer or seller/ and vice versa are key actions in the process of informed consent. Only with clear messages can feedback be obtained, which will become a guarantee for the continuation of negotiations in conditions of a calm atmosphere, comfort, and a successful result. In conclusion, we can say that discussions about informed consent are a two-way street (Dentalcorp, 2022). Informed consent indicates and confirms adequate negotiation.

Informed consent is written consent given after receiving information, but may mean tacit or verbal consent. Tacit consent can be implied consent through a certain act or behavior, without verbal communication. Giving written or oral informed consent implies a detailed introduction in advance to the situation of the competing company and all its requirements that will be in the negotiation process. Most often, these details refer to the subject of negotiations, ways to achieve the goal, possible duration, agenda, possible risks when agreeing on prices, consequences, expected benefit, confirmation of the final result - whether the goal has been achieved, and general forecasts for the joint activity.

At a certain stage of negotiations, relations may become strained, and then a compromise is necessary. Compromise is the concept of finding an agreement by mutually accepting terms or deviating from the original goal (Alegsa, n.d.). It should be considered whether a compromise is possible. Compromising means equalizing partners. Because compromise means that one side either got too little or too much, but the other side agreed. Failure to reach a compromise means that the negotiators did not realize their interests. Negotiations are the way from desired to possible.

Why do some negotiations fail or do the parties fail to achieve their goal? The work of both parties should focus mainly on the behavior and activities of the organization entering into the negotiating relationship, the resources they will use, and efforts to avoid possible conflicts. There is no exact model for conducting and achieving negotiations. But there is an opportunity to follow certain rules to reach an agreement. Lack of agreement inevitably leads to conflict. Consent is a signal of long-term fruitful intentions. Consent is a key bargaining chip (Yuen, 2014) and serves as a key to the appearance of mutual interest with the intention of further engagement

Compromise means avoiding conflict where both sides lose, so it is important to achieve cooperation. Cooperation also implies achieving a balanced scope, open communication, and mutual understanding. Competitive relationships, where a clear lack of cooperation is evident, require a compromise decision. Compromise, on the other hand, is a sign of weakness and instability of the partner and an unfavorable situation. Compromise means finding a solution in a peaceful environment (Fartice, n.d.). The key to understanding and achieving cooperation is precisely communication. Differences can only be overcome through communication because each country has its model and worldview.

The success of any entrepreneur or manager can be determined by his ability to communicate. The manner and ability to communicate have nothing to do with professionalism. In managing a company, a manager must be able to negotiate, present ideas, make the right decisions, motivate staff, and overcome weaknesses in the company.

Inability to communicate with customers, improperly built interpersonal relationships, and inappropriate behavior during negotiations, can lead to the loss of the opportunity to win new customers and new markets. All these skills are essential for communication in its various forms. For this purpose, the manager must find an appropriate approach to communication within the company and outside it with existing and potential partners to overcome possible difficulties.

Basic knowledge of communication through the rules of oral and written communication is required. The manager himself must:

- to be an example of mastered effective communication;
- to build communication skills in a conflict situation;
- to require staff and subordinates to regulate their behavior and control their emotions or regulate the level of emotional intelligence.

Communication in business is interpersonal, group, public, mass. A manager needs to be able to apply internal-organizational and external communication techniques.

Knowing and possessing cultural competence is of great importance for conducting negotiations. Negotiations are conducted between partner countries - representatives of different cultures and with different characteristics. For negotiations to begin, a leader must be able to develop communication skills with different ethnic groups and speakers of other cultures. Knowing a foreign culture means being able to understand a foreign message. It is the key to effective negotiation, employee motivation, continuous employee training, and team-building ability. First of all, it is necessary to know the cultural differences of the partner country or region and understand the role of cultural diversity. Ignorance of foreign cultures and national differences risks breaking trust caused by misunderstanding. Knowing the main cultural specifics of verbal and non-verbal behavior is of great importance.

For negotiations to be conducted successfully, it is first of all important to pay attention to the correct choice of workplace or space. Create conditions for the other party to feel an atmosphere of calm communication, conversation and comfort. A well-maintained workplace can boost productivity and create the conditions for growth. The choice of the room and the color range of the interior are important, which can affect emotions positively or negatively if the color tones are chosen incorrectly. In addition, the arrangement of furniture, the choice of position around the negotiation table, and the air temperature are also necessary conditions for harmonizing the sociocultural profile of the other party. Of great importance is the spatial or physical location of people and objects involved in negotiations, which are a factor in achieving the desired result.

Achieving the desired appearance of the space can influence the management of the dynamics during negotiations.

Every leader needs to be prepared for defeat, to have a competent reaction, to be able to minimize the negative consequences and to avoid a destructive effect on the staff. Must have skills to recognize emotional reactions and look for ways to take effective action.

Last but not least, the atmosphere during the negotiations is extremely important. It should be calm, dispositional, and stress-free. This means that the manager or negotiator must have skills to manage or eliminate stress. People react differently in stressful situations, excessive stress affects them differently.

All of the above-mentioned components can prove to be key to the effectiveness of the negotiation process.

Uninformed consent is tacit consent, which in some cases means compromise. Compromise in negotiations means the victory of the rational over the emotional for the sake of ultimate success.

The main conclusion as a result of the above is that achieving optimal communication means:
- Transparency in relations - that there are no secrets between the parties, that they are prepared to ask and answer questions.
- Open agenda.
- The feeling of clarity about equality.

4. CONCLUSION

In order for the negotiating parties to present their maximum potential in negotiations, they must have accurate information from each other to make informed decisions. So what is needed, is transparency from both sides in terms of information. Both parties should make varying but determined efforts to provide appropriate information about themselves if such information may be requested. Informed consent implies respect for ethical principles and setting guidelines for good professional behavior in the negotiation process. It creates trust between negotiation partners and improves communication between them, which reduces the risk of negotiation failure and motivates them to make the right decision.

References

Alegsa. (n.d.). https://www.alegsa.com

Arte-Rem. (n.d.). Pregovori, Retrieved from https://b-expert.eu/-2

Barrios, M. L. (2009). Consentimiento informado: Una praxis dialogica para la investigacion. *Revista de Investigación Clínica*, 61(1), 75.

Dentalcorp. (2022). The Art of Communication: Improving the Quality of Informed Consent Discussions in Dentistry. https://www.dentalcorp.ca/site/blog/2022/07/06/the-art-of-communication-improving-the-quality-of-informed-consent-discussions-in-dentistry

Faden, R. R., Beauchamp, T. L., & King, N. M. P. (1986). A history and theory of informed consent (Online ed.). New York: Oxford University Press. ISBN 978-0-19-5036862.

Fartice. (n.d). https://bg.fartice.com/

Gonzalez, S. I. (2014). Consentimiento informado. *Revista de la Facultad de Odontología*, 8(2), 18-21. Retrieved from https://bdigital.uncu.edu.ar/objetos_digitales/-4.pdf

Lindsley, K. A. (2019). Improving quality of the informed consent process: Developing an easy-to-read, multimodal, patient-centered format in a real-world setting. *Patient Education and Counseling, 102*(5), 944. https://doi.org/10.1016/j.pec.2018.12.022

Murray, B. (2012, July). Informed Consent: What Must a Physician Disclose to a Patient? *AMA Journal of Ethics*, 14(7), 563–566.

Pace, E. (1997, August 26). P. G. Gebhard, 69, Developer Of the Term 'Informed Consent'. The New York Times. New York. ISSN 0362-4331.

Woodruff, W. A. (1989). Letting Life Run Its Course: Do-Not-Resuscitate Orders and Withdrawal of Life-Sustaining Treatment. Scholarly Works, 7.

Yuen, A. (2014). Consent and bargaining leverage: Signaling dynamics in negotiations. APSA, 1.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.299

Climate Change Legal Setup, EU Acquis, Implementation and Interaction with Water, Environment, and Cross-Cutting Sectors in Albania

Erjola Keci[1]

Received: 28 March, 2023
Revised: September 14, 2023
Accepted: September 27, 2023
Published: October 30, 2023

Keywords:
Climate Change;
Implementation of the EU acquis;
Paris Agreement;
EU Regulations

Abstract: *The paper represents a detailed overview and analysis of the national legal setting and related requirements to fully align national climate change legislation with the respective EU legislation in Albania; the paper is focused mainly on the climate change legal setup and policy and its interaction with water and environment management process, as well as energy, agriculture, urban and economic development in Albania. This assessment aims to identify the findings, gaps, and possible future steps to improve water and environment resources management and their sustainable use in the country.*

Although Albania's national climate policy, which establishes a comprehensive legal and inter-institutional framework for climate action at the national level and the endorsement of the National Climate Change Strategy, the country still needs further efforts and concrete actions to transpose, fully align and enforce the EU legislation and regulations related to climate change and contribute to mitigation of its effects in water, environment and other related sectors.

1. INTRODUCTION

Addressing climate change is a priority for the polities of Albania and its ascension process to the EU. In this regard, the country has undertaken policy initiatives at the international level.

Within the UN framework, Albania submitted its First National Communication in 2002, its Second National Communication in 2009, and its Third National Communication in 2016, while the Forth Communication is currently in an advanced stage of preparation.

In November 2015, the nation submitted its Intended Nationally Determined Contributions (INDCs) (UNFCCC, 2015). A commitment to cut business as usual (BAU) CO_2 emissions by 11.5% by 2030 was included. This is the nation's contribution to international efforts to combat climate change, which, in accordance with the Paris Agreement, seeks to keep the increase in global temperature to 1.5°C above preindustrial levels. The Paris Agreement's Article 3 states that countries' contributions must be "ambitious" and "represent a progression over time". Because of this, Albania is currently revising its NDC and presenting it five years later with increased ambition and a wider scope that covers more types of greenhouse gases (GHGs) and more sectors.

Compared to the BAU scenario, Albania's revised contribution to mitigation aims to reduce emissions by 3,170kt CO_2e by 2030, which would have a -20.9% mitigation impact.

[1] Faculty of Professional Studies, "Aleksander Moisiu" University, Currila street, 2001, Durres, Albania

The parties signed the Zagreb Declaration (2020) to reaffirm their unity and the EU's vision for South-Eastern Europe during the EU-Western Balkans Summit on May 8, 2020. In the Declaration, the phrase "a significant role should be given to the affiliation of the area to the EU's climate-related aspirations" is used to particularly refer to climate change. By signing the Sofia Declaration at the EU-Western Balkans summit on November 10, 2020, the leaders of South-Eastern Europe reaffirmed their commitment to fully support the EU Green Agenda for the area and execute climate action. Albania signed the Silesia Declaration "Solidarity and Just Transition" and supported the Declaration "Forest for Climate".[2] This was a commitment made (among others) for a climate-resilient development and climate-resilient infrastructure as a source of decent job creation for both men and women.

2. METHODOLOGY

This paper represents an analysis of the relevant climate acquis applicable to Albania and included in the EU-Albania Association Agreement and Energy Community Treaty, and their interaction with other sectors in Albania such as Water, Environment, and Cross-cutting sectors; in this regard, the analysis was carried out through the following steps:

- Detailed review and analysis of the relevant climate acquis along with detailed review and analysis of existing legislation mainstreaming climate change into relevant sectors, such as water, agriculture, energy, biodiversity, tourism, emergency response planning, coastal management, or health.
- Detailed gap analysis of the national legislative framework of Albania to verify if domestic legislation exists and/or is in compliance/compatible with the EU *acquis*.

3. RESULTS AND DISCUSSION

3.1. Legal and Policy Initiatives at the National Level

The national climate framework has been dynamic and, although the first documents were drafted in the early 2000s, the most substantial developments have taken place in recent years, with the approval of national strategy and climate law.

The Law No. 155/2020 on Climate Change, which went into effect in December 2020, is the main tenet of Albania's national climate policy. The law's objectives are to "assist in reducing the nation's GHG emission" and "accelerate adaptation to climate change in order to mitigate the detrimental consequences of climate change." It will create "the institutional foundation and the legal environment" to take action by ensuring that the Republic of Albania's responsibilities to the UNFCCC (2015) are honored, the legislation seeks to support national efforts to reduce greenhouse gas emissions, adaptation measures, and global climate change activities. It creates a thorough legislative and inter-institutional framework for national climate action following EU legislation. It also acknowledges the urgent climatic situation. The legislation governs the conditions for carbon dioxide collection and geological deposition, as well as greenhouse gas emissions from both fixed and mobile sources, goods, and substances. Additionally, it establishes a system for tracking, disclosing, and verifying GHG emissions at the sectoral and resource levels.

Albania was the first country in the region to endorse a Strategy for Climate Change and related Action Plans on Mitigation and Adaptation. The National Climate Change Strategy, 2020

[2] In the COP24 in Katowice, 2018

- 2030, adopted in 2019, is the country's low-carbon development strategy within the meaning of the Paris Agreement. It identifies six mitigation strategy priorities (UNFCCC, 2015):

- SP.1 Ensure sustainable economic growth consistent with GHG emission pathways defined in the NDC and move towards an economy-wide target to which all sectors contribute.
- SP.2 Establish a monitoring, reporting and verification system for GHG in line with EU requirements.
- SP.3 Strengthen the capacity of relevant institutions and inter-institution cooperation to address climate change issues.
- SP.4 Streamline climate changes across sectoral strategic planning.
- SP.5 Reinforce capacity building and awareness raising on climate change issues.
- SP.6 Align with the EU Climate Change framework across sectors.

To incorporate climate change into important industries like water, agriculture, energy, biodiversity, tourism, emergency response planning, coastal management, or health, Albania has continuously pushed both climate change mitigation and adaptation. The existing framework is shown in Table 1.

4. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

According to our assessment, Albania has shown some level of preparation in the area of climate change. However, only a small amount of progress was made toward further harmonizing the laws and policies with the *acquis*. Public administration cannot still address the effects of climate change and integrate it into sectoral strategies and plans.

At today, there are still EU Directives and Regulations not transposed in Albania: Directive 2008/101/EC Emissions Trading System Aviation Activities (EU ETS); Directive 2009/31/EC Carbon Capture and Storage and Regulation 2019/631 "*Setting CO_2 emission performance standards"* (replacing Regulation (EC) 443/2009 "*New passenger cars*" and Regulation (EU) 510/2011 "*Light commercial vehicles*") are not yet transposed in Albania, whether Directive 2003/87/EC EU Emissions Trading System (EU ETS) is partially transposed.

There are three EU regulations that Albania needs to align in the near future: Regulation 2018/1999 "*Governance of the Energy Union and Climate Action",* Regulation (EU) 2018/842 "*Binding annual greenhouse gas emission reductions" by Member States from 2021 to 2030 replacing* Directive 406/2009/EC Effort Sharing Decision and Regulation (EU) NO 2018/841 LULUCF.

The EU regulations that are partially aligned in Albania are Regulation 1005/2009/EC Ozone Depleting Substances, Regulation EU 517/2014 Fluorinated Gases and Directive 98/70/EC Fuel Quality; however, their implementation is still at the initial stage in Albania.

Significant efforts are still needed on implementation and enforcement, especially on waste management, water and air quality and climate change.

Table 1. Legal and policy framework for climate change in Albania

Sector	*Laws and Acts*	*Comment*	*Strategy and Plans*	*Comment/Discussion*
Cross cutting	*Law No. 107/2014, amended No. 73/2015, No. 28/2017 on Territorial Planning and Development*	*This Law strives to ensure the territory's sustainable development via the rational use of land and natural resources, analysing the current and future possibilities of territory development on a local and national level by balancing natural resources with economic demand and public and private interests. It also aims to coordinate efforts for: i) the conservation of natural resources such as land, air, water, forests, flora and wildlife; ii) the establishment of territories suitable for functional building; iii) the promotion of economic, social, and cultural life at the local and national levels; iv) the protection of appropriate supplies; v) the provision of life safety, national security, public order, and public health; and vi) the promotion of balanced regional development to ensure sustainable distribution of population.*	*National Strategy for Development and Integration for the period 2015–2020, 2016*	*Actions in the Strategy that impact climate change, include:* • Ensure the sustainable management of natural resources and undertake climate action. • Enhance and strengthen the protection of nature. • Strengthen the management and preservation of forestry and pasture resources. • Strengthen the management of water use, to reduce floods and phenomena of erosion and soil loss. • Develop sustainable tourism in Albania, which will help preserve natural ecosystems.
			Strategy for Health System Adaptation to Climate Change	The Strategy provides for the approaches for mainstreaming climate change adaptation into health policies, and presents an action plan for 2011–2021
Urban Development	-	-	General National Territorial Plan "Albania 2030" (DCM No. 881, date 14.12.2016)	The elements of the plan that address climate include: • The water sector: reconstruction, growth, and development of water supply infrastructure, including consideration of climate change scenarios. Utilizing recycled water, creating new water reserves, harvesting rainfall, desalination, etc. to control water demand. • The agricultural sector should boost water efficiency, irrigation infrastructure, plant variety, drainage systems, fertilization, and soil moisture conservation while taking into account the effects of temperature rise brought on by climate change. • Coast: keeping an eye on the movement of the shoreline and the sea level; keeping an eye on the water quality in wetlands and groundwater; managing coastal erosion; and taking adaptation measures to deal with anticipated sea level rise.
	-	-	Integrated Cross-sectoral Plan for the Coast	A 15-year strategy for the sustainable economic development of coastal regions as a natural resource with an emphasis on territorial development is put forth in the Integrated Cross Sectorial Plan for the Coastal Belt. This plan is devoted to the UN Sustainable Development Goals and complies with the Barcelona Convention of 2000 on the protection of the Mediterranean coast. The plan's strategic targets include enhancing urban quality of life, enhancing coastal mobility and transportation infrastructure, enhancing agricultural systems and agricultural products, and enhancing environmental protection. Each of these strategic objectives has a particular target in the plan that must be met by 2030.
	-	-	Integrated Cross-sectoral Plan for Tirana - Durres Area	The vision, goals, and plans Albania has for enhancing and preserving this regional corridor are specifically articulated in the country's Integrated Plan for the Tirana-Durres area. 1) Sustainable Economic Development is the first of this plan's four strategic objectives. 2) Higher standard of living in both urban and rural areas Infrastructure, transportation, and mobility improvements are prioritized as are environmental protection and enhancement. Each approach has a set of particular goals, such increasing energy efficiency, minimizing river pollution, and cutting CO2 emissions.

Sector	Laws and Acts	Comment	Strategy and Plans	Comment/Discussion
Agriculture	Law No. 10390/2011, amended No.64/2013 on the Use of Fertilizers for Plants	The Law establishes guidelines for evaluating fertilizers, classifying them, monitoring their manufacture, packing, labelling, transit, storage, and trade, registering those not labelled as EC fertilizers, and designating the authorities in charge of each of these areas.	Intersectoral Strategy for Agriculture and Rural Development for the period 2014–2020 (2014)	The strategy provides the framework for addressing the challenges faced in the agricultural and agro-processing sector as well as sustainable economic, environmental, and social development of rural areas.
	Law No. 24/2017 on Irrigation and Drainage Administration	This Law establishes guidelines and procedures for the institutional structure of the national policy on irrigation, drainage, and protection from erosion; the legal framework for the formation and/or operation of irrigation and drainage departments, municipalities, and water users associations (WUAs); the duties and obligations for the individuals and organizations that deal with irrigation, drainage, and protection from floods and erosion; and the transfer of power and authority between the irrigation and drainage departments, municipalities, and WUAs.	National Strategy for the Development of Forests and Pastures for the period 2004–2014 (DCM No. 247 dated 23.04.2004)	-
	-	-	Agriculture and Food Sector Strategy for the period 2007–2013 (DCM No. 924 dated 14.11.2007)	-
Transport	Law no. 9876/2008, amending law no. 143/2014 and regulation no. 180/2016 on biofuels	The Law promotes the production and use of renewable biofuels in the transport sector.	National Transport Strategy and Action Plan for the period 2016–2020 (2016)	The strategy aims at developing an efficient integrated transport sector in the region and beyond to support economic development and improve the quality of life of citizens.
Energy	Law No. 124/2015 on Energy Efficiency	-	National Energy Strategy for Albania 2018-2030 (2018)	This is the country's energy sector's strategic plan, and it completely complies with all other national policies, plans, and goals as well as those of the European Green Deal: creating and upgrading structures while fostering a cleaner building industry; hastening the transition to sustainable and intelligent mobility; and eradicating pollution through quick and effective pollution reduction methods. The following five dimensions are supported by the energy strategy: 1. The variety of energy sources promotes energy security. 2. Complete integration into the local market, followed by the European market. 3. Energy effectiveness, which helps to moderate demand. 4. Economic decarbonization. 5. Competition, innovation, and research.
	Law No. 43/2015 on the Energy Sector	This law notably aims to prioritize the production and use of energy from renewable sources.	National Energy Efficiency Action Plan for the period 2011–2018 (DCM No. 619 dated 07.09.2011)	-
	-	-	National Action Plan on Renewable Energies for the period 2015–2020 (2016)	This sectoral Plan was created with the objective of producing up to 38% of Albania's total gross energy consumption from renewable sources by the year 2020. Strategic goals of the Plan include integrating renewable energy sources into local markets as well as regional and European ones and strengthening security in Albania's energy supply sector. Additionally, improved energy production security will aid in the nation's macroeconomic stability and economic growth.

Sector	Laws and Acts	Comment	Strategy and Plans	Comment/Discussion
Energy	Law No. 116/2016 on Energy Performance of Buildings	This law, which is partially in line with Directive 2010/31/EU on the energy performance of buildings, aims to enhance the energy performance of buildings by promoting both mitigation and adaptation to climate change, while also taking into account the site's local and climatic conditions, the comfort levels inside buildings, and the cost-effectiveness. With these deadlines for compliance with this obligation, it calls for a national plan to increase the number of "near zero energy" performance buildings: after December 31, 2018, all new buildings in use by public authorities; after December 31, 2020, all new buildings.	National Energy Strategy for the period 2003–2015 (DCM No. 647 dated 11.09.2003)	-
	Law No. 7/2017 on Promotion of the Use of Energy from Renewable Sources	The intent of this law is to: a) encourage increased use of renewable energy to ensure sustainable development and adhere to Albania's obligations under the Energy Community Treaty; b) reduce importation of fossil fuels, greenhouse gas emissions, and environmental protection in accordance with Albania's international obligations; c) encourage the growth of the renewable electricity market and its regional integration; d) increase the diversification of Albania's energy sources.	-	-
	DCM No. 709, dated 1.12.2017 on the 2nd & 3rd National Energy Efficiency Plan 2017-2020	-	-	-
Environment	Law No. 162/2014 on Protection of Ambient Air Quality	The Law establishes requirements for ambient air quality monitoring, assessment, and planning while also promoting international cooperation with the goal of enhancing public health and ensuring a high level of environmental protection. The European Parliament and the Council's Directive 2008/50/EC on ambient air quality and cleaner air for Europe is fully complied with by this law.	Strategy on Ambient Air Quality (DCM No. 594 dated 10.09.2014)	
	DCM No. 352 dated 29.04.2015 "On air quality assessments and requirements concerning certain pollutants"		National Action Plan for Pollution Reduction in Coastal Areas of the Mediterranean Sea from Land-based Sources for the period 2005–2014	The Republic of Albania, a party to the Barcelona Convention, responds to an international call to develop a national action plan with the primary objective of protecting the coastal area from land-based sources of pollution by reducing or eliminating as many pollutant inputs as is feasible through coordinated actions at the local, regional, national, and international level.

Sector	Laws and Acts	Comment	Strategy and Plans	Comment/Discussion
Environment	DCM No. 1075 dated 23.12.2015 "On measures for the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations"	-	-	-
Environment	DCM No. 865 dated 10.12.2014 "On reduction and stabilization of fluorinated greenhouse gas emissions"	-	-	-
Biodiversity, Forestry and Protected Areas	Law No. 9587/2006, amended No. 37/2013, No. 68/2014 on Biodiversity Protection	By regulating the sustainable use of its constituent parts and incorporating the primary components of biodiversity into strategies, plans, programs, and all levels of decision-making, this Law aims to preserve and protect biological diversity.	Document of Strategic Policies for Protection of Biodiversity for the period 2016–2020 (DCM No. 31 dated 20.01.2016)	The document acknowledges that climate change can have a significant impact on our environment and lead to the extinction of endangered species. Some of the greatest challenges the world is facing are changes in fisheries resources, loss of biological resources, sudden increases in alien species, and changes in vegetation patterns. Additionally, invasive alien species are worsened by climate change. Therefore, it is crucial to: • Carry out research on the choice and management of climate change indicators. • Evaluate the health and vitality of the forest. • Choose and keep track of forest biological taxa that are indicators of climate change. • Carry out long-term monitoring of changes in forest ecosystems; forecast future changes in the distribution and diversity of species that are vulnerable to climate change; • Improve systematic management of species that are vulnerable to climate change.
	Law No. 81/2017. on Protected Areas	According to the principles of sustainable development, Law 81/2017 aims to designate, conserve, manage, and sustainably use protected areas, as well as biological and natural resources, to ensure that all of society benefits from their environmental, financial, social, and cultural advantages. The law also establishes the institutional framework for the conservation and sustainable management of these areas, outlining the roles and responsibilities of both public and private entities. The law and Council Directive 92/43/EEC of May 21, 1992, on the conservation of wild fauna and flora are somewhat similar.	National Biodiversity Strategy and Action Plan (DCM No. 532 dated 05.10.2000)	-
	Law No. 10253/2010, amended No. 43/2013 on Hunting	The law establishes the legal framework for the growth of hunting as a traditional, stress-relieving, and tourist activity. It also ensures that principles governing ecosystems and ecological balances are strictly followed, protects wild animal species, and upholds legal rights related to hunting, hunting-related products, and their trade.	-	-

Sector	Laws and Acts	Comment	Strategy and Plans	Comment/Discussion
Biodiversity, Forestry and Protected Areas	Law No. 61/2016 On the Announcement of the Hunting Moratorium in the Republic of Albania	In order to better the situation of wild fauna, the law bans all hunting activities for five years. It's also against the law to take advantage of the public hunting areas. Plans for managing wild fauna are still in effect, with the exception of hunting. There are some exceptions, such as when hunting overpopulated species in designated areas or when hunting for scientific or research purposes.	-	-
	Law No. 9385/2005, amended No. 9533/2006, No. 9791/2007, No. 9989/2008, No. 10137/2009, No. 15/2012, No. 36/2013, No. 48/2016 on Forests and the Forestry Service	-	-	-
	Law No. 5/2016 on the Moratorium in Forests	-	-	-
Water	Law No. 111/2012 on Integrated Water Resources Management	This Law outlines the establishment of central and local institutional frameworks necessary to carry out national policies of management and administration. Its goals are the protection and improvement of the water environment and water resources, as well as their fair distribution, rational exploitation, and protection from pollution.	National Strategy of Water Resources Integrated Management 2018 – 2027 (Regulation No. 73 dated 7 February 2018)	The national strategy has five strategic goals, including the equitable distribution of profits through the use of inclusive and sustainable water management methods that provide good returns for all stakeholders engaged by the year 2027, the sustainable use of water resources, the achievement of good water quality in all water resources by that year, disaster risk reduction and management of droughts and floods, and the increase of solid scientific knowledge on water and climate concerns.
	-	-	National Strategy of Water Supply and Sewerage for the period 2011–2017	The Strategy aims at expanding and improving the quality of water supply and sewerage services, orienting the water utilities towards principles of full cost recovery.
	-	-	National Strategy on Irrigation and Drainage 2019-2031 (DCM no.345 May 22, 2019)	The Strategy aims at optimizing all the investments in irrigation, drainage, and flood protection with the aim of expanding and making irrigation systems sustainable, meeting drainage needs and protecting the population and property from floods. The strategy addresses the major challenges for irrigation, drainage, dams & reservoirs, and flood protection. This includes ensuring sustainable and productive management of irrigation and drainage systems, improving efficient water use and equitable distribution, in addition to reducing flood risk and dam destruction. The suggested vision for these four subsectors gives a projection of what they should be like in the next 10 to 20 years.
Climate	DCM No. 1553 "On the establishment of the National Designated Authority under the Clean Development Mechanism, in the framework of the Kyoto Protocol", 2008.	-	National Climate Change Strategy	The Strategy is the primary strategic document for Albania's response to climate change. Its goal is to strengthen coordination between different sectors for climate adaptation measures, environmental protection, and sustainable development. It is intended to support the implementation of EU environmental and climate legislation. In Albania, the emphasis is on reducing climate change impacts and preparing for them. Due to the new climate targets set by the EU and the new climate targets in the revised NDC, the strategy needs to be updated.

Sector	Laws and Acts	Comment	Strategy and Plans	Comment/Discussion
Climate	Law no. 75/2016 for the ratification of the Paris Agreement, within the framework of the United Nations Convention on Climate Change	The Law ratifies the Paris Agreement, within the Framework Convention of the United Nations, on climate change, made in Paris on 12 December 2015 (UNFCCC, 2015).	-	-
	Order of the Prime Minister No. 155 dated 25.04.2014 "On establishment and functioning of the Inter-Ministerial Working Group on Climate Change" (Order No. 155/2014)	This group, which has representatives from 12 ministries, is led by the deputy minister of the environment. Its duties include developing climate change policies, fostering institutional coordination among ministries, and representing Albania in UNFCCC processes. Additionally, it plays a role in making it easier to incorporate climate change into pertinent new and existing policies, programs, and activities.	-	-
	DCM No. 762 dated 16.09.2015 "On approval of the Intended Nationally Determined Contribution for the United Nations Framework Convention on Climate Change"	-	-	-

Source: Own processing

References

Albanian Regulation No 180/2016 on biofuels

Albanian Regulation No. 73 dated 7 February 2018 on National Strategy of Water Resources Integrated Management 2018 – 2027.

DCM No. 1075 dated 23.12.2015 "On measures for the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations".

DCM No. 1553/2028 "On the establishment of the National Designated Authority under the Clean Development Mechanism, in the framework of the Kyoto Protocol".

DCM No. 247 dated 23.04.2004 on National Strategy for the Development of Forests and Pastures for the period 2004–2014.

DCM No. 31 dated 20.01.2016 on the Document of Strategic Policies for Protection of Biodiversity for the period 2016–2020.

DCM No. 352 dated 29.04.2015 "On air quality assessments and requirements concerning certain pollutants".

DCM No. 532 dated 05.10.2000 on National Biodiversity Strategy and Action Plan.

DCM No. 594 dated 10.09.2014 on Strategy on Ambient Air Quality

DCM No. 619 dated 07.09.2011 on National Energy Efficiency Action Plan for the period 2011–2018.

DCM No. 647 dated 11.09.2003 on National Energy Strategy for the period 2003–2015.

DCM No. 709, dated 1.12.2017 on the 2nd & 3rd National Energy Efficiency Plan 2017-2020

DCM No. 762 dated 16.09.2015 "On approval of the Intended Nationally Determined Contribution for the United Nations Framework Convention on Climate Change".

DCM No. 865 dated 10.12.2014 "On reduction and stabilization of fluorinated greenhouse gas emissions".

DCM No. 881, date 14.12.2016, for the approval of the general national plan of the territory

DCM No. 924 dated 14.11.2007 on Agriculture and Food Sector Strategy for the period 2007–2013.

DCM no.345 May 22, 2019, on National Strategy on Irrigation and Drainage 2019-2031.

Directive 2003/87/EC EU establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32003L0087

Directive 2008/101/EC Emissions Trading System Aviation Activities (EU ETS); https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0101

Directive 2009/31/EC on the Carbon Capture and Storage; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32009L0031

Directive 2010/31/EU on the energy performance of buildings; https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:153:0013:0035:en:PDF

Directive 406/2009/EC Effort Sharing Decision

Directive 92/43/EEC of May 21, 1992, on the conservation of wild fauna and flora are somewhat similar.; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31992L0043

Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 93/12/EEC; https://www.eea.europa.eu/policy-documents/directive-98-70-ec-quality

Intersectoral Strategy for Agriculture and Rural Development for the period 2014–2020. (2014).

Law no 9876/2008, amending law no 143/2014 on biofuels.

Law No. 10253/2010, amended No. 43/2013 on Hunting.

Law No. 10390/2011, amended Law No.64/2013 on the Use of Fertilizers for Plants

Law No. 107/2014, amended No. 73/2015, No. 28/2017 on Territorial Planning and Development
Law No. 111/2012 on Integrated Water Resources Management.
Law No. 116/2016 on Energy Performance of Buildings.
Law No. 124/2015 on Energy Efficiency
Law No. 155/2020 on Climate Change
Law No. 162/2014 on Protection of Ambient Air Quality
Law No. 24/2017 on Irrigation and Drainage Administration
Law No. 43/2015 on the Energy Sector
Law No. 5/2016 on the Moratorium in Forests.
Law No. 61/2016 on the Announcement of the Hunting Moratorium in the Republic of Albania.
Law No. 7/2017 on Promotion of the Use of Energy from Renewable Sources
Law no. 75/2016 for the ratification of the Paris Agreement, within the framework of the United Nations Convention on Climate Change.
Law No. 81/2017 on Protected Areas
Law No. 9385/2005, amended No. 9533/2006, No. 9791/2007, No. 9989/2008, No. 10137/2009, No. 15/2012, No. 36/2013, No. 48/2016 on Forests and the Forestry Service.
Law No. 9587/2006, amended No. 37/2013, No. 68/2014 on Biodiversity Protection
National Action Plan on Renewable Energies for the period 2015–2020. (2016).
National Climate Change Strategy in Albania, 2020 – 2030; https://www.wfd.org/sites/default/files/2022-05/EN_Report_Monitoring%20of%20National%20Action%20Plan%20%281%29.pdf
National Energy Strategy for Albania 2018-2030. (2018).
National Transport Strategy and Action Plan for the period 2016–2020, (2016).
Order of the Prime Minister No. 155 dated 25.04.2014 "On establishment and functioning of the Inter-Ministerial Working Group on Climate Change".
Regulation (EU) NO 2018/841 LULUCF: Inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vkpd65xw3kyw .
Regulation 1005/2009/EC on Ozone Depleting Substances; https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:286:0001:0030:EN:PDF#:~:text=This%20Regulation%20lays%20down%20rules,market%20and%20use%20of%20products
Regulation EU 517/2014 Fluorinated Gases; https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0517
United Nations Framework Convention of Climate Change (UNFCCC). (2015). Intended Nationally Determined Contributions (INDCs) https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/indcs
Zagreb Declaration. (2020). https://www.consilium.europa.eu/en/press/press-releases/2020/05/06/zagreb-declaration-6-may-2020/

Additional reading

Albania's Revised Nationally Determined Contributions; Action Plan (2022); Ministry of Tourism and Environment, Albania.
Commission Staff Working Document - Albania 2021 Report. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. 2021 Communication on EU Enlargement Policy. https://ec.europa.eu/neighbourhood-enlargement/albania-report-2021_en

European Commission, Economic Reform Programme of Albania (2020-2022). https://data.consilium.europa.eu/doc/document/ST-7468-2020-INIT/en/pdf

Knez S., Štrbac S., & Podbregar I. (2022). Climate Change in The Western Balkans and Eu Green Deal: Status, Mitigation and Challenges. *Energy, Sustainability and Society* https://doi.org/10.1186/s13705-021-00328-y.

National Adaptation Planning to Climate Change in Albania. https://unfccc.int/sites/default/files/resource/National_Adaptation_Plan_Albania.pdf

Republic of Albania. (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

Vuković A., & Vujadinović Mandić M. (2018), Study on Climate Change in The Western Balkans Region. Regional Cooperation Council Secretariat.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.311

Nove informacijske tehnologije za podršku razvoju kružne ekonomije u okviru Industrije 5.0

New Information Technologies to Support the Development of the Circular Economy in the Framework of Industry 5.0

Sandra Lovrenčić[1]
Iva Gregurec[2]

Received: August 24, 2023
Accepted: September 4, 2023
Published: October 30, 2023

Ključne riječi:
Umjetna inteligencija;
Kružna ekonomija;
Industrija 5.0;
Održivost

Keywords:
Artificial intelligence;
Circular economy;
Industry 5.0;
Sustainability

Sažetak: *Potreba za očuvanjem resursa za buduće generacije pokrenula je koncept industrije 5.0, a u sklopu njega naglašena je i kružna (cirkularna) ekonomija kao jedan od ključnih elemenata ostvarivanja održivosti. Industrija 4.0 naglasak stavlja na digitalizaciju i tehnologije umjetne inteligencije, dok industrija 5.0 u središte stavlja čovjekocentrično poslovanje, održivost i otpornost. No, uloga informacijske tehnologije u postizanju tih ciljeva je neosporna, i to kao podrška promjeni koja je nužna u poslovnim modelima organizacija. U radu se istražuje uloga novih informacijskih tehnologija u ostvarivanju kružne ekonomije, s fokusom na ulogu umjetne inteligencije. Analizirani su glavni smjerovi istraživanja vezani uz informacijsku tehnologiju i kružnu ekonomiju te su identificirana najvažnija područja umjetne inteligencije koja mogu koristiti razvoju kružne ekonomije. Također, razmotreni su načini na koje umjetna inteligencija može potpomognuti promjenu u organizacijama prema kružnoj ekonomiji, osiguravajući održivost u okviru razvoja industrije 5.0.*

Abstract: *The need to preserve resources for future generations initiated the concept of Industry 5.0, and as part of it, the circular economy was emphasized as one of the key elements of achieving sustainability. Industry 4.0 emphasizes digitization and artificial intelligence technologies, while Industry 5.0 focuses on human-centered business, sustainability and resilience. However, the role of information technology in achieving these goals is indisputable, as support for the change that is necessary in the business models of organizations. The paper examines the role of new information technologies in realizing the circular economy, with a focus on the role of artificial intelligence. The main directions of research related to information technology and the circular economy were analyzed and the most important areas of artificial intelligence that could benefit the development of the circular economy were identified. Also, how artificial intelligence can support the change in organizations towards a circular economy, ensuring sustainability within the development of Industry 5.0, is discussed.*

1. UVOD

Prva industrijska revolucija potaknula je konkurentna tržišta i proizvodnju robe u velikim količinama kako bi se zadovoljile potrebe tržišta. Međutim, brzi industrijski razvoj prouzročio je i brojne socio-ekološke probleme diljem svijeta. Tako su globalizacija i brzi gospodarski rast doveli do pretjeranog iskorištavanja prirodnih resursa i onečišćenja okoliša (Khan et al., 2021). Kao odgovor za vrijeme četvrte industrijske revolucije (industrije 4.0), kako bi se potaknuli učinkoviti proizvodni procesi i korištenje resursa na odgovoran način, razvijen je pojam kružne ekonomije koji bi trebao pomoći u poboljšanju okolišnih uvjeta na svjetskoj razini (Geissdoerfer et al., 2018; Liu et al., 2022).

1 University of Zagreb, Faculty of Organization and Informatics, Pavlinska 2, Varaždin, Croatia
2 University of Zagreb, Faculty of Organization and Informatics, Pavlinska 2, Varaždin, Croatia

Koncept kružne ekonomije u posljednje vrijeme istražuje kako od strane znanstvenika tako i od strane praktičara, s obzirom da ga se promatra s aspekta operacionalizacije poduzeća da provede održivi razvoj uz optimalno korištenje resursa usmjereno na zelenu ekonomiju i zeleni razvoj općenito (Kirchherr et al., 2017; Bressanelli et al., 2018; Demestichas & Daskalakis, 2020) s ciljem poboljšanja financijskih učinaka uz zadovoljavanje svih dionika u lancu vrijednosti (Khan et al., 2022), a time i osiguravanja opstanka na tržištu isticanjem konkurentskih prednosti. Stoga je ovo jedna od industrijskih paradigmi koja uz razvoj informacijskih tehnologija vezanih uz industriju 4.0 pokreće akademsku zajednicu i praktičare (Rosa et al., 2020). Razlog tome može se prepoznati i u tome što su upravo informacijske tehnologije i kružna ekonomija dva pojma koja imaju za cilj poboljšanje produktivnosti poduzeća i njegovog održivog poslovanja (Schöggl et al., 2023; Rusch et al., 2023). U kombinaciji s inoviranim poslovnim modelima kružna ekonomija ima potencijal iskoristiti informacijske tehnologije poput interneta stvari, velikih podataka, blockchain tehnologije, računalstva u oblaku, umjetne inteligencije i drugih tehnologija za razmjenu znanja između različitih dionika u lancu vrijednosti te jačanje uloge potrošača informirajući ih, educirajući ih i pretvarajući ih u aktivne dionike u kružnoj ekonomiji (Piscicelli, 2023). Informacijske tehnologije nadopunjuju poduzeća u prelasku na kružnu ekonomiju (Khan et al., 2022) pomažući u provođenju učinkovitije i održivije ekonomije (Schöggl et al., 2023) rješavanjem brojnih izazova i problema u svijetu (Chauhan et al., 2022) i pogodujući u stvaranju mreže među različitim dionicima i pritom omogućavajući kružnost (Trevisan et al., 2021).

Rad je strukturiran na sljedeći način. U drugom poglavlju objašnjen je pojam kružne ekonomije, dok je u trećem poglavlju prikazan pregled najčešće korištenih informacijskih tehnologija kao potpore ostvarivanju kružne ekonomije. Četvrto poglavlje objašnjava pojam industrije 5.0 i njezinu povezanost s kružnom ekonomijom. Podrška koju umjetna inteligencija može pružiti za ostvarivanje kružne ekonomije s ciljem ostvarivanja industrije 5.0 analizirana je u petom poglavlju, a na samom kraju, u šestom poglavlju dan je zaključak.

2. KRUŽNA EKONOMIJA

Pojam kružne ekonomije pojavio se prije nekoliko desetljeća, točnije 1966. godine kada je Kenneth Boulding prvi put u svom eseju obradio pojam „otvorene ekonomije“ nasuprot pojmu „zatvorene ekonomije“ (Liu & Ramakrishna, 2020; Geissdoerfer et al., 2018). Kao koncept koji integrira ekonomske koristi i održivost (engl. *sustainability*), koncept kružne ekonomije nastao je 2010. godine (Blomsma & Brennan, 2017), a zaživio je za vrijeme industrije 4.0, koja se kao pojam ubrzo pojavila 2011. godine (Breque et al., 2021) kao i u konačnici razvojem tehnologija vezanih uz industriju 4.0 koje postaju sve važnije za ubrzavanje tranzicije kružne ekonomije (Kristoffersen et al., 2021; Chauhan et al., 2022).

Kružna ekonomija se često navodi kao obećavajući pristup promicanju gospodarskog razvoja i održivosti (Bressanelli et al., 2018) koja podrazumijeva strategiju prelaska s postojeće linearne ekonomije i modela „proizvodnja, korištenje i odlaganje“ (engl. *„production, use and disposal“*) prema kojem proizvodi na kraju svog životnog vijeka idu na otpad (Khan et al., 2022) s malom ili nikakvom brigom za stvoreno zagađenje (Trevisan et al., 2021) na kružnu ekonomiju čija se paradigma u svojim začecima bazirala na modelu 3R „smanji, ponovno upotrijebi, recikliraj“ (engl. *„reduce, reuse, recycle“*) (Morganti, 2021; Chauhan et al., 2022) usmjerenom na upravljanje resursima na učinkovit i pametan način (Trevisan et al., 2021) omogućujući da se komponente proizvoda recikliraju i ponovno koriste u proizvodnji novih proizvoda produžavajući im pritom životni vijek (Khan et al., 2022).

Kako se koncept kružne ekonomije razvijao, takozvani model 3R je postepeno evoluirao do današnjeg modela 10R „odbij, redizajniraj, smanji, ponovno upotrijebi, popravi, obnovi, ponovno proizvedi, prenamijeni, recikliraj, oporavi“ (engl. *„refuse, redesign, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle, recover”*) (Demestichas & Daskalakis, 2020; Khan et al., 2022; Cagno et al., 2021). Kako je broj R-ova rastao, tako je evoluirao i pojam kružne ekonomije koja na taj način obuhvaća cijeli životni vijek proizvoda te se sve aktivnosti koje su obuhvaćene kružnom ekonomijom s ciljem povećanja učinkovitosti i produktivnosti poslovanja vezuju uz ove modele (Kirchherr et al., 2017; Kristoffersen et al., 2020, 2021; Chauhan et al., 2022).

Prema Kirchherru i suradnicima (2017) kružna ekonomija, iako pod velikim interesom znanstvenika i praktičara, još uvijek je u svojim začecima i svatko je tumači kako misli da je ispravno pa iz tog razloga ne postoji jedna općeprihvaćena definicija. No, jasno je da se kružna ekonomija smatra interdisciplinarnim konceptom koji presijeca domene prirodnih i društvenih znanosti (Liu & Ramakrishna, 2020). U fokusu kružne ekonomije je održivost na globalnoj razini s ciljem stvaranja vrijednosti ograničenih resursa na način da se koriste brojne strategije za povećanje produktivnosti i učinkovitosti poslovanja produžavanjem životnog vijeka proizvoda (Kristoffersen et al., 2021).

Prema Akcijskom planu kružne ekonomije (EUROPEAN COMMISSION, 2020), kao jednom od glavnih dokumenata Europskog zelenog dogovora (engl. *European Green Deal*) (EUROPEAN COMMISSION, 2019) kružna ekonomija promiče dvije osnovne ideje održivog razvoja, a to su gospodarski razvoj koji potiče održivu potrošnju u kombinaciji sa smanjenjem otpada, odnosno korištenje resursa što je duže moguće. Rezultat tih ideja i planiranih akcija trebalo bi biti jačanje gospodarstva rješavanjem problema s nepostojanjem resursa te stvaranje radnih mjesta poticanjem inovacija i stvaranjem značajnih ekoloških koristi za zemlje Europske unije (EUROPEAN COMMISSION, 2020). Za sada ova ideja nije zaživjela u punom jeku, no očekuje se kako bi digitalne tehnologije trebale pomoći u tome (Kristoffersen et al., 2021).

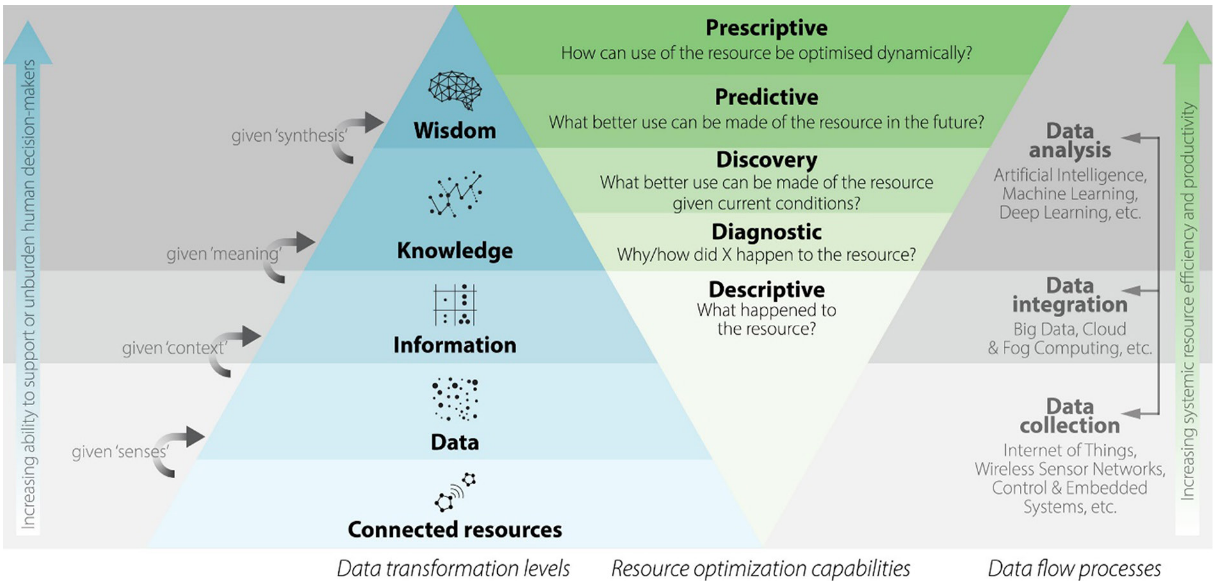
3. PRIMJENA INFORMACIJSKIH TEHNOLOGIJA U KRUŽNOJ EKONOMIJI

Fokus industrije 4.0 je na automatizaciji i povezivanju fizičkog i digitalnog kroz razvoj inovativnih tehnologija i pametnih tvornica sa svrhom poboljšanja učinkovitosti, i iako je više usmjerena na tehnologije i digitalizaciju, uključuje i ekološke aspekte (Lasi et al., 2014; Müller, 2020; Breque et al., 2021). Kako bi se dobio što širi pregled znanstvene literature o povezanosti informacijskih, odnosno digitalnih tehnologija, industrije 4.0 i kružne ekonomije, za pretraživanje navedenih ključnih riječi provedeno je istraživanje za stolom u svrhu prikupljanja sekundarnih izvora podataka i kreiranje teorijskog koncepta. Pritom je istraživanje za stolom podrazumijevalo pretraživanje relevantnih znanstvenih baza poput WoS-a, Scopusa, ScienceDirecta, Emeralda, EbscoHosta te Google Scholara. Pronađen je znatan broj istraživanja koja proučavaju tehnologije povezane s konceptom industrije 4.0 (Rosa et al., 2020; Liu et al., 2022; Tavera Romero et al., 2021), a naročito tehnologije poput Interneta stvari (engl. *Internet of Things*), velikih podataka (engl. *Big data*), analitike podataka (engl. *Data analytics*), a između ostalog i blockchain tehnologiju, računalstvo u oblacima (engl. *Cloud computing*) te umjetnu inteligenciju (engl. *Artificial inteligence*) općenito. Iz radova se može zaključiti kako se navedene tehnologije smatraju ključnim pokretačima kružnog gospodarstva temeljenog na održivosti s obzirom da mogu bitno olakšati praćenje toka proizvoda, komponenti i materijala, što može biti ključno za poboljšano upravljanje resursima i donošenje odluka u različitim fazama životnog ciklusa industrije, te na taj način omogućavati tokovima resursa da postanu kružniji (Kristoffersen et al., 2020; Chauhan et al., 2022; Ranta et al., 2021; Piscicelli, 2023; Bressanelli et al., 2018; Rosa et al., 2020; Cagno et al., 2021; Liu et al., 2022; Rusch et al., 2023; Neri et al., 2023; Demestichas & Daskalakis, 2020; Tavera Romero et al., 2021). Navedene tehnologije drastično utječu na način kako se proizvodi proizvode, dostavlja-ju, prodaju i konzumiraju (Liu et al., 2022) te stoga mogu ponuditi širok raspon potencijala za im-plementaciju kružne ekonomije (Schöggl et al., 2023) i pomoći da se kružna ekonomija razvija br-žim tempom (Khan et al., 2022; Tavera Romero et al., 2021).

Također, digitalne tehnologije omogućavaju poduzeću da se transformira u inteligentne sustave za proizvodnju pametnih proizvoda i usluga (Khan et al., 2022) razmjenom podataka unutar svojih opskrbnih lanaca te identificiranjem i praćenjem proizvoda i materijala s ciljem povećanja efikasnosti poslovanja (Ranta et al., 2021), kreiranja novih poslovnih prilika, optimizacije tokova robe i kreiranja bližih i dugoročnijih odnosa s potrošačima (Trevisan et al., 2021). Isto tako, tehnologije mogu nadopuniti vještine i sposobnosti radnika i pomoći u učinkovitom i efikasnijem poslovanju temeljenom na kružnoj ekonomiji (Chauhan et al., 2022).

Internet stvari pruža nove komunikacijske mogućnosti, povećava međusobnu povezanost uređaja i dovodi do formiranja novih informacijskih mreža (Rusch et al., 2023). Može podržati različite strategije kružne ekonomije poput smanjene potrošnje resursa (Neri et al., 2023) ili automatiziranog praćenja lokacije i nadzora materijala (Kristoffersen et al., 2020) pridonoseći pritom poduzećima u prikupljanju proizvoda na kraju životnog vijeka (Bressanelli et al., 2018) i poboljšavajući parametre izvedbe kružne ekonomije (Chauhan et al., 2022). Internet stvari kao tehnologija ima znatnu ulogu u prikupljanju velike količine podataka koje su dio druge tehnologije važne za kružnu ekonomiju – **velike podatke** (Bressanelli et al., 2018). Veliki podaci olakšavaju nekoliko aspekata kružne ekonomije, kao što je poboljšanje usklađivanja otpada i resursa u industrijskim sustavima simbioze putem prikupljanja i obrade ulazno-izlaznih tokova u stvarnom vremenu (Kristoffersen et al., 2020) ili predviđanje potražnje i upravljanje zalihama s ciljem smanjivanja otpada (Chauhan et al., 2022). Na taj način veliki podaci u kombinaciji s **analitikom podataka** omogućavaju uočavanje uzoraka ponašanja i kreiranja predikcije (Bressanelli et al., 2018). Stoga analitika podataka može poslužiti kao alat za predviđanje trošenja proizvoda, smanjenje zastoja u proizvodnji, planiranje održavanja, naručivanje rezervnih dijelova i optimizaciju potrošnje energije (Kristoffersen et al., 2020). **Blockchain tehnologija** je također od velike važnosti za kružnu ekonomiju zbog svoje sposobnosti da osigura transparentnost i zaštitu kibernetičkog okruženja, što može potaknuti internu i vanjsku komunikaciju koja omogućuje suradnju među različitim dionicima unutar industrijskih sustava (Chauhan et al., 2022). Na taj način može podržati kružnu nabavu, dizajn, upravljanje otpadom, recikliranje te ponovnu upotrebu materijala (Neri et al., 2023). **Računalstvo u oblaku** omogućuje pohranjivanje i dijeljenje podataka između dionika duž lanca opskrbe promičući suradnju i na taj način uključivanje svih dionika u kružnu ekonomiju (Neri et al., 2023). **Umjetna inteligencija** je često povezana s identifikacijom ruta za efikasniju kružnu ekonomiju (Neri et al., 2023). No, isto tako prepoznavanje slika temeljeno na umjetnoj inteligenciji može poboljšati recikliranje e-otpada (Chauhan et al., 2022). Stoga se predlaže da se informacijske tehnologije povezuju s poslovnim modelima i sustavima kako bi se pružila podrška provedbi samog poslovanja.

Kristoffersen i suradnici (2020) razvili su tzv. Okvir pametne kružne ekonomije (engl. *Smart circular economy framework*), prikazan na Slici 1., koji povezuje informacijske tehnologije i kružnu ekonomiju te uspostavlja vezu između informacijskih tehnologija i upravljanja znanjem i resursima. Okvir omogućuje procjenu trenutnih i budućih pametnih kružnih strategija s razinom zrelosti te pruža smjernice o tome kako iskoristiti digitalne tehnologije za maksimiziranje učinkovitosti resursa i produktivnosti za određenu kružnu strategiju i odgovarajuće ciljeve održivog razvoja (engl. *Sustainable Development Goals*).



Slika 1. Okvir pametne kružne ekonomije

Izvor: Kristoffersen i sur., 2020.

4. INDUSTRIJA 5.0

S obzirom da je industrija 4.0 orijentirana više na postizanje učinkovitosti informacijskom tehnologijom i digitalizacijom, nego na pitanja vezana uz održivost, razmišljanja kako iskoristiti nove tehnologije za rješavanje klimatskih i ekoloških, ali i društvenih pitanja, dovela su do ideje industrije 5.0 (Breque et al., 2021; Renda et al., 2022). Profit kao osnovni pokretač industrije nije održiv, te bi industrija 5.0 kao evolucija i nastavak industrije 4.0 trebala omogućiti ostvarivanje napretka i dobrobiti radnika, odnosno povećanja blagostanja za sve dionike, kao i poštivanje granica planeta Zemlje (Müller, 2020; Breque et al., 2021). Industrija 5.0 ideja je koju je pokrenula i koju snažno potiče Europska unija te je stoga donijeto nekoliko dokumenata na europskoj razini s ciljem njezinog definiranja i usmjeravanja njezinog razvoja (Müller, 2020; Breque et al., 2021; Renda et al., 2022), a kasnije su doneseni i brojni propisi i smjernice. U nastavku će biti objašnjene postavke tri temeljna koncepta industrije 5.0 koje su predstavljene u tim dokumentima: čovjekocentrično poslovanje (engl. *human-centricity*), održivost (engl. *sustainability*) i otpornost (engl. *resilience*).

Čovjekocentrično poslovanje znači da industrija 5.0 na prvo mjesto stavlja ljudske potrebe i promišlja kako tehnologija može pomoći u radu te se prilagoditi potrebama radnika, smatrajući ih investicijom, a ne troškom, te istovremeno osiguravajući poštivanje njihove privatnosti, samostalnosti i digniteta. Pri tome radnici trebaju biti uključeni u razvoj novih tehnologija, kako bi im one bile što bolje prilagođene, a radna mjesta sigurnija (na primjer, korištenjem robota koji preuzimaju opasnije, ali i jednostavne repetitivne poslove). Pritom nove tehnologije mogu omogućiti i veću inkluzivnost, omogućavajući zapošljavanje više radnika sa slabijim fizičkim ili mentalnim mogućnostima, kao i rad na daljinu. Također, kako neke vještine postaju suvišne zbog tehnologije, potrebno je osigurati razvoj novih potrebnih vještina i znanja, naročito digitalnih (npr. analiza podataka) i transverzalnih (npr. kreativno razmišljanje). Osim brige za fizičko zdravlje, Industrija 5.0 želi omogućiti podršku i mentalnom zdravlju, kao i općenito dobrobiti radnika.

Održivost pretpostavlja razvoj kružnih procesa koji će osigurati recikliranje prirodnih resursa te smanjiti količinu otpada i negativni utjecaj industrije na okoliš, kako se ne bi ugrozilo zadovoljavanje potreba budućih generacija. Stoga se javljaju inovacije u takozvanoj zelenoj tehnologiji i novi zeleni poslovni modeli koji imaju za cilj omogućiti dekarbonizaciju i povećati održivost. Iz istog se razloga potiče i razvoj lokalnih ekosustava proizvodnje i potrošnje. S ciljem prijelaza na kružnu ekonomiju, smanjenja industrijske potrošnje energije i postizanja klimatske neutralnosti, potrebno je donijeti i nove europske pravne okvire, ali uz zadržavanje kompetitivnosti na svjetskom tržištu. Također, informacijska tehnologija, naročito spremanje i obrada podataka, zahtijeva veliku potrošnju energije, ali s druge strane ima značajan potencijal u osiguravanju povećanja energetske učinkovitosti i većeg korištenja obnovljivih izvora energije.

Otpornost bi trebala osigurati bolju robusnost u proizvodnji i veću fleksibilnost organizacija, kako bi se smanjio utjecaj raznih poremećaja, što uključuje otporne lance vrijednosti i prilagodljive poslovne procese. Niz prirodnih i političkih događaja posljednjih godina, od COVIDa-19, potresa i požara diljem Europe, do Brexita i rata u Ukrajini, ukazali su na veliku neotpornost na iznenadne i nepredvidljive promjene tržišta usprkos tehnološkom napretku te na potrebu za boljom prilagodljivošću. Kao što veća učinkovitost i veći profit ne bi trebali biti postignuti žrtvovanjem održivosti, isto tako ne bi trebali biti postignuti nauštrb industrijske i organizacijske otpornosti. Lokalni ekosustavi proizvodnje i potrošnje osim održivosti osiguravaju i veću otpornost zbog decentralizacije i manjeg utjecaja vanjskih čimbenika. Ovisnost o informacijskoj tehnologiji s jedne strane može biti uzrokom slabije otpornosti, ali ona može biti iskorištena i za njezino povećanje.

Za ostvarivanje industrije 5.0 potrebna je i promjena u strategijama organizacija, ali i vlada 5.0, odnosno podrška javnog sektora i donošenje propisa i smjernica koji će omogućiti njezinu implementaciju, uz definiranje pravih metrika za praćenje napretka (Breque et al., 2021; Renda et al., 2022). Europska komisija predložila je i akcijski plan (Breque et al., 2021; Renda et al., 2022) koji poziva na promjenu u industrijskoj proizvodnji, nove poslovne modele, nove lance vrijednosti i nabave, pravnu regulativu te usmjeravanje digitalne transformacije, istraživanja i inovacija prema ostvarivanju industrije 5.0, s naglaskom na održivost.

5. UMJETNA INTELIGENCIJA KAO PODRŠKA KRUŽNOJ EKONOMIJI ZA INDUSTRIJU 5.0

Temeljni koncepti industrije 5.0 stavljaju jaki naglasak na održivost i očuvanje prirode, dok se s druge strane još uvijek razvijaju brojne tehnologije koje ne uzimaju te koncepte u obzir, a ljudske potrebe i želje rastu iz dana u dan. Sve to zahtijeva veliku potrošnju prirodnih resursa usprkos raznim politikama i aktivnostima koje su usmjerenje smanjenju njihove potrošnje i očuvanju. Stoga je jasan razvoj modela kružne ekonomije zajedno s industrijom 4.0, kao i to da je kružna ekonomija jedan od važnih čimbenika razvoja i uspjeha industrije 5.0. Kao što je navedeno u poglavlju 3, brojne tehnologije industrije 4.0 mogu se primijeniti u pojedinim fazama, odnosno R-ovima kružne ekonomije, uključujući i umjetnu inteligenciju. Stoga je pretraživanjem literature (za ključne riječi umjetna inteligencija i kružna ekonomija) dodatno istražena uloga koju umjetna inteligencija može imati ili već ima u ostvarivanju kružne ekonomije za postizanje čovjekocentričnosti, održivosti i otpornosti. Pregled literature ukazuje da se podrška koju umjetna inteligencija daje kružnom razvoju i proizvodnji proizvoda ogleda u razvoju novih materijala, a time i poboljšanih i održivijih proizvoda i njihovih dijelova, ponovnoj upotrebi i recikliranju, uštedi energije te reverznoj logistici. Na taj način najveći naglasak u okviru industrije 5.0 umjetnoj inteligenciji dan je u ostvarivanju održivosti, a dijelom posljedično i otpornosti.

Internet stvari je tehnologija koja senzorima može prikupiti velike količine podataka o proizvodima, čije spremanje se može osigurati raznim tehnologijama, uključujući i računalstvo u oblaku, a također biti i transparentno, učinkovito i sigurno korištenjem blockchain tehnologije (Voulgaridis et al., 2022; Rusch et al., 2023). Potreba za materijalima koji se mogu reciklirati već je dugo poznata, a isto tako i potreba da se od prirode ne uzima više nego što se daje korištenjem manje prirodnih materijala. Stoga se i mogućnosti koje umjetna inteligencija može pružiti koriste u razvoju novih materijala koji bi zamijenili prirodne materijale, a koji bi se istovremeno mogli i reciklirati. Prikupljanje i analiza velike količine podataka može učinkovito i brzo odrediti svojstva i strukturu prilikom razvoja novih materijala (Ghoreishi & Happonen, 2019). Također, algoritmi strojnog učenja mogu pomoći u pronalaženju održivijih načina razvoja materijala, na primjer metalo-organskih mreža koje mogu imati razne primjene, kao što je spremanje plina (Hardian et al., 2020). Razvoj trajnih, prilagodljivih te nadogradvih proizvoda i materijala može se osigurati analizom podatka, koja će dati uvid u trajnost proizvoda, potrebu za održavanjem i zamjenom dijelova (Kristoffersen et al., 2020), pa time posljedično osigurati i lako održavanje i popravak proizvoda. Praćenjem proizvoda i analizom u realnom vremenu može se produžiti njegov životni ciklus (Ghoreishi & Happonen, 2020). Primjenom strojnog učenja za brzo prototipiranje i testiranje omogućuje se brži razvoj boljih i kružnih proizvoda (Ghoreishi & Happonen, 2020; Voulgaridis et al., 2022), a također digitalni blizanci omogućuju ekonomičniju i održiviju provjeru svojstava proizvoda i njegovo preoblikovanje (Turner et al., 2022). Za nadgledanje dobrobiti proizvoda i materijala ključan je Internet stvari, jer se postavljanjem senzora koji prate i bilježe kretanje proizvoda, kao i njegove performanse, dobivaju razni podaci čijom se analizom može osigurati optimalnija uporaba i pravovremeno održavanje (Kristoffersen et al., 2020; Voulgaridis et al., 2022), kao i prepoznavanje onih proizvoda, dijelova proizvoda (modularnost) i materijala koji su ponovno upotrebljivi (Kristoffersen et al., 2020; Ramadoss et al., 2018). Ove tehnologije mogu biti korištene i za praćenje i analizu cijelog životnog ciklusa proizvoda (Ghoreishi & Happonen, 2020; Turner et al., 2022; Neri et al., 2023), čime se dobivaju vrijedni podaci koji se mogu koristiti za sve gore navedene potrebe. Naročito razne vrste plastike predstavljaju veliki problem te se prikupljanje podataka senzorima i njihova analiza mogu koristiti za razvrstavanje plastike i određivanje koja se može reciklirati, a blockchain tehnologija pomoću pametnih ugovora za povezivanje dionika u procesu prikupljanja, sortiranja, recikliranja i ponovne uporabe (Chidepatil et al., 2020), čime se povećavaju učinkovitost, vrijednost proizvoda i materijala te same mogućnosti za recikliranje (Ghoreishi & Happonen, 2019).

Područje koje je jako važno za kružnu ekonomiju, a umjetna inteligencija ga može znatno unaprijediti je logistika, naročito reverzna logistika. Praćenje senzorima i analiziranje podataka mogu osigurati da se veći postotak iskorištenih proizvoda i materijala reciklira za ponovnu proizvodnju (Kristoffersen et al., 2020) i time ubrza širenje koncepta kružne ekonomije (Ramadoss et al., 2018). Korištenje tehnologija umjetne inteligencije, kao što su Internet stvari i računalstvo u oblaku za automatizaciju i optimizaciju dobave, skladištenja i preuzimanja proizvoda može znatno skratiti cijeli proces logistike te smanjiti troškove i upotrebu potrebnih resursa (Ghoreishi & Happonen, 2020). U procesu reverzibilne logistike umjetna inteligencija može znatno pomoći u organizaciji prikupljanja, skladištenja i obrade proizvoda, od planiranja cijelog procesa i uspostavljanja mreže, preko korištenja strojnog učenja za predviđanje količine povrata proizvoda u svrhu optimizacije prikupljanja i skladištenja do preporuke korištenja prikupljenih proizvoda (npr. ponovno korištenje ili vraćanje u proizvodnju) na temelju analize prikupljenih podataka (Wilson et al., 2021), dakle može poboljšati cjelokupnu infrastrukturu reverzne logistike (Ghoreishi & Happonen, 2019).

Prikupljanjem i analizom podataka (Rusch et al., 2023) i predviđanjima potreba i potrošnje može se osigurati ušteda energije u raznim fazama životnog ciklusa proizvoda, kao i praćenjem proizvoda u lancu logistike (Kristoffersen et al., 2020). Znatnoj uštedi može doprinijeti i primjena održivijih načina proizvodnje, spremanja i distribucije električne energije, kao što su pametne mreže, gdje se primjenjuju razne tehnologije umjetne inteligencije, na primjer strojno učenje i neuralne mreže za predviđanje potrošnje (Ahmad et al., 2021). Korištenje umjetne inteligencije, blockchain tehnologije i distribuiranih izvora energije može omogućiti bolje upravljanje energijom, njenu veću učinkovitost kao i manje otpada (Jose et al., 2020). Naravno, postoji i zabrinutost zbog potrošnje energije i ugljičnog otiska koji uzrokuju tehnologije umjetne inteligencije, kao što su spremanje velike količine podataka i algoritmi strojnog učenja. No, već su u primjeni mnogi načini kojima se oni smanjuju, čime sama umjetna inteligencija postaje održivija, na primjer virtualizacijske tehnologije i optimalna radna temperatura i vlažnost u podatkovnim centrima (Acton et al., 2023), ili učinkovitije arhitekture modela strojnog učenja (Patterson et al., 2022).

6. ZAKLJUČAK

Važnost postizanja održivosti u raznim elementima poslovanja i života uzrokovala je kontinuirani razvoj koncepta kružne ekonomije i tehnologija koje trebaju omogućiti njegovu implementaciju. Nakon usporednog razvoja s industrijom 4.0, kružna ekonomija neizostavni je dio ostvarivanja industrije 5.0 i centralni dio jednog od njena tri glavna koncepta, održivosti. Digitalne tehnologije smatraju se ključnim čimbenikom strategije kružne ekonomije koje za cilj imaju usporiti, zatvoriti i suziti resursne petlje (Piscicelli, 2023). Stoga se mnoge tehnologije, naročito internet stvari i analitika velikih podataka, a zatim i blockchain tehnologija, računalstvo u oblaku i druge tehnologije umjetne inteligencije, kao što je strojno učenje, razvijaju u smjeru potpomaganja pojedinih faza kružne ekonomije. Umjetna inteligencija i informacijske tehnologije općenito imat će veliku ulogu u razvoju novih materijala i proizvoda, kojima će se moći smanjiti potrošnja prirodnih resursa, a koji će istovremeno biti otporniji, prilagodljiviji, trajniji te se moći lako održavati, popravljati i reciklirati. U cijelom tijeku životnog ciklusa proizvoda izrazito je važno smanjiti i potrošnju energije i otpada. Kako bi se koncept kružne ekonomije mogao ostvariti u što većoj mjeri, potrebna je aktivna uloga svih dionika te se stoga donose propisi i smjernice koji omogućavaju primjenu umjetne inteligencije osiguravajući pri tome sigurnost i privatnost. No, stvarna implementacija ovisit će o tome koliko će poduzeća koncepte industrije 5.0 – čovjekocnetričnost, održivost i otpornost – staviti ispred profita.

Reference

Acton, M., Bertoldi, P., & Booth, J. (Eds.). (2023). 2023 Best Practice Guidelines for the EU Code of Conduct on Data Centre Energy Efficiency. European Commission, Ispra. https://e3p.jrc.ec.europa.eu/sites/default/files/documents/publications/jrc132576_jrc132576_jrc_2023_best_practice_guidelines_v14.1.0final_gt1.pdf

Ahmad, T., Zhang, D., Huang, C., Zhang, H., Dai, N., Song, Y., & Chen, H. (2021). Artificial intelligence in sustainable energy industry: Status Quo, challenges and opportunities. *Journal of Cleaner Production, 289*, 125834. https://doi.org/10.1016/j.jclepro.2021.125834

Blomsma, F., & Brennan, G. (2017). The Emergence of Circular Economy: A New Framing Around Prolonging Resource Productivity. *Journal of Industrial Ecology, 21*(3), 603–614. https://doi.org/10.1111/jiec.12603

Breque, M., De Nul, L., & Petridis, A. (Eds.). (2021). Industry 5.0: Towards a sustainable, human centric and resilient European industry. European Commission, Publications Office of the European Union. https://data.europa.eu/doi/10.2777/308407

Bressanelli, G., Adrodegari, F., Perona, M., & Saccani, N. (2018). The role of digital technologies to overcome Circular Economy challenges in PSS Business Models: An exploratory case study. *Procedia CIRP, 73*, 216–221. https://doi.org/10.1016/j.procir.2018.03.322

Cagno, E., Neri, A., Negri, M., Bassani, C. A., & Lampertico, T. (2021). The Role of Digital Technologies in Operationalizing the Circular Economy Transition: A Systematic Literature Review. *Applied Sciences, 11*(8), Article 8. https://doi.org/10.3390/app11083328

Chauhan, C., Parida, V., & Dhir, A. (2022). Linking circular economy and digitalisation technologies: A systematic literature review of past achievements and future promises. *Technological Forecasting and Social Change, 177,* 121508. https://doi.org/10.1016/j.techfore.2022.121508

Chidepatil, A., Bindra, P., Kulkarni, D., Qazi, M., Kshirsagar, M., & Sankaran, K. (2020). From Trash to Cash: How Blockchain and Multi-Sensor-Driven Artificial Intelligence Can Transform Circular Economy of Plastic Waste? *Administrative Sciences, 10*(2), Article 2. https://doi.org/10.3390/admsci10020023

Demestichas, K., & Daskalakis, E. (2020). Information and Communication Technology Solutions for the Circular Economy. *Sustainability, 12*(18), Article 18. https://doi.org/10.3390/su12187272

EUROPEAN COMMISSION. (2019). The European Green Deal. https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588580774040&uri=CELEX%3A52019DC0640

EUROPEAN COMMISSION. (2020). A new Circular Economy Action Plan For a cleaner and more competitive Europe. https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN

Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of Cleaner Production, 198*, 401–416. https://doi.org/10.1016/j.jclepro.2018.06.240

Ghoreishi, M., & Happonen, A. (2019). Key enablers for deploying artificial intelligence for circular economy embracing sustainable product design: Three case studies. *AIP Conference Proceedings, 2233*, 050008. https://doi.org/10.1063/5.0001339

Ghoreishi, M., & Happonen, A. (2020). New promises AI brings into circular economy accelerated product design: A review on supporting literature. *E3S Web of Conferences, 158*, 06002. https://doi.org/10.1051/e3sconf/202015806002

Hardian, R., Liang, Z., Zhang, X., & Szekely, G. (2020). Artificial intelligence: The silver bullet for sustainable materials development. *Green Chemistry, 22*(21), 7521–7528. https://doi.org/10.1039/D0GC02956D

Jose, R., Panigrahi, S., Patil, R., Fernando, Y., & Ramakrishna, S. (2020). Artificial Intelligence-Driven Circular Economy as a Key Enabler for Sustainable Energy Management. *Materials Circular Economy, 2*, 1.7. https://doi.org/10.1007/s42824-020-00009-9

Khan, S. A. R., Shah, A. S. A., Yu, Z., & Tanveer, M. (2022). A systematic literature review on circular economy practices: Challenges, opportunities and future trends. *Journal of Entrepreneurship in Emerging Economies, 14*(5), 754–795. https://doi.org/10.1108/JEEE-09-2021-0349

Khan, S. A. R., Zia-ul-haq, H. M., Umar, M., & Yu, Z. (2021). Digital technology and circular economy practices: An strategy to improve organizational performance. *Business Strategy & Development, 4*(4), 482–490. https://doi.org/10.1002/bsd2.176

Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling, 127*, 221–232. https://doi.org/10.1016/j.resconrec.2017.09.005

Kristoffersen, E., Blomsma, F., Mikalef, P., & Li, J. (2020). The smart circular economy: A digital-enabled circular strategies framework for manufacturing companies. *Journal of Business Research, 120*, 241–261. https://doi.org/10.1016/j.jbusres.2020.07.044

Kristoffersen, E., Mikalef, P., Blomsma, F., & Li, J. (2021). Towards a business analytics capability for the circular economy. *Technological Forecasting and Social Change, 171*, 120957. https://doi.org/10.1016/j.techfore.2021.120957

Lasi, H., Fettke, P., Feld, T., & Hoffmann, M. (2014). Industry 4.0. *Business & Information Systems Engineering, 6*(4), 239–242. https://doi.org/10.1007/s12599-014-0334-4

Liu, L., & Ramakrishna, S. (Eds.). (2020). An Introduction to Circular Economy (1st ed. 2021 edition). Springer.

Liu, Q., Trevisan, A. H., Yang, M., & Mascarenhas, J. (2022). A framework of digital technologies for the circular economy: Digital functions and mechanisms. *Business Strategy and the Environment, 31*(5), 2171–2192. https://doi.org/10.1002/bse.3015

Morganti, M.-B. C. P. (Ed.). (2021). An Introduction to the Circular Economy. Nova Science Pub Inc.

Müller, J. (Ed.). (2020). Enabling Technologies for Industry 5.0: Results of a workshop with Europe's technology leaders. European Commission, Publications Office of the European Union. https://data.europa.eu/doi/10.2777/082634

Neri, A., Negri, M., Cagno, E., Franzò, S., Kumar, V., Lampertico, T., & Bassani, C. A. (2023). The role of digital technologies in supporting the implementation of circular economy practices by industrial small and medium enterprises. Business Strategy and the Environment, 1–26. https://doi.org/10.1002/bse.3388

Patterson, D., Gonzalez, J., Hölzle, U., Le, Q., Liang, C., Munguia, L.-M., Rothchild, D., So, D. R., Texier, M., & Dean, J. (2022). The Carbon Footprint of Machine Learning Training Will Plateau, Then Shrink. *Computer, 55(*7), 18–28. https://doi.org/10.1109/MC.2022.3148714

Piscicelli, L. (2023). The sustainability impact of a digital circular economy. *Current Opinion in Environmental Sustainability, 61*, 101251. https://doi.org/10.1016/j.cosust.2022.101251

Ramadoss, T. S., Alam, H., & Seeram, R. (2018). Artificial Intelligence and Internet of Things enabled Circular economy. *The International Journal of Engineering and Science, 7*(9), 55–63. https://doi.org/10.9790/1813-0709035563

Ranta, V., Aarikka-Stenroos, L., & Väisänen, J.-M. (2021). Digital technologies catalyzing business model innovation for circular economy—Multiple case study. Resources, Conservation and *Recycling, 164*, 105155. https://doi.org/10.1016/j.resconrec.2020.105155

Renda, A., Schwaag Serger, S., Tataj, D., Morlet, A., Isaksson, D., Martins, F., Mir Roca, M., Hidalgo, C., Huang, A., Dixson-Declève, S., Balland, P.-A., Bria, F., Charveriat, C., Dunlop, K., & Giovannini, E. (Eds.). (2022). Industry 5.0, a transformative vision for Europe: Governing systemic transformations towards a sustainable industry. European Commission, Publications Office of the European Union. https://data.europa.eu/doi/10.2777/17322

Rosa, P., Sassanelli, C., Urbinati, A., Chiaroni, D., & Terzi, S. (2020). Assessing relations between Circular Economy and Industry 4.0: A systematic literature review. *International Journal of Production Research, 58*(6), 1662–1687. https://doi.org/10.1080/00207543.2019.1680896

Rusch, M., Schöggl, J.-P., & Baumgartner, R. J. (2023). Application of digital technologies for sustainable product management in a circular economy: A review. *Business Strategy and the Environment, 32*(3), 1159–1174. https://doi.org/10.1002/bse.3099

Schöggl, J.-P., Rusch, M., Stumpf, L., & Baumgartner, R. J. (2023). Implementation of digital technologies for a circular economy and sustainability management in the manufacturing sector. *Sustainable Production and Consumption, 35*, 401–420. https://doi.org/10.1016/j.spc.2022.11.012

Tavera Romero, C. A., Castro, D. F., Ortiz, J. H., Khalaf, O. I., & Vargas, M. A. (2021). Synergy between Circular Economy and Industry 4.0: A Literature Review. *Sustainability, 13*(8), Article 8. https://doi.org/10.3390/su13084331

Trevisan, A. H., Zacharias, I. S., Castro, C. G., & Mascarenhas, J. (2021). Circular economy actions in business ecosystems driven by digital technologies. *Procedia CIRP, 100*, 325–330. https://doi.org/10.1016/j.procir.2021.05.074

Turner, C., Oyekan, J., Garn, W., Duggan, C., & Abdou, K. (2022). Industry 5.0 and the Circular Economy: Utilizing LCA with Intelligent Products. *Sustainability, 14*(22), Article 22. https://doi.org/10.3390/su142214847

Voulgaridis, K., Lagkas, T., & Sarigiannidis, P. (2022). Towards Industry 5.0 and Digital Circular Economy: Current Research and Application Trends. 153–158. https://doi.org/10.1109/DCOSS54816.2022.00037

Wilson, M., Paschen, J., & Pitt, L. (2021). The circular economy meets artificial intelligence (AI): Understanding the opportunities of AI for reverse logistics. *Management of Environmental Quality: An International Journal, 33*(1), 9–25. https://doi.org/10.1108/MEQ-10-2020-0222

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.323

Konvergira li državna potrošnja na zdravstvo u EU?
Is There Convergence in Government Expenditures on Health in the EU?

Paola Macanović[1]
Lena Malešević Perović[2]

Received: March 10, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Ključne riječi:
Državna potrošnja na zdravstvo;
Konvergencija;
EU

Keywords:
Government expenditures on health;
Convergence;
EU

Sažetak: *Ovaj rad empirijski procjenjuje postojanje konvergencije državne potrošnje na zdravstvo među zemljama EU. Ekonomske integracije i ujedinjenje tržišta unutar Europske Unije potiču konvergenciju u dohocima, čime se nameće pitanje postojanja konvergencije i nekih drugih varijabli vezanih uz dohodak, kao što je državna potrošnja za zdravstvenu zaštitu. Stoga se u ovom radu testira konvergencija ove vrste troškova unutar EU, tijekom razdoblja 2005.-2019. Rezultati empirijskog testiranja ukazuju na postojanje konvergencije u izdacima na zdravstvo po stanovniku, i u BDP-u, u promatranom razdoblju.*

Abstract: *This paper empirically assesses the existence of convergence of government expenditures on health among EU countries. Economic integration and market unification within the European Union encourage convergence in incomes, which raises the question of the existence of convergence of some other variables related to income, such as government expenditures on health. This paper, therefore, tests the (beta) convergence of this type of spending within the EU, during the period 2005-2019. The results of empirical testing confirm the existence of convergence in healthcare expenditures per inhabitant, and in GDP, in the observed period.*

1. UVOD I MOTIVACIJA

Solowljev (1956) model rasta predviđa (uvjetnu) konvergenciju u nacionalnim dohocima različitih zemalja, pri čemu zemlje s niskim dohotkom rastu po višim stopama od zemalja s visokim dohotkom, što ultimativno rezultira izjednačavanjem dohodaka među zemljama. Osim na dohodak, testiranje konvergencije može se primijeniti i na varijable fiskalne politike, i doista, Scully (1991), Annala (2003) i Coughlin et al. (2007) u svojim istraživanjima nalaze dokaze o postojanju konvergencije. Slijedeći ovaj način razmišljanja, proizlazi da bi i struktura tj. sastav državne potrošnje (prema funkciji) mogao konvergirati, posebno među zemljama Europske Unije (EU). Naime, ekonomske integracije potiču konvergenciju dohodaka, a time i ostalih pokazatelja koji ovise o dohotku, poput državne potrošnje i njenih komponenti. U ovom radu mi se fokusiramo na specifičnu komponentu državne potrošnje – izdatke za zdravstvo, te testiramo postoji li konvergencija ovih izdataka među zemljama EU.

Naime, izdaci za zdravstvenu zaštitu u EU su pod konstantnim pritiskom rastućeg BDP-a, opadajuće populacije (posebno radno-sposobnog stanovništva) koja stari, te visoke pokrivenosti zdravstvenim osiguranjem (Nghiem i Connelly, 2017), što dovodi u pitanje dugoročno financiranje zdravstvenog sektora unutar EU. Podaci ukazuju na značajne razlike u troškovima zdravstvene zaštite između zemalja EU, pri čemu se može primijetiti značajan porast u izdvajanjima

1 Faculty of Economics, Business and Tourism, Cvite Fiskovica 5, 21000 Split, Croatia
2 Faculty of Economics, Business and Tourism, Cvite Fiskovića 5, 21000 Split, Croatia

zemalja Srednje i Istočne EU, koje pomalo sustižu zemlje s najvećom potrošnjom na zdravstvo. Kao što primjećuje Hitiris (1997), izdaci za zdravstvo ovise prvenstveno o razini ekonomske razvijenosti i strukturi stanovništva, pri čemu konvergencija dohodaka može u konačnici dovesti i do konvergencije u zdravstvenim izdacima.

Uvažavajući činjenicu da različite vrste državnih rashoda imaju različite učinke na gospodarski rast, vlade diljem svijeta su se, zadnjih godina, usmjerile ka ulaganju u tzv. produktivne, nauštrb ne-produktivnih rashoda. Potrošnja na zdravstvo upravo je jedan od tih produktivnih rashoda. Sve navedeno navodi na pitanje postojanja konvergencije u ovim izdacima, unatoč činjenici da takva politika usklađivanja nije usvojena na razini EU.

Rad se strukturiran kako slijedi. Poglavlje 2 daje pregled literature, fokusirajući se isključivo na pitanje konvergencije pojedinih komponenti državne potrošnje, s naglaskom na zdravstvo; Poglavlje 3 prezentira ekonometrijski model i podatke koji se koriste u procjeni, dok su rezultati dani u Poglavlju 4. Poglavlje 5, naposljetku, daje osnovne zaključke provedene empirijske analize.

2. PREGLED LITERATURE

Literatura koja istražuje dohodovnu konvergenciju je iznimno opširna, stoga se u ovom pregledu literature fokusiramo isključivo na radove koji testiraju konvergenciju pojedinih komponenti državne potrošnje.

Apostolos i Afxentiou (1996) testiraju postojanje konvergencije državne potrošnje u EU tijekom 1960.-1991. U svom radu testiraju državnu potrošnju po stanovniku, državnu potrošnju na transfere i subvencije, te ukupnu državnu potrošnju, te ne nalaze potvrdu postojanja konvergencije. Sanz i Velazquez (2001) istražuju zemlje OECD-a u razdoblju 1970.-1998., te testiraju postojanje konvergencije strukture državnih rashoda prema funkcijskoj klasifikaciji. Njihovi rezultati ukazuju na to da je većina komponenti državne potrošnje blizu postojanog stanja, te da, nakon 1980. godine, ovaj proces konvergencije usporava. Skidmore et al. (2004) uočavaju da je, u razdoblju 1960.-2000., na uzorku zemalja OECD-a i zemalja u razvoju, državna potrošnja po stanovniku konvergirala. Ovaj nalaz se odnosi ne samo na ukupnu državnu potrošnju, nego i na državnu kapitalnu potrošnju i državnu potrošnju na obrazovanje. Aspergis et al. (2013) istražuju konvergenciju udjela državne potrošnje u BDP-u na uzroku od 17 zemalja EU tijekom razdoblja 1990.-2012. U svom radu nalaze da postoje dva kluba konvergencije u ukupnim državnim rashodima u BDP-u. Njihovi nalazi ukazuju na nepostojanje konvergencije među zemljama EU po pitanju različitih kategorija državne potrošnje. Ferreiro et al. (2014) također se fokusiraju na EU, i to u periodu 1995.-2007. Analizirajući konvergenciju nalaze da je ona prisutna kada se testira udio pojedine kategorije državne potrošnje u BDP-u, ali nije pri testiranju pojedine kategorije u ukupnoj državnoj potrošnji. Malešević Perović et al. (2016) testiraju prisutnost konvergencije u strukturi državne potrošnje u zemljama EU-15 u razdoblju 1995.-2010. Specifičnost njihovog rada jest u korištenju prostorne ekonometrije, pri čemu nalaze da je uključivanje prostorne komponente u model iznimno bitno za razumijevanje konvergencije, s obzirom da utječe na njezinu brzinu, tj. rezultate. Rezultati potvrđuju postojanje beta konvergencije u svim proučavanim komponentama državne potrošnje.

Što se tiče analize državne potrošnje na zdravstvo, samo nekolicina radova se posvetila ovoj temi, te ih predstavljamo u nastavku. Hitiris (1997) testira europske zemlje, ali ne pronalazi dokaze o konvergenciji u rashodima za zdravstvo. Nixon (1999) također proučava podatke o zdravstvenim rashodima u zemljama EU, tijekom 1960.-1995. Njegovi rezultati ukazuju na postojanje konvergencije u zdravstvenim rashodima, kako po stanovniku, tako i u udjelu u BDP-u. Hitiris i Nixon (2001) ne nalaze dokaze o postojanju konvergencije u zdravstvenim izdacima unutar EU. Kerem et al. (2008), s druge strane, potvrđuju prisutnost beta konvergencije u izdacima na zdravstvo u BDP-u i po stanovniku u EU-23 u razdoblju 1992.-2004. godine. Naglašavaju, međutim, da je konvergencija prisutna samo u jednom periodu - 2002.-2004. godine. Lau i Fung (2013) analiziraju 14 zemalja EU, tijekom 1975.-2008., te ne nalaze potvrdu konvergencije u zdravstvenoj potrošnji. Albulescu et al. (2017) promatraju šest zemalja EU u periodu 1972.- 2013., te također ne nalaze dokaze o konvergenciji udjela državne potrošnje na zdravstvo u BDP-u. Kulyk i Augostowski (2017) istražuju EU 12, te zaključuju da postoji, ne konvergencija, nego divergencija u rashodima na zdravstvenu zaštitu. Mališova i Štrangfeldova (2021) istražuju EU-27 tijekom 2004.-2019., te potvrđuju postojanje beta i sigma konvergencije u izdacima na zdravstvo po stanovniku. Kada se promatra udio u BDP-u, međutim, konvergencija nije potvrđena.

3. EKONOMETRIJSKI MODEL I PODATCI

U ovom radu se oslanjamo na model prezentiran u Skidmore et al. (2004), koji pretpostavlja negativan odnos između početne razine državne potrošnje i stope rasta istog pokazatelja, kao što prikazuje jednadžba (1). β-konvergencija je prisutna ako je procijenjeni β-koeficijent negativan, što implicira da više razine prošle državne potrošnje, $ln\ g_{t-1}$, dovode do niže stope rasta tekuće državne potrošnje, $ln(g_t/g_{t-1})$.

$$ln\left(\frac{g_t}{g_{t-1}}\right) \approx lnA\tau_t - n_t + \alpha lnk_{t-1} + (\beta - 1)lng_{t-1} \quad (1)$$

U jednadžbi (1) k_{t-1} i g_{t-1} predstavljaju lagirane vrijednosti privatnog kapitala *per capita*, odnosno državne potrošnje *per capita*. n_t predstavlja rast stanovništva, a τ_{t-1} udio državne potrošnje u outputu. U našem modelu slijedimo pristup Skidmore et al. (2004), pri čemu umjesto ukupne državne potrošnje testiramo samo jednu njezinu komponentu – potrošnju na zdravstvo. U tom slučaju bi negativni predznak na odabranoj komponenti državne potrošnje, kada se regresira u odnosu na vlastitu stopu rasta, sugerirao konvergenciju. Jednadžba koju testiramo tada poprima sljedeći oblik, prema Sanz i Velasquez (2001):

$$\frac{1}{T}\left[ln\left(\frac{Z_{it}}{N_{it}}\right) - ln\left(\frac{Z_{i,t_0}}{N_{i,t_0}}\right)\right] = \alpha_i + \beta ln\left(\frac{Z_{i,t_0}}{N_{i,t_0}}\right) + \varepsilon_t \quad (2)$$

gdje Z_{it} označava državne rashode na zdravstvo, a N_{it} ukupno stanovništvo u zemlji i u godini t, dakle, državne izdatke za zdravstvo po stanovniku. U drugom modelu mijenjamo nazivnik, te testiramo konvergenciju potrošnje na zdravstvo u BDP-u, to jest:

$$\frac{1}{T}\left[ln\left(\frac{Z_{it}}{BDP_{ij}}\right) - ln\left(\frac{Z_{i,t_0}}{BDP_{i,t_0}}\right)\right] = \alpha_i + \beta ln\left(\frac{Z_{i,t_0}}{BDP_{i,t_0}}\right) + \varepsilon_t \quad (3)$$

U empirijskom testiranju koristimo balansirane panel podatke za 27 EU članica, a to su: Austrija, Belgija, Bugarska, Hrvatska, Cipar, Češka Republika, Danska, Estonija, Finska, Francuska, Njemačka, Grčka, Mađarska, Irska, Italija, Latvija, Litva, Luksemburg, Malta, Nizozemska, Poljska, Portugal, Rumunjska, Slovačka, Slovenija, Španjolska i Švedska. Promatrano razdoblje je 15 godina: od 2005.-2019. Opis podataka, njihovi izvori, kao i deskriptivna statistika, dani su u Tablicama 1 i 2.

Tablica 1. Definicija i izvor varijabli

Varijabla	Opis	IZVOR
Z_pc	Državna potrošnja na zdravstvo po glavi stanovnika (u $)	World Bank (2022)
Z_BDP	Državne potrošnja na zdravstvo (% BDP-a)	World Bank (2022)
Dug	Javni dug (% BDP-a)	World Bank (2022)
s	Stopa štednje (% BDP-a)	World Bank (2022)
U	Stopa nezaposlenosti (% uk. radne snage)	World Bank (2022)
EDU	Stopa visokog obrazovanja (% uk. stan.)	World Bank (2022)
N	Godišnja stopa rasta stanovništva (%)	World Bank (2022)

Tablica 2. Deskriptivna statistika

Varijabla	Obs	prosjek	Std. Dev.	Min	Max
Z_pc	405	2202.68	1247.75	412.54	5802.13
Z_BDP	405	5.86	1.59	2.25	9.28
Dug	405	60.94	36.08	3.80	186.40
s	405	25.27	8.30	7.52	58.78
U	405	8.67	4.34	2.01	27.47
EDU	378	6.21	0.81	4.55	8.73
n	405	0.24	0.85	-2.26	3.93

4. REZULTATI ISTRAŽIVANJA

Analizu počinjemo testiranjem osnovnih modela, danih u jednadžbama (2) i (3), u kojima je početna vrijednost pojedine varijable regresirana na vlastitu stopu rasta.

Tablica 3. Rezultati osnovnog modela

Zavisna varijabla: stopa rasta	Z_PC	Z_PC	Z_BDP	Z_BDP
	(1)	(2)	(3)	(4)
LN_Z_PC (-1)	-0.699***	-0.102***		
	(0.0368)	(0.0223)		
LN_Z_BDP (-1)			-0.674***	-0.0754***
			(0.0328)	(0.0194)
_CONS	5.256***	0.770***	1.166***	0.131***
	(0.277)	(0.169)	(0.0568)	(0.0339)
N	404	404	404	404
F	361.2		423.1	
FE/RE	FE	RE	FE	RE

Standardne greške u zagradama; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Tablica 3 prikazuje rezultate za dvije zavisne varijable (navedene u prvom retku tablice): državnu potrošnju na zdravstvo - po stanovniku (stupci 1 i 2) i u BDP-u (stupci 3 i 4). Po dva stupca koja se odnose na svaku od ovih zavisnih varijabli prikazuju rezultate za fiksni (FE) i *random* (RE) panel model. U svakom od četiri slučaja parametar β je statistički značajan na razini signifikantnosti od 1%, te negativan, što potvrđuje pretpostavku o postojanju konvergencije. S obzirom da Hausmanov test sugerira korištenje fiksnog modela, u nastavku prezentiramo samo taj model, ovaj put proširen za dodatne nezavisne varijable, kako bi se testirala uvjetna konvergencija. Naime, uvjetna konvergencija postoji kod zemalja sa sličnim strukturnim karakteristika, koje, ovom prilikom, obuhvaćamo kroz uključivanje dodatnih varijabli, a to su: stopa štednje (S), stopa visokog obrazovanja (EDU) i stopa rasta stanovništva (N) – Tablica 4, stupci 1 i 3. Naposljetku, za testiranje robusnosti rezultata i taj model dodatno proširujemo uključivanjem: javnog duga (DUG) i stope nezaposlenosti (U) - Tablica 4, stupci 2 i 4. Modeli, kao i prije, variraju s obzirom na odabranu zavisnu varijablu, koja je naznačena u prvom retku tablice.

Tablica 4. Rezultati proširenog modela – testiranje uvjetne konvergencije

Zavisna varijabla: stopa rasta	**Z_PC (1)**	**Z_PC (2)**	**Z_BDP (3)**	**Z_BDP (4)**
LN_Z_PC (-1)	-0.866***	-0.884***		
	(0.0295)	(0.0289)		
LN_Z_BDP (-1)			-0.760***	-0.756***
			(0.0299)	(0.0303)
S	0.00412	0.00420	-0.0124***	-0.0126***
	(0.00294)	(0.00291)	(0.00135)	(0.00137)
EDU	-0.188***	-0.133***	-0.0296***	-0.0351***
	(0.0148)	(0.0185)	(0.00653)	(0.00858)
N	0.0571***	0.0872***	0.0259***	0.0195*
	(0.0212)	(0.0247)	(0.00947)	(0.0114)
DUG		0.00446***		-0.000429
		(0.000945)		(0.000435)
U		-0.0153***		0.000388
		(0.00396)		(0.00183)
_CONS	7.540***	7.193***	1.802***	1.857***
	(0.276)	(0.282)	(0.0851)	(0.0989)
N	377	377	377	377
F	233.0	168.9	167.3	111.5

Standardne greške u zagradama; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

U Tablici 4, parametar β je u svim promatranim modelima statistički značajan i negativan, te potvrđuje postojanje konvergencije. Što se tiče ostalih varijabli, stopa štednje nema značajan utjecaj na potrošnju po stanovniku, ali, suprotno očekivanjima, ima negativan predznak u stupcima 3 i 4, što bi sugeriralo da veća stopa štednje otežava konvergenciju, tj. približavanje zemalja po pitanju udjela potrošnje na zdravstvo u BDP-u. To se može objasniti činjenicom da zemlje tu povećanu štednju očito ne usmjeravaju u sektor zdravstva. Stopa rasta stanovništva ima statistički značajan pozitivan utjecaj, implicirajući da porast stanovništva pozitivno utječe na konvergenciju troškova za zdravstvo, kako *per capita* tako i u BDP-u. Ulaganje u obrazovanje ima statistički značajan i negativan utjecaj, sugerirajući da one zemlje koje više ulažu u obrazovanje zapravo divergiraju po pitanju troškova za zdravstvo. Naposljetku, utjecaj javnog duga i stope nezaposlenosti je statistički značajan samo u modelima 1 i 2. Rezultati sugeriraju da povećanje javnog duga utječe na konvergenciju pozitivno, a stope nezaposlenosti negativno. S povećanjem javnog duga zemlje su prisiljene biti fiskalno discipliniranije, te je za očekivati da će primjenjivati slične politike obuzdavanja rasta svih troškova, pa tako i troškova za zdravstvo. U tom smislu porast javnog duga pridonosi konvergenciji zdravstvenih rashoda. Porast nezaposlenosti, s druge strane, kroz posljedično smanjenje proizvodnje utječe na divergenciju zdravstvenih troškova među zemljama, jer ostali ciljevi postaju prioritetni.

5. ZAKLJUČAK

Ovaj rad empirijski procjenjuje postojanje konvergencije državne potrošnje na zdravstvo među zemljama EU. U situaciji padajućeg broja radno-sposobnog stanovništva koje stari, te njihove visoke pokrivenosti zdravstvenim osiguranjem, pitanje fiskalne održivosti zdravstvenih sustava postaje ključno.

Državno ulaganje u zdravstveni sektor u vidu izdataka na zdravstvenu zaštitu predstavlja važnu komponentu gospodarskog razvitka, koja doprinosi smanjenju nejednakosti, povećanju standarda života i, općenito, blagostanju društva. Rashodi na zdravstvenu zaštitu predstavljaju važan dio ukupne državne potrošnje, te su u 2019. godini, kao druga najveća komponenta javnih rashoda, činili 7% BDP-a (Eurostat, 2022). S obzirom da ekonomske integracije potiču konvergenciju u dohocima, kao logično se nameće pitanje postojanja konvergencije i nekih drugih varijabli vezanih uz dohodak, kao što je državna potrošnja za zdravstvenu zaštitu. Stoga se u ovom radu testira konvergencija ove vrste troškova unutar EU, tijekom razdoblja 2005.-2019.

U radu empirijski analiziramo dva modela za izračun (uvjetne) konvergencije: u jednom se testira konvergencija državne potrošnje za zdravstvo po stanovniku, a u drugom državne potrošnje za zdravstvo u BDP-u. Rezultati ukazuju na negativan i statistički značajan parametar β, s razinom signifikantnosti od 1%, kako osnovnom, tako i proširenom modelu, što potvrđuje postojanje konvergencije u promatranom razdoblju.

Reference

Albulescu, C., Oros, C., & Tiwari, A. (2017). ‘’Is there any convergence in health expenditures across EU countries?’’, Economics Bulletin, Volume 37, Issue 3, pages 2095-2101.

Annala, C. (2003). Have state and local fiscal policies become more alike? Evidence of beta convergence among fiscal policy variables. Public Finance Review, 31(2), pp. 144-165.

Apergis, N., Christou, C., & Hassapis, C. (2013). Convergence in public expenditures across EU countries: evidence from club convergence, Economics & Finance Research, 1:1, 45-59.

Apostolos, S., & Afxentiou, P. (1996). Government expenditures in the European Union: Do they converge or follow Wagner’s Law?, *International Economic Journal*.

Coughlin, C., Garret, T. & Hernandez-Murillo, R. (2007). Spatial Dependence in Models of State Fiscal Policy Convergence. *Public Finance Review*, 35(3), pp. 361-384.

Eurostat. (2022). Eurostat database: Health expenditure by financing scheme: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=hlth_sha11_hf&lang=en (1.5.2022.)

Ferreiro, J., Carrasco, C., & Gomez, C. (2014). Convergence of Public Expenditures and Implementation of a Single Model of Public Finances in the European Union, Revista de Economía Mundial, núm. 37, pp. 75-102.

Hitiris, T., & Nixon J. (2001). “Convergence in Health Care Expenditure in the EU Countries” Applied Economics Letters, 8 the spread from the average is retained into analysis, 223–228.

Hitiris, T. (1997). “Health Care Expenditure and Integration in the Countries of the European Union”, Applied Economics, 29, 1-6.

Kerem, K., Puss, T., Viies, M., & Maldre, R. (2008). Health and convergence of health care expenditure in EU, *International Business & Economics Research Journal* (IBER), 7(3).

Kulyk, P., & Augostowski, L. (2017). Convergence of health expenditure in EU-12 and V4 states: *Copernican Journal of Finance and Accounting,* 6(2), 33-4.

Lau, C. K., & Fung, K. W. (2013). Convergence in Health Care Expenditure of 14 EU Countries: New evidence from Non-linear Panel Unit Root Test. MPRA Paper 52871, University Library of Munich, Germany.

Malešević Perović, L., Golem, S., & Mihaljević Kosor, M. (2016). Convergence in Government Spending Components in EU15: A Spatial Econometric Perspective, Amfiteatru Economic, 18(42), pp. 240-254.

Mališová, D., & Štrangfeldová, J. (2021). Convergence of health expenditure of European Union countries, Technical University of Ostrava.

Nghiem, S. H., Connelly, L. B. (2017). Convergence and determinants of health expenditures in OECD countries. Health Economics Review, 7(1), 1-11.

Nixon, J. (1999). Convergence Analysis of Health Care Expenditure in the EU countries Using Two Approaches, The University of York.

Nixon, J. (2000). Convergence of health care spending and health outcomes in the European Union, 1960-95, Working Papers 183, Centre for Health Economics, University of York.

Sanz, I., & Velasquez, F. (2001). The composition of public expenditure and growth: different models of government expenditure distribution by functions, European Economy Group, Universidad Complutense de Madrid, Working Paper 9/2001.

Scully, G. (1991). The convergence of fiscal regimes and the decline of the Tiebout effect. Public Choice, 72(1), pp. 51-59.

Skidmore, M., Toya, H., & Merriman, D. (2004). Convergence in Government Spending: Theory and Cross-Country Evidence. Kyklos, 57(4), 587–620.

Solow, R. M. (1956). A Contribution to the Theory of Economic Growth, Quarterly Journal of Economics, Vol. 70 (1): 65-94.

World Bank. (2022). World Development Indicators, dostupno na: https://datatopics.worldbank.org/world-development-indicators/ (preuzeto 13.5.2022.)

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.331

Uticaj personalnih novčanih doznaka na poboljšanje socijalnog stanja stanovništva i privrede zemalja primalaca

The Influence of Personal Money Remittances on the Improvement of the Social Condition of the Population and the Economy of the Recipient Countries

Rade Kovač[1]
Namik Čolaković[2]

Received: April 20, 2023
Accepted: June 28, 2023
Published: October 30, 2023

Ključne riječi:
Doznake;
Iseljavanje;
Siromaštvo;
Transformacija lokalnih zajednica;
Ekonomski razlozi iseljavanja

Keywords:
Remittances;
Emigration;
Poverty;
Transformation of local communities;
Economic reasons for emigration

Sažetak: *Novčane doznake su novi finansijski fenomen i jedan od važnih izvora prihoda zemalja sa niskim i srednjim dohotkom. Iako su pojedinačne novčane doznake relativno male vrijednosti, one zajedno predstavljaju ogromnu vrijednost, jer su zbirno ti tokovi tri puta veći od globalne službene razvojne pomoći. Iako se najčešće koriste za pokrivanje osnovnih potreba domaćinstava, one istovremeno u dijelu domaćinstava podržavaju razvoj vještina i mogućnosti kroz obrazovanje i preduzetništvo i upravo ti resursi su se pokazali ključnim za transformaciju lokalnih zajednica, jer omogućavaju mnogim porodicama postizanje vlastitih ciljeva održivog razvoja. Zemlje Jugoistočne Evrope se godinama suočavaju s velikim stopama iseljavanja i to je preraslo u kontinuiran proces, čiji je glavni uzrok ekonomske prirode. Iako iseljavanje u dugoročnom kontekstu ima negativne reperkusije, jer dugoročno djeluje na smanjivanje potencijalne stope rasta BDP i ukupne faktorske produktivnosti, a penzioni i zdravstveni fond se dovodi do kolapsa; postoje i neki pozitivni efekti, kratkoročnog karaktera, gdje se naročito ističe prijem personalnih novčanih doznaka. Upravo su doznake dijelom doprinijele smanjenju stope siromaštva, ali isto tako i amortizovale nepovoljne efekte vanjskotrgovinske razmjene.*

Abstract: *Remittances are a new financial phenomenon and one of the important sources of income for low- and middle-income countries. Although individual remittances are of relatively small value, they collectively represent enormous value, as collectively these flows are three times larger than global official development assistance. Although they are most often used to cover the basic needs of households, at the same time they support the development of skills and opportunities through education and entrepreneurship in some households, and these resources have proven to be crucial for the transformation of local communities, as they enable many families to achieve their own sustainable development goals. The countries of Southeast Europe have been facing large rates of emigration for years, and this has turned into a continuous process, the main cause of which is economic. Although emigration in the long-term context has negative repercussions, because in the long-term it reduces the potential growth rate of GDP and total factor productivity, and the pension and health fund collapses, there are also some positive effects, of a short-term nature, where the receipt of personal remittances stands out in particular. It was remittances that partly contributed to the reduction of the poverty rate, but also amortized the unfavorable effects of foreign trade exchange.*

[1] Ministarstvo sigurnosti BiH, Služba za poslove sa strancima, BiH
[2] Univerzitet u Travniku, Fakultet za menadžment i poslovnu ekonomiju, BiH

1. UVOD

Doznake se u širem kontekstu posmatraju kao transferi finansijskih sredstava radnika zaposlenih u inostranstvu ili migranata koje oni upućuju u zemlje porijekla porodicama ili drugim licima dok rade i žive u inostranstvu. Većina tih porodica žive u zemljama u razvoju koje karakteriše spor ekonomski rast i razvoj, tako da im doznake predstavljaju značajan i ponekada i jedini izvor prihoda, čime se poboljšava životni standard tih porodica. Analize u različitim zemljama općenito pokazuju da su doznake smanjile udio siromašnih u stanovništvu (Adams & Page, 2005; Gupta et al., 2009). Istraživanja pod okriljem World Bank, zasnovana na anketama domaćinstava, pokazala su da su doznake u siromašnijim domaćinstvima korištene za nabavku osnovnih potrošnih dobara, stanovanje, obrazovanje i zdravstvenu zaštitu djece, dok su bogatija domaćinstva doznake koristili kao kapital za pokretanje biznisa i osnivanje malih preduzeća. Tokovi doznaka imaju tendenciju da budu kontraciklički, tj. da se povećavaju tokom ekonomske krize ili nakon prirodne katastrofe kada tokovi privatnog kapitala imaju tendenciju smanjenja. U zemljama pogođenim političkim sukobima, doznake su često ekonomski spas za siromašne. O važnosti doznaka u savremenim uslovima pokazuje i to da je Opća skupština UN 16. septembar proglasila Međunarodnim danom porodičnih doznaka, kako bi se podigla svijest o napornom radu i žrtvi miliona migranata koji novcem koji šalju kući podupiru članove svojih porodica i matične zajednice. „Doznake za svaku zemlju primaoca predstavljaju značajan izvor prihoda i deviza, ali su, kako smo već naveli, povezane i sa jednim nedostatkom, jer se tim doznakama uglavnom finansira potrošnja, a ne investicije“ (Amidžić et al., 2016).

2. DOZNAKE KAO EKONOMSKI FENOMEN

Postoji niz argumenata u kojima se ističe značaj doznaka, od kojih se mogu izdvojiti neki od eklatantnijih. Naime, skoro milijardu ljudi u svijetu je obuhvaćeno procesom doznaka, gdje svake godine cca 200 miliona ljudi šalje finansijska sredstva u zemlju porijekla (matičnu zemlju), a 800 miliona ostvaruje korist iz tih transfera, pod pretpostavkom da se u prosjeku radi o četveročlanim porodicama. Ukupna vrijednost doznaka u svijetu je u prve dvije dekade 21. vijeka porasla pet puta. Prosječni transferi su cca 15% od ostvarenih prihoda tih radnika i najčešće su u intervalu 200–300 USD svakih jedan do dva mjeseca. Vrlo važno je istaći da ostalih 85% njihovih prihoda ostaje u zemljama domaćinima gdje ostvaruju te prihode.

Radnici migranti i njihove porodice, koristeći mogućnosti koje pružaju digitalne tehnologije, prvenstveno kroz slanje i prijem malih iznosa putem mobilnog telefona bez upotrebe bankovnog računa, su povećali količine doznaka tokom krizne pandemijske 2020. godine 12,7 milijardi USD ili 65% više u odnosu na 2019. godinu, ali isto tako i u 2021. godini na 16 milijardi USD. Najveći broj doznaka je bio upućen domaćinstvima u ruralnim područjima, gdje živi i dvije trećine ljudi koji se prema međunarodnim kriterijima svrstavaju u kategoriju siromašnih. Ovoj strukturi su doznake neophodne, jer im poboljšavaju uslove života, otpornost i postizanje ciljeva održivog razvoja. Postoje očekivanja da će ti transferi u ruralna područja u trećoj dekadi 21. vijeka dostići 3 triliona USD kumulativno.

Vrlo važna činjenica vezana za doznake je to što se tri četvrtine namjenski koristi za snabdjevanje hranom, troškove stanovanja, medicinske troškove, troškove školovanja, a ostala četvrtina se koristi za štednju, troškove za izgradnju imovine, kao i za aktivnosti koje omogućavaju stvaranje radnih mjesta i shodno tome ostvarivanje prihoda. U intervalu 2022 – 2030, kao ciljnoj godini za postizanje održivog razvoja, procjenjuje se da će doznake iz zemalja domaćina prema zemljama porijekla radnika migranata dosegnuti 5,4 triliona USD. Trenutačno visoka cijena koštanja slanja doznaka, gdje konverzije valuta i naknade obuhvataju prosječno 6% ukupnog poslanog iznosa, će sasvim sigurno biti smanjena, jer postoji veliki potencijal za temeljnu transformaciju tržišta u obliku inovativnih finansijskih usluga. Treba istaknuti da predviđena granica ovih troškova prema ciljevima održivog razvoja 3%.

Indikativno je da je učešće doznaka u GDP zemalja važna komponenta u 70 zemalja u svijetu i one se smatraju jednim od vitalnih pokretača društveno-ekonomskog rasta i razvoja, gdje se posebno izdvajaju ruralna područja u kontekstu njihove transformacije. Izuzetan je doprinos radnika migranata ostvarivanju ciljeva održivog razvoja (Ujedinjene nacije Bosna i Hercegovina, n.d.), jer:

- Prema SDG 1, doprinose iskorjenjivanju siromaštva,
- Prema SDG 2 doprinose iskorjenjivanju i smanjenju gladi,
- Prema SDG 3, promovišu dobro zdravlje i blagostanje,
- Prema SDG 4, promovišu kvalitetno obrazovanje,
- Prema ADG 6, promovišu čistu vodu i adekvatne sanitarne uslove,
- Prema SDG 8, pozitivno utiču na ekonomski rast, razvoj, zaposlenost i produktivnost.
- Prema SDG 10, pozitivno utiču na smanjenje nejednakosti.

Njihovi su doprinosi također prepoznati u cilju 20 Globalnog kompakta o sigurnim, urednim i regularnim migracijama, koji su usvojile Ujedinjene nacije 2018. godine.

Ciljevi održivog razvoja pružaju jedinstvenu priliku za stvaranje konvergencije između ciljeva porodica koje primaju doznake, razvojnih ciljeva vlade, strategija privatnog sektora i tradicionalne uloge civilnog društva u promovisanju pozitivnih promjena (Ifad, n.d.).

3. EFEKTI DOZNAKA NA EKONOMIJE ZEMALJA PRIMALACA

Uprkos direktnim koristima doznaka u smanjenju siromaštva, o ukupnim efektima još uvijek postoje naučna razmimoilaženja Pretežan broj onih teoretičara koji se bave ovom problematikom je stava da na makro nivou, doznake finansiraju dodatnu potrošnju u privredi, stimulisanje potražnje za robom i uslugama, a da na mikro nivou, doznake koriste domaćinstvima koja ih primaju u zemljama u razvoju tako što pružaju dodatni izvor prihoda i smanjuju pojavu ekstremnog siromaštva. Pri tome doznake djeluju kao oblik socijalnog osiguranja, podržavajući sposobnosti domaćinstava da se odupru ekonomskim šokovima (Oxford Economics, 2021).

Uticaj doznaka na ekonomiju može se posmatrati s različitih aspekata, gdje na primjer:

- s jedne strane, doznake mogu pozitivno uticati na rast kroz ulaganja i pristup kreditima ili konkretnije, u nekoj zemlji s niskim ili srednjim dohotkom gdje postoji naglašena ponuda radne snage, ali su mogućnosti za formalno zapošljavanje ograničene, doznake mogu pomoći u pokretanju samozapošljavanja. U skladu s tim, doznake mogu olakšati rast novih malih preduzeća i podstaći preduzetništvo ublažavanjem kreditnih ograničenja, što je uobičajeno u neformalnom sektoru zemalja u razvoju.
- s druge strane, doznake mogu naštetiti privredi zemlje primaoca tako što podstiču upadljivu potrošnju i obeshrabruju štednju. To se može tumačiti kroz primjer radnika sa niskim platama koji primaju doznake i to naročito tamo gdje iznos doznaka premašuje ostvarenu zaradu na poslu po osnovu rada, gdje ovaj vanjski prihod može obeshrabriti sudjelovanje učešće u radnoj snazi, podstaći dobrovoljnu nezaposlenost i kulturu zavisnosti u zemljama u koje se upućuju doznake (Oxford Economics, 2021).

S obzirom na široke i različite kanale doznaka i različite karakteristike zemlje, strogo je pretpostaviti da je uticaj doznaka na proizvodnju isti u svim zemljama. Umjesto toga, prirodna i praktična pretpostavka bi bila da je odnos doznaka-izlaz različit u različitim zemljama. Osim ovih ekonomskih razloga, nedavna studija naglašava nekoliko empirijskih izazova koji otežavaju otkrivanje pozitivnog ukupnog efekta doznaka na proizvodnju.

Postoji više istraživanja koja ukazuju na dugoročnu povezanost između doznaka i realnog BDP-a. Rezultati istraživanja su pokazali da je povećanje doznaka od 10% povezano sa stalnim povećanjem BDP-a od 0,66%. S obzirom na dokaze o negativnim efektima prelivanja drugih netržišnih transfera kao što su programi socijalnog osiguranja i ogromne koristi doznaka u ublažavanju siromaštva, ovaj relativno mali agregatni uticaj doznaka treba posmatrati kao poželjan ishod. Ilustrativno je da su od kasnih 1990-ih doznake bile važnije od razvojne pomoći, a u nekim slučajevima čine veliki dio BDP-a zemlje (Economic Times, 2023). Tu je potrebno istaći da doznake ne samo da prevazilaze stranu pomoć u smislu kvantiteta, nego mogu biti relativno manje štetne za rast, a možda i koristan pokretač dugoročne proizvodnje u poređenju sa stranom pomoći. Različiti su efekti doznaka na privredu i to zavisi od apsorpcionog kapaciteta i institucionalnog kvaliteta. Stvarnu korist pokazuje „efekat multiplikatora doznake“, koji se odnosi na proporcionalni iznos povećanja proizvodnje zemlje primaoca doznaka kao rezultat transfera ovih sredstava u njenu privredu. Prosjek svih studija, u okviru kojih je analizirana ova problematika, pokazuje da svaki dolar doznaka znači povećanje od 0,40 dolara u konačnom domaćem BDP, pri čemu je vrijednost množitelja 0,4. Ova vrijednost množitelja tumači se na način da se nepotrošeni dio tih sredstva štedi ili se koristi za otplatu duga, ali i kroz pretpostavku da je visok udio potrošnje vezan za robe koje se uvoze.

U okviru tih istraživanja došlo se do zaključka da je pozitivna veza između doznaka i proizvodnje snažnija u zemljama u kojima je povećanje doznaka povezano sa povećanjem investicija. Trenutna ekonomska kriza u svijetu je drugačija vrsta krize od globalne finansijske krize. Nivo neizvjesnosti oko ekonomskih izgleda i fundamentalnog utjecaja na tržište doznaka je trenutno mnogo veći nego što se pretpostavljalo, jer neki indikatori ukazuju da bi se tokovi doznaka mogli pokazati otpornijim od očekivanog, prvenstveno zbog toga što su projekcije da će doći do naglog skoka BDP zemalja iz kojih se doznake šalju i povratka na predpandemijski nivo. Važnost doznaka potencijalno raste i one postaju jedan od glavnih tokova, posebno u zemljama u razvoju, kako po veličini tako i po stopi rasta. Vjeruje se da je prava veličina doznaka, kao i neevidentirani tokovi kroz formalne i neformalne kanale, značajno velika.

Vlade ponekad nude poticaje za povećanje tokova doznaka i njihovo usmjeravanje u produktivne svrhe. Porezni poticaji mogu privući doznake, ali također mogu potaknuti utaju poreza. Programi usklađivanja fondova za privlačenje doznaka od udruženja migranata mogu preusmjeriti sredstva od drugih lokalnih prioriteta finansiranja, dok su napori da se doznake usmjere u ulaganja imali malo uspjeha. U osnovi, doznake se moraju tretirati kao privatna sredstva koja treba tretirati kao druge izvore prihoda domaćinstava. Napori da se povećaju uštede i poboljša raspodjela rashoda trebali bi se postići kroz poboljšanja ukupne investicijske klime, a ne ciljanjem doznaka (Ratha, 2018).

Neophodno je naglasiti da novčane doznake mogu potaknuti zavisnost o vanjskim tokovima kapitala, umjesto da potaknu zemlje u razvoju da stvore održive, lokalne ekonomije. Što više zemlja zavisi o prilivima sredstava od doznaka, to će više zavisiti o tome da globalna ekonomija ostane zdrava (Simpson et al., 2021). Sam pad globalne ekonomije može negativno uticati na tokove doznaka, jer radnici zaposleni u inostarnstvu mogu izgubiti posao ako su zaposleni u izrazito cikličkim industrijama, kao što je građevinarstvo, i možda će morati prestati slati novčane doznake (Beck, 2022). To proizvodi dvostruke efekte: prvo, matična država može doživjeti presušivanje značajnog dijela svog prihoda, pa stoga neće biti u mogućnosti finansirati projekte ili nastaviti razvoj, a drugo, radnici koji su se preselili u inostranstvo mogu se vratiti kući, pogoršavajući problem povećanjem potražnje za uslugama u ionako opterećenoj privredi.

4. UTICAJ DOZNAKA NA POBOLJŠANJE SOCIJALNOG STANJA STANOVNIŠTVA

Iako nisu vršena opsežnija istraživanja o stvarnom uticaju doznaka na privredna i socijalna kretanja, doznake su još od sedamdesetih godina 20. vijeka predstavljale značajan priliv stranih novčanih sredstava u privredu ex SFRJ i sa sigurnošću se može konstatovati da su se odražavale na tržišnu ponudu i tražnju. Obzirom da je u fokus ovog istraživanja stavljen region Jugoistiočna Evropa i da su sve posmatrane zemlje osim Albanije bile dijelom ex SFRJ, mogu se navesti određene zajedničke karakteristike iz tog perioda. Činjenica je da su doznake povezane sa radnim migracijama sa ovog područja prema razvijenim zemljama Zapadne Evrope i da upravo odatle potiču i novčani transferi namijenjeni porodicama migranata koji su ostali u matičnoj zemlji. Najčešće su ta sredstva bila utrošena za zadovoljavanje esencijalnih potreba porodica i eventualno za izgradnju kuća i nisu bili razvijeni mehanizmi za produktivno korišćenje takvih sredstava, niti su se nudile pogodnosti ili podsticaji. Odlazak na rad u inostranstvo, koji se najvećim dijelom dešavao pod neposrednom državnom kontrolom, otvorio je mogućnost odvajanja dijela zarada radnih migranata i upućivanja novčanih deviznih doznaka svojim porodicama nastanjenim u zemlji porijekla. Prema dostupnim podacima u izvještajima World Bank o globalnom razvoju vrijednost tih doznaka migranata u Jugoslaviju je premašivala polovinu vrijednosti industrijskog izvoza.

Disolucijom SFRJ i proglašavanjem nezavisnosti svih ovih država, osim Albanije koja je i prije toga bila nezavisna država, počeo je tranzicijski period. “Osnovno pitanje za zemlje tranzicije nije bila stabilizacija koja je sama sebi svrha, nego je u fokusu bio razvoj. Poseban značaj takvog konceptualnog nastojanja u ovoj fazi tranzicijskih procesa, kada je u većini tih zemalja nivo životnog standarda bio mnogo niži nego u prošlim vremenima i kada su socijalne tenzije osjetno veće, se odražavao u tome što je u takvom ambijentu ekonomski, socijalni i politički razvoj postao osnovno opredjeljenje” (Čolaković & Bahtić, 2013). Od početka tranzicijskog perioda politička situacija je slovila kao determinirajući element međunarodnih migracija. Zapravo, rastuća uloga Evropske unije u oblasti migracija je doprinijela snaženju i širenju migracionog sistema, koji je bio koncentrisan oko zemalja Unije. Migraciono pitanje je igralo značajnu ulogu u pregovorima sa novim i budućim zemljama članicama, uveliko doprinoseći diferencijaciji unutar zemalja centralne i istočne Evrope (Kaczmarczyk & Okolskii, 2005). U tom kontekstu, Jugostočna Evropa je vjerovatno bila jedan od najizazovnijih regiona.

Podaci o broju migranata nude opširniju sliku stanja, čak i kada se uzmu u obzir specifičnosti različitih statističkih izvora. Početkom 1991, broj imigranata sa područja Balkanskog poluostrva u Njemačkoj iznosio je 738.000, u Austriji 221.000, a u Švajcarskoj 144.000, od koji su gro bili Jugosloveni, koji su u te zemlje došli kao gastarbajteri u periodu 1950-ih i 1960-ih godina 20. vijeka. Važno je pomenuti da je nastavak migracionih kretanja nakon toga pokazao da su se u intervalu 1990-2005 izdiferencirala glavna emigraciona toka sa područja Balkanskog poluostrva prema zapadnoj Evropi. Jedan tok se odnosio se na osobe koje su tražila zaštitu od rata i pretežno je bio usmjeren ka Njemačkoj, Austriji, Švicarskoj i skandinavskim zemljama, a bio je intenzivan od 1991-1996, a onda je nakon toga došlo do smanjenja u Njemačkoj i Švedskoj, a u

Austriji i Švicarskoj nastavljeno blago povećanje. U Njemačkoj je do smanjenja došlo zbog povratka izbjeglica i usljed restrikcija unešenih u zakon o azilu, dok je u Švedskoj razlog bila naturalizacija balkanskih imigranata (MPI, 2023; Eurostat, 2023; Istat, n.d.; Ine, n.d.; Bfs, n.d.).

Kod drugog migracionog toka, najizraženije zemlje porijekla migranata su bile Albanija, Rumunija i Bugarska i bio je usmjeren ka južnom dijelu Evropske unije i ta migraciona kretanja se smatraju periodom u kojem je u okviru povećanja obima migracija radne snage u Evropi, južna Evropa bila glavni migracioni magnet kontinenta.

Značajno je i bilo emigriranje i u tipično imigracione zemlje, tj. u Sjevernu Ameriku i Australiju. U periodu 1990-2003. priliv stranaca iz zemalja Zapadnog Balkana u USA je dostigao cifru 307.000 osoba, a prema popisu stanovništva Kanade, imigracija sa područja Balkanskog poluostrva u periodu 1991-2001. kvantifikovana je na ukupno 115.000 osoba. Australija je u periodu 1990-2002. primila 67.000 imigranata rođenih na Balkanskom poluostrvu i za ovaj migracioni tok Bosna i Hercegovina i Srbija predstavljaju glavne zemlje porijekla (UNHCR, 2005).

Svi navedeni međunarodni migracioni tokovi u tranzicijskom periodu bili su praćeni povećanjem priliva novčanih doznaka u zemlje porijekla migranata, pri čemu su zemlje Zapadnog Balkana registrovale značajan porast priliva doznaka i doznake danas predstavljaju važan izvor deviznih prihoda tih zemalja.

Pojedinačni godišnji iznosi doznaka za sve zemlje su dostupni preko web stranice Svjetske banke i to počevši od 1970. godine, a za potrebe ovog istraživanja prezentovani su podaci za interval od 15 godina i to od 2007 – 2021.

Tabela 1. Novčane doznake u BiH, Srbiju, Crnu Goru, Sjev. Makedoniju i Albaniju u periodu 2000-2021 (u USD)

Godina	BiH	Albanija	Srbija	Crna Gora	Sjev. Makedonija
2007	2.686.415.541	1.468.020.000	3.764.205.524	196.425.072	345.010.224
2008	2.717.663.874	1.865.581.564	3.545.491.380	298.104.236	406.625.951
2009	2.127.033.059	1.717.698.012	4.649.881.251	303.165.048	381.153.563
2010	1.822.304.847	1.586.574.271	4.117.446.496	415.967.090	387.931.157
2011	1.958.230.200	1.552.078.514	3.960.970.272	509.607.732	434.124.447
2012	1.845.715.377	1.419.772.515	3.546.455.140	507.500.921	394.153.574
2013	1.957.987.470	1.281.848.114	4.024.794.307	545.308.440	376.068.217
2014	2.107.139.725	1.421.007.454	3.696.031.997	543.354.189	366.518.601
2015	1.801.111.958	1.290.863.508	3.370.435.504	469.734.652	306.656.775
2016	1.845.995.097	1.306.009.167	3.205.371.734	480.844.129	290.838.022
2017	2.016.872.695	1.311.822.432	3.589.629.282	522.997.313	314.499.343
2018	2.262.876.954	1.458.210.056	4.445.606.867	588.907.942	344.454.462
2019	2.332.570.551	1.472.812.242	4.237.925.901	584.315.522	317.088.137
2020	1.910.737.573	1.465.987.212	3.868.521.648	600.703.224	412.935.987
2021	2.374.467.959	1.718.320.554	4.597.739.283	793.592.465	489.429.713

Izvor: World Bank, 2022.

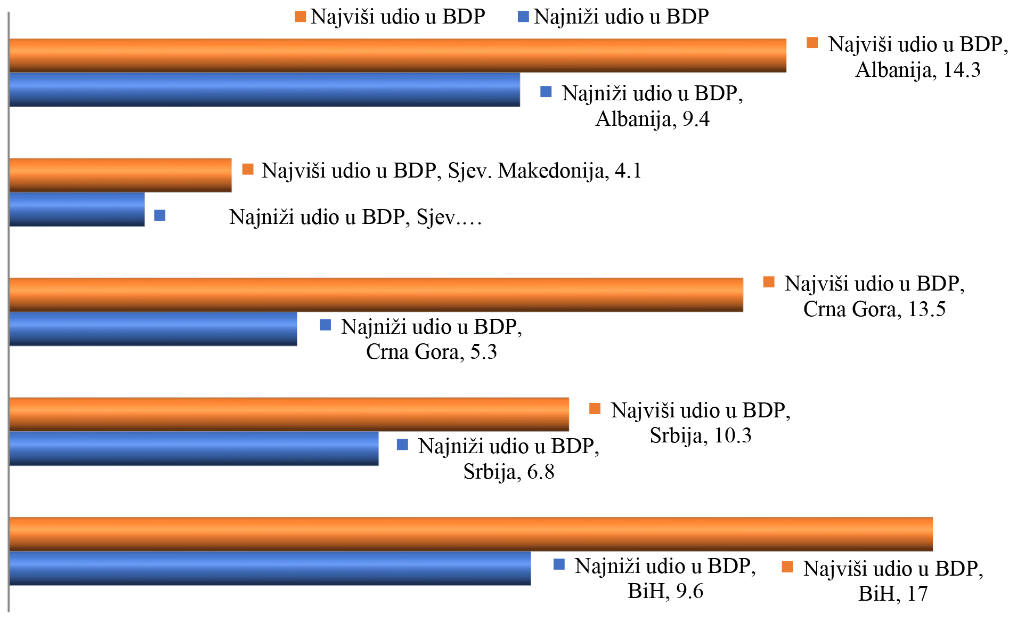
Kumulativne vrijednosti doznaka ukazuju da je od 2007-2021 godine:
- Bosna i Hercegovina – 31,77 milijardi USD ili prosječno godišnje 2,12 milijardi USD ili prosječno per capita 647,45 USD,
- Srbija - 58,62 milijardi USD ili prosječno godišnje 3,91 milijardi USD ili prosječno per capita 571,85 USD

- Crna Gora - 7,36 milijardi USD ili prosječno godišnje 490,7 miliona USD ili prosječno per capita 792,83 USD,
- Sjev. Makedonija - 5,57 milijardi USD ili prosječno godišnje 371,2 miliona USD ili prosječno per capita 179,74 USD,
- Albanija - 22,34 milijardi USD ili prosječno godišnje 1,49 milijardi USD ili prosječno per capita 529,55 USD.

U posljednjoj analiziranoj 2021. godini najveći priliv doznaka je u Crnoj Gori sa 1.282,06 USD/per capita, pa onda slijedi Bosna i Hercegovina sa 725,91 USD/per capita, Srbija sa 672,77 USD/per capita, Albanija sa 611,07 USD/per capita, dok je najniži priliv doznaka u Sjev. Makedoniji sa 237,01 USD/per capita.

Značaj priliva novčanih doznaka neophodno je analizirati i kroz njihov udio u BDP posmatranih zemalja. Najveći udio u ovom periodu je zabilježen 2007. godine i to u Bosni i Hercegovini 17%, a najniži 2019. godine u Makedoniji 2,50%.

Procentualni rasponi najvišeg i najnižeg udjela doznaka u BDP-u % su bili:
- u Bosni i Hercegovini 17,00 – 9,60
- u Albaniji 14,30 – 9,40
- u Crnoj Gori 13,50 – 5,30
- u Srbiji 10,30 – 6,80
- u Hrvatskoj 7,30 – 3,50
- u Sjev. Makedoniji 4,10 – 2,50.



Grafikon 1. Udio novčanih doznaka u BDP BIH, Srbije, Crne Gore, Sjev. Makedonije i Albanije i Crne Gore u periodu 2007-2021.

Izvor: Autori

Iako je došlo do značajnijeg smanjenja udjela doznaka u BDP bilo u Bosni i Hercegovini i Albaniji, ovaj prihod još uvijek predstavlja relevantnu stavku u njihovom BDP i kreće se u nivou od 10%. Istovremeno je Crnoj Gori došlo do izraženog povećanja tog udjela, koji je u ovom momentu i najveći u ovoj grupi zemalja.

Udio doznaka u BDP Srbije se kontinuirano smanjivao, tako da se od maksimalnih 10,30% u 2010. godini spustio na 7,30% u 2020. i 2021. godini. Paradoksalno je da su inostrane novčane doznake u Sjev. Makedoniju po godinama bile znatno niže nego u ostalim zemljama, što se sasvim sigurno odrazilo i na njihov manji udio u BDP. Naime, u intervalu od 2007-2011 je bio konstantan na nivou 4,10%, da bi u intervalu 2012-2019 imao kontinuirani pad i onda u posljednje dvije godine ponovno je počeo rasti, sa napomenom da je to četiri puta manje od Crne Gore, tri puta manje od Bosne i Hercegovine i Albanije, te dva puta manje od Srbije.

Procentualno učešće doznaka u BDP najveće je u Crnoj Gori, Bosni i Hercegovini i Albaniji, a samo nešto manje u Srbiji, što je u suštini najbolji pokazatelj koliko su doznake uticale na ukupna ekonomska kretanja. Tome u prilog ide i izračun indeksa humanog razvoja (HDI) za sve posmatrane zemlje, koji je razvio Mahbub ul Haq[3] i UN su ga uspostavile 1990. godine, a objavljuje se godišnje i danas obuhvata 191 zemlju. Humani razvoj zavisi od specifičnosti istorijskih, političkih, kao i institucionalnih uslova svake zemlje i to je kompozitni indeks koji se formira na osnovu tri dimenzije:

- indeks zdravlja
- indeks obrazovanja
- indeks dohotka.

HDI je geometrijska sredina normalizovanih indeksa koji mjere napredak u svakoj od navedenih oblasti i njegova vrijednost se kreće u rasponu od 0 do 1, pri čemu veće vrijednosti označavaju veći napredak. Vrlo visok ljudski razvoj imaju zemlje sa HDI višim od 0,80, visok ljudski razvoj zemlje sa HDI između 0,70 i 0,80, srednji ljudski razvoj zemlje sa HDI između 0,50 i 0,70, te na koncu nizak ljudski razvoj sa procjenom HDI manjom od 0,55. Najviše vrijednosti HDI u svijetu su u Švicarskoj, 0962, Norveškoj 0,961 i Islandu 0,959.

Indeks humanog razvoja u posmatranim zemljama je najviši u Crnoj Gori 0,832 (49. pozicija), a zatim slijede Srbija sa 0,802 (63. pozicija), Albanija 0,796 (67. pozicija), Bosna i Hercegovina 0,780 (74. pozicija) i Sjeverna Makedonija 0,770 (78. pozicija). Doznake su direktno uticale na poboljšanje životnog standarda, na smanjenje obuhvata siromaštva i općenito na poboljšanje ukupnog socijalnog stanja stanovništva u tim zemljama, jer bi bez njih dostignuti indeks humanog razvoja bio na znatno nižem nivou u svim zemljama.

Ukoliko se stavi u omjer vrijednost doznaka i vrijednost ukupnog izvoza dobara i usluga može se zapaziti vrlo visok nivo u Crnoj Gori, Albaniji i Bosni i Hercegovini, nešto manji je u Srbiji, dok je najmanji u Makedoniji. Suštinski posmatrano, što je taj nivo veći, to podrazumijeva veći značaj uticaj doznaka na amortizovanje nepovoljnih efekata spoljnotrgovinske razmjene i tekući račun bilansa plaćanja bi, uprkos rastu izvoza roba i usluga, bio u deficitu da nema privatnih doznaka iz inostranstva. Posebno je to bilo izraženo u Bosni i Hercegovini na početku perioda (2007) da bi se većim porastom izvoza u odnosu na nivo primljenih doznaka taj omjer smanjivao i u 2021. godini je bio u nivou 23,82%. U Albaniji je početni omjer bio nešto niži u odnosu na Bosnu i Hercegovinu i unatoč smanjenju tokom niza godina u okviru analiziranog intervala, u 2021. godini je vrlo visok 30,73%, što implicira visoku zavisnost od doznaka. Povećana zavisnost od doznaka je posebno izražena u Crnoj Gori, koja je na početku ovog intervala imala omjer 12,39%, da bi u 2021. godini omjer znatno povećan na nivo 31,59%.

[3] Dr. Mahbub ul-Haq je pionir mnogih ekonomskih politika za pomoć siromašnima. Bio je glavni ekonomist pakistanske Nacionalne komisije za planiranje tokom 1960-ih, direktor Odjela za planiranje politike Svjetske banke u 1970-ima, te na raznim mjestima pakistanskog kabineta tokom 1980-ih. Kao posebni savjetnik Programa za razvoj UN razvio je Indeks ljudskog razvoja (SCU, n.d.).

Tabela 2. Omjer doznaka i izvoza roba i usluga u BiH, Srbiji, Crnoj Gori, Sjev. Makedoniji i Albaniji u periodu 2007-2021 (u%)

God.	BiH	Albanija	Srbija	Crna Gora	Makedonija
2007	62,82	48,67	31,95	12,39	9,41
2008	52,95	57,23	23,88	16,59	9,48
2009	48,29	56,48	39,07	21,23	12,35
2010	35,73	47,53	30,52	27,05	10,34
2011	32,78	41,18	24,36	26,46	8,78
2012	33,11	39,78	22,84	28,40	8,91
2013	31,91	34,68	20,87	29,52	8,01
2014	33,41	38,08	18,66	29,45	6,76
2015	31,27	41,56	18,81	27,48	6,24
2016	30,02	38,00	16,23	27,01	5,36
2017	27,28	31,90	16,10	26,19	5,04
2018	26,36	30,47	17,40	24,90	4,49
2019	28,44	30,53	16,12	24,96	4,03
2020	27,63	42,65	15,03	48,39	5,77
2021	23,82	30,73	13,38	31,59	5,34

Izvor: World Bank, 2022.

U Srbiji je početni omjer bio vrlo visok i vidljivo je smanjen na kraju perioda, čime je snižena visoka zavisnost od doznaka. U Makedoniji je u odnosu na sve ostale zemlje omjer najmanji i to znači najmanju zavisnost od doznaka.

5. ZAKLJUČAK

Zemlje Jugostočne Evrope se suočavaju s depopulacijom i sve više iseljenika odlazi s porodicama u inostranstvo ili tamo zasnivaju porodice, te ne planiraju vlastitu budućnost u zemlji porijekla. Sigurno je da bi stope rasta BDP Bosne i Hercegovine imale znatno niže vrijednosti, a razmjere siromaštva bile mnogo veće, da iseljenička populacija u toku godine ne šalje novac svojim porodicama, odnosno da ne troše dio svojih zarada u periodu godišnjih odmora provedenih u Bosni i Hercegovini.

U tom procesu, vlasti svih posmatranih zemalja bi trebale pronaći modalitet za prepoznavanje i isticanje doprinosa dijaspore, te usvojiti komunikacijske pristupe koji grade čvrste veze i razbijaju stav da se dijaspora posmatra samo kroz transferisani novac u zemlje porijekla. Naime, iseljavanje nosi i svoje negativne reperkusije, jer dugoročno djeluje na smanjivanje potencijalne stope rasta BDP, smanjuje se ukupna faktorska produktivnost, a penzioni i zdravstveni fond se dovodi do kolapsa. Kad su prisutni u značajnoj mjeri i iseljavanje i depopulacija zbog pada prirodnog prirasta, domaće tržište se počinje značajno sužavati zbog smanjenja broja stanovnika u zemlji koje živi, troši i privređuje, što se direktno odražava na smanjenje interesa za novo investiranje i produktivna ulaganja. Sve to dovodi do stagnacije i nemogućnosti da se očekuju poboljšanja u godinama koje slijede, jer strateški nisu razvijeni programi privlačenja stranaca iz drugih siromašnijih država za život i rad u Bosni i Hercegovini.

Reference

Adams, R., & Page, J. (2005). Do international migration and remittances reduce poverty in developing countries? *World Development, 33*(10), 1645-1669. http://www.sciencedirect.com/science/article/pii/S0305-750X(05)00127-0

Amidžić, S., Kurteš, S., & Rajčević, P. (2016). Kretanje doznaka i uticaj na ekonomiju zemlje. *Financing - Naučni časopis za ekonomiju, 02*/16, 23. https://doi.org/10.7251/fin1602022r

Beck, T. (2022). What Explains International Remittance Fees? Florence School of Banking and Finance. https://fbf.eui.eu/what-explains-international-remittance-fees

Bfs. (n.d.). https://www.bfs.admin.ch/bfs/de

Čolaković, N., & Bahtić, S. (2013). Tranzicija kao proces pluralizacije i demokratizacije društva i ekonomije. *Univerzitetska hronika – časopis Univerziteta u Travniku*, *10*(2), 19.

Economic Times. (2023). https://economictimes.indiatimes.com

Eurostat. (2023). https://ec.europa.eu/eurostat/statistics-explained

Gupta, S., Pattillo, C. A., & Wagh, S. (2009). Effect of Remittances on Poverty and Financial Development in Sub-Saharan Africa. *World Development, 37*(1), 104-115. http://www.sciencedirect.com/science/article/pii/S0305-750X(08)00190-3

Ifad. (n.d.). https://www.ifad.org/en/remittances

Ine. (n.d.). https://www.ine.es

Istat. (n.d.). https://www.istat.it

Kaczmarczyk, P., & Okolskii, M. (2005). International migration in Central and Eastern Europe. Current and future trends. Paper presented to the United Nations Expert Group Meeting on International Migration and Development, New York.

MPI. (2023). https://www.migrationpolicy.org/programs/migration-information-source

Oxford Economics. (2021). The Remittance Effect – A Lifeline for Developing Economies Through The Pandemic and Recovery. https://www.oxfordeconomics.com

Ratha, D. (2018). What Are Remittances? IMF. https://www.imf.org/external/pubs/ft/fandd/basics/76-remittances.htm

SCU. (n.d.). https://www.scu.edu

Simpson, W., Robinson, C., Sana, L., & Daniella, E. (2021). Remittances: An Analysis of Global Risk Factors and Coping Strategies. Global Systematic Risk, 14.

Ujedinjene nacije Bosna i Hercegovina. (n.d.). https://bosniaherzegovina.un.org/bhs/sdgs

UNHCR. (2005). https://www.unhcr.org

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.341

Demografska struktura Europske Unije
Demographic Structure of the European Union

Sandra Mrvica Mađarac[1]
Svetlana Šibila[2]
Lana Gubić Kučan[3]

Received: April 18, 2023
Accepted: August 23, 2023
Published: October 30, 2023

Ključne riječi:
Europska unija;
Demografska struktura;
Eurostat

Keywords:
European Union;
Demographic structure;
Eurostat

Sažetak: *Europska unija se sastoji od 27 europskih država, a cilj joj je integracija i jedinstveno tržište europskog kontinenta. Demografska struktura utječe na gospodarsko stanje države, a uzročno-posljedično i gospodarsko stanje države utječe na demografska kretanja.*

Starenje stanovništva je efekt u razvijenim društvima, a nastao je kao posljedica različitih čimbenika (zdravstvene i socijalne zaštite, smanjene stope fertiliteta, urbanizacije, industrijalizacije). Usprkos smanjenju prirodnog rasta unutar Europske unije i starenju stanovništva ona prolazi kroz konstantan rast broja stanovnika zbog pozitivnog migracijskog salda. Za gospodarski razvoj države i razvoj njenog stanovništva je važna dobno-spolna struktura jer iz nje proizlazi uravnoteženje muškog i ženskog stanovništva koje je važno za reprodukciju stanovništava i iz koje se formira radno sposobno stanovništvo.

U radu se navode i analiziraju podaci iz Eurostata o demografskoj strukturi stanovništva Europske unije: dobni sastav, spolni sastav, prirodni demografski faktori, obrazovna struktura stanovništva.

Abstract: *The European Union consists of 27 European countries, and its goal is the integration and single market of the European continent. The demographic structure affects the economic condition of a state, and the economic condition of the state also affects demographic trends as a cause and effect.*

The aging of the population is an effect in developed societies, and it arose as a result of various factors (health and social protection, reduced fertility rates, urbanization, industrialization). Despite the decrease in natural growth within the European Union and the aging of the population, the EU is experiencing constant population growth due to a positive migration balance. The age-sex structure is important for the economic development of a country and the development of its population because it results from the balancing of the male and female population, which is important for the reproduction of the population and from which the working-age population is formed.

This paper presents and analyzes data from Eurostat on the demographic structure of the population of the European Union: age composition, gender composition, natural demographic factors, educational structure of the population.

1. UVOD

Demografija je znanost o brojnosti i kretanju stanovništva, a prikuplja statističke podatke o promjenama u kretanju stanovništva i trenutnom stanju promatranog stanovništva.

Demografija je društvena znanost koja promatra brojnost, starosno-spolnu strukturu stanovništva, prirodna kretanja stanovništva, migracijska kretanja i prostornu rasprostranjenost stanovništva. Prirodni demografski faktori koji se bave prirodnim promjenama o stanju stanovništva

[1] Veleučilište "Lavoslav Ružička" u Vukovaru, Županijska 50, Vukovar, Hrvatska
[2] Hrvatski zavod za zdravstveno osiguranje, Ulica kralja Zvonimira 1B, Osijek, Hrvatska
[3] Ugostiteljsko-turistička škola Osijek, Ulica M. Gupca 61, Osijek, Hrvatska

su smrtnost, rodnost, natalnost, fertilitet i sl. Promjene u demografskoj slici su posljedica socio-ekonomskih promjena unutar promatranog područja. Demografske promjene su glavni pokretač društvenog razvoja Europske unije kao cjeline i njezinih pojedinih članica, a u konačnici imaju i utjecaj na gospodarski razvoj.

Ovaj rad analizira demografske podatke u Europskoj uniji prema podacima iz Eurostata. Unatoč smanjenju prirodnog rasta stanovnika unutar Europske unije ona prolazi kroz konstantan rast broja stanovnika zbog pozitivnog migracijskog salda. Posljedica starenja stanovništva je sve veći broj umirovljene stare i vrlo stare populacije i smanjenje broja radno sposobnog stanovništva čime se znatno povećava ovisnost starije populacije. Ukoliko se taj trend nastavi prema populacijskim projekcijama to će voditi do velikih ekonomskih nesrazmjera.

2. DEMOGRAFSKA STRUKTURA

Demografija se bavi istraživanjem stanovništva, njegovom brojnosti, starosno-spolnom strukturom, prirodnim kretanjima stanovništva (smrtnost i rodnost), migracijskim kretanjima i prostornom rasprostranjenosti stanovništva. Demografija je u širem smislu demografski razvoj tj. složeni proces razvoja stanovništva koji obuhvaća sve vrste kretanja stanovništva (prirodna i migracijska) te njihovu ovisnost o promjenama u društvenoj strukturi. Istraživanje demografskog razvoja obuhvaća međuovisnost sveukupnog kretanja stanovništva te njegovu ovisnost o promjeni strukture tog istog stanovništva, te ovisnost pojedinih komponenti kretanja stanovništva (smrtnost, natalnost, migracije) promjenama u gospodarskim, socijalnim, ekonomskim i političkim aspektima promatranog društva. Demografija se u širem smislu može definirati i kao demografski razvoj tj. proces koji prati strukturne promjene i djelovanje društvenih i gospodarskih čimbenika iz okruženja koji utječu na razvoj i kretanje stanovništva (Wertheimer-Baletić, 1999).

Osnovne demografske promjene se mogu podijeliti na prirodne (npr. smrtnost i rodnost) i migracijske promjene, koje mogu biti imigracijske i emigracijske. Prirodne demografske promjene se mogu mjeriti po stopi rodnosti (broj živorođene djece na tisuću stanovnika), po stopi plodnosti (broj rođene djece na 1000 žena u reproduktivnoj dobi), stopi smrtnosti (broj umrlih na 1000 stanovnika), po stopi smrtnosti dojenčadi (broj umrle djece mlađe od 1 godine na 1000 živo rođene djece) i ostali (Živić, 2003). Za analizu strukture stanovništva najčešće se provode: biološka (stanovništvo po dobi i spolu), ekonomska, socio-profesionalna, obrazovna, nacionalna, religijska i kulturno-etnička struktura (Friganović, 1990). Dobno-spolna struktura je važna za sadašnji i gospodarski razvoj neke zemlje. Ova struktura je temelj fiziološke podjele rada koja se događa prije svega u obitelji, a zajedno sa veličinom stanovništva i njegovom gustoćom postavlja demografske okvire širenja društvene podjele rada. Važnost dobno-spolne strukture stanovništva očituje se i u tome što se strukture stanovništva prema raznim gospodarskim i društvenim obilježjima (djelatnosti, aktivnosti, zanimanju, obrazovanju) istražuju istodobno prema spolu i prema dobi. Struktura stanovništva prema spolu ukazuje na brojčani iznos između muškog i ženskog stanovništva u ukupnom stanovništvu. Demografski podaci pokazuju da struktura stanovništva prema spolu varira od države do države. Struktura stanovništva prema spolu je rezultat dugoročnog djelovanja čimbenika: nataliteta, mortaliteta, migracije (selektivne s obzirom na spol) i ostalih eksternih čimbenika. Utjecaj ove strukture na gospodarska kretanja se odražava kroz njen utjecaj na obujam radne snage jer struktura stanovništva u radnoj dobi prema spolu utječe na ponudu radne snage. Činjenica je da je razina ekonomske aktivnosti žena svuda ispod razine aktivnosti muškog stanovništva zbog biološke i tradicionalne uloge žena kao majki i kućanica (Wertheimer-Baletić, 1999). Biološka struktura stanovništva je važna i za buduće kretanje stanovništva jer ono ovisi o promjenama dobno-spolne strukture (Glamuzina & Glamuzina, 1996).

Važni razvojni problemi kao što su na primjer formiranje radnog potencijala, formiranje motivacijskog sistema, dugoročne promjene u strukturi ponude i potražnje radne snage i potrošnih dobara ne mogu se adekvatno mjeriti bez dublje demografske analize. S godinama se pokazalo kako su odnosi gospodarskog razvoja i razvoja stanovništva mnogo složeniji; svođenje problema stanovništva u gospodarskom razvoju samo na problem viška ili manjka radne snage danas je uglavnom prevladano u teoriji i u praktičnoj razvojnoj politici (Wertheimer-Baletić, 2017). Zbog povezanosti demografskih i društvenih procesa demografski pokazatelji imaju šire značenje od samih indikatora razine i strukture reprodukcije stanovništva. Stope mortaliteta dojenčadi, stope reprodukcije stanovništva, očekivano trajanje života, indeks starenja i drugi pokazatelji imaju vrlo različite brojčane vrijednosti u zemljama sa različitim stupnjem razvoja (Wertheimer-Baletić, 2005). Povećanje broja starog stanovništva uz istodobno smanjivanje broja mladih pojačava neravnotežu među funkcionalnim dobnim skupinama (mladi, radno sposobni, stari) i vodi demografskoj neodrživosti (Chesnais, 1998).

3. METODOLOGIJA I REZULTATI ISTRAŽIVANJA STRUKTURE STANOVNIŠTVA EUROPSKE UNIJE

Za potrebe istraživanja je provedeno sekundarno istraživanje analizom publiciranih podataka od strane Eurostata s ciljem uvida u demografsku strukturu. Istraživanje je provedeno u travnju i svibnju 2022. godine. U skladu sa postavljenim teorijsko-metodološkim pristupom i naslovljenom problematikom moguće je postaviti hipoteze:

H_1 *U Europskoj uniji postoje manje od 3 radno sposobne osobe u dobi mlađoj od 65 godina na jednog umirovljenika u dobi od 65 i više godina.*

H_2: *Stopa fertiliteta u Europskoj uniji je manja od minimalnog potrebnog fertiliteta kako bi se zadržao trenutni broj stanovnika (isključujući migracije).*

Početak stvaranja Europske unije doseže nakon drugog svjetskog rata kad je poslijeratna suradnja u Europi dovela do stvaranja Europske zajednice za ugljen i čelik te potpisivanje Ugovora iz Rima. Europska unija danas ima 27 država članica, a svoje zadnje proširenje Europska unija postiže pridruživanjem Republike Hrvatske 2013. godine. Njen broj stanovnika se mijenjao kako se mijenjao broj država članica. Zadnji nagli pad broja stanovnika nastaje odlaskom Ujedinjenog Kraljevstva iz Europske unije 2020. godine. Europska unija je 2021. godine imala 447 207 489 stanovnika, od kojih je bilo 218 534 272 muškaraca (48,8 %) i 228 673 217 žena (51,1 %). Prema dobnim skupinama Europska unija ima stanovništva starog od 0-14 godina 15,1 %, od 15-64 godina 64,1 %, od 65-79 godina 14,8 % i starijeg od 80 godina 6 %. Najveći postotak stanovništva starijeg od 80 godina ima Italija (7,6 % od ukupnog broja) i Grčka (7,3 % od ukupnog broja). Najveći postotak stanovništva od 0-14 godina ima Švedska (17,7 % od ukupnog broja stanovnika). Najveći postotak starijeg stanovništva odnosno stanovništva od 65-79 godina ima Portugal (15,8 % od ukupnog broja stanovnika) (Eurostat, 2022). Države poput Irske, Švedske i Francuske su uočile problem sve većeg starenja stanovništva i ekonomske probleme koje takav trend može uzrokovati te su uvele preventivne mjere kako bi se poticalo radno sposobno stanovništvo na osnivanje obitelji pomoću povećavanja dječjih doplataka i poreznih olakšica (Čipin & Međimurec, 2017). Srednja dob stanovnika u Europskoj uniji je 43,7 godina. Osim Irske (prosječna dob stanovnika 37,6 godina), Cipra (prosječna dob stanovnika 37,7 godina) i Luksemburga (prosječna dob stanovnika je 39,9 godina) u Europskoj uniji je srednja dob stanovnika država članica veća od 40 godina. U 2019. godini ovisnost starijeg stanovništva o mlađem je iznosila 34,1% što znači da u Europskoj uniji postoje manje od 3 radno sposobne osobe u dobi mlađoj od 65 godina na jednog umirovljenika u dobi od 65 i više godina. Starenje stanovništva je također posljedica sve manje stope plodnosti ili fertiliteta, broja živorođene djece po ženi u fertilnoj dobi. Ukupni fertilitet od 2,1 % se smatra minimalnim potrebnim fertilitetom kako bi se zadržao trenutni broj stanovnika, isključujući migracije. Trenutni prosječni fertilitet za Europsku uniju iznosi 1,5 %. Fertilitet u Europskoj uniji varira ovisno o državi, a prisutne razlike u fertilitetu se konstantno smanjuju. Razlika između države s najvećim fertilitetom i države s najnižim fertilitetom iznosi 0,6 %, a prema predviđanju za 2070. godinu ta razlika će se još smanjiti na 0,35 %. Ni jedna regija u Europskoj uniji ne dostiže fertilitet od 2,1 % a u nekima taj prosjek pada čak ispod 1,25 %. Žene se danas sve kasnije odlučuju za osnivanje obitelji i sve kasnije rađaju. Prosječna dob žena pri porodu u cijeloj Europskoj uniji je porasla u zadnjem desetljeću, u 2001. godini je iznosila 29 godina, a u 2018. godini je porasla na 30,8 godina.

U državama članicama Europske unije broj žena na 100 muškaraca je u rasponu od 93-110, osim u Litvi i Latviji gdje taj broj prelazi 110, tj. iznosi 116,3 i 112,8 žena na 100 muškaraca (Eurostat, 2022). Prirodni demografski faktori se mjere stopama rodnosti, smrtnosti, fertiliteta te stopom smrtnosti novorođenčadi. Plodnost je broj živorođene djece po ženi, a prosjek plodnosti u Europskoj uniji je 1,5 %. Stopa plodnosti je 2020. godine bila najveća u Češkoj i Francuskoj. Stopa rodnosti se definira kao broj živorođene djece na 1000 stanovnika, a europski prosjek iznosi 9,1 % živorođene djece na 1000 stanovnika. Stopa rodnosti država članica varira u ovisnosti o socioekonomskoj situaciji u državi. Kao što je navedeno sve više mladih ljudi se odlučuje za osnivanje manjih obitelji i u kasnijoj dobi, ali mnogi se također odlučuju za život bez stvaranja potomstva što se održava u statistici modernog doba (Čipin & Međimurec, 2017).

Kućanstva s jednim djetetom su najčešća pojava u EU u 2019. godini; čak 47 % kućanstava s djecom su bila kućanstva samo s jednim djetetom. Također, smanjio se prosječan broj stanovnika koji živi u kućanstvu sa 2,4 osobe u 2010. godini na 2,3 osobe u 2019. godini. Postotak osoba od 15 do 64 godine koje žive sami je 19 %.

Stopa smrtnosti je broj umrlih pojedinaca na 1000 stanovnika; prosječna stopa smrtnosti u Europskoj uniji iznosi 11,6 % te varira u ovisnosti o zemlji članici. Stopa smrtnosti novorođenčadi je broj umrle djece do jedne godine na tisuću živorođene djece, a europski prosjek stope smrtnosti dojenčadi iznosi 3,3 % (razvijenije zemlje imaju znatno manju stopu smrtnosti novorođenčadi od manje razvijenih). Važan pokazatelj razvijenosti države je njezina obrazovna struktura. Prema podatcima Eurostata udio europskog stanovništva koje rano napušta obrazovanje i osposobljavanje u dobnom rasponu od 18-24 godine iznosi čak 10,2 %, dok 40,3 % građana Europske unije u dobi od 30-34 godina ostvaruje tercijarno obrazovanje. Europska unija ulaže veliki napor kako bi motivirala mlade ljude u dobi 20-24 godina da završe više sekundarno obrazovanje (trenutni europski prosjek je 84,3 % stanovnika), 9,9 % mladih ljudi u dobi 18-24 godine (8 % žena i 11,8 % muškaraca) prestaju s daljnjim obrazovanjem nakon ostvarivanja nižeg sekundarnog obrazovanja. Eurospka unija uvodi razne obrazovne reforme kako bi se broj osoba koje odustaju nakon ostvarivanja nižeg sekundarnog obrazovanja smanjio ispod 9 % (Eurostat, 2022).

4. ZAKLJUČAK

Demografska kretanja stanovništva utječu na gospodarsko stanje ekonomskog sustava, a gospodarski razvoj promatranog ekonomskog sustava utječe na daljnja demografska kretanja stanovništva. Starenje stanovništva je sveprisutan efekt u razvijenim društvima, a intenzitet starenja stanovništva je uvjetovan prvenstveno brojem starog i vrlo starog stanovništva. Razlozi tome su smanjenje mortaliteta kao posljedice industrijalizacije, urbanizacije, bolja mogućnost školovanja te bolja zdravstvena i socijalna zaštita. Kao posljedica sve starijeg stanovništva i sve manjeg broja novorođene djece stanovništvo Europske unije će nastaviti starjeti, a ovisnost stare populacije o mlađoj će rasti. Budući da je ovisnost starijeg stanovništva iznosila 34,1 % što znači da postoje manje od 3 radno sposobne osobe u dobi mlađoj od 65 godina na jednog umirovljenika u dobi od 65 i više godina potvrđena je H_1: *U Europskoj uniji postoje manje od 3 radno sposobne osobe u dobi mlađoj od 65 godina na jednog umirovljenika u dobi od 65 i više godina.* Prema projekcijama za budućnost broj umirovljenika će samo rasti, a broj radno sposobnog stanovništva će opadati. Ukoliko se taj trend nastavi prema populacijskim projekcijama će voditi do velikih ekonomskih problema. Prema analiziranim podacima može se zaključiti kako se društvene posljedice odražavaju i na demografsku strukturu Europske unije od kasnog zasnivanja obitelji, dugotrajnog školovanja, niske stope fertiliteta, rađanje žena u starijoj životnoj dobi, promjene uloge žena u društvu i obitelji, zdravstveni sustavi…Budući da je stopa prosječnog fertiliteta za Europsku uniju 1,5 % odnosno manja od minimalnog potrebnog fertiliteta kako bi se zadržao trenutni broj stanovnika potvrđena je H_2: *Stopa fertiliteta u Europskoj uniji je manja od minimalnog potrebnog fertiliteta kako bi se zadržao trenutni broj stanovnika (isključujući migracije).* Kako bi se spriječili negativni demografski trendovi potrebne su intervencije i aktivne mjere demografske politike kao što se provode u nekim državama članicama (npr. Švedskoj u kojoj je prema navedenim podacima najveći postotak djece od 0-14 godina od svih država članica) počevši sa poticajima mladim ljudima.

Reference

Chesnais, J. C. (1998). Below Replacement Fertility in European Union, Facts and Policies. *Review of Population and Social Policy*. No. 7., 83-101.

Čipin, I., & Međimurec. P. (2017). Fertilitet i obiteljska politika u Hrvatskoj. *Političke analize: tromjesečnik za hrvatsku i međunarodnu politiku*. 8(31), 3–9.

Eurostat. (2022). *https://ec.europa.eu/eurostat/databrowser/explore/all/popul?lang=en&display=list&sort=category*, učitano 28.08.2022.

Friganović, M. (1990). *Demografija – stanovništvo svijeta*. Zagreb, Hrvatska: Školska knjiga.

Glamuzina, M., & Glamuzina, N. (1996). Promjene u biološkoj i ekonomskoj strukturi stanovništva Južne Hrvatska (Dalmacije) od 1948. do 1991. *Geoadria,* 1 (1), 17-34.

Wertheimer-Baletić, A. (1999). *Stanovništvo i razvoj*. Zagreb, Hrvatska: Mate.

Wertheimer-Baletić, A. (2005). Determinante reprodukcije stanovništva Hrvatske u drugoj polovici 20. stoljeća. *Stanovništvo Hrvatske – dosadašnji razvoj i perspektive*, Zagreb, Hrvatska: Institut društvenih znanosti Ivo Pilar, 9-39.

Wertheimer-Baletić, A. (2017). *Demografska teorija, razvoj stanovništva Hrvatske i populacijska politika.* Samobor, Hrvatska: Meridijani.

Živić, D. (2003). Demografske odrednice i posljedice starenja stanovništva Hrvatske. *Revija za socijalnu politiku*, 10(3): 307–319.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.347

Uvođenje eura 2023. godine i mogući utjecaji na turizam u Republici Hrvatskoj

Introduction of the Euro in 2023 and Possible Effects on Tourism in the Republic of Croatia

Elvis Mujačević[1]
Zrinka Martić[2]

Received: September 5, 2023
Accepted: September 12, 2023
Published: October 30, 2023

Ključne riječi:
Europska unija;
Euro;
Europski tečajni mehanizam;
Maastrichtski kriteriji;
Euroizacija;
Pozitivne posljedice;
Negativne posljedice;
Percepcija građana;
Turizam

Keywords:
European Union;
Euro;
European exchange rate mechanism;
Maastricht criteria;
Euroization;
Positive consequences;
Negative consequences;
Perception of citizens;
Tourism

Sažetak: *Hrvatska je 1. srpnja 2013. godine postala članica Europske unije te se time ujedno i obvezala uvesti euro kao nacionalnu valutu čim na to bude spremna. Kada se makroekonomska situacija Hrvatske počela razvijati u pozitivnom trendu, nastupio je ulazak u Europski Tečajni Mehanizam (ERM II) 10. srpnja 2020., svojevrsnu čekaonicu za euro koja priprema državu za veliku promjenu. Iako je Hrvatska duboko euroizirana zemlja, čekaju je mjeseci prilagodbe na euro u smislu prilagođavanja cijena, informacijsko-komunikacijskih kanala te sprečavanje mogućih kriza i šokova koji mogu pogoditi ekonomiju zemlje prilikom konverzije. Da bi se šokovi minimizirali, nastoje se ispuniti Maastrichtski kriteriji. Navedene su sve moguće pozitivne, ali i negativne posljedice koje se mogu očekivati te je kroz anketu o percepciji građana prikazana njihova razina informiranosti o prelasku na euro, ali i strahovi poput povećanja cijena, inflacije, gubitka nacionalnog suvereniteta, kao i pozitivnih posljedica koje će se odražavati na turizam.*

Abstract: *On July 1, 2013, Croatia became a member of the European Union and thereby also committed to introducing the euro as its national currency as soon as it is ready. When Croatia's macroeconomic situation began to develop in a positive trend, it entered the European Exchange Rate Mechanism (ERM II) on July 10, 2020, a kind of waiting room for the euro that prepares the country for a major change. Although Croatia is a deeply euroized country, months of adjustment to the euro await it in terms of adjusting prices, information and communication channels, and preventing possible crises and shocks that may affect the country's economy during the conversion. In order to minimize shocks, efforts are being made to fulfill the Maastricht criteria. All possible positive and negative consequences that can be expected are listed, and through a survey on the perception of citizens, their level of information about the transition to the euro is shown, as well as fears such as price increases, inflation, loss of national sovereignty, as well as positive consequences that will reflect on tourism.*

1. UVOD

Hrvatska 2023. godine postaje članica europodručja te uvodi euro kao svoju nacionalnu valutu. Pristupanjem Europskoj Uniji, Hrvatska je pristala bez iznimke prihvatiti euro kada njezina ekonomija bude za to spremna. Iako Hrvatska trenutačno ne ispunjava u potpunosti sve kriterije, makroekonomske neravnoteže više nisu prekomjerne te je vrijeme da se unutar sustava zvanog Europski tečajni mehanizam Republika Hrvatska prilagodi i isplanira sve kako bi konverzija prošla što bezbolnije za građane i gospodarstvo općenito.

[1] Fakultet za menadžment u turizmu i ugostiteljstvu Opatija, Katedra za međunarodna ekonomska ulaganja, Sveučilište u Rijeci, Primorska 46, pp. 97., 51410 Opatija, Hrvatska

[2] Studentica diplomskog studija Menadžment događaja i slobodnog vremena, Fakultet za menadžment u turizmu i ugostiteljstvu Opatija, Sveučilište u Rijeci, Primorska 46, pp. 97., 51410 Opatija, Hrvatska

Ispituje se percepcija građana o mogućim učincima uvođenja eura s naglaskom na turizam. Cilj istraživanja bio je ispitati što građani misle o pozicioniranju Hrvatske kao turističke destinacije nakon uvođenja eura u smislu poskupljenja usluge, prepoznatljivosti na tržištu, atraktivnosti i slično. Također, u anketi se ispituje u kojoj se mjeri građani koriste eurom, jesu li za ili protiv njegova uvođenja te osjećaju li se općenito informiranima o svemu bitnom vezanom uz konverziju.

1.1. Značaj eura

Euro je valuta u devetnaest zemalja Europske unije, njime se koristi više od 340 milijuna građana te je, iza dolara, druga najvažnija valuta na svijetu. Novčanice i kovanice eura opipljivi su i svakodnevni podsjetnik na slobodu, praktičnost i prilike koje pruža Europska unija.

Europodručje čine države članice koje su zamijenile svoje nacionalne valute s jedinstvenom valutom euro. One koje to nisu napravile, a članice su Europske unije, svejedno su dio ekonomske i monetarne unije te usklađuju svoje ekonomske politike s politikama EU-a i zajedničkim ciljevima, a takav slučaj trenutno je i Hrvatska do konačnog procesa konverzije. Članice europodručja bolje se integriraju u gospodarstvo Europske unije koje je je posebno upravljano kako bi se ostvarile sve koristi jedinstvene valute.

Za monetarnu politiku europodručja odgovoran je neovisni Eurosustav koji se sastoji od Europske središnje banke te nacionalnih središnjih banaka država članica. Glavni je cilj eurosustava održavanje stabilnosti cijena. Za ekonomsku politiku koja se osigurava nizom struktura i instrumenata odgovorne su države članice kojima koordiniraju nacionalne vlade. Glavnu ulogu ima Pakt o stabilnosti i rastu koji se sastoji od zajedničkih pravila, kao što su ograničenja državnog deficita, nacionalnog duga i slično.

Maastrichtski ugovori iz 1992. godine postavili su temelj konvergencijskih pravila odnosno kriterija za ulazak neke zemlje u eurozonu. Oni mogu poboljšati javnu politiku, ali i usporiti gospodarski razvoj te izazvati trzaje u gospodarstvu. Mnogi su zagovarali ukidanje tih kriterija tijekom 2008. godine kada je nastupila svjetska ekonomska kriza i prezaduženost Grčke kako bi se države članice lišile formalnih političkih ograničenja fiskalne politike, tvrdeći kako bi se ukidanjem izbjegla spora dinamika tržišta te bi bile iskorištene snažnije fiskalne ekspanzije.

Kriteriji iz Maastrichta fokusirani su na pet makroekonomskih varijabli: inflaciju, dugoročne nominalne kamatne stope, tečaj, proračunski deficit i javni dug. Ti se kriteriji u službenim dokumentima nazivaju i *kriterijima nominalne konvergencije* jer bi trebali spriječiti velika odstupanja od prosjeka i potencijalno destabilizirajuće makroekonomske razlike među zemljama. U ugovorima su navedeni i drugi ciljevi, kao što su puna zaposlenost, podržavanje ekonomske politike EU-a i uravnotežen ekonomski rast, koji moraju biti u skladu s održavanjem stabilnosti cijena.

Analizirajući koristi od uvođenja eura, otklon valutnog rizika ima veliku važnost zbog već spomenute visoke euroizacije prisutne na hrvatskom tržištu. Valutna klauzula više neće biti potrebna te neće postojati opasnost od promjene tečaja. Devizna štednja postat će domaća kada se uvede euro. Druga prednost uvođenja jest smanjenje valutne i platno-bilančne krize kroz postojanje Europskog stabilizacijskog mehanizma koji je izvor financiranja u krizama. ESM je povoljan kreditor kada u zemlji dođe do makroekonomske neravnoteže. Skup javnog novca, čiji je kapacitet 704,8 milijardi eura, dodijeljen je državama članicama prema kapitalnom ključu ECB-a. RH svojim ulaskom preuzima rizike i jamči za obveze javnog fonda. Kreditni kapacitet ESM-a je 500 milijardi eura i, ako se ostale države članice slože, to je novac na koji RH može računati u slučaju krize.

2. ODRAZ UVOĐENJA EURA NA TURIZAM I GOSPODARSTVO

Hrvatska je jedna od najposjećenijih destinacija na Sredozemlju s konstantnim rastom broja dolazaka, isključivo s 2020. godinom zbog COVID-19 krize. Važnost turizma naglašava se i činjenicom da je oko 18 % hrvatskog BDP-a uprihođeno zbog turizma, više nego što je slučaj kod Grčke, Portugala i Španjolske (Hrturizamhr, 2021).

Prema navodima HNB-a, u empirijskim istraživanjima uglavnom se nailazi na pozitivne učinke uvođenja eura na turizam i gospodarstvo. Tome pridonosi visoka zastupljenost država članica europodručja u hrvatskoj robnoj razmjeni, kao i inozemna ulaganja od turizma. Kao što je prethodno spomenuto, posjetitelji iz država u kojima se upotrebljava euro ostvaruju 70 % ukupnih prihoda, to jest više od 60 % ukupnih noćenja i dolazaka stranih gostiju (Bukovšak i dr., 2017).

Iako je HNB uvjerena u pozitivne učinke uvođenja eura, ne postoji toliko velik broj istraživanja koji bi sa sigurnošću mogli potvrditi takvu tezu. U literaturi se spominje da je razlog tome to što mnoge europske zemlje u vrijeme konverzije svojih nacionalnih valuta nisu toliko ovisile o turizmu kao Hrvatska te se tada nije analizirala konkurentnost država u odnosu na druge iako, prema navodima HNB-a, istraživanja pokazuju da se kod cjenovno jače osjetljivih tržišta kod kojih je porast cijena usluge vezan za turizam, nakon uvođenja eura narušava konkurentnost.

U slučaju Republike Hrvatske moguće je očekivati kako bi zbog ukupne veličine turističkog sektora, odnosno vrlo visoke orijentacije prema tržištima eurozone, kao i prostora za moguće podizanje kvalitete koja bi tako mogla opravdati eventualan rast cijena, ipak nužno trebali prevladati pozitivniji učinci (Santana Gallego i dr., 2010).

3. ANKETA: PERCEPCIJA GRAĐANA O UČINCIMA UVOĐENJA EURA S NAGLASKOM NA TURIZAM

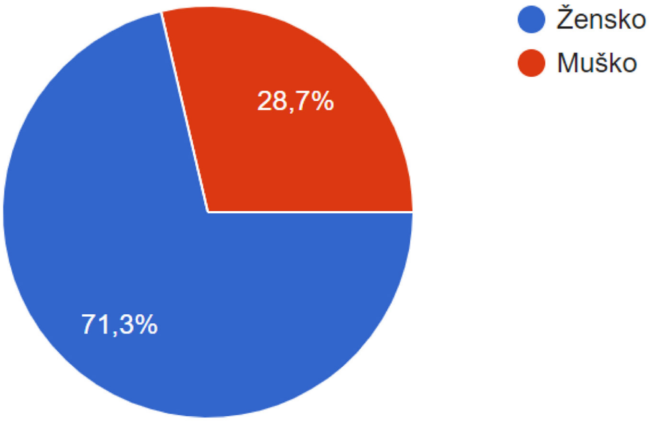
Prilikom pregledavanja rezultata istraživanja u nekoliko ispitivanih segmenata uočavaju se trendovi koji se mogu iskoristiti za prijenos na realnu sliku o stajalištima vezanim za uvođenje eura. Ovo ispitivanje provedeno je u obliku online ankete. Anketu je uspješno ispunilo 157 ispitanika. Anketa je u potpunosti anonimna, a svi rezultati prikazuju se isključivo kao zbirni, bez prikazivanja individualnih podataka.

Provedena anketa nastala je na temelju članka „Potential impacts of Euro on destination choice”, slovenskih autora Ozana Bahara i Metina Kozaka. Pregled literature ukazuje na to da ne postoje mnoge empirijske studije koje bi se posebno odnosile na učinke u turističkoj industriji. Svrha njihove studije jest istražiti kako uvođenje eura utječe na odabir destinacije za odmor građana Europske unije te da se u tom kontekstu argumentira u kojoj su mjeri ostvarene prednosti ili nedostatci prilikom posjeta zemljama članicama i onima koje to nisu.

Većina ispitanika u ovom istraživanju – njih 112 – bilo je ženskog spola (71,3 %); ispitanika muškog spola bilo je 45 (28,7 %) (Grafikon 1.). Pregledom dobnih skupina uočava se da je najviše ispitanika bilo starije od 50 godina (59 ispitanika, odnosno 37,6 %). Na drugom su mjestu ispitanici u dobnoj skupini od 18 do 29 godina (41 ispitanik, odnosno 26,1 %), a na trećem ispitanici u dobnoj skupini od 30 do 39 godina (34 ispitanika, odnosno 27,1 %). Najmanje ispitanika bilo je u dobnoj skupini od 40 do 49 godina (23 ispitanika, odnosno 14,6 %) (Grafikon 2.).

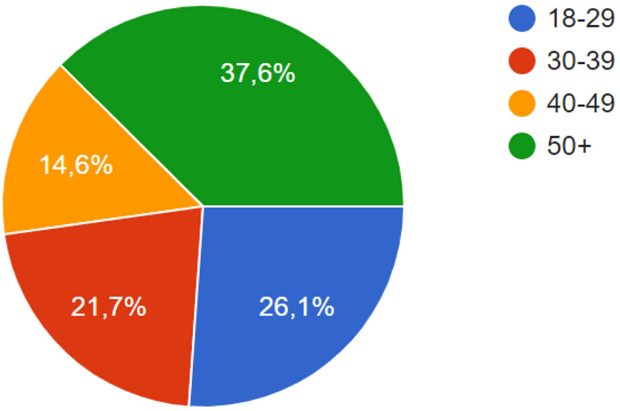
Što se tiče obrazovanja ispitanika, najviše ispitanika završilo je srednju školu kao najviši stupanj obrazovanja (72 ispitanika, odnosno 45,9 %). Zatim slijede ispitanici koji su kao najvišu razinu obrazovanja imali visoku školu odnosno fakultet (70 ispitanika, odnosno 44,6 %).

Vrlo malo ispitanika imalo je završen magisterij ili doktorat znanosti (14 ispitanika, odnosno 8,9 %), dok je svega 1 ispitanik (0,6 %) imao završenu samo osnovnu školu (Grafikon 3.).



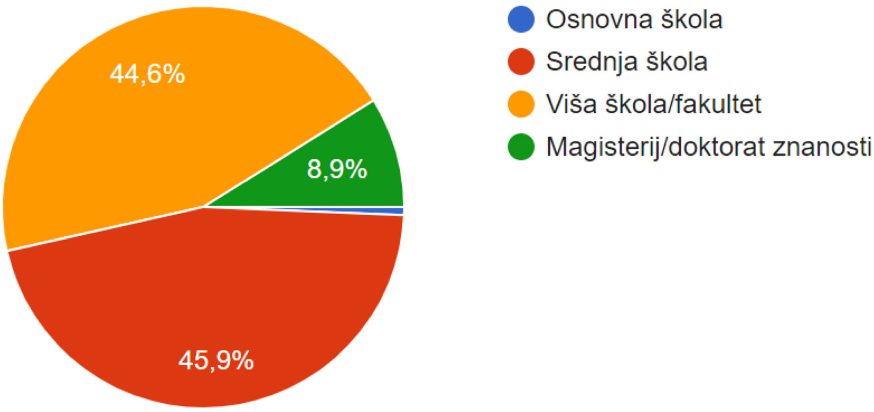
Grafikon 1. Raspodjela ispitanika prema spolu

Izvor: obrada autora prema anketnom upitniku



Grafikon 2. Raspodjela ispitanika prema dobi

Izvor: obrada autora prema anketnom upitniku



Grafikon 3. Raspodjela ispitanika prema obrazovanju

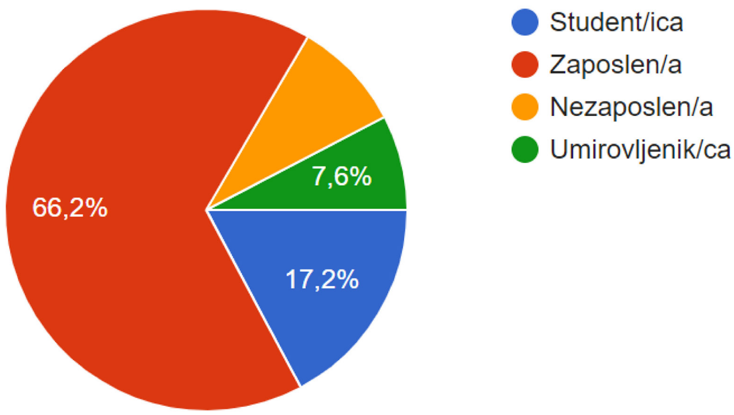
Izvor: obrada autora prema anketnom upitniku

Najviše ispitanika u ovom istraživanju bilo je zaposleno (104, odnosno 66,2 %). Drugu skupinu činili su studenti i studentice, njih 27, odnosno 17,2 %. Nezaposlene osobe činile su ukupno 8,9 % svih ispitanika, odnosno bilo ih je 14. Među ispitanicima najmanje je bilo umirovljenika – 12, odnosno 7,6 % (Grafikon 4.).

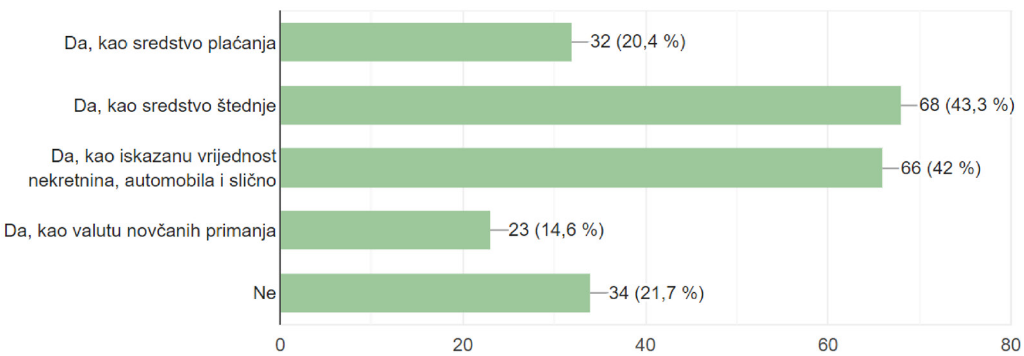
Promatrajući korištenje eura među ispitanicima u Hrvatskoj, najviše ispitanika (njih 68, odnosno 43,3 %) navodi da se eurom koriste kao sredstvom štednje. Vrlo slični pokazatelji su oni koji govore da ispitanici upotrebljavaju euro kao iskazanu vrijednost nekretnina, automobila i slično (66 ispitanika, 42,0 %). 21,7 % ispitanika (34 njih) navodi da uopće ne upotrebljava euro, 32 ispitanika (20,4 %) koristi se eurom kao sredstvom plaćanja, dok 23 ispitanika (14,6 %) navodi da se eurom koristi kao valutom novčanih primanja (Grafikon 5.).

Ispitanici u ovom istraživanju velikom su većinom (75,8 %) upotrebljavali euro u inozemstvu u posljednje tri godine. Takvu činjenicu navodi 119 ispitanika. S druge strane, 24,2 % odnosno 38 njih tvrdi da nije upotrebljavalo euro u inozemstvu u posljednje tri godine (Grafikon 6.).

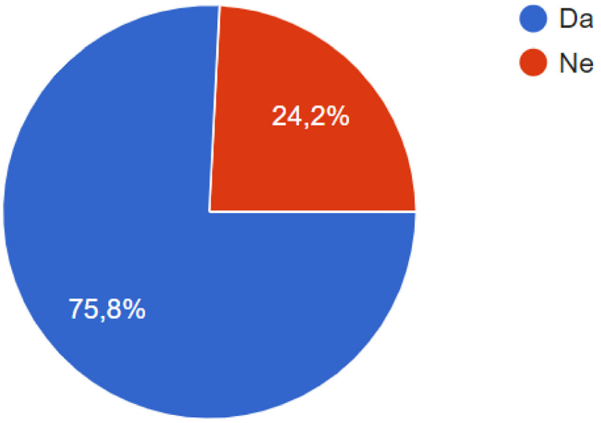
Po pitanju važnosti uvođenja eura u Hrvatskoj stajališta su podijeljena. Većina ispitanika nije sigurna treba li u Hrvatskoj uvesti euro. To navodi 48 njih (30,6 %). 39 ispitanika (24,8 %) smatra da u Hrvatskoj ne treba uvesti euro. Potpunu suprotnost – stajalište da Hrvatska euro treba uvesti što prije, tvrde 32 ispitanika odnosno 20,4 %. 27 ispitanika (17,2 %) smatra da euro u Hrvatskoj treba uvesti, ali tek za pet godina. S druge strane, najmanje ispitanika smatra da euro u Hrvatsku treba uvesti tek za 10 godina – 11 ispitanika, odnosno 7 % (Grafikon 7.).



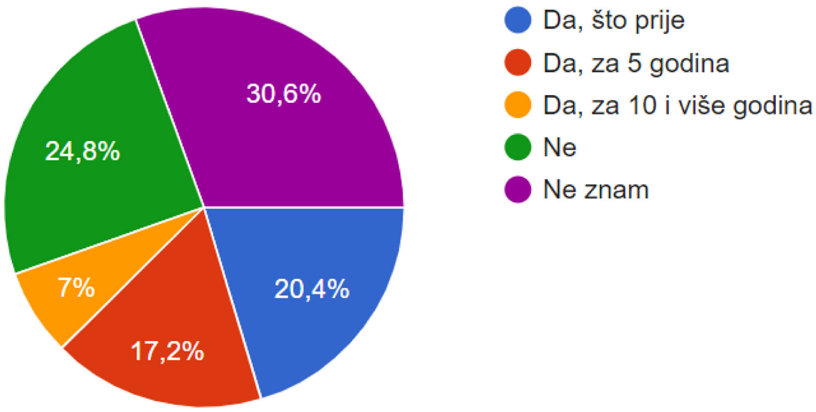
Grafikon 4. Raspodjela ispitanika prema zanimanju
Izvor: obrada autora prema anketnom upitniku



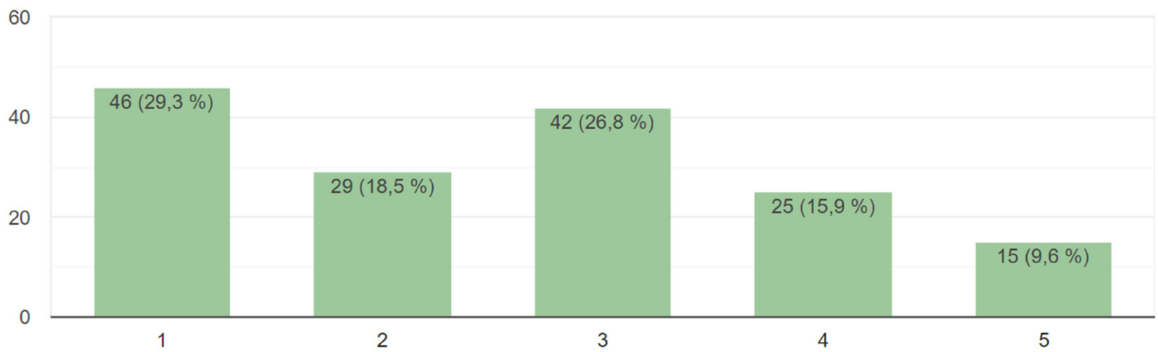
Grafikon 5. Korištenje eura u Hrvatskoj
Izvor: obrada autora prema anketnom upitniku



Grafikon 6. Korištenje eura u inozemstvu u posljednje 3 godine
Izvor: obrada autora prema anketnom upitniku

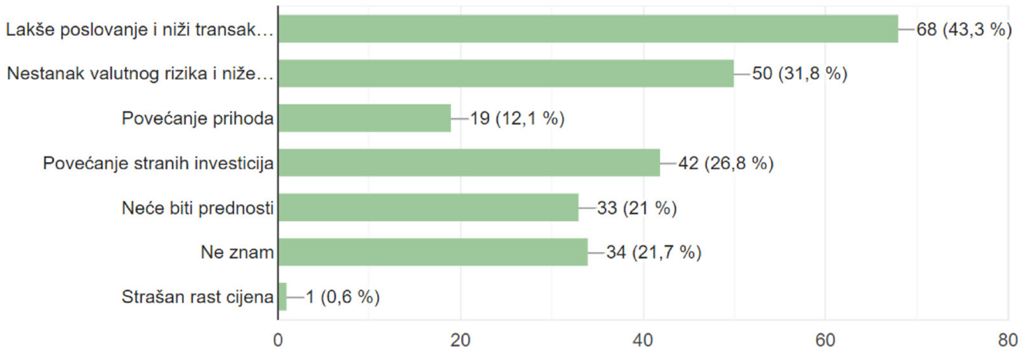


Grafikon 7. Treba li Hrvatska uvesti euro?
Izvor: obrada autora prema anketnom upitniku



Grafikon 8. Razina informiranja o potencijalnim učincima uvođenja eura na gospodarstvo i ekonomiju neke zemlje
Izvor: obrada autora prema anketnom upitniku

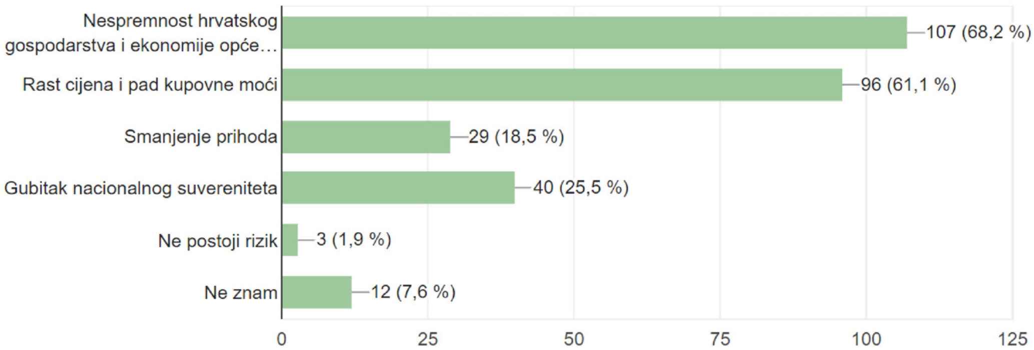
Kada se pregleda razina informiranja o potencijalnim učincima uvođenja eura na gospodarstvo i ekonomiju zemlje, ispitanici su davali svoje odgovore sukladno *Likertovoj ljestvici*. Pri tome su se za određena stajališta pripisivali određeni bodovi koji su imali značenje. Tako broj 1 predstavlja to da se ispitanici uopće ne slažu s predloženom tvrdnjom, broj 2 da se ispitanici uglavnom ne slažu s tvrdnjom, broj 3 da se ispitanici niti slažu niti ne slažu s navedenom tvrdnjom, broj 4 da se ispitanici uglavnom slažu s navedenom tvrdnjom i broj 5 da se ispitanici u potpunosti slažu s navedenom tvrdnjom. Najviše ispitanika (46, odnosno 29,3 %) uopće se ne slaže s tvrdnjom da su adekvatno informirani o potencijalnim učincima uvođenja eura na gospodarstvo i ekonomiju zemlje. 42 ispitanika (26,8 %) s tom se tvrdnjom niti slaže niti ne slaže. Zatim slijede ispitanici koji se uglavnom ne slažu s tim da su adekvatno informirani o učincima uvođenja eura. 25 ispitanika (15,9 %) smatra da su uglavnom dobro informirani o potencijalnim učincima uvođenja eura, dok najmanje ispitanika (15, odnosno 9,6 %) smatra da su potpuno informirani o potencijalnim učincima uvođenja eura. Što se tiče ovog pitanja, pokazano je da je informiranost ispitanika o potencijalnim učincima eura relativno dobra s prosječnom ocjenom od 2,6 (Grafikon 8.).



Grafikon 9. Prednosti uvođenja eura prema mišljenju ispitanika

Izvor: obrada autora prema anketnom upitniku

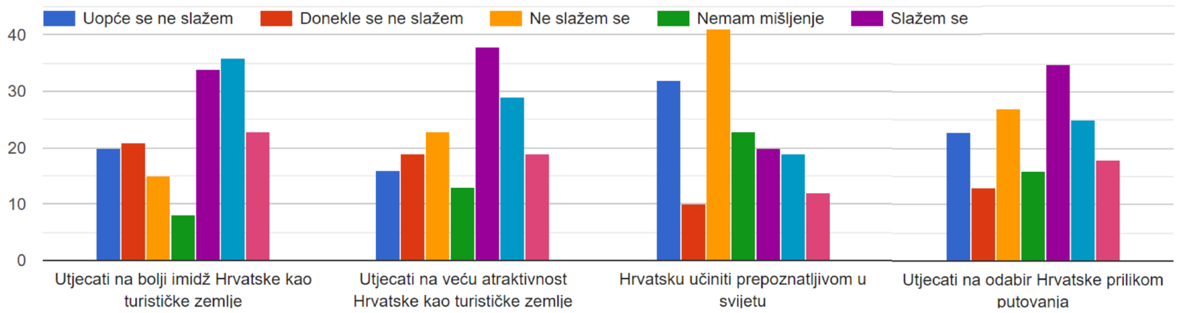
Većina ispitanika (68, odnosno 43,3 %) kao prvi izbor smatra da su prednosti uvođenja eura lakše poslovanje i niži transakcijski troškovi. S druge strane, 50 ispitanika (31,8 %) smatra da je to nestanak valutnog rizika i niže kamatne stope. 42 ispitanika (26,8 %) vjeruje da je glavna prednost povećanje stranih investicija. Čak 21,7 % ispitanika (34) nije sigurno, odnosno ne zna koje su prednosti uvođenja eura. Slično tome, 21,0 % (33) ispitanika smatra da takvih prednosti uopće neće biti. Da će povećanje prihoda biti prednost uvođenja eura smatra 12,1 % ispitanika, odnosno njih 19. Samo 1 ispitanik (0,6 %) smatra da će dovesti do porasta cijena (Grafikon 9.).



Grafikon 10. Rizici uvođenja eura prema mišljenju ispitanika

Izvor: obrada autora prema anketnom upitniku

Pregledom rizika prilikom uvođenja eura, velika većina ispitanika (107 njih, odnosno 68,2 %) smatra da je nespremnost hrvatskog gospodarstva i ekonomije općenito glavni rizik za uvođenje eura. 96 ispitanika (61,1 %) kao prvi izbor navodi da će glavni rizik biti rast cijena i pad kupovne moći. Sljedeće opcije znatno su niže na ljestvici, pa tako 40 ispitanika (25,5 %) smatra da je glavni rizik gubitak nacionalnog suvereniteta, a 29 ispitanika (18,5 %) smatra da je glavni rizik smanjenje prihoda. 12 ispitanika ne zna koji su glavni rizici uvođenja eura (7,6 %) dok tek troje njih (1,9 %) navodi da rizik prilikom uvođenja eura uopće ne postoji (Grafikon 10.).



Grafikon 11. Mišljenja ispitanika o uvođenju eura – a (upoće se ne slažem - donekle se ne slažem - ne slažem se - nemam mišljenje - slažem se - donekle se slažem - u potpunosti se slažem)
Izvor: obrada autora prema anketnom upitniku

Mišljenja o utjecaju eura na gospodarstvo Republike Hrvatske su različita. Većina ispitanika uglavnom se slaže s mišljenjem da će uvođenje eura utjecati na bolji imidž Hrvatske kao turističke zemlje. Donekle se slaže 36 ispitanika, 34 se ispitanika slaže s tim mišljenjem, a 23 ispitanika se u potpunosti slaže s tim mišljenjem, stoga se da zaključiti da je mišljenje ispitanika po ovom pitanju uglavnom pozitivno. 21 ispitanik s tom se tvrdnjom uglavnom ne slaže, dok se 20 ispitanika uopće ne slaže s tom tvrdnjom. 15 ispitanika se s tom tvrdnjom ne slaže, a 8 ispitanika nema mišljenje po ovom pitanju. Prosječna ocjena po ovom pitanju je 4,3, što znači da ispitanici uglavnom ili nemaju mišljenje ili naginju prema slaganju s tvrdnjom (Grafikon 11.).

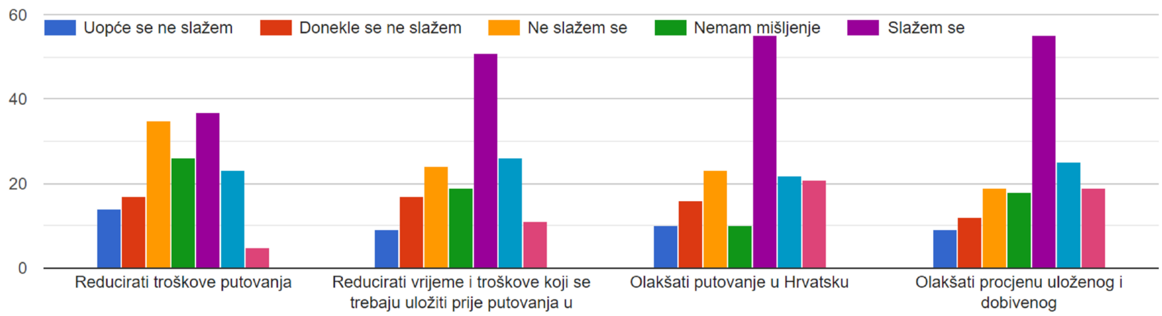
Trideset osam ispitanika slaže se s tvrdnjom da će uvođenje eura utjecati na veću atraktivnost Hrvatske kao turističke zemlje. Zatim se većina ispitanika (29 njih) uglavnom slaže s tom tvrdnjom, dok se 23 ispitanika ne slaže s tom tvrdnjom. S druge strane, oprečno mišljenje imaju 19 ispitanika koji se u potpunosti slažu s tom tvrdnjom, što je jednako broju osoba koje se uglavnom slažu s tom tvrdnjom. S druge strane, 16 ispitanika ne slaže se potpuno s tom tvrdnjom, dok njih 13 nema mišljenje po tom pitanju. Dakle, većina ispitanika nema značajno istaknuto mišljenje po ovom pitanju, pa ono ima prosječnu ocjenu od 4,2 (Grafikon 11.).

Većina ispitanika (41 ispitanik) smatra da uvođenje eura neće Hrvatsku učiniti prepoznatljivom u svijetu. S tom tvrdnjom u potpunosti se ne slaže 32 ispitanika, dok njih 23 nema mišljenje. 19 se ispitanika uglavnom slaže, dok se 12 ispitanika potpuno slaže s tom tvrdnjom. 10 ispitanika uglavnom se ne slaže s tvrdnjom da će uvođenje eura Hrvatsku učiniti prepoznatljivom. Kada se promatra općenito mišljenje ispitanika po ovom pitanju, uviđa se da se ispitanici uglavnom ne slažu s ovom tvrdnjom, odnosno da nemaju jasno izraženo mišljenje po ovom pitanju s prosječnim odgovorima u razini 3,6 (Grafikon 11.).

Što se tiče mišljenja da će uvođenje eura utjecati na odabir Hrvatske prilikom putovanja, s tim se slaže većina ispitanika, njih 35. S druge strane, s tim mišljenjem ne slaže se 27 ispitanika, dok se 25 donekle slaže. Potpuno oprečno mišljenje ima 23 ispitanika koji se uopće ne slažu s tom tvrdnjom, dok se 18 ispitanika u potpunosti slaže s tom tvrdnjom. 16 ispitanika nema mišljenje po ovom pitanju, dok se 13 ispitanika uglavnom ne slaže s tom tvrdnjom. Ispitanici po ovom pitanju generalnim pregledom nemaju mišljenje, s prosječnim odgovorima od 4,1 (Grafikon 11.).

Prilikom ispitivanja mišljenja o tome hoće li euro reducirati troškove putovanja, većina ispitanika (njih 37) smatra da će to biti tako, odnosno slažu se s navedenom tvrdnjom. S druge strane, 35 ispitanika s tim se ne slaže. 26 ispitanika nema mišljenje po tom pitanju, dok se 23 ispitanika uglavnom slažu s tom tvrdnjom. 17 ispitanika donekle se ne slaže s tom tvrdnjom, a 14 ispitanika potpuno se ne slaže s tom tvrdnjom. 5 ispitanika s tom se tvrdnjom potpuno slaže. Ispitanici se po ovom pitanju uglavnom ne slažu s tvrdnjom, odnosno idu prema tome da nemaju jasno određeno mišljenje. Po ovom pitanju prosječna ocjena je 3,9 (Grafikon 12.).

51 ispitanik smatra da će uvođenje eura reducirati vrijeme i troškove koji se trebaju uložiti prije putovanja u Hrvatsku. S tom se tvrdnjom slaže 26 ispitanika, dok se 24 ispitanika s njom ne slažu. 19 ispitanika nema mišljenje o tom pitanju, njih 17 uglavnom se ne slaže s tom tvrdnjom, dok se 11 ispitanika potpuno slaže s tom tvrdnjom. Devet ispitanika u ovom istraživanju potpuno se ne slažu s navedenom tvrdnjom. Prema prosjeku, ispitanici generalno nemaju stav o reduciranju vremena i troškova, kako je pokazalo ovo pitanje s prosječnom ocjenom od 4,3 (Grafikon 12.).

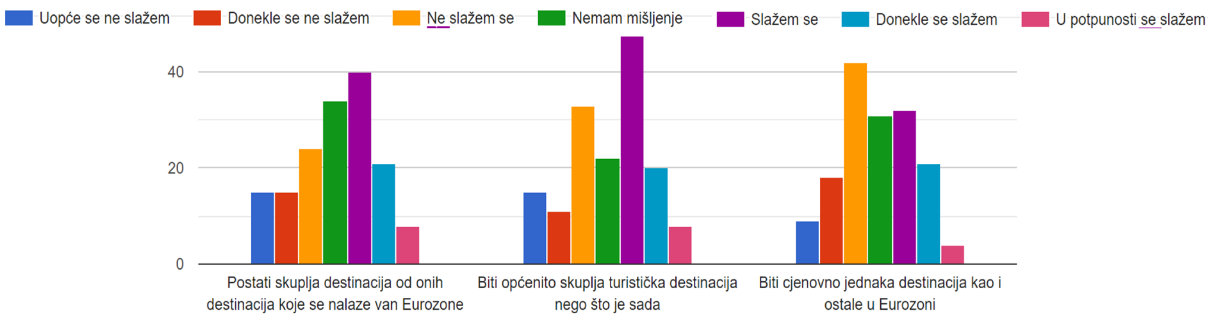


Grafikon 12. Mišljenja ispitanika o uvođenju eura – b (upoće se ne slažem - donekle se ne slažem - ne slažem se - nemam mišljenje - slažem se - donekle se slažem - u potpunosti se slažem)

Izvor: obrada autora prema anketnom upitniku

Većina ispitanika slaže se s tvrdnjom da će uvođenje eura olakšati putovanje u Hrvatsku, njih 55. Suprotno misle 23 ispitanika, dok se 22 ispitanika uglavnom slažu s tom tvrdnjom. 21 ispitanik potpuno se slaže s navedenom tvrdnjom, a 16 ispitanika uglavnom se ne slaže s njom. Isti broj ispitanika, njih 10, nema mišljenje o tom pitanju i potpuno se ne slaže s navedenom tvrdnjom. Ispitanici se uglavnom slažu s ovom tvrdnjom, a prosječna ocjena po ovom pitanju iznosi 4,5 (Grafikon 12.).

Kada je u pitanju procjena uloženog i dobivenog, većina ispitanika – njih 55 – slaže se s tvrdnjom da će euro olakšati te procjene. 25 ispitanika uglavnom se slaže s tom tvrdnjom, dok se isti broj ispitanika, njih 19, potpuno slaže s tom tvrdnjom odnosno ne slaže s tvrdnjom. 18 ispitanika nemaju mišljenje o ovom pitanju. 12 ispitanika uglavnom se ne slažu s takvim procjenama, dok se 9 njih potpuno ne slažu s njima. Kao i u prošlom pitanju, generalni stav ispitanika o ovom pitanju je da se uglavnom slažu s ovom tvrdnjom. Prosječna ocjena po ovom pitanju je 4,6 (Grafikon 12.).



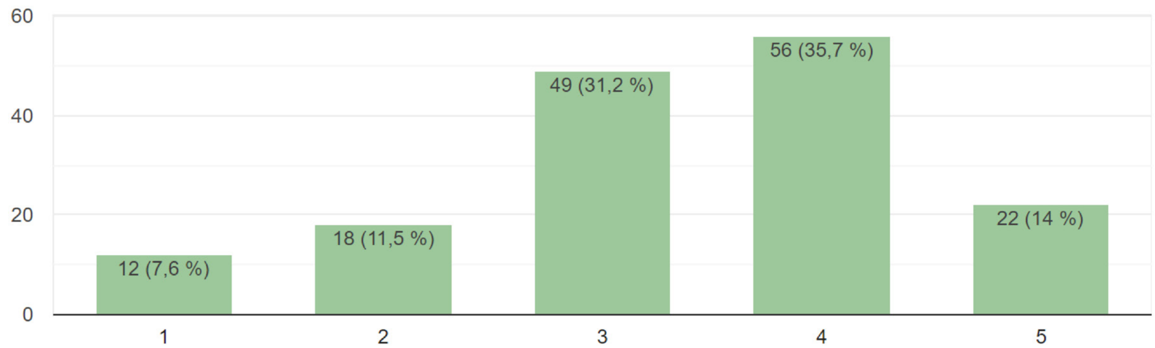
Grafikon 13. Mišljenja ispitanika o uvođenju eura – c

Izvor: obrada autora prema anketnom upitniku

Povodom ispitivanja mišljenja o tome da će uvođenje eura dovesti do toga da će Hrvatska postati skuplja od onih destinacija koje se nalaze izvan Europe, većina ispitanika, njih 40, slaže se s tom tvrdnjom. 34 ispitanika nemaju mišljenje o tom pitanju, dok se 24 ispitanika ne slažu s tom tvrdnjom. 21 ispitanik uglavnom se slaže s navedenim tvrdnjama, a isti broj ispitanika, njih 15, uglavnom se ne slaže odnosno potpuno ne slaže s tim tvrdnjama. 8 ispitanika potpuno se slaže s ovom tvrdnjom. Generalni stav ispitanika po ovom pitanju s prosječnom ocjenom od 4,1 je da u prosjeku nemaju izražen stav o ovom pitanju (Grafikon 13.).

Da će nakon uvođenja eura Hrvatska općenito biti skuplja turistička destinacija nego što je sada smatraju 48 ispitanika, odnosno slažu se s tom tvrdnjom. S druge strane, 33 ispitanika se ne slažu s tom tvrdnjom, a 22 ispitanika nemaju mišljenje o tom pitanju. 20 ispitanika uglavnom se slažu s tom tvrdnjom, dok se 15 ispitanika potpuno ne slažu s tom tvrdnjom. 11 ispitanika uglavnom se ne slažu s tom tvrdnjom, a njih 8 potpuno se slažu s navedenom tvrdnjom. Generalni stav ispitanika o ovom pitanju s prosječnom ocjenom od 4,1 je da u prosjeku nemaju izražen stav (Grafikon 13.).

Većina ispitanika, odnosno njih 42, ne slaže se s tvrdnjom da će Hrvatska nakon uvođenja eura biti cjenovno jednaka destinacija kao i ostale u Europi. 32 ispitanika smatraju da će to biti istina, odnosno slažu se s tom tvrdnjom. 31 ispitanik nema mišljenje o ovom pitanju. S ovom tvrdnjom uglavnom se slaže 21 ispitanik, a 18 se uglavnom ne slažu. 9 ispitanika potpuno se ne slaže s tom tvrdnjom, dok se njih 4 potpuno slažu s tom tvrdnjom. O ovom pitanju s prosječnom ocjenom od 3,8 ispitanici generalno nemaju snažno razvijen stav (Grafikon 13.).



Grafikon 14. Hoće li uvođenje eura pozitivno utjecati na turizam Hrvatske?
Izvor: obrada autora prema anketnom upitniku

Većina ispitanika (56 ispitanika, 35,7 %) uglavnom se slaže s tvrdnjom da će uvođenje eura pozitivno utjecati na turizam Hrvatske. Zatim, 49 ispitanika (31,2 %) nema mišljenje o tom pitanju, odnosno niti se slaže niti se ne slaže s navedenom tvrdnjom. Ponovno se mišljenje ispitanika usmjerava prema tome da će uvođenje eura pozitivno utjecati na turizam Hrvatske, pri čemu se 22 ispitanika (14 %) potpuno slaže s tom tvrdnjom. 18 ispitanika (11,5 %) uglavnom se ne slaže s tom tvrdnjom, dok se najmanje ispitanika (njih 12, odnosno 7,6 %) potpuno ne slaže s tom tvrdnjom. Ispitanici uglavnom smatraju da će uvođenje eura pozitivno utjecati na Republiku Hrvatsku, pri čemu su u ovom pitanju dali prosječnu ocjenu od 3,7 (Grafikon 14.).

4. ZAKLJUČAK

Euro je druga najvažnija valuta na svijetu, a nastao je kao težnja europskih zemalja za lakšim trgovanjem. Pristupanjem Europskoj uniji, Hrvatska se obvezala postati članicom europodručja nakon što završi period usklađivanja ekonomske politike s politikama Europske unije te njihovim zajedničkim ciljevima. Predviđeni period ulaska jest 2023. godina te se Hrvatska trenutno nalazi u sustavu ERM II kako bi prelazak s kune na euro prošao što bezbolnije za nacionalnu ekonomiju i građane.

Kroz anketu provedenu od strane autora nastojala se prikazati percepcija građana o učincima uvođenja eura s naglaskom na turizam.

U radu su, osvrćući se na Velimira Šonju, navedene velike koristi koje će Hrvatska imati od ulaska u europodručje, a neke od njih su otklon valutnog rizika, niže kamatne stope, niži transakcijski troškovi te povoljnija investicijska klima. Također, velika prednost ulaska je pristup Europskom stabilizacijskom mehanizmu, najpovoljnijem kreditoru na tržištu koji nudi pomoć državama članicama za vrijeme makroekonomskih neravnoteža.

Mogući izazovi s kojima će se Hrvatska morati suočiti su nespremnost hrvatskog gospodarstva (nepovoljna politička klima, visoka korumpiranost, nediverzificiranost gospodarstva), troškovi prilikom konverzije, gubitak samostalne monetarne politike te onaj najproblematičniji – zaokruživanje cijena. Iskustva zemalja koje su uvele euro prije Hrvatske pokazuju da su svakodnevni proizvodi i usluge poskupjeli zbog zaokruživanja cijena (kruh, kava, novine) te je upravo zbog navedenog percepcija građana o poskupljenju cijena i inflaciji puno veća nego što ona zapravo jest. Kao moguće rješenje predlažu se porezne reforme prije uvođenja eura, ali i opcija dvojnih cijena koja će se provoditi u Hrvatskoj, prilikom koje će se određeno vrijeme prije službene konverzije u svim trgovinama i objektima koji nešto prodaju naznačiti cijena u kunama i eurima kako bi se građani privikli, ali i procijenili koji prodavatelj ističe cijene na fer način, bez zaokruživanja.

Anketom provedenom za diplomski rad od strane autorice na 157 ispitanika potvrđuje se da je Hrvatska duboko euroizirana zemlja te je 43,3 % ispitanika naznačilo da ima štednju u eurima, a 42 % ispitanika potvrdilo je da vrijednost nekretnina i pokretnina iskazuje upravo u eurima. Kada je riječ o tome treba li Hrvatska uvesti euro, čak 30,6 % ispitanika ne zna izraziti svoje mišljenje o tome, dok 24,8 % ispitanika smatra da Hrvatska ne treba uvesti euro. Potpuno suprotno, samo 20,4 % ispitanika smatra da Hrvatska treba uvesti euro. Navedeni podaci imaju smisla kada je najviše ispitanika (46, odnosno 29,3 %) naznačilo da se uopće ne slaže s tvrdnjom da su adekvatno informirani o potencijalnim učincima uvođenja eura na gospodarstvo i ekonomiju zemlje. Većina ispitanika (68, odnosno 43,3 %) kao prvi izbor smatra da su prednosti uvođenja eura lakše poslovanje i niži transakcijski troškovi. Pregledom rizika prilikom uvođenja eura, velika većina ispitanika (107, odnosno 68,2 %) smatra da je nespremnost hrvatskog gospodarstva i ekonomije općenito glavni rizik za uvođenje eura, a 96 ispitanika (61,1 %) kao prvi izbor navodi da će glavni rizik biti rast cijena i pad kupovne moći.

Drugi dio ankete odnosio se na moguće učinke vezane uz turizam. Mišljenje ispitanika o tome da će uvođenje eura utjecati na bolji imidž Hrvatske kao turističke destinacije uglavnom je pozitivno, dok je mišljenje o većoj atraktivnosti neutralno. Većina ispitanika smatra da uvođenje eura neće Hrvatsku učiniti prepoznatljivom u svijetu niti utjecati na odabir Hrvatske kao destinacije. Većina ispitanika ipak se slaže s tvrdnjama kako će uvođenje eura reducirati troškove i vrijeme putovanja te tako olakšati putovanje stranih državljana, posebno onih iz EU-a kojih ima najviše u Hrvatskoj.

Povodom ispitivanja mišljenja o tome hoće li uvođenje eura dovesti do toga da će Hrvatska postati skuplja destinacija od onih destinacija koje se nalaze van Europe, većina ispitanika slaže se s tom tvrdnjom, kao i s onom da će Hrvatska tada postati općenito skuplja turistička destinacija. Isto tako, većina ispitanika ne slaže se s tvrdnjom da će Hrvatska nakon uvođenja eura biti cjenovno jednaka destinacija kao i ostale u Europi. Kao zaključak ankete, većina ispitanika uglavnom se slaže s tvrdnjom da će uvođenje eura ipak pozitivno utjecati na turizam Hrvatske.

Uzimajući sve navedeno u obzir, negativno javno mnijenje o euru većinom je neutemeljeno. Euro nije neprijatelj Hrvatske, nego je njezin neprijatelj samo njezina loša porezna politika, koruptivna politička klima te manjak povlačenja sredstava iz EU fondova za razvitak industrije i poljoprivrede. Kada bi Republika Hrvatska odabrala prave ekonomsko-političke instrumente te donosila ispravne odluke tijekom boravka Hrvatske u ERM II, konverzija bi mogla proći s minimiziranim šokovima i krizama. Uvođenje eura imat će više pozitivnih nego negativnih posljedica te će građani Hrvatske biti još jedan korak bliže tome da se osjećaju kao pravi Europejci.

Reference

Bukovšak, M, Ćudina, A., & Pavić, N. (2017) Uvođenje eura u Hrvatskoj: mogući učinci na međunarodnu suradnju i ulaganja (online). Dostupno na: https://www.hnb.hr/documents/20182/2070697/p-033.pdf/b616e6d2-78cf-4b79-830a-789ab25e853d. Pristupljeno: 14. svibnja 2021.

Hrturizamhr. (2021). Turistički news portal, dostupno na: https://hrturizam.hr/hrvatska-ima-najveci-udio-turizma-u-bdp-u-u-europi-cak-1801-posto/, pristupljeno: 04.08.2021.

Santana Gallego, M., Ladesma-Rodriguez, F., & Perez-Rodriguez, P. V. (2010). *Exchange Rate Regimes and Toursim. Torusim Economics. 16*(1): 25-43.

Dodatne preporučene reference

Bahar, O., & Kozak, M., (2006.) Potential impacts of Euro on destination choice, 54 (3): 253-243.

Baldwin, R. E., Di Nino, V., Fontagne, L., De Santis, R. A., & Taglioni, D. (n.d.). Study on the Impact of the Euro on Trade and Foreign Direct Investment. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.1163774

Berger, H. (2005). The Euro and Trade: A Historical Perspective. University of Berlin Bulletin. 12(2): 12-29.

Bilas, V. (2005). Konvergencija tranzicijskih zemalja prema Europskoj uniji, 56 (3-4), 221-238, , dostupno na: https://hrcak.srce.hr/file/15413

Brkić, M., & Šabić, A. (2018) Je li euro optimalna valuta za Hrvatsku: ocjena korištenjem teorije optimalnih valutnih područja. *Privredna kretanja i ekonomska politika. 1*(142): 9-70.

Ciccarelli, M. M., & Rebucci, M. A. (2003). A survey of the recent literature with an application to the European Monetary System. *Journal of common market studies. 3*(1): 980-112.

Danish opt-outs from the Europian Union, dostupno na: https://en.wikipedia.org/wiki/Danish_opt-outs_from_the_European_Union, pristupljeno: 04.08.2021.

de Grauwe, P. (2012). The Eurozone's Design Failures: Can they be corrected?, LSE, Amsterdam.

Detken, C., & Hartman, P. (2002) The Euro and International Capital Markets. International finance. 3(1): 53-94. Petroulas, P. (2007) The effect of the euro on foreign direct investment. *European Economic Review. 51*: 1468 1491.

Euro u Hrvatskoj. (2021). HNB (online). Dostupno na: https://euro.hnb.hr/-/koliko-iznosi-sredisnji-paritet-hrvatske-kune-prema-euru-i-na-koji-je-nacin-odre-en-. Pristupljeno: 14. travnja 2021.

Europska komisija – EUROSTAT. (2021). Real GDP growth rate (online). Dostupno na: https://ec.europa.eu/eurostat/databrowser/view/tec00115/default/table?lang=en. Pristupljeno: 23. lipnja 2021.

Europska unija. (2021). #Euroat20 (online). Dostupno na: https://europa.eu/euroat20/hr. Pristupljeno: 5. svibnja 2021.

Europska unija. (2021). Povijest eura (online). Dostupno na: https://europa.eu/euroat20/hr/povijest-eura/. Datum pristupa: 5. svibnja 2021.

Europska unija. (2021). Prednosti eura- https://europa.eu/european-union/about-eu/euro/benefits_hr. Pristupljeno: 25. lipnja 2021.

Fogel, R. (2007). Capitalism and Democracy in 2040: Forecasts and Speculations, NBER Working Paper No. 13184, Cambridge MA.

Gullstrand, J., & Olofsdotter, K. (2018). Trade and the Euro: effects on bystanders. *Applied Economic Letters. 26*(9): 726-730.

Gunnella, V., & Quaglieti, L. (2019). The economic implications of rising protectionism: a euro area and global perspective. *Economic Bulletin Articles. 3*(1): 2700331.

Hrvatska narodna banka. (2021). Perzistentnost Euroizacije u Hrvatskoj (online). Dostupno na: https://www.hnb.hr/documents/20182/2073500/p-037.pdf/70da1667-4e15-400d-8115-c0361896cf67. Pristupljeno: 12. svibnja 2021.

Hrvatska narodna banka. (2021). Ispunjava li Hrvatska Maastrichtske kriterije? (online). Dostupno na: https://euro.hnb.hr/-/ispunjava-li-hrvatska-maastrichtske-kriterije. Pristupljeno: 14. travnja 2021.

Hrvatska narodna banka. (2021). Povijest eura (online). Dostupno na: https://euro.hnb.hr/-/povijest-eura. Pristupljeno: 10. svibnja 2021.

Jutarnji list. (2021). Plenković otkrio koji hrvatski simboli će biti na eurima: 'Građani su izabrali - Nikolu Teslu!', dostupno na: https://www.jutarnji.hr/vijesti/hrvatska/plenkovic-otkrio-koji-hrvatski-simboli-ce-biti-na-eurima-gradani-su-izabrali-nikolu-teslu-15089738, pristupljeno: 04.08.2021.

Kesner- Škreb, M. (2006). Kriteriji konvergencije. Financijska teorija i praksa. 17(3): 400-412., str. 407-408.

Keynes, J. M (1936). The General Theory of Employment, Interest, and Money. Macmillan, London.

Kriesi, H. (2018). The implications of the euro crisis for democracy. *Journal of European Public Policy. 25*(1): 59-82.

Lewis, J., & Staehr, K. (2007). The Maastricht Inflation Criterion: What is the Effect of Expansion of the Europian Union? Jour. 12(1): 1-17.

Maloku, E., & Badivuku, M. (2016). How Acceptable are the Costs Compare to Benefits Brought by Euroisation of Kosovar Economy. ILIRIA International Review. 1(1): 51-63.

Marić, Ž. (2015). Mastrihtski kriteriji konvergencije s posebnim osvrtom na Bosnu i Hercegovinu. *Mostariensia. 19*(2): 127-150.

Međunarodni monetarni fond – IMF. (2021). Principal Global Indicators - https://www.principalglobalindicators.org/?sk=E30FAADE-77D0-4F8E-953C-C48DD9D14735. Pristupljeno: 24. svibnja 2021.

Melitz, M. (2003). The Impact of Trade on Intra Industry Reallocations and Aggregate Industry Productivity. Econometrica. 71 (6): 1695–1725.

Micco, A., Ernesto, S., & Ordoñez, G. (2003). The Currency Union Effect on Trade: Early Evidence from EMU. *Economic Policy. 37*(10): 315-356.

Ministarstvo vanjskih i europskih poslova. (2021). Ugovor o Europskoj Uniji. Dostupno na: http://www.mvep.hr/custompages/static/hrv/files/EUugovori/11992M_Ugovor_o_EU-u_hrv.pdf-. Pristupljeno: 5. svibnja 2021.

Obadić, A, & Tica, J. (2016). Gospodarstvo Hrvatske. Sveučilište u Zagrebu, Ekonomski fakultet, Zagreb.

Schwartz, P. (2004). The Euro as Politics. London, England: Institute of Economic Affairs.

Šonje, V. (2019). Euro u Hrvatskoj: za i protiv, Ekonomski lab.

Vlada Republike Hrvatske. (2018). Strategija za uvođenje eura kao službene valute u RH (online). Dostupno na: https://euro.hnb.hr/documents/2070751/2104255/h-strategija-za-uvodenje-eura-kao-sluzbene-valute-u-HR.pdf/69a1c208-c601-4df3-95f6-d336f665b5f9. Pristupljeno: 14. travnja 2021., str. 26.

Vujčić, B. (2021). Prednosti uvođenja eura (online). Dostupno na: https://novac.jutarnji.hr/novac/aktualno/prednosti-uvodenja-eura-znacajne-no-15059193. Pristupljeno: 15. svibnja 2021.

Prilozi

Anketa dostupna na sljedećem linku:
https://docs.google.com/forms/d/1SR6-vnvDGsKDlLXlJrhb3UEh9UEKgfq84nP1hrNtFCI/edit?usp=sharing

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.361

Poslovno okruženje u Bosni i Hercegovini u kontekstu privlačenja direktnih stranih ulaganja

Business Environment in Bosnia and Herzegovina in the Context of Attracting Foreign Direct Investments

Stevan Petković[1]
Dalibor Misirača[2]
Slobodan Stanić[3]
Dragan Gnjatić[4]

Received: April 28, 2023
Accepted: June 29, 2023
Published: October, 2023

Ključne riječi:
Strani investitori;
Poslovne prepreke;
Centralna banka Bosne i Hercegovine

Keywords:
Foreign investors;
Business obstacles;
Central bank of Bosnia and Herzegovina

Sažetak: *Svrha rada je da pruži pregled poslovnog okruženja u Bosni i Hercegovini i objasni njegov uticaj na priliv stranih direktnih investicija.*

U radu će se dalje analizirati struktura, iznosi i priliv stranih direktnih investicija koje je Bosna i Hercegovina privukla posljednjih godina.

Prema podacima iz izvještaja međunarodnih organizacija, a na osnovu većine pokazatelja, Bosna i Hercegovina i dalje zaostaje za susjednim zemljama.

Da bi se stimulisao priliv stranih direktnih investicija, potrebno je stvoriti preduslove za njihov veći priliv, ali i stvoriti povoljan poslovni ambijent koji će biti atraktivan za strane investitore.

Bosna i Hercegovina mora preduzeti niz aktivnosti, kako bi unaprijedila ukupnu poslovnu klimu. Koje su to postojeće poslovne prepreke koje treba prioritetno otkloniti, što bi rezultiralo povećanjem stranih direktnih investicija, takođe će biti predmet razmatranja u ovom radu.

Abstract: *The purpose of the paper is to provide an overview of the business environment in Bosnia and Herzegovina and to explain its impact on the inflow of foreign direct investments.*

The paper will further analyze the structure, amounts and inflow of foreign direct investments that Bosnia and Herzegovina has attracted in recent years.

According to data from international organizations reports, and based on most indicators, Bosnia and Herzegovina continues to lag behind neighboring countries.

In order to stimulate the flow of foreign direct investments, it is necessary to create preconditions for their greater inflow, but also to create a favorable business environment that will be attractive for foreign investors.

Bosnia and Herzegovina must undertake a number of activities, in order to improve the overall business climate. Which existing business obstacles need to be removed as a matter of priority that would result in an increase in foreign direct investments, will also be the subject of consideration in this paper.

1. UVOD

Ekonomija Bosne i Hercegovine je institucionalno i ekonomski fragmentirana, bez jedinstvenog ekonomskog prostora. Tokom prethodne decenije, rast BDP-a je u prosjeku bio oko 2%, primarno potaknut domaćom potrošnjom, ali niži od stope rasta zemalja na sličnom nivou razvoja.

1 Visoka škola "Akademija za poslovnu ekonomiju", Bulevar Vuka Karadžića 5, Čačak, Srbija
2 Visoka škola "Akademija za poslovnu ekonomiju", Bulevar Vuka Karadžića 5, Čačak, Srbija
3 Institut za javno zdravstvo Republike Srpske, Ulica Jovana Dučića 2, Banja Luka, Bosna i Hercegovina
4 Sindikat obrazovanja, nauke i kulture Republike Srpske, Ulica Srpska 32, Banja Luka, Bosna i Hercegovina

Ekonomska aktivnost je uglavnom oslonjena na sektor usluga, iako Bosna i Hercegovina (BiH) ima relativno snažnu proizvodnu bazu. Privreda BiH je opterećena prevelikim i često neefikasnim javnim sektorom, nepostojanjem jednakih uslova za poslovanje javnog i privatnog sektora.

Ekonomski rast je već bio u opadanju kada je zemlja ušla u krizu izazvanu pandemijom COVID-19. Proces oporavka je u toku, ali okruženje je i dalje prepuno izazova, naročito zbog rastuće inflacije koja je u 2022. godini dostigla svoj maksimum od 14% (Agencija za statistiku BiH, 2023). Zemlji su potrebne investicije i reforme da bi se osnažio oporavak, izbjeglo nazadovanje tranzicije i da bi se ojačao potencijal za rast.

Pravna i administrativna kompleksnost i korupcija stvaraju značajne prepreke za poslovanje u zemlji, a velika i neefikasna preduzeća u državnom vlasništvu smanjuju produktivnost. Restrukturiranje i privatizacija velikih i neefikasnih državnih preduzeća je usporena i kasni se sa provođenjem značajnih reformi. Priliv stranih direktnih investicija (SDI) je i dalje nizak, a ukupni nivo SDI je jedan od najnižih u regionu. Nedostatak potrebnih vještina i emigracija su posebno prisutni na tržištu rada, a digitalna svijest i IT vještine se moraju razvijati da bi se podržao rast konkurentnosti.

Iako poslovni ambijent u Bosni i Hercegovini ima određene pozitivne karakteristike, kao što su: stabilna valuta, stabilan bankarski sektor, povoljan geografski položaj u smislu blizine Evropskoj uniji, solidna telekomunikacijska i energetska mreža, prirodni resursi, ne možemo s pravom tvrditi da je on povoljan niti da je podsticajan za investicije i novo zapošljavanje.

Osnovne karakteristike koje negativno utiču na poslovni ambijent u Bosni i Hercegovini su:

- nepostojanje jedinstvenog ekonomskog prostora;
- politička nestabilnost i tenzije koje značajno utiču na poslovnu klimu;
- nepostojanje strategije za prevazilaženje postojećeg stanja;
- nepostojanje minimuma političke volje za provođenje strukturalnih reformi;
- enormno visoka javna potrošnja;
- visok udio neformalne ekonomije i korupcija;
- zastarjela tehnologija;
- neadekvatno zakonodavstvo i pravni okvir;
- neodgovoran odnos velikog broja državnih institucija prema poslodavcima.

Posljedice neadekvatnog poslovnog ambijenta, pored smanjenja konkurentnosti domaće privrede i visoke nezaposlenosti, ogledaju se i u nedovoljnom prilivu stranih direktnih investicija u Bosnu i Hercegovinu.

2. STANJE I TRENDOVI STRANIH DIREKTNIH INVESTICIJA U BOSNI I HERCEGOVINI

Nakon značajnog pada stranih direktnih investicija u svijetu u 2020. godini uslijed pandemije COVID-19 i oporavka u 2021. godini, prognoze o rastu SDI na globalnom nivou, u narednom periodu, nisu najoptimističnije. Naime, rat u Ukrajini i sankcije Rusiji su prouzrokovale značajne turbulencije i globalnu inflaciju. Globalna direktna strana ulaganja u narednom periodu će biti pod uticajem bezbjednosne i humanitarne krize, makroekonomskih šokova izazvanih sukobom, povećanja cijena energije i hrane te povećane neizvjesnosti investitora (UNCTAD, 2022).

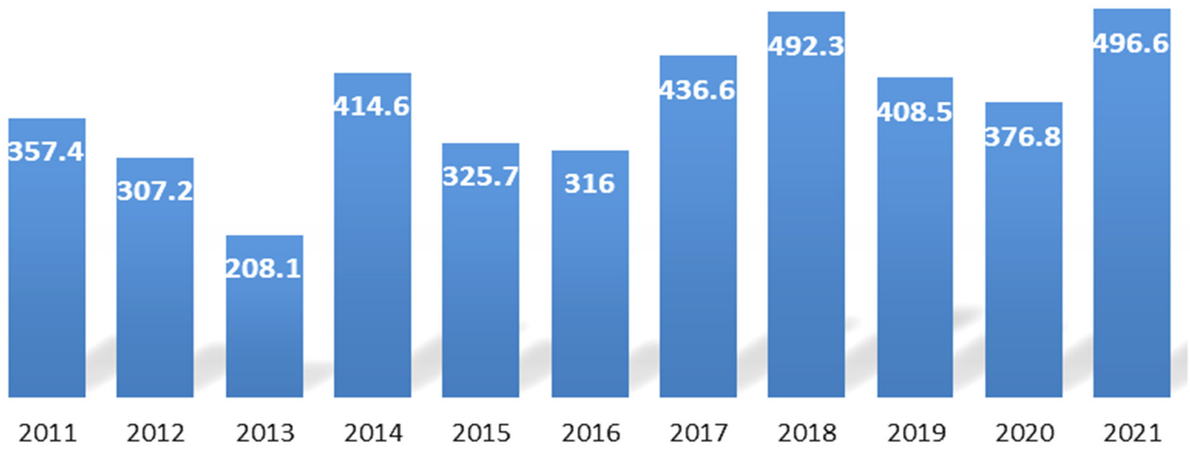
Usljed sankcija međunarodne zajednice dolazi do zamrzavanja i povlačenja ruskog kapitala uz posljedičnu likvidaciju pojedinih kompanija. Slična situacija je zabilježena i u Bosni i

Hercegovini. Dolazi do povlačenja kapitala Sberbank BH dd iz zemlje a zaustavljena su ulaganja u naftnu i plinsku industriju koja je u većinskom vlasništvu ruskih kompanija (rafinerija nafte, terminal za ukapljeni plin, najavljena gasifikacija).

Najveći dotok stranih direktnih investicija u Bosni i Hercegovini je realizovan kroz proces privatizacije kompanija, odnosno njihovog spajanja i/ili kupovine većinskog paketa akcija.

Ono zbog čega se strani investitori najčešće odlučuju za investiranje u Bosni i Hercegovini jesu svakako kvalifikovana radna snaga, niski troškovi rada kao i blizina tržišta Evropske unije. Sljedeća po važnosti prednost ulaganja je, niska stopa poreza na dobit i PDV-a, odgovarajuće lokalne usluge za podršku poslovanju, zatim odgovarajući dobavljači koji ispunjavaju potrebe stranih kompanija, niske cijene energije, te solidna saobraćajna povezanost. Pouzdanost u snabdijevanju energijom i podsticaji za strane investitore na lokalnom nivou, područja su, u kojima se, može još puno napredovati (Vijeće Stranih investitora BiH, 2018).

U 2021. godini, strane direktne investicije (SDI) u Bosni i Hercegovini su iznosile 496,6 miliona evra. U odnosu na 2020. godinu, porasle za 32%, sa najvećim iznosom od 2009. godine. Imajući u vidu da je pandemija COVID-19 imala negativan uticaj na investicije u cijelom svijetu, uključujući i Bosnu i Hercegovinu, porast investicija u prošloj godini je potvrdio da kriza istovremeno može biti i šansa.



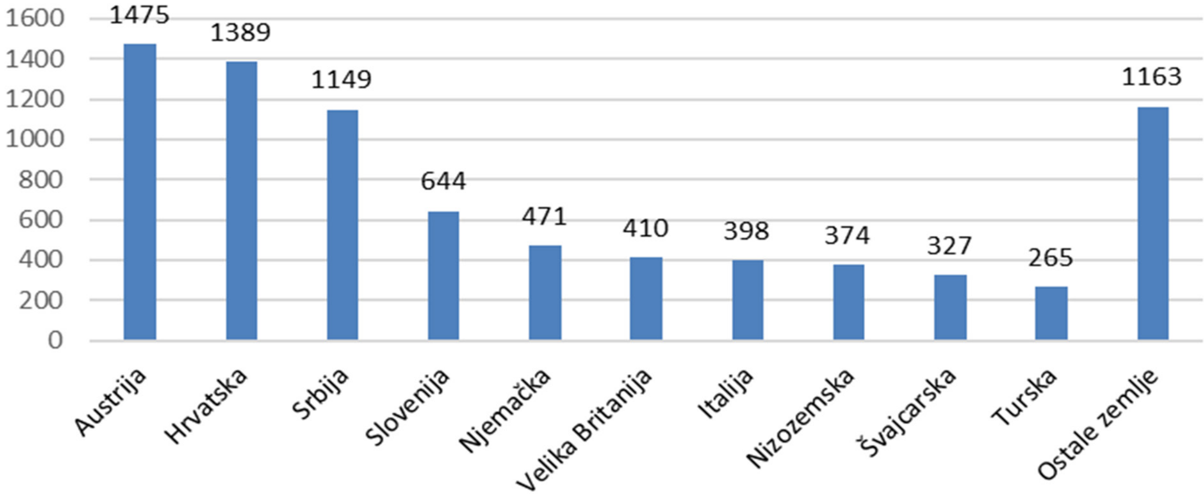
Slika 1. Iznosi tokova stranih direktnih investicija u Bosni i Hercegovini po godinama, u milionima evra

Izvor: Centralna banka Bosne i Hercegovine (2022)

Bosna i Hercegovina je u 2007. godini imala najveći zabilježeni godišnji iznos SDI od 1,3 milijardi evra, zahvaljujući privatizaciji velikih državnih preduzeća. U periodu 2010 - 2020. godina trend priliva SDI je promjenljiv i neujednačen. Pandemija COVID-19 je uticala na direktne strane investicije i u BiH, sa padom registrovanim u zadnjem kvartalu 2019. i u 2020. godini. Smanjenje SDI u 2020. je bilo -7,8%. U odnosu na globalne uslove, stabilan iznos direktnih stranih investicija u 2020. potaknut reinvesticijama i povećanjem u 2021. godini potvrđuju očekivani rast SDI u Bosni i Hercegovini.

Ukupne direktne strane investicije u Bosni i Hercegovini, zaključno sa decembrom 2021. iznose 8.322 miliona EUR. Po komponentama iznos čine vlasnički udjeli i zadržane zarade sa 7.174,6 miliona evra i ostali kapital u iznosu od 1.147,4 miliona evra. Najveći strani investitori u Bosnu i

Hercegovinu su tradicionalno, geografski bliske, zemlje Evropske unije. Zemlje koje su do sada najviše investirale u BiH su: Austrija (1.475 miliona €), Hrvatska (1.389 miliona €), Srbija (1.149 miliona €) i Slovenija (644 miliona €). Investicije iz EU 27 zemalja čine 63% ukupnih stranih direktnih investicija u BiH.



Slika 2. Najznačajnije zemlje ulagači u Bosnu i Hercegovinu u periodu maj 1994 - decembar 2021. (u milionima evra)
Izvor: Centralna banka Bosne i Hercegovine (2022)

Struktura stranih direktnih investicija po sektorima u periodu maj 1994 - decembar 2021 je izgledala: proizvodnja (36%), bankarstvo (23%), trgovina (13%), telekomunikacije (12%), posredovanje nekretninama (4%), usluge (3%), ustale finansijske usluge (2%), građevinarstvo (2%), turizam (1%), saobraćaj (1%), ostale djelatnosti (3%).

Najviše stranih investicija u 2021. godini, posmatrano po djelatnostima, je realizovano u okviru sljedećih sektora: trgovina na malo (osim trgovine motornim vozilima i motociklima) 88,4 miliona evra; proizvodnja gotovih metalnih proizvoda, osim mašina i opreme 58,33 miliona evra i proizvodnja baznih metala 52,5 miliona evra. Uz navedene djelatnosti značajno povećanje (preko 25 miliona evra) registrovano je za sektore: proizvodnja i snabdijevanje električnom energijom, plinom, parom i klimatizacija (42,2 miliona evra), trgovina na veliko, osim trgovine motornim vozilima i motociklima (39,9 miliona evra), proizvodnja papira i proizvoda od papira (32,9 miliona evra).

3. POZICIJA BOSNE I HERCEGOVINE PREMA MEĐUNARODNIM IZVJEŠTAJIMA

Prema podacima iz izvještaja međunarodnih organizacija, a na osnovu većine indikatora, Bosna i Hercegovina i dalje zaostaje u odnosu na zemlje u okruženju i najčešće je rangirana na dnu ljestvice evropskih zemalja. Naime, sporost i nedosljednost u provođenju reformskih ciljeva za rezultat ima i lošiju poziciju BiH u odnosu na ostale zemlje. Produbljivanje političke krize, tromost ili zastoj u otklanjanju poslovnih barijera otežavaju predstavljanje Bosne i Hercegovine kao pozitivne destinacije za ulaganje i privlačenje stranih investitora.

Da bi neka zemlja bila uspješna u privlačenju SDI neophodno je da postoji takav ambijent koji pogoduje stranim investitorima. Danas postoje brojni izvještaji na međunarodnom nivou u kojima se analizira poslovni ambijent koji je od važnosti za direktna strana ulaganja.

U izvještaju Ekonomske slobode širom svijeta 2022 (Fraser Institute, 2022), Bosna i Hercegovina je zauzela 89. mjesto. Vrijednost indeksa ekonomskih sloboda za BiH iznosi 6.72 (na skali od 1 do 10 gdje viša vrijednost indeksa pokazuje viši nivo ekonomske slobode). U odnosu na prethodni izvještaj Bosna i Hercegovina je pogoršala svoj rang za 2 mjesta (bila 87.). I dalje je ostala najlošije plasirana zemlja regiona. Prema Izvještaju, Bosna i Hercegovina, spada u grupu zemalja sa restriktivnim ekonomskim okruženjem. Najbolje ocjene BiH ima u okviru oblasti koja se tiče stabilnosti domaće valute i slobode međunarodne trgovine, dok je najslabiji rang zabilježen u okviru oblasti pravnog sistema i vlasničkih prava.

Indeks percepcije korupcije (CPI) (Transparency International, 2021) predstavlja najrašireniji pokazatelj percepcije korupcije u svijetu. Indeks percepcije korupcije objavljuje se od 1995. godine. Države se rangiraju prema ocjeni o raširenosti korupcije u njima, tako da indeks pokazuje do koje su mjere organi javne vlasti korumpirani. Prema izvještaju koji analizira 2021. godinu, Bosna i Hercegovina je zauzela 110. poziciju, sa ocjenom 35 (na skali: 0 – 100), ali i dalje predstavlja najlošiju ocjenu od 2012. godine. Ovim rangom, koji je u odnosu na prošlogodišnji izvještaj za jednu poziciju bolji, Bosna i Hercegovina se svrstava u red zemalja koje globalno u kontinuitetu najviše nazaduju. BiH 110. poziciju dijeli sa: Albanijom, Mongolijom, Malavijem i Tajlandom.

Od zemalja našeg regiona, najbolje rangirana je Slovenija, na 41. mjestu (prema Indeksu percepcije korupcije 2020. bila na 35. mjestu), zatim slijedi Hrvatska, koja zauzima 63. poziciju (kao i u prošlogodišnjem izvještaju.), Crna Gora se nalazi na 64. poziciji, (ranije bila na 67.) Sjeverna Makedonija 87. mjesto (ranije 111.mjesto), Srbija na 96. poziciji (ranije 94. pozicija), a Albanija sa Bosnom i Hercegovinom dijeli 110. poziciju i najlošije su rangirane u regionu (ranije bile 111.mjesto).

U posljednjem izvještaju se ukazuje na činjenicu da uprkos sve većem fokusu koji se u svijetu stavlja na borbu protiv korupcije, veliki broj zemalja, uključujući i BiH, presporo ostvaruje pomake u tim naporima.

Indeks vladavine prava je vodeći svjetski izvor originalnih podataka o vladavini prava. Izdanje za 2022. godinu obuhvata 140 zemalja, oslanjajući se na više od 150.000 anketa o domaćinstvima i 3.600 stručnih anketa kako bi se izmjerio način na koji se vladavina zakona doživljava u praktičnim, svakodnevnim situacijama od strane šire javnosti širom svijeta.

Indeks vladavine prava predstavlja vladavinu prava pružanjem rezultata i rangiranja na osnovu osam faktora: ograničenja vladinih vlasti, odsutnost korupcije, otvorena vlada, osnovna prava, red i sigurnost, provođenje propisa, građansko pravo, krivično pravosuđe, neformalno pravo (deveti faktor nije uključen u zbirne indeksne rezultate, jer prikupljeni podaci, zbog kompleksnosti i teškoća u mjerenju pravednosti, teško su sistemski uporedivi u različitim državama). Rezultati se kreću od 0 do 1, gdje 1 označava najveći mogući rezultat (čvrsto pridržavanje vladavine zakona), a 0 označava najniži rezultat (slabo pridržavanje vladavine zakona).

Prema Izvještaju o indeksu vladavine prava (World Justice Project, 2022) Bosna i Hercegovina je, sa ocjenom 0.52, zauzela 70. mjesto na rang listi kojom se mjeri poštovanje osnovnih principa pravde i napredovala je dva mjesta u odnosu na prošlogodišnji izvještaj. Od zemalja našeg regiona najbolje je rangirana Slovenija 31. mjesto, zatim slijedi Hrvatska 47. mjesto, Sjeverna Makedonija 63. mjesto, a iza BiH na rang listi su Srbija 83. mjesto i najlošije rangirana Albanija 87. mjesto.

U oktobru 2022. Evropska komisija uslovno je preporučila status kandidata za Bosnu i Hercegovinu, mada je Izvještaj Evropske komisije o Bosni i Hercegovini za 2022. godinu bio negativan bez ostvarenog napretka u ključnim poljima. Prema procjeni Evropske komisije BiH je još uvijek u ranoj fazi uspostavljanja funkcionalne tržišne ekonomije. Izazovi u vidu rascjepkane institucionalne strukture i unutrašnjeg tržišta, vladavina prava i korupcija i dalje imaju negativan uticaj na konkurentnost ekonomskog okruženja.

4. POSLOVNI AMBIJENT U BOSNI I HERCEGOVINI KAO FAKTOR PRIVLAČENJA STRANIH DIREKTNIH INVESTICIJA

Strane investicije su ključna komponenta ekonomskog razvoja svih zemalja u tranziciji. Ove investicije su značajan alat za postizanje veće efikasnosti postojećih kompanija, razvoj tehnologije, prenos novih vještina i znanja i osvajanje novi tržišta. One su važna komponenta poslovne aktivnosti i doprinose poboljšanju konkurentnosti, zapošljavanju i ukupnom ekonomskom rastu i razvoju.

Osnovni motiv stranih investitora za ulaganje svog kapitala u zemlje tranzicije je dobijanje pristupa novim tržištima za plasman vlastite proizvodnje, poslije čega dolazi iskorištavanje dobijene prednosti. Naime, želja za sticanjem dominantne pozicije na tržištu, s namjerom ostvarenja dugoročnog profita je vrlo jak motiv inostranim investitorima za ulaganje svog kapitala u ekonomije zemalja u tranziciji.

Drugo, sam proces privatizacije koji se dešava u svim zemljama u tranziciji je jaka motivirajuća činjenica stranim investitorima. Investirajući svoj kapital u već postojećem preduzeću, strani investitori maksimiziraju svoj profit izbjegavajući početne poteškoće i troškove rada koji bi proizišli iz formiranja novog preduzeća, s jedne strane, a s druge – preko investiranja u već postojećem preduzeću, oni nasljeđuju i cijelu mrežu kanala za obezbjeđivanje potrebnim sirovinama kao i distributivnu mrežu plasmana gotovih proizvoda na tržištu.

Ovi faktori pružaju stranim investitorima izvjesnu sigurnost u sticanju pozicija na tržištu zemlje – domaćina, što ih dostatno motiviše da investiraju svoj kapital u ekonomiji tranzicije. Ali i pored svega prethodno navedenog, strani investitori, ipak, nisu u pretjeranoj mjeri zainteresovani da investiraju u zemljama tranzicije, i to prije svega radi nestabilnosti njihovog ekonomskog, političkog i pravnog sistema.

Prilikom planiranja investicija, kompanije obično istražuju mogućnosti u više zemalja i procjenjuju koja lokacija može biti najpovoljnija za njihove poslovne aktivnosti. Investitori donose odluke o investiranju analizirajući različite faktore konkurentnosti. Prema izvještaju „The 2023 Kearney Foreign Direct Investment Confidence Index” prva tri najznačajnija faktora kada je u pitanju donošenje odluke pri izboru gdje investirati su:
1. transparentnost regulative i nedostatak korupcije,
2. tehnološke i inovacione mogućnosti, i
3. poreske stope i jednostavnost plaćanja poreza.

Faktori čiji se značaj povećao u odnosu na prethodni izvještaj su: efikasnost pravnih i regulatornih procesa (sa 6. na 4. mjesto), podsticaji vlade za investitore (sa 8. na 5. mjesto), učešće zemlje u trgovinskim sporazumima (sa 10. na 7. mjesto), mogućnosti istraživanja i razvoja (sa 18. na 10. mjesto), kvalitet digitalne infrastructure (sa 14. na 11.mjesto), performanse domaće ekonomije (sa 12. na 13. mjesto).

Faktori čiji se značaj smanjio u odnosu na prethodni izvještaj su: jednostavnost ulaska kapitala u zemlju i van nje (sa 4. na 6. mjesto), snaga investitora i imovinska prava (sa 5. na 8. mjesto), opšte bezbjednosno okruženje (sa 7. na 9. mjesto), talenat i vještina radne snage (sa 9. na 12. mjesto), dostupnost sirovina i drugih inputa (sa 12. na 13. mjesto), dostupnost finansijskog kapitala na domaćem tržištu (sa 13. na 14. mjesto), veličina domaćeg tržišta (sa 17. na 16. mjesto), kvalitet fizičke infrastrukture (sa 16. na 19. mjesto) i dostupnost zemljišta/nekretnina (sa 19. na 20.mjesto).

Trošak radne snage kao faktor odluke o investiranju zadržao je isti rang, 15.mjesto.

Faktori koji negativno utiču na odluke o investiranju i koji su ujedno i faktori koji jednu zemlju čine neprivlačnom za ulaganje jesu: nestabilna politička situacija, korupcija, prekomplikovane administrativne procedure, neefikasno pravosuđe, neriješeni imovinsko-pravni odnosi, nedovoljno razvijena infrastruktura i sl.

Glavni cilj svih kompanija, a posebno onih kompanija koje su u razvoju, je zdravo i uređeno poslovno okruženje. Ta uređenost podrazumijeva poslovanje kompanija bez ikakvih prepreka, odnosno postojanje uređenog finansijskog sistema, povoljnih troškova poslovanja, adekvatnost pravnih i zakonskih okvira, fleksibilno tržište radne snage, liberalan devizni sistem itd.

S druge strane, česti politički zastoji u BiH i niska predvidljivost za investitore kao njihov rezultat, negativno utiču na poslovno okruženje. Ovo je dodatno otežano slabom vladavinom prava, obimnom birokratijom, korupcijom te dugotrajnim i složenim upravnim postupcima, što je djelimično rezultat visokog stepena rascjepkanosti unutrašnjeg tržišta zemlje. Pored toga, neformalna ekonomija je i dalje značajnog obima i stvara nelojalnu konkurenciju i dovodi do većeg poreskog opterećenja nego što je inače potrebno.

Jedan od razloga slabog i nedovoljnog dotoka stranih direktnih investicija u Bosni i Hercegovini je upravo neuređen poslovni ambijent. Rizici vezani za poslovnu klimu su: nepredvidivost poreske politike, neujednačeno postupanje inspekcijskih organa, te politička nestabilnost. Zatim slijedi naplata potraživanja, doprinosi po osnovu radnog odnosa, nelojalna konkurencija i parafiskalni nameti (Vijeće stranih investitora BiH, 2018).

5. PRIORITETNE AKTIVNOSTI ZA UNAPREĐENJE POSLOVNOG OKRUŽENJA

Unapređenje poslovnog okruženja za domaće i strane investitore trebalo bi da je jedan od ključnih ciljeva svake društveno odgovorne vlasti. Povećanje opšte sigurnosti i stabilnosti u političkom i svakom drugom smislu pozitivan je signal stranim investitorima.

Iako svi nivoi vlasti u Bosni i Hercegovini deklarativno ističu da im je privlačenje stranih investitora jedan od strateških prioriteta, željeni nivo investicija još uvijek nije dostignut kako zbog političke nestabilnosti, komplikovane administrativne strukture i obimne birokratije tako i zbog nedovoljno podsticajnog poslovnog okruženja.

Kao i za većinu zemalja u razvoju, strane direktne investicije su za Bosnu i Hercegovinu, itekako su važne za ekonomski razvoj, jer potpomažu smanjenju nezaposlenosti, donose nova znanja i tehnologije, omogućavaju lakši pristup svjetskim tržištima itd. Kao osnovni razlozi za slab i nedovoljan dotok stranih direktnih investicija najčešće se navode loš imidž države, loša infrastruktura i složena struktura vlasti, veliki stepen korupcije i sl.

Da bi se stimulisao veći dotok stranih direktnih investicija neophodno je stvoriti preduslove za njihovo privlačenje odnosno stvoriti povoljno poslovno okruženje koje će biti dovoljno atraktivno za strane ulagače. Potrebno je unaprijediti jedinstveni ekonomski prostor, održavati makroekonomsku stabilnost, ali i jačati sve ostale elemente koje od kojih zavisi povoljna investiciona klima.

Stvaranje adekvatnog poslovnog ambijenta i rasterećenje privrede jedini su način da se sačuvaju postojeća privredna društva i privuku nove investicije.

Ključni prioriteti koje bi Bosna i Hercegovina trebala postaviti kako bi poboljšala postojeće uslove za unapređenje poslovanja u BiH su svakako: uspostavljanje političke stabilnosti i sigurnosti, uspostavljanje pravne zaštite investitora sa efikasnom provedbom zakona i drugih propisa koji direktno ili indirektno utiču na strana ulaganja, te jačanje vladavine prava. Takođe, država mora raditi na promociji pozitivnog imidža u svijetu, te ozbiljno pristupiti provedbi mjera koje imaju za cilj sprečavanje sive ekonomije i smanjenje korupcije.

U Izvještaju o napretku za BiH (Evropska komisija, 2022) da bi unaprijedila funkcionisanje tržišne ekonomije, ocijenjeno je da Bosna i Hercegovina naročito treba da:
- unaprijedi poslovno okruženje racionalizacijom, pojednostavljenjem procedura za registraciju i izdavanje dozvola, te da ojača unutrašnje tržište usklađivanjem i uzajamnim priznavanjem dozvola i certifikata između entiteta;
- poveća transparentnost i efikasnost javnog sektora, naročito uspostavljanjem odgovarajućeg institucionalnog i regulatornog okvira za bolje, depolitizovano upravljanje, kao i poboljšanjem efikasnosti i upravljanja javnim preduzećima, kako bi se smanjilo opterećenje koje ona predstavljaju za državne rashode;
- ojača regulatorne i nadzorne institucije na nivou države, te da osnaži analitičke kapacitete i kapacitete za formulaciju politika u cijeloj zemlji, te da blagovremeno objavljuje potpune i dosljedne podatke za cijelu zemlju, pogotovo u oblasti javnih finansija.

6. ZAKLJUČAK

Bosna i Hercegovina je zemlja koja posjeduje brojne potencijale za ulaganja i kao takva zanimljiva je stranim investitorima. Kao konkurentske prednosti za ulaganja u BiH navode se niski porezi i doprinosi, povoljni operativni troškovi poslovanja, pravna regulativa koja je prilično liberalna za ulazak stranih investitora, budući da su strani investitori izjednačeni sa domaćim u pogledu ulaganja, te kvalifikovana radna snaga i niski troškovi rada.

S druge strane, ne treba zaboraviti činjenicu da je Bosna i Hercegovina zemlja u tranziciji, koja se i dalje suočava sa komplikovanom strukturom svih nivoa vlasti, tromom administracijom, nedovoljnom odlučnošću za sprovođenje ključnih ekonomskih reformi, političkom nestabilnošću.

Privlačenje potencijalnih novih investitora je i dalje opterećeno političkom krizom, te sporim i nedosljednim provođenjem reformskih ciljeva. Zastoj u otklanjanju poslovnih barijera i produbljivanje političke krize za rezultat ima lošiju poziciju Bosne i Hercegovine u odnosu na ostale zemlje Evrope i regiona, a prema brojnim analizama međunarodnih organizacija.

Da bi se stimulisao veći dotok stranih direktnih investicija neophodno je stvoriti povoljno poslovno okruženje koje će biti atraktivno za strane ulagače.

S tim u vezi, potrebno je raditi na infrastrukturi, jačanju institucija vlasti u segmentima političke odgovornosti i stabilnosti, kvaliteta upravljanja, vladavine prava i smanjenja korupcije, te jačanju obrazovanja.

Činjenica je da ekonomija u BiH zavisi i od globalnih kretanja i kriza. Međutim, kriza ujedno može biti i prilika. Tako bi Bosna i Hercegovina mogla biti i potencijalna investiciona lokacija u eventualnom premještanju dijelova proizvodnje iz Kine i Azije na prostor Evrope, uslijed poremećaja izazvanih ratom Ukrajine i Rusije i postpandemijskim posljedicama. Naravno, kao preduslov je neophodna i spremnost Bosne i Hercegovine za prihvatanje prilika, dostupna kvalifikovana radna snaga, pozitivno i fleksibilno poslovno okruženje.

To će zahtijevati koordinisani pristup svih nivoa vlasti u Bosni i Hercegovini u preduzimanju aktivnosti koje će doprinijeti unapređenju poslovnog ambijenta. Otklanjanje administrativnih barijera u poslovanju, rasterećenje privrede, ukidanje nepotrebnih fiskalnih i parafiskalnih nameta, smanjenje sive ekonomije te jačanje vladavine prava, samo su neke od reformskih aktivnosti sa čijim provođenjem se mora što prije otpočeti, kako bi Bosna i Hercegovina bila prepoznata kao povoljna destinacija za strane investicije.

Reference

Agencija za statistiku BiH. (2023). *Indeksi potrošačkih cijena u Bosni i Hercegovini 2022*, *Tematski bilten 09*. Sarajevo

Evropska komisija. (2022). *Izvještaj o Bosni i Hercegovini za 2022. SWD (2022) 336 final.* Brisel, preuzeto sa https://europa.ba/wp-content/uploads/2022/10/izvjestaj-o-bosni-i-hercegovini-za-2022-godinu_1666693844.pdf

Fraser Institute. (2022). *Economic freedom of the world: Annual Report 2022*. preuzeto sa: https://www.fraserinstitute.org/studies/economic-freedom-of-the-world-2022-annual-report

UNCTAD. (2022). *World Investment Report.* preuzeto sa https://unctad.org/publication/world-investment-report-2022

Vijeće stranih investitora BiH. (2018). *Poslovni barometar,* Sarajevo. preuzeto sa https://fic.ba/poslovni-barometar/

Dodatne preporučene reference

Agencija za promociju stranih investicija u BiH (2022). *Analiza Aftercare programa za 2021. godinu sa preporukama za unapređenje poslovnog okruženja (otvorena pitanja).* Sarajevo

Bilas, V., & Franc, S. (2006). *Uloga inozemnih izravnih ulaganja i načini poticaja - serija članaka u nastajanju,* Ekonomski fakultet Zagreb.

Bogdan, Ž. (2009). *Uticaj FDI-a na gospodarski rast europskih tranzicijskih zemalja-serija članaka u nastajanju.* Ekonomski fakultet Zagreb

Direkcija za ekonomsko planiranje BiH (2022a). *Informacija o perspektivama za Bosnu i Hercegovinu 2023 - 2025. godina*. Sarajevo

Direkcija za ekonomsko planiranje BiH (2022b). *Bosna i Hercegovina - Izvještaj o razvoju za 2021. godinu.* Sarajevo

European Bank for Reconstruction and Development. (2022). *Strategija za Bosnu i Hercegovinu 2022-2027.*

Gavrilović, J. P. *(2006). Međunarodno poslovno finansiranje,* Ekonomski fakultet Beograd.

http://www.fipa.gov.ba/Default.aspx?langTag=bs-BA&template_id=123&pageIndex=1

https://ti-bih.org/indeks-percepcije-korupcije-cpi-2022/
https://www.cbbh.ba/content/read/915
https://www.heritage.org/index/country/bosniaherzegovina -

Jovanović, B., Ghodsi, M., Zijverden van O. i dr. (2021). *Getting Stronger After COVID-19: Nearshoring Potential in the Western Balkans - Research Report 453.* The Vienna Institute for International Economic Studies. preuzeto sa https://wiiw.ac.at/getting-stronger-after-covid-19-nearshoring-potential-in-the-western-balkans-dlp-5814.pdf

KEARNEY, Global Business Policy Council. (2023). *The 2023 Kearney FDI Confidence Index - Cautious optimism*

Kovačević, R. (2004). *Uticaj stranih direktnih investicija na privredni rast-iskustva zemalja Evropske unije.* Centar za naučno-istraživački rad Privredne komore Srbije

Udruženje poslodavaca FbiH. (2014). *Kako do povoljnijeg poslovnog ambijenta-Šta poslodavci očekuju od vlasti.* Britanska ambasada Sarajevo. preuzeto sa http://www.upfbih.ba/uimages/dokumenti/BOSANSKA.pdf

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.371

Utjecaj doživljene poduzetničke samoefikasnosti na sklonost primjene efektualne logike

The Influence of Experienced Entrepreneurial Self-Efficiency on the Tendency to Apply Effective Logic

Marina Stanić[1]
Ana Jakopec[2]
Sara Delač Marković[3]

Received: September 11, 2023
Accepted: September 21, 2023
Published: October 30, 2023

Ključne riječi:
Neizvjesnost;
Efektuacija;
Odlučivanje;
Eksperiment

Keywords:
Uncertainty;
Effectuation;
Decision making;
Experiment

Sažetak: *Efektualna logika predstavlja način promišljanja i donošenja odluka karakterističan za poduzetnike eksperte koji odluke donose najčešće u uvjetima visoke razine neizvjesnosti. Sklonost primjene efektualne logike vezana je uz percepciju kontrole nad određenom situacijom i ishodima iste, dok je percepcija kontrole usko vezana uz doživljaj samoefikasnosti. Cilj istraživanja je testirati pretpostavku kako će pojedinac koji vjeruje u svoje sposobnosti potrebne da izvrši određeni zadatak (visoka razina samoefikasnosti), imati snažniji osjećaj kontrole nad događajima i biti skloniji primjeni efektualne logike u donošenju odluka.*

Istraživanje je obuhvatilo eksperimentalni dizajn, a podaci su prikupljeni na uzorku studenata ekonomskog fakulteta kao predstavnika populacije potencijalnih poduzetnika. Rezultati istraživanja pokazuju kako je skupina ispitanika s induciranim višim doživljajem poduzetničke samoefikasnosti sklonija primijeniti efektualnu logiku pri donošenju odluka u hipotetskim poslovnim situacijama u odnosu na skupinu sudionika s induciranim niskim doživljajem poduzetničke samoefikasnosti i kontrolnom skupinom ispitanika.

Abstract: *Effective logic is a way of thinking and making decisions characteristic of expert entrepreneurs who make decisions most often under conditions of high uncertainty. The tendency to apply effectual logic is related to the perception of control over a certain situation and its outcomes, while the perception of control is closely related to the experience of self-efficacy. The goal of the research is to test the assumption that an individual who believes in his abilities to perform a certain task (high level of self-efficacy), will have a stronger sense of control over events and will be more inclined to apply effectual logic in decision-making.*

The research included an experimental design, and the data were collected from a sample of students of the Faculty of Economics as representatives of the population of potential entrepreneurs. The research results show that the group of respondents with an induced higher perception of entrepreneurial self-efficacy is more inclined to apply effective logic when making decisions in hypothetical business situations compared to the group of participants with an induced low perception of entrepreneurial self-efficacy and the control group of respondents.

[1] Ekonomski fakultet u Osijeku, Trg Lj. Gaja 7, 31000 Osijek, Hrvatska
[2] Filozofski fakultet u Osijeku, Ul. Lorenza Jagera 10, 31000 Osijek, Hrvatska
[3] Infobip d.o.o., Istarska 157, 52215 Vodnjan, Hrvatska

1. PODUZETNIČKA LOGIKA I ODLUČIVANJE

Desetljećima su istraživači u području poduzetništva pokušavali odgovoriti na pitanje *Tko može postati poduzetnik?* tražeći faktore razlike između poduzetnika i nepoduzetnika. Implicitna pretpostavka je bila kako ne može bilo tko postati poduzetnik već samo pojedinci s određenim osobnim karakteristikama ili pod utjecajem određenih situacijskih faktora. Saras Sarasvathy (2001) je u svom istraživanju zauzela novu perspektivu i postavila pitanje *Što poduzetnike čini poduzetnima?*, odnosno *Što je to inherentno poduzetničko, a što je moguće identificirati i u konačnici naučiti?* Fokusirala se na ponašanja i logiku koju poduzetnici koriste u promišljanju poslovnih situacija i odlučivanju. Kao rezultat istraživanja nastao je novi teorijski okvir pod nazivom efektuacija (Sarasvathy, 2009). Efektuacija ili efektualna logika je pojam koji označava način promišljanja koji poduzetnici eksperti primjenjuju u procesu upravljanja poduzetničkim pothvatom u uvjetima visoke neizvjesnosti. Obzirom da visoka neizvjesnost umanjuje preciznost i opravdanost planiranja kao aktivnosti koja podrazumijeva predviđanja budućnosti, fokus primjene efektualne logike je na kontroli budućih događaja. Suprotan način promišljanja i odlučivanja, nazvan kauzalna logika, obuhvaća fokus na predviđanja i postavljanje ciljeva te svoju primjenu pronalazi u okolinama koje karakterizira niska razina neizvjesnosti. S druge strane, fokus efektualne logike je na resurse u najširem smislu riječi – od poduzetnikove osobnosti, znanja i iskustva, preko osoba koje pozna i koje su spremne usmjeriti svoje vrijeme i ekspertizu s ciljem razvoja poduzetničkog pothvata, do financijskih i materijalnih resursa.

Teorija efektuacije je vrlo brzo privukla pozornost istraživača u području poduzetništva te je posljednjih desetak godina prisutan rastući broj istraživanja unutar ovog područja. Povezanost efektualne logike kao istraživačkog konstrukta analizirana je u odnosu na niz varijabli već prisutnih u istraživanju poduzetništva. Jedna od njih je i poduzetnička samoefikasnost koja se odnosi na uvjerenje pojedinca u njegovu sposobnost obavljanja zadataka i uloga usmjerenih na poduzetničke rezultate (Chen et al., 1998). Poduzetnička samoefikasnost igra ključnu ulogu u određivanju hoće li pojedinac poduzeti poduzetnički oblik ponašanja i ostvariti poduzetničku karijeru (Newman et al., 2019). Hinz (2017) je postavio teorijski model u kojem je samoefikasnost definirao kao prethodnika efektualnog poduzetničkog ponašanja. Koristeći zaključke prethodnih empirijskih istraživanja, Hinz teorijski propitkuje i uočava povezanost samoefikasnosti s osnovnim elementima efektualne logike te poziva na empirijsku provjeru njegove pretpostavke kako viša razina samoefikasnosti rezultira učestalijom primjenom efektualne logike. Maitlo et al. (2020) potvrdili su medijacijsku ulogu tri dimenzije efektuacije (orijentaciju na resurse, prihvatljivi gubitak) između poduzetničke samoefikasnosti i procesa akvizicije resursa. Stroe et al. (2018) pokazali su kako veća poduzetnička samoefikasnost i veća percepcija rizika vode primjeni efektualne logike čak i kad je strast za poduzetništvom niska.

Cilj ovog eksperimentalnog istraživanja je ispitati utjecaj poduzetničke samoefikasnosti na sklonost primjeni efektualne logike u uvjetima neizvjesnosti. Visoka razina poduzetničke samoefikasnosti pojačava osjećaj kontrole kod pojedinca što može rezultirati intenzivnijim korištenje efektualne logike. U tom smislu, postavljena je sljedeća hipoteza:

Hipoteza 1: *Viši doživljaj poduzetničke samoefikasnosti pozitivno će utjecati na sklonost pojedinca da u uvjetima neizvjesnosti primjeni efektualnu logiku u donošenju poslovnih odluka.*

2. METODOLOGIJA

2.1. Uzorak

Eksperimentalno istraživanje provedeno je u tri etape i u njemu je sudjelovao prigodan uzorak od 153 diplomska studenta Ekonomskog fakulteta u Osijeku. U prvoj etapi su sudionici podijeljeni u tri jednake skupine od kojih je svaka uključivala 51 sudionika. Uslijed osipanja sudionika (11 sudionika), nepažljivog ispunjavanja upitnika (31 sudionik je dao odgovor na kontrolnu česticu uz koju je stajala napomena kako ne treba odgovoriti na navedeno pitanje), izuzimanja sudionika s poduzetničkim iskustvom (6 sudionika), te onih koji su postigli ekstremne rezultate u ispunjavanju upitnika (8 sudionika), u drugoj etapi istraživanja sudjelovalo je 97 sudionika podijeljenih u tri skupine: kontrolnu grupu ($N = 30$), grupu s pozitivnom povratnom informacijom o poduzetničkoj samoefikasnosti ($N = 33$) i grupu s negativnom povratnom informacijom o poduzetničkoj samoefikasnosti ($N = 34$). Demografske karakteristike uzorka uključivale su prosječnu dob sudionika od 22.86 godina, u uzorku su dominirale studentice (76%), najveći dio sudionika (78%) prosječnog je ekonomskog standarda, 74% svih sudionika imali su prethodno radno iskustvo, a polovica njih (50%) ima roditelje s poduzetničkim iskustvom.

2.2. Mjerne ljestvice

Za potrebe mjerenja istraživačkih konstrukata korištene su mjerne ljestvice iz prethodnih istraživanja te detaljan *debriefing* sudionika istraživanja kreiran posebno za potrebe ovog istraživanja.

Meta kognitivno iskustvo opisuje se kao svjesno kognitivno ili afektivno iskustvo koje se odnosi na intelektualni pothvat, odnosno rješavanje problema, dok meta kognitivno znanje obuhvaća svijest i uvjerenja o osobnim pristupima koje pojedinac koristi u učenju i rješavanju problema, te o zahtjevima određenog zadatka. Mjerne ljestvice za meta kognitivno iskustvo i meta kognitivno znanje su preuzete iz studije Haynie and Shepherd (2009), a uključile su ljestvice s 8 čestica i 11 čestica na skali Likertovog tipa od 5 stupnjeva. Koeficijenti unutarnje konzistencije Cronbach alpha za ove skale pokazali su prihvatljive vrijednosti 0.62 i 0.67 u odnosu na originalno istraživanje (0.72 i 0.73).

Spremnost na preuzimanje rizika mjerena je upitnikom prethodno korištenim u Mullins and Forlani (2005). Ljestvica sadržava 5 čestica s alternativnim odgovorima u kojima ispitanik bira jednu od dvije mogućnosti od kojih jedna predstavlja preuzimanje rizika (jedan bod), a druga potpuno izbjegavanje rizika (nula bodova). Ukupan zbroj predstavlja razinu spremnosti na preuzimanje rizika.

Doživljaj poduzetničke samoefikasnosti provjeravao se upitnikom preuzetim iz studije Forbes (2005) koji sadrži 15 čestica mjerenih s 5 stupnjevanom Likertovom ljestvicom. Unutarnja konzistentnost mjerena Cronbach alpha indikatorom iznosila je 0.85.

Obzirom da je primjena efektualne ili kauzalne logike vezana uz razinu percipirane neizvjesnosti, s ciljem provjere percepcije neizvjesnosti ispitanika korišten je upitnik percepcije neizvjesnosti hipotetskog scenarija o razvoju novog poslovnog pothvata. Upitnik je preuzet iz istraživanja Ashill and Jobber (2010) te sadrži četiri izjave koje percipiranu neizvjesnost mjere uz pomoć Likerotve skale od 1 do 5. Cronbach alpha za ovu ljestvicu iznosio je 0.63.

Upitnik sklonosti primjene efektualne i kauzalne logike (Sarasvathy, 2009) sadržavao je 14 izjava koje su sudionici procjenjivali Likertovom skalom od 1 do 5. Cronbach alpha za upitnik sklonosti primjene kauzalne logike iznosio je 0.53, a za upitnik sklonosti primjene efektualne logike iznosio je 0.31.

2.3. Postupak

Istraživanje je provedeno u tri etape. Prva etapa je uključivala pred-analizu sudionika u kojoj su sudionici ispunjavali upitnik kojim su izmjerene demografske varijable, meta kognitivno znanje i iskustvo, spremnost preuzimanja rizika te doživljena poduzetnička samoefikasnost. Nakon analiziranih prikupljenih podataka, sudionici su podijeljeni u tri nezavisne skupine. Provjerena je mogućnost postojanja statistički značajne razlike između skupina po kriteriju prethodno navedenih varijabli s posebnom pozornošću na varijablu doživljaja poduzetničke samoefikasnosti. Analiza varijance pokazala je kako se skupine međusobno statistički značajno ne razlikuju u kontekstu meta kognitivnog iskustva ($F(2,149) = 0.31$, $p > 0.05$), meta kognitivnog znanja ($F(2, 150) = 1.82$, $p > 0.05$), spremnosti na preuzimanje rizika ($F(2,150) = 0.79$, $p > 0.05$) i doživljaja poduzetničke samoefikasnosti ($F(2,150) = 0.11$, $p > 0.05$).

Druga etapa istraživanja obuhvatila je tri zasebne skupine (raspoređene u tri zasebne prostorije): 1) skupinu s lažnom povratnom informacijom o niskoj poduzetničkoj samoefikasnosti, 2) skupinu s lažnom povratnom informacijom o visokoj poduzetničkoj samoefikasnosti i 3) kontrolnu skupinu bez povratne informacije. Lažne povratne informacije su sudionicima dostavljene u zatvorenoj koverti. Nakon što su sudionici u prve dvije skupine pročitali svoje lažne povratne informacije, u sve tri skupine su sudionicima dani na ispunjavanje upitnici koji su uključivali hipotetski poslovni scenarij i vezano za njega upitnici o sklonosti primjene efektualne i kauzalne logike, upitnik percepcije razine neizvjesnosti hipotetskog scenarija, te upitnik procjene doživljene vlastite poduzetničke samoefikasnosti (identičan onome koji su sudionici ispunjavali u prvoj etapi). Na ovaj način je provjerena manipulacija nezavisnom varijablom doživljene poduzetničke samoefikasnosti.

Posljednja, odnosno treća etapa, uključila je detaljno informiranje sudionika o cilju i svrsi istraživanja, te su sudionici pisanim i usmenim putem informirani o činjenici kako je primljena povratna informacija o poduzetničkoj samoefikasnosti lažna, te se objašnjeni razlozi zbog kojih je u istraživanju korištena obmana.

3. REZULTATI

Kako bi potvrdili opravdanost korištenja parametrijskih statističkih analiza u sve tri etape istraživanja, Kolmogorov-Smirnovljevim testom i pregledom indeksa asimetričnosti i zakrivljenosti provjeren je normalitet distribucija varijabli uključenih u analize. Deskriptivna analiza glavnih varijabli mjerenih u prvoj i drugoj etapi istraživanja prikazana u Tablici 1.

Doživljaj poduzetničke samoefikasnosti u drugoj etapi istraživanja bio je izraženiji u kontrolnoj skupini i skupini s lažnom pozitivnom povratnom informacijom, dok je skupina s lažnom negativnom povratnom informacijom zabilježila prosječno niže vrijednosti ove varijable. Također, sudionici su pokazali prosječno veću sklonost prediktivnom načinu razmišljanja nego efektualnom što je u skladu s teorijskim okvirom obzirom da je prediktivna logika prisutnija u nastavnom gradivu kolegija poslovne ekonomije.

Tablica 1. Deskriptivna analiza glavnih varijabli

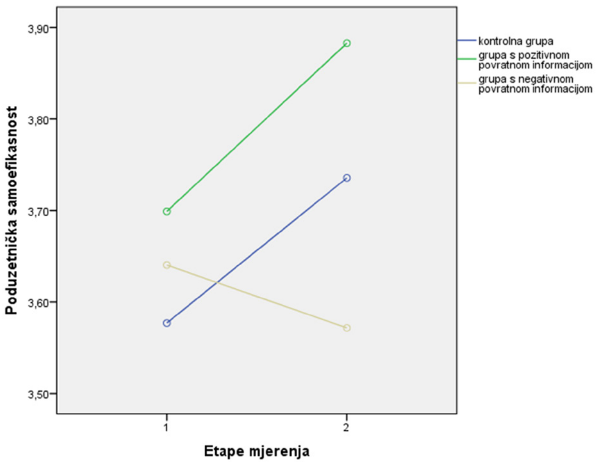
					Raspon	
Etapa istraživanja	Varijabla	Skupina*	*AS*	*SD*	Min	Max
		1	3.56	0.590	1	5
Prva etapa	Poduzetnička samoefikasnost 1	2	3.70	0.433	1	5
		3	3.64	0.470	1	5
		1	3.74	0.406	1	5
	Poduzetnička samoefikasnost 2	2	3.88	0.534	1	5
		3	3.58	0.467	1	5
		1	3.84	0.089	1	5
Druga etapa	Sklonost primjene efektualne logike	2	4.15	0.062	1	5
		3	3.87	0.066	1	5
		1	4.09	0.381	1	5
	Sklonost primjene kauzalne logike	2	4.11	0.428	1	5
		3	4.14	0.344	1	5

* 1 = kontrolna skupina; 2 = skupina s lažnom pozitivnom povratnom informacijom; 3 = skupina s lažnom negativnom povratnom informacijom

Izvor: Autori

Analiza povezanosti varijabli pokazala je niske ili vrlo niske vrijednosti korelacije (tri najveća statistički značajna koeficijenta korelacije su bila između doživljaja poduzetničke samoefikasnosti u prvoj etapi i meta kognitivnog znanja (0.54), doživljaja poduzetničke samoefikasnosti u prvoj etapi i meta kognitivnog iskustva (0.46), te između meta kognitivnog znanja i iskustva (0.39).

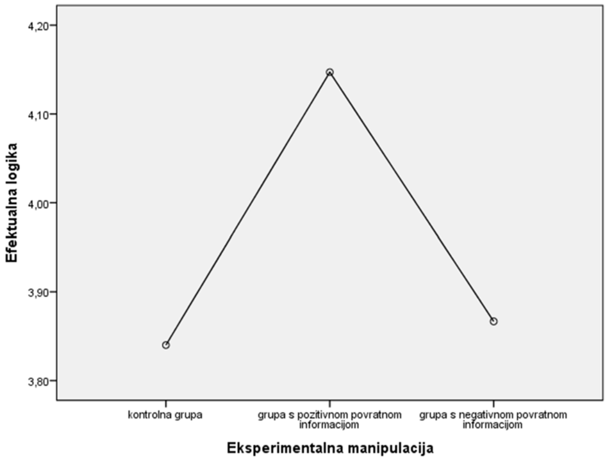
Rezultati analize varijance ukazali su na značajan efekt manipulacije nezavisnom varijablom u drugoj etapi istraživanja ($F(2, 92) = 3.55$; $p < .05$; $\eta^2 = .07$). Drugim riječima, sudionici koji su dobili lažnu pozitivnu povratnu informaciju o poduzetničkoj samoefikasnosti su bili značajno sigurniji u svoje poduzetničke sposobnosti ($M = 3.88$; $SD = 0.534$) u odnosu na sudionike skupine koja je primila lažnu povratnu informaciju o poduzetničkoj samoefikasnosti ($M = 3.57$; $SD = 0.467$). Nadalje, složenom analizom varijance potvrđeno je postojanje interakcijskog efekta varijable poduzetničke samoefikasnosti u prvoj i drugoj etapi mjerenja i eksperimentalne manipulacije povratnom informacijom ($F(2) = 3.19$; $p < .05$; $\eta^2 = .07$).



Slika 1. Utjecaj lažne povratne informacije
na stupanj doživljene poduzetničke samoefikasnosti u prvoj i drugoj etapi mjerenja

Izvor: izrada autora

Analizom varijance provjeren je odnos sklonosti manipulacije doživljajem poduzetničke samoefikasnosti (nezavisna varijabla) i sklonosti primjene efektualne logike. Rezultati su pokazali kako su sudionici iz skupine s induciranim višim doživljajem poduzetničke samoefikasnosti ($M = 4.15$; SD = 0.360) bili skloniji primjeni efektualne logike u odnosu na sudionike iz skupine s induciranim niskim doživljajem poduzetničke samoefikasnosti ($M = 3.87$; $SD = 0.066$) i kontrolnom skupinom ($M = 3.84$; $SD = 0.488$) ($F(2, 94) = 5.68$; $p < .05$). Rezultati su grafički prikazani na Slici 2.



Slika 2. Djelovanje lažne povratne informacije na stupanj sklonosti primjene efektualne logike

Izvor: izrada autora

4. RASPRAVA I ZAKLJUČAK

Svrha ovog rada je bila istražiti postojanje i karakter utjecaja doživljene poduzetničke samoefikasnosti na sklonost primjene efektualne logike. Istraživanje je provedeno na uzorku studenata ekonomije i poslovne ekonomije kao skupine potencijalnih poduzetnika. Rezultati istraživanja su potvrdili hipotezu kako inducirani viši doživljaj poduzetničke samoefikasnosti povećava sklonost primjene efektualne logike u poslovnom odlučivanju u uvjetima neizvjesnosti. Ovo istraživanje je u skladu sa studijom Engel et al. (2014) koja je izdvojila samoefikasnost kao važan prethodnik sklonosti primjene efektualne logike. Premda je efektualna logika u svom inicijalnom teorijskom modelu opisana kao način promišljanja svojstven poduzetnicima ekspertima, dakle poduzetnicima s deset i više godina poslovnog iskustva, rezultati ovog istraživanja impliciraju kako poduzetničko iskustvo nije isključivi uvjet primjene efektualne logike već postoje i drugi utjecajni čimbenici koji mogu potaknuti pojedinca na primjenu efektualne logike.

Ovo istraživanje ima određena ograničenja koja je potrebno uzeti u obzir pri donošenju zaključaka. Pouzdanost instrumenta kojim je mjerena sklonost primjene efektualne logike je niska i upućuje na postojanje utjecaja nesistematskih varijabilnih faktora (poput neadekvatnog prijevoda upitnika, nerazumljivosti čestica u upitniku i niske razine uživljenosti ispitanika u ulogu poduzetnika u hipotetskim scenarijima). Nadalje preuzeti mjerni instrument inicijalno je testiran na uzorku studenata iz Sjedinjenih Američkih Država koji se može značajno razlikovati od uzorka sudionika ovog eksperimentalnog istraživanja. Dodatna istraživanja potrebno je usmjeriti u razvoj i testiranje mjernog instrumenta efektualne logike na hrvatskom jeziku. Nadalje, za razliku od prethodnih istraživanja (prvenstveno Dew et al., 2009), ovo istraživanje ukazuje na primjenu efektualne logike u uvjetima niske razine neizvjesnosti. U tom smislu, potrebno je dodatno istražiti utjecaj percepcije samoefikasnosti pojedinca na sklonost efektualnom odlučivanju u ovisnosti o razini neizvjesnosti.

Reference

Ashill, N. J., & Jobber, D. (2010). Measuring state, effect, and response uncertainty: theoretical construct development and empirical validation. *Journal of Management*, *36*(5), 1278- 1308.

Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?. *Journal of business venturing*, *13*(4), 295-316.

Dew, N., Read, S., Sarasvathy, S., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: differences between experts and novices. *Journal of Business Venturing*, 24(4), 287-309.

Engel, Y., Dimitrova, N. G., Khapova, S. N., & Elfring, T. (2014). Uncertain but able: entrepreneurial self-efficacy and novices′ use of expert decision-logic under uncertainty. *Journal of Business Venturing Insights*, 1(2), 12-17.

Forbes, D. P. (2005). The Effects of strategic decision making on entrepreneurial self-efficacy. *Entrepreneurship Theory and Practice*, *29*(5), 599-626.

Haynie, M., & Shepherd, D. A. (2009). A measure of adaptive cognition for entrepreneurship research. Entrepreneurship Theory and Practice, 33(3), 695-714. DOI: 10.1111/j.1540-6520.2009.00322.x

Hinz, A. (2017). Entrepreneurial behaviour revisited: Linking self-efficacy with effectuation. *International Journal of Business and Society*, *18*(S2), 245-260.

Maitlo, Q., Pacho, F. T., Liu, J., Bhutto, T. A., & Xuhui, W. (2020). The role of entrepreneurial self-efficacy in resources acquisition in a new venture: the mediating role of effectuation. *SAGE Open*, *10*(4), 2158244020963571.

Mullins, J. W., & Forlani, D. (2005). Missing the boat or sinking the boat: a study of new venture decision making. *Journal of Business Venturing*, *20*(1), 47-69.

Newman, A., Obschonka, M., Schwarz, S., Cohen, M., & Nielsen, I. (2019). Entrepreneurial self-efficacy: A systematic review of the literature on its theoretical foundations, measurement, antecedents, and outcomes, and an agenda for future research. *Journal of vocational behavior*, *110*, 403-419.

Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-263.

Sarasvathy, S. D. (2009). *Effectuation: Elements of entrepreneurial expertise*. Edward Elgar Publishing.

Stroe, S., Parida, V., & Wincent, J. (2018). Effectuation or causation: An fsQCA analysis of entrepreneurial passion, risk perception, and self-efficacy. *Journal of Business Research*, *89*, 265-272.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.379

Stavovi i znanje mladih osoba prema kreditu
Attitudes and Knowledge of Young People Towards Credit

Goran Karanović[1]
Elvis Mujačević[2]
Emma Superina[3]

Received: August 27, 2023
Accepted: September 6, 2023
Published: October 30, 2023

Ključne riječi:
Krediti;
Mlade odrasle osobe;
Stavovi;
Anketa;
Znanje o kreditima

Keywords:
Credit;
Young adults;
Attitudes;
Survey;
Credit knowledge

Sažetak: *Istraživanje je provedeno u cilju ispitivanja znanja i stava mladih osoba prema kreditu. Ukupni uzorak ispitanih iznosi 77 mladih osoba, a ispitivanje je provedeno uz pomoć strukturiranog on-line anketnog upitnika među studentskom populacijom. Rezultati ukazuju na važnost štednje, ali i nedostatak prakticiranja među ispitivanom populacijom. Postoji prostor za poboljšanje znanja vezanih uz kredite i o kreditnoj sposobnosti kao i kompleksnijim financijskim pojmovima. Uočen je nedostatak znanja o ulaganjima u vrijednosne papire i investicijske fondove. Ograničenja ovog istraživanja mogu se vidjeti u manjem uzorku, ali i uzorku studentske populacije. Preporuke za daljnje istraživanje su da se uzorak proširi na cjelokupnu populaciju i ne samo na visoko obrazovane mlade osobe ekonomskog usmjerenja te da se koristi veći uzorak radi signifikantnije statističke potvrde.*

Abstract: *The research was conducted to examine the knowledge and attitude of young people towards credit. The total sample of respondents is 77 young people, and the survey was conducted with the help of a structured online questionnaire among the student population. The results indicate the importance of saving, but also the lack of practice among the surveyed population. There is room for improving knowledge related to loans and creditworthiness as well as more complex financial terms. A lack of knowledge about investments in securities and investment funds was observed. The limitations of this research can be seen in the smaller sample, but also the sample of the student population. Recommendations for further research are to expand the sample to the entire population and not only to highly educated young people with an economic orientation and to use a larger sample for more significant statistical confirmation.*

1. UVOD

Efikasne i prosperitetne ekonomije počivaju na tečnoj i učinkovitoj tranziciji novčanih sredstava od skupine koja ostvaruje i ima višak novčanih sredstava prema skupinama koja nema dovoljno i kojoj su potrebne za investicije tj. za daljnji razvoj. Nesmetan prijenos viška novčanih sredstava od jedne do druge skupine ovisi o nekoliko faktora i to o: a) ekonomskom razvoju, b) političko-socijalnom uređenju države, c) obliku i razvijenosti financijskog sustava tj. tržišta, d) pravnom uređenju i dr. „Financijski sustav obavlja šest osnovnih funkcija i to: a) olakšava trgovanje, zaštitu od rizika (hedging), diversifikaciju i grupiranje rizika, b) raspodjela resursa, c) pratiti menadžere i vršiti korporativnu kontrolu, d) mobilizira štednju i e) olakšava razmjenu dobara i usluga“ (Levine, 1997, p. 691). Transfer novčanih sredstava među subjektima uključuje pravne i fizičke osobe. Nositelji procesa posredovanja financiranja u svakoj ekonomiji su financijski posrednici. Posrednici koji spajaju ponudu i potražnju između subjekata su ti koji osiguravaju nesmetan tijek

[1] Fakultet za menadžment u turizmu i ugostiteljstvu Opatija, Katedra za financije, Sveučilište u Rijeci, Primorska 46, pp. 97., 51410 Opatija, Hrvatska
[2] Fakultet za menadžment u turizmu i ugostiteljstvu Opatija, Katedra za financije, Sveučilište u Rijeci, Primorska 46, pp. 97., 51410 Opatija, Hrvatska
[3] Studentica diplomskog studija Menadžment u turizmu, Fakultet za menadžment u turizmu i ugostiteljstvu Opatija, Sveučilište u Rijeci, Primorska 46, pp. 97., 51410 Opatija, Hrvatska

financijskih sredstava od jedne skupine do druge. Postoji nekoliko financijskih posrednika, a njihovo postojanje na tržištu ovisi o razvijenosti financijskog sustava. Najznačajniji financijski posrednici koji obavljaju glavninu posredovanja u većini zemalja su: banke (investicijske i komercijalne), mirovinski fondovi, investicijski fondovi, brokeri i financijski savjetnici. Pored navedenih u novije vrijeme javljaju se i fintech društva, faktoring društva, osiguravajuća društva i dr. Financijski sustavi prema razvoju i obliku mogu se podijeliti na tržišno-centrična i banko-centrična tržišta. Prvi oblik, trišno-centrična tržišta, jesu tržišta u kojima se glavnina ponude i potražnje novčanih sredstva odvija preko financijskih tržišta (primarno tržišta novca i tržišta kapitala). U takvim tržištima gospodarski subjekti većinu kapitala prikupljaju preko financijskih tržišta. Suprotno tome, egzistiraju banko-centrična tržišta u kojima banke imaju dominantnu ulogu prikupljanja i distribucije novčanih sredstava između subjekata. Chakraborty and Ray navode kako banko-centrično tržište odnosno banke obično su više angažirane u odabiru projekata, praćenju tvrtki i identificiranju obećavajućih poduzetnika, dok je kod tržišnog-financiranja (korporacijske obveznice i dionice) izražena transakcija na osnovu tržišnih uvjeta, s malo uplitanja u investicijske odluke tvrtke (2006, p. 331). Gospodarski subjekti izabiru način financiranja odnosno financijskog posrednika ovisno o nekoliko faktora i to: a) razvijenosti tržišta, b) pravnog uređenja zemlje, c) preferencijama subjekata koji novac potražuju (u zavisnosti o potencijalnim troškovima koji proizlaze iz agencijskih problema, odnosno uključenosti posrednika kroz nadzor te na donošenje investicijske odluke). „Sasvim je moguće da se financijski sustavi razviju kao odgovor na veći ekonomski rast ili u anticipaciji budućeg blagostanja." (Sahoo, 2014, p. 102).

Ekonomije koji imaju dominantno banko-centrično tržište značajno ovise o povjerenju u sustav depozita te kreditima i kreditiranju. Pravna regulativa koja propisuje osiguranje depozita može značajno doprijeti (ne)povjerenju u takav sustav. Jer u slučaju usporavanja kreditiranja ili eventualnog zastoja u procesu kreditiranja automatski dolazi do usporavanja ekonomskog procesa te potencijalno stagnacije i konačno do pada ekonomskih aktivnosti. Takvi sustavi značajno ovise ne samo o bankama nego i o korisnicima usluga koje banke, kao financijski posrednici pružaju. Banko-centrično tržište počiva na povjerenju i vjeri korisnika bankarskih usluga, primarno depozitarnih, u stabilnost sustava. Osim navedenog povjerenja sami sustav počiva na znanju korisnika usluga o uslugama i proizvodima koje banke nude, poput mogućnostima deponiranja, financiranja, refinanciranja, investiranja i drugim. Nakon katastrofalnih posljedica Globalne financijske krize 2007. godine i razornog utjecaja na svjetsko gospodarstvo, ali i negativnih ekonomsko-financijskih posljedica po stanovništvo u analizama je uočena potreba za mjerenjem i promicanjem financijske pismenosti. Nepoznavanje osnovnih financijskih pojmova, znanja, vještina, stavova dovela je do napuhivanja financijskog problema u razdoblju 2004-2007. Ujedno, posljedica Globalne financijske krize u državama diljem svijeta primano manifestirana kao posljedica otplate kredita od strane stanovništva. Brojni ljudi ostali su značajno osiromašeni pa i danas gotovo dvadeset godina nakon toga događaja osjećaju posljedice pogrešnih financijskih odluka.

Upravo potaknuti takvim globalnim problemima brojnog stanovništva Organizacija za ekonomsku suradnju i razvoj (*Organisation for Economic Cooperation and Development* OECD) pokrenula je program definiranja i mjerenja financijske pismenosti na međunarodnoj razini. Ujedno, pokrenula je brojne procedure i preporuke za jačanje otpornosti stanovništava, kroz jačanje financijskih znanja odnosno za bolje razumijevanje i prilagođenije financijsko ponašanje pojedinaca stanju na tržištima kao i razvijanju ispravnih financijskih stavova. Prema OECD-u financijska pismenost sastoji se od sljedećih elemenata: financijsko znanje, financijsko ponašanje i financijski stavovi (OECD, 2020, p. 7). Prema posljednjem istraživanju iz 2023. godine koje je proveo Ipsos u ime HNB i HANFA razina prosječne financijske pismenosti hrvatskih građana je uznapredovala na ocjenu 12/20 tj. 60% u odnosu na baznu 2016. godinu u kojoj je ostvaren rezultat od 11,8/20 tj. 56% (Ipsos, 2023). U sva tri provedena istraživanja 2016., 2020. i 2023. godine mladi su detektirani kao skupina s najlošijim rezultatima.

Čak i prije postavljanja OECD-ovog standardiziranog istraživanja brojni autori bavili su se pitanjem financijskog znanja, stavova i ponašanja te utjecaja financijske pismenosti na financijsko (blago)stanje pojedinaca. Posebno studiozno je analizirana tema financijskog znanja i studentskih kredita te utjecaja koji ima na financijsko stanje nakon studija. Lachance i dr. (2006) istraživali su znanje i korištenje kredita mladih osoba 18-29 godina na području Quebeca, Kanada, te utvrdili da znanje o kreditima pozitivno utječe na osobni dohodak, broj dugova, ukupni iznos duga, broj kreditnih kartica i povoljni odnos prema kreditima i dugu. U studiji su istraživali stavove mladih osoba prema kreditima i utvrdili da obrazovanje, broj kreditnih kartica i znanje o kreditima pozitivno korelira s kreditima, a broj djece negativno korelira. Također, roditelji koji značajno koriste kredite pozitivno utječe na stav o kreditima (Lachance, 2012). Robb i dr. (2019, p. 51) u svojem istraživanju na odraslim zaključuju da „jedan od ključnih zaključaka studije je da studentski krediti dobiveni kroz privatne i kombinaciju federalnih i privatnih izvora su negativno povezani sa spremnošću ispitanika da ponovno dignu kredit". Boatman i Evans (2017, pp. 15-16.) istraživali su utjecaj financijske pismenosti i znanja o federalnim kreditima za obrazovanje na korištenje kredita za obrazovanje. Utvrdili su da poznavanje kreditnih shema financiranja te ranije korištenje kredita pozitivno utječe na spremnost na zaduživanje za obrazovanje te umanjuje averziju korištenja kredita.

Suprotni rezultati i zaključci proizašli su iz istraživanja na 227 studenata koji pohađaju velika, javna, državna sveučilišta smještena u jugoistočnim državama Sjedinjenih Američkih Država „utvrđeno je da nivo financijske pismenosti nema statistički signifikantnu povezanost s dugom po kreditnim karticama ili dugom po studentskih kreditom„ (McKenzie, 2009, p. 76). Annamaria Lusardi u suradnji s Mitchelom i Tufanom provela je seriju istraživanja na temu dužničke pismenosti, kao dijela financijske pismenosti, te brojčane pismenosti kao fundamenta financijske pismenosti i njihova utjecaja na (pre)zaduženost, donošenja financijskih odluka i odluka koje se tiču umirovljenja, odnosno mirovinskog plana. Lusardi (2012, pp. 8–9.) je istraživala brojčanu pismenost u SAD-u i ostalim zemljama i utvrdila da je ona niska, a u direktnoj je vezi s financijskom pismenosti te je dala preporuke vezane uz podizanje matematičke i tehnološke pismenosti jer je to osnova financijske pismenosti. U studiji Lusardi i Tufano (2015, p. 360) zaključuju da „niski nivo dužničke pismenosti su norma, a razumijevanje osnovnih svojstava duga posebno je ograničeno među populacijom starijih osoba, žena, određenih manjina i ljudi s nižim dohodcima i nižim bogatstvom". U istraživanju o financijskoj pismenosti u osam zemalja (Lusardi & Mitchell, 2011) sumiraju da je financijska pismenost niska te zaključili kako negativno utječe sigurnost mirovinskog plana. Isto tako, (Lusardi & Mitchell, 2017, p. 20) zaključuju da je „financijska pismenost ključna determinanta kod planiranja mirovine. Također, otkrivaju da ispitanici ostvaruju veću financijsku pismenost kod potrošača koji su bili izloženi ekonomiji u školi ili u sličnim programima koje sponzorira poslodavac".

Hrvatska je zemlja koju karakterizira izrazito banko-centrični financijski sustav. Što se tiče financijskog tržišta Hrvatska spada u *frontier markets* prema FTSE Rusell (Russell, 2023). Zbog svoje veličine i razvijenosti ne može se smatrati *emrerging marketom*. Slijedom navedenog, banke su glavni nositelj svih financijskih transakcija u Hrvatskoj, te služe kao primarni izvor financiranja pravnim i fizičkim osobama. Pravne i fizičke osobe većinu svojih akumuliranih sredstava investiraju u depozite, te primarno ulažu u nekretnine. Većina ulaganja odnose se na ulaganja u nekretnine koje se dalje koriste u turističke svrhe, što ujedno već čitav niz godina predstavlja investiciju s najnižim poreznim opterećenjem. Zatim slijede ulaganja u nekretnine u špekulativne svrhe, kupi/izgradi jeftinije prodaj skuplje. Svjedoci smo čitav niz godina problemima koji građani imaju s blokiranim računima, pa je tako prema podacima FINE u 2022. godini 232.000 građana imalo blokirani račun s glavnicom duga u iznosu od 18.3 milijarde kuna. Sve navedeno pokazuje potrebu za istraživanjem kojim bi se analizirali mladi i njihovi stavovi i znanje o kreditima.

2. METODOLOGIJA

U svrhu istraživanja stavova i znanja odraslih mladih osoba prema kreditu izrađen je strukturirani anketni upitnik izrađen prema metodologiji (Lachance, 2012; Lachance et al., 2006). Anketni upitnik sastojao se ukupno od 11 pitanja od kojih se prvih pet, odnosilo na socio-demografska pitanja (spol, dob, radni status, osobni mjesečni prihod), zatim sljedeća tri pitanja referirala su se na kredite. Ispitivalo se je dosadašnje korištenje kredita (dihotomno pitanje – DA/NE), zatim je mjeren stav ispitanika prema kreditiranju, a mjeren je latentnom varijablom koju je činilo 8 čestica. Svaka čestica je mjerena petostupanjskom Likertovom ljestvicom. Osmim pitanjem (dihotomnim točno/netočno) mjerilo se je znanje ispitanika o kreditima. Devetim pitanjem ispitalo se je o izvorima učenja o financijama, dok je desetim pitanjem mjeren utjecaj roditelja o prenošenju znanja o financijskim temama. Latentna varijabla sadržavala je šest čestica, a mjerena je petostupanjskom Likertovom ljestvicom. Jedanaestim pitanjem ispitana je latentna varijabla planiranje osobnih financija i štednja sadržava je osam čestica. Zadnje pitanje mjereno je petostupanjskom Likertovom ljestvicom.

Anketni upitnik sastavljen u Google obrascu i distribuiran redovitim i izvanrednim studentima treće godine Fakulteta za menadžment u turizmu i ugostiteljstvu, Sveučilišta u Rijeci putem poveznice (*linka)*. Uzorak čini ukupno 457 studenata, a ukupno je ispravno i u potpunosti ispunilo 77 studenata. Stopa povrata iznosi 16,8%. Potrebno je naglasiti da je anketni upitnik u potpunosti anoniman, i nisu se prikupljali nikakvi osobni podaci prema kojima bi se ispitanici mogli identificirati. Svi prikupljeni podaci korišteni su isključivo u svrhu ovog istraživanja i nisu korišteni niti u jednu drugu svrhu.

Istraživanje ima nekoliko nedostataka koji proizlaze iz samog ispitivanja, a to su primarno nebalansirani uzorak stopa povrata muških u odnosu na žene iznosi 27% u odnosu na 71%. Iako, struktura uzorka iznosi 30% muškaraca u odnosu na 70% žena i dalje potencijalno može utjecati ne rezultate i stav prema kreditima, a koji proizlazi iz sklonosti riziku muške u odnosu na žensku populaciju. Također, jedan od nedostatak je mala stopa povrata od gotovo 17%.

3. REZULTATI ISTRAŽIVANJA

U prvom dijelu anketnog upitnika istraživane su socio-demografske karakteristike ispitanika. Obzirom da su uzorak činili studenti treće godine studija, gotovo 95% uzorka obuhvaća studente od 20-26 godina. Anketni upitnik ispunio je 21 muškarac (27,3%), 55 žena (71,4%) i ostalo 1 (1,3%). Na prvi pogled može se činiti da uzorak nije izbalansiran, ali potrebno je znati da je ukupan broj upisanih studenata na Fakultetu za menadžment u turizmu i ugostiteljstvu u ak. godini 2022/2023 iznosio je 1893, od čega je 1272 bilo žena (67,19), a 621 muškaraca (32,8%) (izvor: Ured za studente Fakultet za menadžment u turizmu i ugostiteljstvu). Od ispitanih 77 studenata nekretnina u kojoj trenutno živi u vlasništvu studenta 6,5%, odnosno živi s roditeljima 67,5%, a 26% živi u iznajmljenom stanu. Također, ispitano je da 12 studenta radi (15,6%), a isključivo studira 65 (84,4%). Zadnjim socio-demografskim pitanjem ispitivan je osobni mjesečni prihod studenata.

Tablica 1. Osobni mjesečni prihod

Mjesečni prihod u €	Frekvencija	Postotak	Kumulativni postotak
manje od 100 €	9	11,7	11,7
101 - 200 €	14	18,2	29,9
201 - 300 €	13	16,9	46,8
301 - 400 €	14	18,2	64,9
401 - 700 €	14	18,2	83,1
700+	13	16,9	100,0
Ukupno	77	100,0	

Izvor: vlastito istraživanje

Gotov 47% uzorka ima osobni mjesečni prihod u izosu od 300 €, dok 36% uzorka ostvaruje od 301 do 700 € mjesečnih prihoda, a 17% ispitanih studenata ostvaruje preko 700 € mjesečnih prihoda. Obzirom da su se ispitivali stavovi i znanje o kreditima bilo je važno utvrditi koliko anketiranih studenata je do sada koristilo kredit. Samo 6,5% odnosno samo 5 ispitanika je do sada koristilo kredit, a ostalih 72 odnosno 93,5% do sada nikada nije koristilo kredit.

Iduće je ispitivan stav prema kreditima uz pomoć tvrdnji odnosno osam čestica, koji su mjereni Likertovom mjernom ljestvicom od 1 do 5, pri čemu je 1. uopće se ne slažem, a 5. u potpunosti se slažem.

Tablica 2. Stav prema kreditima

Tvrdnje	N	Medijan	Mode	Raspon	Min.	Maks.	Percentili		
							25	50	75
1. Više je prednosti nego mana korištenja kredita	77	3.00	3	3	1	4	3.00	3.00	3.00
2. Krediti omogućavaju bolju kvalitetu života	77	3.00	3	3	1	4	2.00	3.00	4.00
3. Kredit nije sinonim za problem	77	3.00	4	4	1	5	3.00	3.00	4.00
4. Danas je normalno imati dug	77	4.00	4	4	1	5	2.50	4.00	4.00
5. Svatko bi trebao imati barem jednu kreditnu karticu	77	3.00	3	4	1	5	3.00	3.00	4.00
6. Ne bi se trebali bojati koristiti kredite	77	3.00	4	4	1	5	3.00	3.00	4.00
7. Uz kredite nije potrebno štedjeti	77	2.00	2	2	1	3	1.00	2.00	2.00
8. Danas se krediti moraju koristiti	77	3.00	3	4	1	5	2.00	3.00	3.00

Izvor: vlastito istraživanje

Na većinu tvrdnji (1., 2., 5., i 8.) ispitanici su većinom odgovarali da se niti slažu niti ne slažu. Samo 28,6% ispitanika slažu se s činjenicom da krediti omogućuju bolju kvalitetu života, a samo 22,1% smatraju da je više mana nego prednosti korištenja kredita. Dosta su podijeljeni vezano uz tvrdnju da je kredit sinonim za problem, 22,1% smatra da kredit nije sinonim za problem dok isti broj smatra da je kredit sinonim za problem. Slično su ispitanici reagirali na tvrdnju o posjedovanju barem jedne kreditne kartice 35,1% ispitanika slaže se s tvrdnjom da bi svatko trebao posjedovati barem jednu kreditnu karticu dok 23,4% ne slaže se s tom tvrdnjom. Gotovo 50% ispitanika slaže se s tvrdnjom da je „normalno danas imati dug“, a 45% ispitanika slaže se da se ne treba bojati koristiti kredite. Ispitanici se većinom slažu da je potrebno štedjeti uz kredite. Iz navedenog može se zaključiti da studenti shvaćaju važnost kredita i iznimno je bitno da 88,3% ispitanika se slaže s tvrdnjom da je potrebno štedjeti uz korištenje kredita.

Iako su svjesni važnosti kredita bilo je relevantno ispitati njihovo znanje o kreditima. Iz tog razloga ispitanicima je postavljeno šest pitanja na koje su odgovarali točno netočno. Prvo pitanje koje je glasilo „*Svatko može dignuti kredit*“ točno je odgovorilo 88,3 % populacije odnosno 68 studenata, dok je 9 njih odgovorilo netočno. Na pitanje o efektivnoj kamatnoj stopi (EKS), temeljnom pojmu o kreditima i kreditiranju znalo točno 77,9% odnosno 60 ispitanika dok 17 njih odnosno 22,1%

nije znalo da *EKS odražava sve troškove kredita*. Pitanje koje se je odnosilo na *korištenje hipotekarnog kredita i obvezu plaćanja police osiguranja* 54 tj. 70,1% ispitanika je točno znalo na ovo pitanje dok je 29,9% odnosno 23 ispitanika netočno odgovorilo na ovo pitanje. Na pitanje koje je glasilo „*Kreditna sposobnost izračunava se isključivo prema plaći*" točno je odgovorilo 64,9% ispitanika odnosno 50, dok je 27 odnosno 35,1% odgovorilo netočno. Polovično točan rezultat ostvarili su na pitanje „*Stambeno-potrošački kredit može biti isplaćen prije bez troškova*„ samo 53,2 % odnosno 41 ispitanika je točno ogovorio 46,8% netočno je odgovorilo na to pitanje. Još poraznije odnosno netočnije su odgovorili na pitanje o kreditnim karticama i umanjenju kreditne sposobnosti korištenjem istih. Na ovo pitanje točno je odgovorilo samo 28,6 % odnosno samo 22 ispitanika dok je 55 ispitanika tj. 71,4% netočno odgovorilo. Iz navedene analize može se zaključiti da o nekim osnovnim pojmovima studenti imaju znanja, dok su na neka kompleksnija pitanja poput EKS i kreditnih karticama i kreditnoj sposobnosti nedostaje elementarnih znanja.

Idućim pitanjem ispitivan je izvor učenja o osobnim financijama, a kao izvori učenja o osobnim financijama ponuđeni su: roditelji, pokušaji i pogreške, prijatelji/kolege/partneri, predavanja u školi/na fakultetu/drugdje, mediji, financijski savjetnici.

Tablica 3. Izvor učenja o osobnim financijama

Izvor učenja	N	Da		Ne	
		%	Frek.	%	Frek.
Roditelji	77	77,9	60	22,1	17
Pokušaji i pogreške	77	33,8	51	66,2	51
Prijatelji/kolege/partneri	77	39,0	30	61,0	47
Predavanja u školi/na fakultetu/drugdje	77	66,2	51	33,8	26
Mediji	77	40,3	31	59,7	46
Financijski savjetnici	77	10,4	8	89,6	69

Izvor: vlastito istraživanje

Iz analize podataka moguće je uočiti da je primarni izvor učenja studenata o osobnim financijama roditelji, a zatim predavanja u školi/fakultetu. Ovo potvrđuju i ranija istraživanja (Štambuk et al., 2019) koja ističu zadovoljstvo poslodavaca financijskim kompetencijama diplomiranih studenata. Zatim slijede mediji kao izvori učenja o osobnim financijama, što ne treba zapravo čuditi jer je broj medijskih kampanja o važnosti financija i financijskoj pismenosti pokrenut posljednjih nekoliko godina na više različitih institucija, te podržano od strane Hrvatske narodne banke, Hrvatske udruge banaka, brojnih poslovnih banaka u RH kao npr. Škola pametnih financija Erste&Steiermärkische Bank, Financijsko opismenjavanje Raiffeisenbank, Financijska edukacija Zagrebačka banka, Mirovinski fond AZ, HANFA i mnogi drugi projekti pokrenuti od pojedinaca i institucija.

Zbog važnosti roditelja i njihovoga utjecaja na financijsko ponašanje mladih odraslih osoba dodatno je istraženo o kojim temama su studenti razgovarali s roditeljima, odnosno o kojim temama su roditelj razgovarali sa studentima. Većina studenata razgovarala je često i uvijek s roditeljima na temu upravljanja troškovima, korištenju kreditnim karticama i štednji. Dok gotovo 70% ispitanika gotovo nije nikada ili rijetko je razgovaralo o investicijama u vrijednosne papire i investicije fondove, odnosno gotovo 50% njih nije razgovaralo nikada ili rijetko o kreditima, osiguranju.

Posljednjim tvrdnjama mjerila se je latentna varijabla percepcija planiranja osobnih financija i štednje, petostupnjskom Likert ljestvicom od 1 do 5, pri čemu je 1. označavao nikada, a 5 uvijek.

Gotovo 50% ispitanika uvijek i često planira svoje osobne financije, niti jedan ispitanik nikada ne planira. Gotovo svi ispitanici plaćaju svoje račune od čega 99% ispitanika često i uvijek plaća račune dok samo 1% rijetko plaća. Većinu ispitanika ocijenilo se je kao disciplinirano, odnosno 80% često i uvijek troši unutar budžeta. Gotovo 85% ispitanika uspoređuje cijeni artikala, a samo 5% ispitanika (4) nikada ili rijetko uspoređuje cijene artikala. Provjeru računa prilikom kupovine obavi 65% ispitanika, dok 18 % nikada ili rijetko provjerava račun prilikom kupovine. Iako su u prethodnim pitanjima štednju označavali kao bitnu samo 51% ispitanika uvijek i često štedi, 27,3% štedi ponekad, a 20,8% gotovo nikada i rijetko štedi. Još poraznije ponašanje tiče se vezano uz odvajanje sredstava za krizni fond jer 31,2% nikada ili rijetko izdvaja sredstva, a samo 31,2% odvaja uvijek i često, dok 37,6 odvaja ponekad.

Tablica 4. Utjecaj roditelja o financijskoj temi

Tema	N	Median	Mode	Range	Min.	Maks.	Percentiles		
							25	50	75
1. Štednja	77	4.00	3	3	2	5	3.00	4.00	4.00
2. Investicije u vrijed. papire i investicijske fondove	77	2.00	1	4	1	5	1.00	2.00	3.00
3. Upravljanje troškovima	77	4.00	4	4	1	5	3.00	4.00	4.00
4. Korištenje kartica	77	4.00	4	4	1	5	2.00	4.00	4.00
5. Krediti	77	3.00	3	4	1	5	2.00	3.00	3.00
6. Osiguranja	77	3.00	2	4	1	5	2.00	3.00	4.00
7. Investicije u nekretnine	77	3.00	3	4	1	5	1.50	3.00	4.00

Izvor: vlastito istraživanje

Tablica 5. Percepcija planiranja osobnih financija i štednje

	N	Median	Mode	Range	Min.	Maks.	Percentiles		
							25	50	75
Planiram osobne financije	77	4.00	4	3	2	5	3.00	4.00	4.50
Plaćam račune na vrijeme	77	5.00	5	3	2	5	4.00	5.00	5.00
Trošim unutar budžeta	77	4.00	4	4	1	5	4.00	4.00	5.00
Uspoređujem cijene artikala	77	5.00	5	4	1	5	4.00	5.00	5.00
Prilikom kupovine provjerim račun	77	4.00	4	4	1	5	3.00	4.00	5.00
Redovito štedim	77	4.00	4	4	1	5	3.00	4.00	4.00
Odvajam sredstva za krizni fond	77	3.00	3	4	1	5	2.00	3.00	4.00
Štedim novac za određeni cilj	77	4.00	3	4	1	5	3.00	4.00	5.00

Izvor: vlastito istraživanje

4. ZAKLJUČAK

Na temelju provedene analize može se zaključiti da su temeljni izvori o osobnim financijama studenata roditelji i škole/fakulteti pa zatim mediji. Studenti su pokazali osnovna znanja o kreditima, ali pored osnovnih pitanja i dalje ne ostvaruju dobre rezultate o kompleksnijim pitanjima. Ukazuju na važnost štednje, ali je slabije prakticiraju odnosno učestalije štedi samo 50% ispitane populacije. Iako imaju podijeljeno mišljenje o posjedovanju kreditne kartice, ispitana populacija demonstrirala je visoko neznanje o kreditnim karticama i utjecaju na osobne financije odnosno na kreditnu sposobnost. Isto tako, pokazuje se potreba za dodanim edukacijama na temu ulaganja u investicijske fondove i ulaganja u vrijednosne papire. Još uvijek postoji potreba za dodanim znanjima oko prijevremene otplate kredita kao i kreditne sposobnosti. Studenti su pokazali visoku razinu samodiscipline u pogledu plaćanja računa, te o trošenju unutar budžeta.

Kako je ranije navedeno istraživanje ima određena ograničenja, a to su mali uzorak koji je orijentiran na studente ekonomskog usmjerenja. Također, može se pozivati na nebalansiran uzorak iako je omjer muško ženskih studenata na ispitivanom fakultetu gotovo 70% u odnosu na 30%. Preporuke za daljnja istraživanja je korištenje multivarijantne statističke analize te proširenje ispitivanih dimenzija vezanih uz znanje financijsko ponašanje i rizično financijsko ponašanje.

Reference

Boatman, A., & Evans, B. J. (2017). How Financial Literacy, Federal Aid Knowledge, and Credit Market Experience Predict Loan Aversion for Education. *Annals of the American Academy of Political and Social Science*, *671*(1), 49–68. https://doi.org/10.1177/0002716217695779

Chakraborty, S., & Ray, T. (2006). Bank-based versus market-based financial systems: A growth-theoretic analysis. *Journal of Monetary Economics*, *53*(2), 329–350. https://doi.org/10.1016/j.jmoneco.2005.01.003

Ipsos. (2023). *Mjerenje financijske pismenosti i financijske uključenosti u Hrvatskoj*. https://www.hnb.hr/documents/20182/4362027/hp07062023_prezentacija.pdf/2788e7a0-6303-3498-653d-7df647a41d10?t=1686141550141

Lachance, M. J. (2012). Young adults' attitudes towards credit. *International Journal of Consumer Studies*, *36*(5), 539–548. https://doi.org/10.1111/j.1470-6431.2012.01119.x

Lachance, M. J., Beaudoin, P., & Robitaille, J. (2006). Quebec young adults' use of and knowledge of credit. *International Journal of Consumer Studies*, *30*(4), 347–359. https://doi.org/10.1111/j.1470-6431.2006.00521.x

Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, *35*(2), 688–726.

Lusardi, A. (2012). Numeracy, Financial Literacy, and Financial Decision-Making. *Numeracy*, *5*(1). https://doi.org/10.5038/1936-4660.5.1.2

Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: an overview. *Journal of Pension Economics and Finance*, *10*(4), 497–508. https://doi.org/10.1017/S1474747211000448

Lusardi, A., & Mitchell, O. S. (2017). How Ordinary Consumers Make Complex Economic Decisions: Financial Literacy and Retirement Readiness. *Quarterly Journal of Finance*, *07*(03), 1750008 (31 pages). https://doi.org/10.1142/S2010139217500082

Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and overindebtedness. *Journal of Pension Economics and Finance*, *14*(4), 332–368. https://doi.org/10.1017/S1474747215000232

McKenzie, V. M. (2009). The financial literacy of university students: A comparison of graduating seniors' financial literacy and debt level [University of South Florida]. In *Graduate Theses and Dissertations*. http://scholarcommons.usf.edu/etd/2094

OECD. (2020). *Financial Literacy of Adults in South East Europe*. https://www.oecd.org/financial/education/Financial-Literacy-of-Adults-in-South-East-Europe.pdf

Robb, C. A., Chatterjee, S., Porto, N., & Cude, B. J. (2019). The Influence of Student Loan Debt on Financial Satisfaction. *Journal of Family and Economic Issues*, *40*(1), 51–73. https://doi.org/10.1007/s10834-018-9599-y

Russell, F. (2023). *FTSE Country Classification of Equity Markets (March 2023) v.1.1*. https://research.ftserussell.com/products/downloads/Matrix-of-Markets_latest.pdf

Sahoo, S. (2014). Financial Intermediation and Growth: Bank-Based versus Market-Based Systems. *Margin: The Journal of Applied Economic Research*, *8*(2), 93–114. https://doi.org/10.1177/0973801013519998

Štambuk, A., Karanović, G., & Host, A. (2019). Employers' Perceptions of Business and Economics Graduates' Competencies in Croatia. *Business Systems Research Journal*, *10*(2), 108–123. https://doi.org/10.2478/bsrj-2019-021

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.387

Utjecaj radne klime na zadovoljstvo zaposlenika
Influence of Work Climate on Employee Satisfaction

Mirjana Nedović[1]
Tatjana Andraković[2]

Received: April 20, 2023
Accepted: August 23, 2023
Published: October 30, 2023

Ključne riječi:
Zadovoljstvo zaposlenika;
Radna klima;
Organizacijska kultura;
Menadžment

Keywords:
Employee satisfaction;
Work climate;
Organizational culture;
Management

Sažetak: *Radna klima na radnom mjestu utječe na ponašanje zaposlenika. Pozitivna radna klima djeluje motivirajuće i pridonosi ostvarivanju postavljenih ciljeva poduzeća i obratno, loša radna klima djeluje demotivirajuće za zaposlenika čime se smanjuje njihova radna perfomanca. Stoga, radno okruženje je izazov menadžmentu koji treba pronaći odgovarajuće alate i primjenjivati motivacijske tehnike s kojima će unaprjeđivati radnu klimu i promicati organizacijsku kulturu. Cilj rada je spoznati razinu zadovoljstva zaposlenika radom klimom i uvjetima poslovanja, te identificirati eventualno negativne čimbenike koje utječu na zaposlenike. U radu se analiziraju rezultati provedenog istraživanja putem anketnog upitnika na 36 ispitanika i njihovom stavu u odnosu na radnu okolinu. U radu su korištene znanstvene metode analize, sinteze i deskripcije kao i istraživačka metoda anketiranja. Rezultati istraživanja bit će koristan alat menadžmentu u identifikaciji svih čimbenika koji unazađuju pozitivnu radnu klimu kao i identifikaciju onih čimbenika koji se trebaju njegovati i razvijati, jer stvaraju zadovoljstvo zaposlenika i pozitivan stav u poslu.*

Abstract: *The work climate in the workplace affects the behaviour of employees. A positive working climate is stimulating and contributes to the achievement of the company's goals, and vice versa, in the case when a bad working climate begins to be demotivating for employees, it reduces their work performances. Consequently, the working environment represents a challenge for its management, which needs to find appropriate tools and apply motivational techniques which will improve the work climate and promote organizational culture. This work aims to find out the level of employee satisfaction within the work climate and business conditions and to identify possibly negative factors that affect employees. This paper analyses the results of the research that was carried out employing a questionnaire on 36 respondents and their attitude towards the working environment. In the paper were applied scientific methods of analysis, along with the surveying research method. The results of the research will be a useful tool for the management when identifying all the factors that hinder a positive work climate, as well as for the identification of those factors that need to be fostered and developed because they create employee satisfaction and their positive attitude towards work.*

1. UVOD

Prema Baptiste (2008) postoji sve veći interes za dobrobit zaposlenika na radnom mjestu koji se pojavio u kontekstu postojanja sve lošijeg zdravlja zaposlenika, što je proizašlo iz fizičkih, psihosocijalnih i osobnih čimbenika.

U poduzećima bez obzira na njihovu veličinu, rezultate i pozitivne i negativne ostvaruju zaposlenici. Stoga su važan čimbenik u proučavanju jer o njima poglavito ovisi uspjeh poduzeća. Zadovoljstvo zaposlenika ogleda se u njihovoj većoj motiviranosti za ostvarenjem postavljenih

[1] Veleučilište „Lavoslav Ružička u Vukovaru", Županijska 50, 32000 Vukovar, Hrvatska
[2] Srednja ekonomska škola, Dr. Franje Tuđmana 2, 31550 Valpovo, Hrvatska

ciljeva. Postoje različiti načini kako se može pospješiti pozitivna radna klima i time utjecati na efikasnijeg zaposlenika. Menadžeri imaju važnu ulogu u stvaranju pozitivne radne klime jer imaju ovlasti i alate u kreiranju istog. Ekspertiza u upravljanju učinit će organizacijsku klimu boljom, a time će se povećati i zadovoljstvo zaposlenika.

Prema Robbins i Judge (2010) zadovoljstvo poslom se definira kao pozitivan stav o vlastitom poslu koji proizlazi iz ocjene karakteristika tog posla. Osoba koja ima visok stupanj zadovoljstva poslom gaji pozitivne osjećaje prema svom poslu, a osoba koja je nezadovoljna svojim poslom gaji negativne osjećaje prema poslu.

Stoga je korisno spoznati stavove i mišljenja zaposlenika koje će koristi menadžmentu u upravljanju poduzećem, te u eventualnom ispravljanju negativnih utjecaja i poticanje onih faktora koji motiviraju zaposlenike.

Prema (Bahtijarević-Šiber i dr., 2008) bitna je interpersonalna vještina uspješnih menadžera poticanje i omogućavanje izražavanja osobnih mišljenja i viđenja suradnika. Stvaranjem sigurne okoline i kulture dijaloga, slobodne komunikacije, uz vješto ohrabrivanje i poticanje, menadžeri mogu dobiti informacije i resurse koje su za organizaciju inače izgubljeni.

2. RADNA/ORGANIZACIJSKA KLIMA

Razvitkom industrije i kontinuiranim rastom konkurentnosti na tržištu, povećava se pritisak za rast i razvoj organizacija današnjice. To je jedan od razloga porasta interesa za područja koja pokušavaju saznati što to točno utječe na ljude u organizacijama i što utječe na njihovu produktivnost. Područje organizacijske klime pokušalo je dati odgovore na mnogobrojna pitanja u organizacijskoj psihologiji i psihologiji rada. Organizacijska klima pokazala se kao važan faktor povezan s mnogobrojnim organizacijskim i psihološkim procesima koji su bitni za funkcioniranje organizacije kao što su kreativnost zaposlenika, zadovoljstvo poslom, radna uspješnost i sigurnost na poslu (Čuljat, 2020).

Iz navedenog se može zaključiti da se veliki naglasak stavlja upravo na taj neopipljiv sastavni dio poduzeća koji nazivamo organizacijskom klimom. Budući da ona diktira i određuje kvalitetu rada zaposlenika i njihovu učinkovitost. Know how je važan dio nematerijalne imovine u bilanci stanja, a to je upravo znanje, iskustvo, ekspertiza i kreativnost djelatnika koje se mogu ekstrapolirati samo u poticajnoj organizacijskoj klimi i pozitivnom radnom ozračju. Samo pozitivna organizacijska klima može motivirati djelatnike kako bi dali najbolje moguće rezultate.

Ljudska motivacija i njezin utjecaj na ljudsko ponašanje u kontekstu rada zaokuplja psihologe još od prve polovice 20. st. (Locke & Latham, 2004). Stupanj motivacije za rad, odnosno spremnost subjekata rada da se optimalno angažiraju na realizaciji zadataka postavljenih pred njih, njihovu radnu organizaciju, te društvo u cjelini jedan je od najznačajnijih činilaca racionalizacije i kreativnosti ljudskog rada (Mijačka, 1989).

Svakom zaposleniku treba se pristupiti individualno budući da svi imaju različite želje, potrebe, pa i načine života na kraju. Kako bi pojedinac kvalitetno obavljao posao mora biti intrinzično motiviran za njega, odnosno percipirati ga kao izazovnoga, korisnoga, zanimljivoga kako bi se povećala kreativnost na radnom mjestu (Denny, 1993).

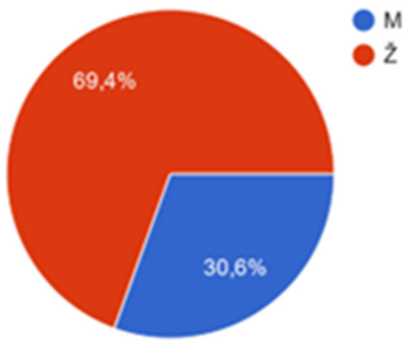
3. METODOLOGIJA ISTRAŽIVANJA

U izradi ovog rada primarna metoda istraživanja bila je provedena putem anketnog upitnika sa 8 pitanja. Prvi dio postavljenih pitanja su demografskog karaktera, a odnose se na dob i spol. Drugi dio pitanja odnosi se na stavove i mišljenja zaposlenika prema okruženju i poslu koji obavljaju. U anketi su ispitanici upitani u kojoj mjeri se slažu ili ne slažu s nekom tvrdnjom.

Istraživanje je provedeno putem platforme Google docs., a proveden je online, u periodu od 01. do 21. studenog 2022. U istraživanju je sudjelovalo 36 ispitanika, odabranih metodom slučajnog uzorka, s područja Republike Hrvatske, a svi su odgovori bili anonimni. Cilj istraživanja je bio utvrditi utjecaj radne klime na zadovoljstvo zaposlenika. Rezultati istraživanja prikazani su deskriptivnom statistikom i pomoću grafičkih prikaza.

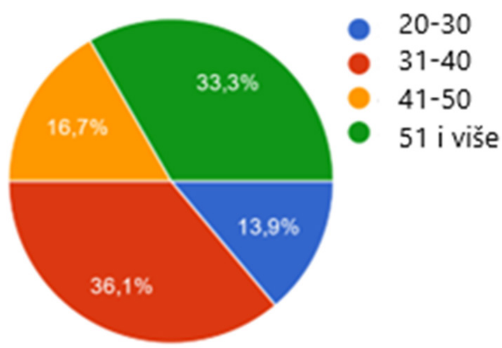
4. REZULTATI I ANALIZA ISTRAŽIVANJA

Iz grafikona br. 1. vidljivo je da je 69,4% ispitanika ženskog spola, dok je njih 30,6% muškog spola.



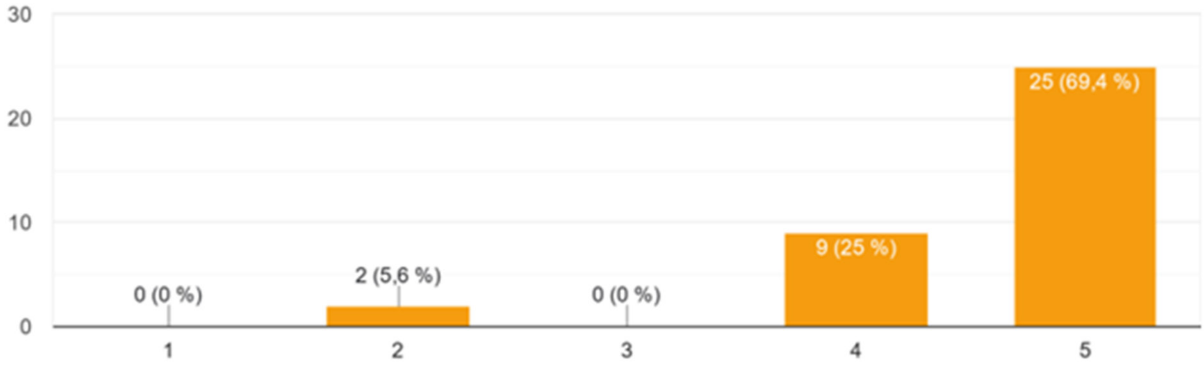
Grafikon 1. Spol ispitanika
Izvor: Izrada autora

Grafikon br. 2. pokazuje da je najviše ispitanika bilo u dobi od 31-40 godina, njih 36,1%, zatim 33,3% ispitanika ima 51 godina života i više, njih 13,9 % je u skupini od 20 do 30 godina života, dok 16,7% ispitanika ima od 41 do 50 godina života.



Grafikon 2. Dob ispitanika
Izvor: Izrada autora

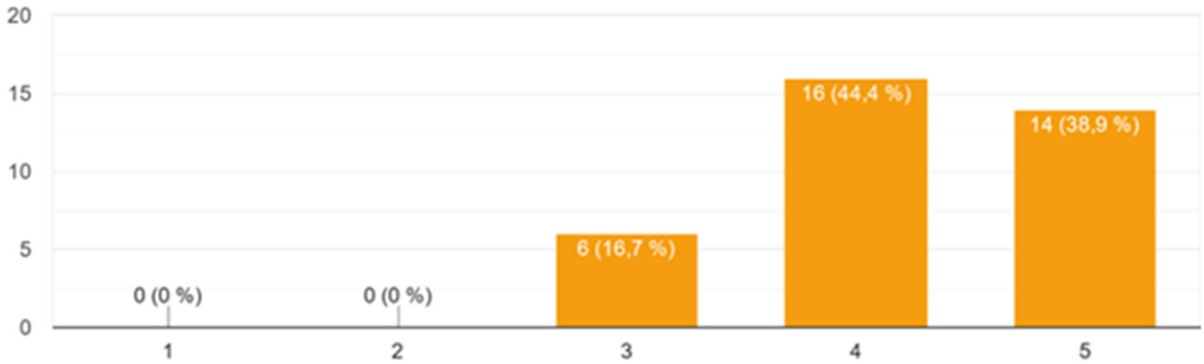
Grafikon br. 3. pokazuje radni staž, gdje 34% ispitanika ima od 1-19 godina radnog staža, 61% ispitanika ima od 20-30 godina radnog staža, a najmanje ispitanika je imalo 31 i više godina radnog staža, njih 5%.



Grafikon 3. Radni staž

Izvor: Izrada autora

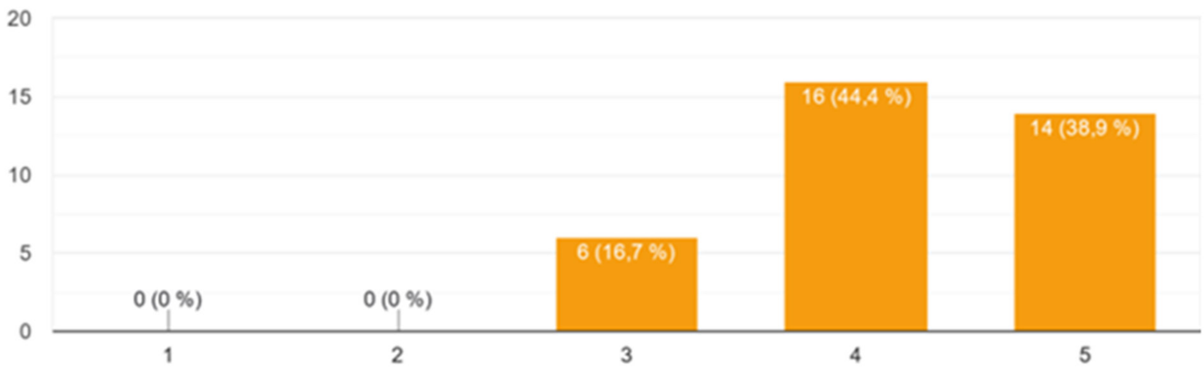
Grafikon br. 4. pokazuje odgovore na pitanje: „Znate li što se od vas očekuje na vašem radnom mjestu?“ najviše ispitanika, njih 69,4% odgovorilo je da u potpunosti znaju što se od njih očekuje, djelomično znaju, njih 25%, a ne znaju što se od njih očekuje svega 5,6% ispitanika.



Grafikon 4. Očekivanja na radnom mjestu

Izvor: Izrada autora

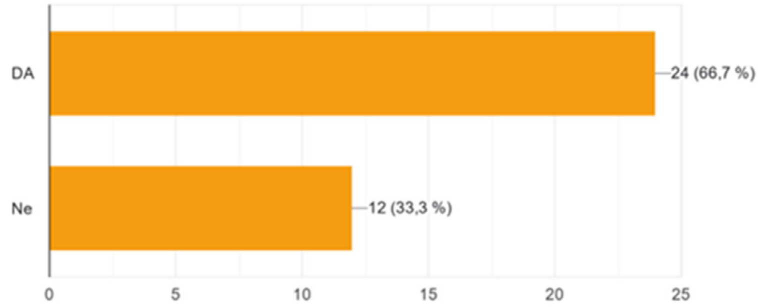
Grafikon br. 5. daje prikaz odgovora na pitanje „Imate li sav potreban materijal i uvjete rada kako biste svoj posao mogli raditi dobro i pravilno? Najviše ispitanika, njih 44,4% odgovorilo je da se djelomično slaže, 38,9% se slaže s postavljenim pitanjem u potpunosti, 16,7% ispitanika niti se slaže niti se ne slaže. Nitko od ispitanika nije se izjasnio da se ne slaže s postavljenim pitanjem.



Grafikon 5. Uvjeti rada

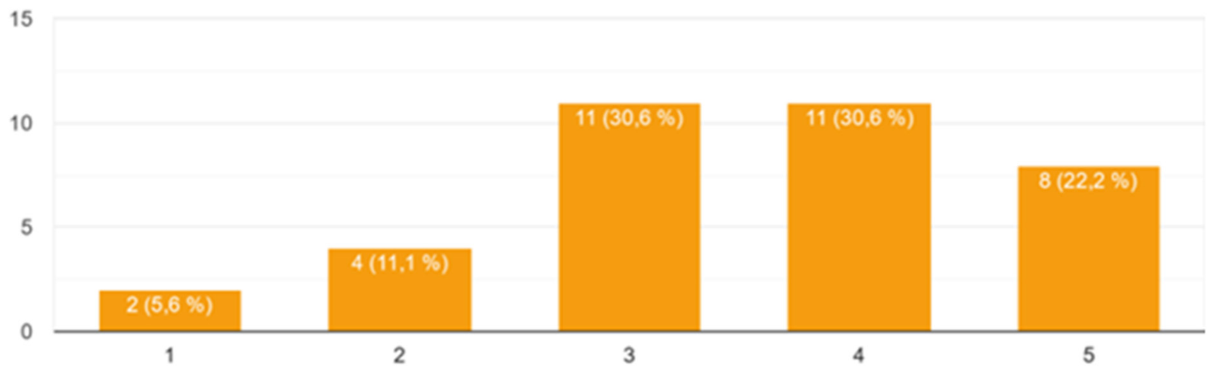
Izvor: Izrada autora

Grafikon br. 6. prikazuje podatke koje se odnose na postavljeno pitanje jesu li ispitanici dobili u posljednjih godinu dana javno priznanje ili pohvalu nadređenih za dobro obavljen posao? Rezultati pokazuju da je 66,7% ispitanika odgovorilo potvrdno, dok je 33,3% odgovorilo negativno na postavljeno pitanje.



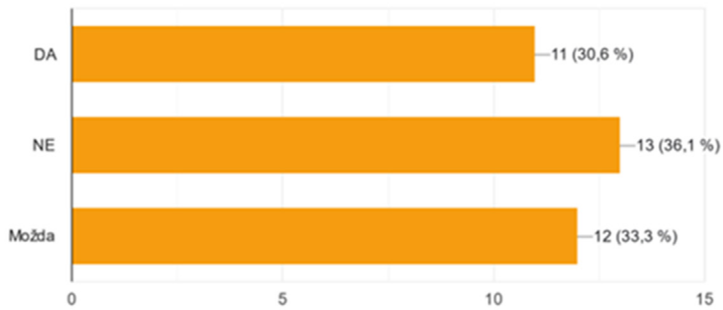
Grafikon 6. Javno priznanje/pohvala od nadređenih
Izvor: Izrada autora

U grafikonu br. 7. prikazani su odgovori ispitanika na pitanje da li smatraju da se na radnom mjestu potiče njihov razvoj. Rezultat je pokazao da se 30,6% ispitanika djelomično s tim slaže, a isto toliko je neodlučno. 22,2% ispitanika se u potpunosti slaže. Dok 11,1% ispitanika se niti slaže niti ne slaže, a tek neznatan broj 5,6% u potpunosti se ne slaže.



Grafikon 7. Razvoj zaposlenika
Izvor: Izrada autora

Grafion br. 8. prikazuje odgovore na postavljeno pitanje u anketi imaju li zaposlenici priliku u skoro vrijeme napredovati na poslu. 30,6% ispitanika se izjasnilo da ima, 36,1% njih se izjasnilo da nema, dok 33,3% ispitanika vjeruje da će možda dobiti priliku za napredovanjem.



Grafikon 8. Napredovanje na poslu
Izvor: Izrada autora

Ispitnici su se u većini izjasnili da su zadovoljni uvjetima rada. Uz to su dobili priznanje za svoj rad od svojih nadređenih i svojih kolega, te smatraju da se na njihovom radnom mjestu potiče osobni razvoj. Ispitanici smatraju da imaju poticajno radno okruženje gdje se mogu stalno razvijati i kontinuirano nešto novo naučiti. Više od polovice ispitanika se izjasnilo da imaju ili će imati priliku napredovanja na poslu u skorije vrijeme. Odgovori upućuju na zaključak o postojanju dobrog organizacijskog okruženja uz napomenu da postoji još prostora za unapređenje k boljem.

5. ZAKLJUČAK

Utjecaj radne klime uvelike utječe na ponašanje zaposlenika. Zadovoljstvo zaposlenika je izravno pod utjecajem radne klime i ovisi o čitavom nizu čimbenika. Dobra i loša klima stvara se planirano kroz dobro upravljanje u poduzeću. Poželjna je ona pozitivna i motivirajuća za zaposlenike gdje zaposlenik daje poduzeću i više od standarda koji se od njega očekuje. U provedenom istraživanju uviđa se da su mogući pomaci za unaprjeđenje radne klime čime će se povećati i zadovoljstvo zaposlenih. Preporuka je dodatno ulaganja u razvoj zaposlenika, te utvrđivanje jasnih smjernica što treba činiti da bi se napredovalo na poslu kao i razmatranje o mogućnostima poboljšanja radnih uvjeta. Ovo istraživanje doprinosi boljem shvaćanju odnosa između radne klime i zadovoljstva zaposlenika, te se uočava međusobna povezanost.

Reference

Bahtijarević-Šiber, F., Sikavica, P., & Pološki Vokić, N. (2008). *Suvremeni menadžment.* Zagreb: Školska knjiga d.d.

Baptiste, N. (2008). Tightening the link between employee wellbing at work and perfomance. *Management Decision, 2.*

Čuljat, M. (2020). *Povezanost organizacijske klime s organizacijskim i psihološkim procesima.* Zagreb: Filozofski fakultet u Zagrebu.

Denny, R. (1993). *Motivirani za uspjeh.* Zagreb: M.E.P. Consult.

Locke, A., & Latham, P. (2004). What Should We do about Motivation Theory? Six Recommendations for Review. *The Academy of Management Review*, str. 388-403.

Mijačka, N. (1989). Motivacija za rad i istraživanje nekih njenih aspekata. *Revija za socijologiju.*

Robbins, S., & Judge, T. (2010). *Organizacijsko ponašanje.* Zagreb: Mate.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.393

Fitnes kao niša sportskog turizma u Europskoj uniji s osvrtom na Republiku Hrvatsku

Fitness as a Sports Tourism Niche in the European Union with a Reference to the Republic of Croatia

Andreja Rudančić[1]
Mirna Šoštar[2]
Sandra Šokčević[3]

Received: April 10, 2023
Accepted: July 4, 2023
Published: October 30, 2023

Ključne riječi:
Fitnes;
Sportski turizam;
Europska unija;
Republika Hrvatska

Keywords:
Fitness;
Sports tourism;
European Union;
Republic of Croatia

Sažetak: *U suvremenoj turističkoj ponudi se na fenomen fitnessa gleda kao na rekreaciju u funkciji očuvanja i obnove zdravlja pojedinaca i skupina te povećanja kvalitete njihova života. U radu se analiziraju navike stanovnika Europske unije po pitanjima dokolice i tjelesnih aktivnosti u smislu održavanja dobrog fizičkog stanja organizma i zdravstvene dobrobiti. Svrha rada je istražiti i argumentirano obrazložiti značaj fitnesa kao niše sportskog turizma u Europskoj uniji s osvrtom na Republiku Hrvatsku sa aspekta rekreacije u sklopu sportskog turizma te wellnessa kao sastavnice zdravstvenog turizma. Prilikom analiziranja teme korišteni su relevantni podaci primarnih istraživanja Eurobarometra Europske unije te su dovedeni u usporedbu sa rezultatima istraživanja Instituta za turizam Republike Hrvatske. Generalni je zaključak da je hrvatski prosjek zastupljenosti fitnesa kao aktivnosti slobodnog vremena puno manji u odnosu na europski prosjek.*

Abstract: *In the modern tourist offer, the phenomenon of fitness is seen as recreation in the function of preserving and restoring the health of individuals and groups and increasing the quality of their life. The paper analyzes the habits of the inhabitants of the European Union in terms of leisure and physical activities to maintain a good physical condition of the organism and health well-being. The purpose of the work is to investigate and argue the importance of fitness as a niche of sports tourism in the European Union regarding the Republic of Croatia from the aspect of recreation as part of sports tourism and wellness as a component of health tourism. When analyzing the topic, relevant data from the primary surveys of the Eurobarometer of the European Union were used and compared with the results of the research of the Institute for Tourism of the Republic of Croatia. The general conclusion is that the Croatian average representation of fitness as a leisure activity is much lower compared to the European average.*

1. UVOD

Fitnes odmor je često mješavina tjelesne, mentalne i emocionalne aktivnosti. Svaka osoba ima drugačiju osobnost. Svi pojedinci imaju ideale, nade, uvjerenja i stavove, kao i ciljeve, navike, interese i želje. Stoga su fitnes i odnos osobnosti posebno važni.

Moguće je ustvrditi da bavljenje fitnesom izravno utječe na čimbenike „sreće, zadovoljstva, uravnoteženog rasta, kreativnosti, natjecanja, karaktera, mentalnih sposobnosti i učenja, slobode, tjelesne kondicije, društvenog statusa, ponašanja“ koji su učinkoviti u stvaranju osobnosti.

[1] Libertas međunarodno sveučilište Zagreb, Hrvatska
[2] FIT MODUS, obrt za poduku, rekreaciju i njegu tijela, Zagreb, Hrvatska
[3] Libertas međunarodno sveučilište Zagreb, Hrvatska

Dodatno, fitnes se smatra načinom uspostavljanja uravnoteženih i harmoničnih odnosa s vanjskim okruženjem te učinkovitim načinom uspostavljanja unutarnje ravnoteže. Aktivnost fitnesa nudi važne mogućnosti za razvoj osobnosti kroz prilagodbu pojedinca društvenim situacijama, razvijanje tolerancije i razumijevanja te kreativno korištenje slobodnog vremena. Društveno gledano, fitnes osigurava društvenu solidarnost i integraciju te omogućuje stvaranje demokratskog društva.

U ovom radu istražuje se i analizira fitnes sport kao važan element sportskog turizma. Pretpostavlja se kako su u pozadini privlačnosti i popularnosti fitnes odmora važna pitanja o upravljanju i održavanju zdravog tijela. Konkretno, fitnes sport predstavlja poseban odgovor na pritiske da se prilagodi određenim idealima veličine, težine i izgleda. Takvi pritisci mogu se artikulirati kao dio promjena u zdravstvenim praksama u kojima se pojedinac potiče da preuzme veću odgovornost za fizičku kondiciju i gdje su disciplina i regulacija tijela potrebni kao dio šireg ‘’biološkog građanstva’’. Nadalje, u usporedbi s tradicionalnim turizmom, sportski turizam više pozornosti posvećuje kombinaciji turizma i sporta te naglašava sportske karakteristike sportskog turizma uz atribute slobodnog vremena turizma i ima određene zahtjeve za fizičku spremnost i vještine sudionika. Sportski turizam neovisno je društveno orijentirano područje i način života velikog dijela društva.

2. FITNES KAO SPORT

Fitnes sport je relativno mlad sport koji služi kao ogledni primjer za zadovoljenje novih motiva i zastupanje novih vrijednosti te je tako postao simbol novog doba. U njemu su koncentrirane mnoge ljudske ovisnosti i želje - u pozitivnom i negativnom smislu: razni ideali ljepote, potraga za osobnošću, inscenirana samoprezentacija, mladolikost, ali i težnja za očuvanjem i promicanjem zdravlja, za wellnessom. i blagostanje. Dogodila se renesansa tijela i probila se u društvo.

Fitnes sport odavno je ostavio svoje pionirske dane iza sebe. U svojoj ulozi simbola novog doba, više nije hir. Dapače, etablirao se u sportskom krajoliku kao ozbiljan sport sam po sebi, ali i kao nadopuna klasičnom sportu - kondicijski sport kao element treninga kako za ekipne sportove tako i za individualne sportove, kako organizirane tako i ne-organizirane. To još jednom potvrđuje sve veći broj fitnes centara i povećanje njihovog članstva: više od 12% sportaša u Njemačkoj – odnosno više od 11,6 milijuna ljudi – aktivno se bavi fitnes sportovima (Tokarski i dr., 2023, str. 7).

To Njemačku stavlja na prvo mjesto u Europi po članstvu u teretanama, ispred Ujedinjenog Kraljevstva, Francuske, Italije i Španjolske (Deloitte, 2022).

Broj ljudi koji ne vježbaju organizirano nije poznat, ali se procjenjuje da je barem toliko visok. Povećana tjelesnost koja se uočava od 70-ih godina prošlog stoljeća, veća svijest o tijelu i poboljšanje opće tjelesne sposobnosti barem u dijelu populacije (“oživljavanje tijela”), ali i nezanemariva težnja za estetskim izgledom i estetski stil života (“homo aestheticus”) kao i težnja za zdravljem doveli su do vrtoglavog porasta ponude usluga vezanih uz tijelo. Procvat je započeo 1970-ih s aerobikom, oblikovanjem tijela, istezanjem i wellnessom kao novim oblicima vježbanja u to vrijeme. Danas se sve vrti oko vježbi, spinninga, kampova za obuku, funkcionalnog treninga, TRX-a, EMS-a, HIIT-Aerial ili čak power yoge, pri čemu je stalna novost - što se tiče stvaranja riječi - ključna značajka industrije.

Za sportsku znanost fitnes sport je unatoč svemu još uvijek dosta nedovoljno eksponirano područje. No, poznavanje motivacije ljudi za odlazak u fitnes ili bavljenje fitnes sportovima značajno je ne samo za opseg promjena u samim fitnes sportovima, već i za sport u cjelini - kako natjecateljski tako i rekreacijski i popularni sport.

3. FITNES KAO ELEMENT REKREACIJE U TURIZMU

Može se pretpostaviti kako se fenomen privlačnosti i popularnosti fitnes odmora zasniva na postavkama o upravljanju i održavanju zdravog tijela. Konkretno, fitnes odmor predstavlja poseban odgovor na pritiske da se prilagodi određenim idealima kondicijske spremnosti, težine i izgleda. Takvi pritisci, mogu se artikulirati kao dio promjena u zdravstvenim praksama u kojima se pojedinac potiče da preuzme veću odgovornost za fizičku kondiciju i gdje su disciplina i regulacija tijela potrebni kao dio životnog stila.

Fitnes u turizmu valja promatrati s holističke perspektive wellnessa (duhovni, joga i meditacija, new age) te s perspektive wellnessa kao odmora i rekreacije (liječenje, sport i fitnes, ugađanje). Iako wellness turizam može biti i zdravstveni (terapeutska rekreacija, rehabilitacija, radni wellness).

Fitnes odmor sažima poseban pristup individualnoj kondiciji i tjelesnoj njezi, naglašavajući razvoj osobnih programa vježbanja i opuštanja kao dio pristupa zdravlju u kojem se pojedinca potiče da nauči više o ‘’potrebama’’ svojeg tijela i vrijednosti različitih zdravstvenih i fitnes praksi. Pri tome se naglašava važnost prirodnog zdravlja i prakse tjelovježbe, u prirodnom okruženju koje pruža najbolji kontekst za korisnike fitnes odmora, za stjecanje vještina i znanja potrebnih za regulaciju i upravljanje svojim tijelom. Ovaj naglasak na razvoju tjelesnih vještina i razumijevanja je deo šire socio-medicinske promjene u kojoj se pojedinci potiču na stjecanje bioloških, medicinskih i tehničkih znanja kako bi održali tjelesnu kondiciju i dobrobit (Little, 2015, str. 2).

Fitnes svakako nije glavni motivator turističkih putovanja ali je u sportskom turizmu značajan faktor koji može donijeti prevagu pri odabiru destinacije. Isto tako, mogućnost bavljenja fitnesom u destinaciji daje turistima osjećaj iskoristivosti slobodnog vremena u trenucima nemogućnosti bavljenja osnovnim razlogom putovanja (kišni ili vjetroviti dani na moru, nedostatak snijega na planinama i sl.). Nadalje, navika tjelovježbe ponekad stvara ovisnost i loš osjećaj ako se preskače, na što nosive tehnologije upozoravaju a gost ‘’ne smije biti nezadovoljan’’. O svemu navedenom turistički djelatnica u europskim turističkim destinacijama vode računa te se fitnes nalazi u ponudama svih vidova turizma od robinzonskog do mondenog.

4. MEĐUODNOS FITNESA I TURISTIČKE INDUSTRIJE

Fitnes kao element sportske rekreacije postao je nezaobilazni čimbenik turističke ponude zdravstvenog, sportskog i urbanog turizma 21. stoljeća. Dobrobit po tijelo i um turista, koji koristi usluge fitnessa su zajamčene zbog činjenice da se fitness programi prilagođavaju svakoj dobi, stanju i željama korisnika, od intenzivnih treninga do opuštajućih tehnika. Osjećaj da je nešto dobro učinio za svoje tijelo čini ga zadovoljnim a zadovoljan gost je najbolji promotor turističkog objekta ili destinacije. Stoga je moguće ustvrditi kako postoji snažna pozitivna veza između fitnessa i turističke industrije.

Hotelska industrija, prepoznata je kao posebna komponenta gospodarstva, obuhvaća ukupnost procesa koji se odvijaju unutar smještaja, a proizlaze iz prijema, boravka i odlaska putnika. Sadržaj hotelijerstva, njegove funkcije i značajke razvijale su se u skladu s razvojem smještajnih kapaciteta i njihovim uključivanjem u turističku djelatnost. Međutim, nastanak i postojanje prvih objekata namijenjenih prihvatu i smještaju putnika nije bio zamišljen za prihvat turista. Sukladno tome, prioritetno su postavljani uz prometnice ili u urbanim središtima, a objekti su bili skromniji i relativno jednostavnih funkcija. Kasnije, kako je došlo do intenziviranja prometa, posvete i transformacije turizma u masovnu pojavu, razvile su se prilagodbe i načini smještaja. Stoga se broj privremenih jedinica za ugošćavanje gostiju i njihov smještaj vrši izvan gradova, prvenstveno turističkih područja dok u isto vrijeme dolazi do diversifikacije funkcija i poboljšanih mogućnosti zadovoljavanja potreba turista. Pored atraktivnosti prostora i elementa razgledavanja, uređenost uvjeta za odmor i rekreaciju, presudno pridonosi prisutnosti turista. U tom kontekstu, hotelijerstvo postaje važan čimbenik za promicanje turizma, poticanje cirkulacije i, posebice, dužine boravka (Stupariu, 2017, str. 61).

Bolja iskorištenost turističkih potencijala postiže se privlačenjem različitih područja u gospodarskom ciklusu. To je još jedan aspekt kako hotelska industrija doprinosi razvoju turizma i, neizravno, gospodarskom rastu. Tako su zemlje europske unije s visokim postotkom usluga u turističkim prihvatnim objektima s funkcijama smještaja turista (top 5): Bugarska (43,28%), Češka (40,77%), Luksemburg (40,34%), Slovačka (39,33%) i Poljska (38,45%), a zemlje Europske unije s malim postotkom usluga u turističkim prihvatnim objektima sa funkcijama smještaja turista su (top 5): Danska (21,25%), Hrvatska (28,51%), Švedska (30,11%), Belgija (30,34%) i Ujedinjeno Kraljevstvo (31,27%) (Eurobarometar, HR, Sport i fizička aktivnost, 2022.).

5. VAŽNOST BAVLJENJA FITNESOM ZA ZDRAVSTVENO STANJE STANOVNIŠTVA EUROPSKE UNIJE – KOMPARACIJA EU SA HRVATSKOM

Kako i u kojoj mjeri stanovnici EU upražnjavaju tjelovježbu u svojem svakodnevnom životu dio je istraživanja Svjetske zdravstvene organizacije za Europu (WHO&EC, 2018) provedeno 2018. godine a čiji rezultati se sažeto prezentiraju u nastavku rada. U istraživanju se pod "tjelovježbom" podrazumijeva bilo koji oblik tjelesne aktivnosti koja se odvijaju u sportskom kontekstu ili okruženju povezanom sa sportom, kao što je plivanje, trening u fitnes centru ili sportskom klubu, trčanje u parku. U nastavku se sažeto prezentiraju rezultati provedenog istraživanja za Republiku Hrvatsku u korelaciji s odabranim državama Unije i EU -27.

Tablica 1. Učestalost bavljenja fitnesom

	EU27	Belgija	Bugarska	Češka	Španjolska	Francuska	Hrvatska	Italija
Pet puta tjedno	6%	4%	4%	7%	11%	8%	5%	2%
Tri do četiri puta tjedno	12%	11%	5%	11%	16%	13%	10%	10%
Jedan do dva puta tjedno	20%	28%	12%	26%	15%	21%	15%	22%
Jedan do tri puta mjesečno	6%	11%	4%	11%	3%	4%	7%	3%
Rjeđe	11%	18%	14%	19%	8%	9%	23%	7%
Nikad	45%	28%	61%	26%	47%	45%	40%	56%

Izvor: WHO&EC, 2018.

Hrvatska je prema učestalosti intenzivnoga vježbanja (pet puta tjedno) nešto slabija od prosjeka EU 27 kao i kod onih koji vježbaju jednom ili tri puta tjedno. Hrvatska je bolja od promatranih država i prosjeka EU 27 među onima koji rijetko ili nikad ne vježbaju.

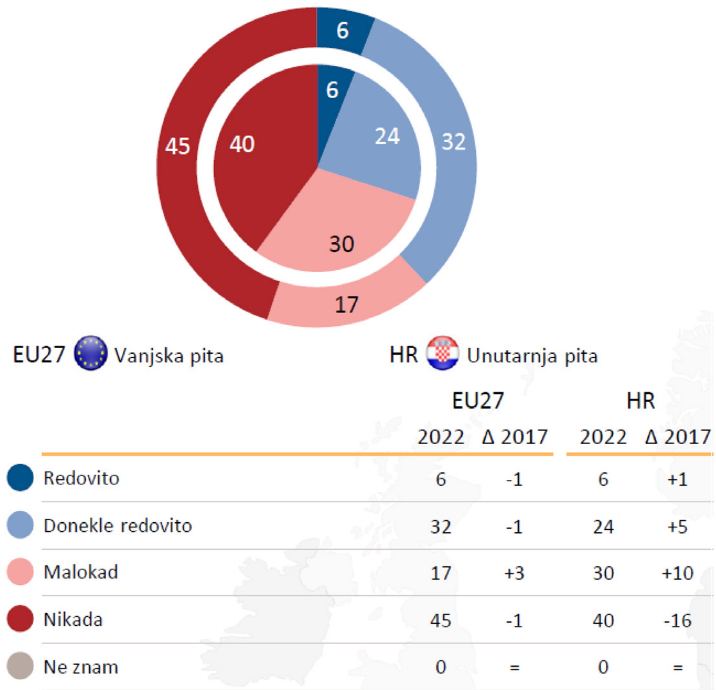
Kao primarne razloge zbog čega se bave nekim vidom rekreacije, ispitanici iz svih odabranih država navode ''da poboljšaju svoje zdravlje'' , zbog opuštanja i poboljšanja kondicije.

Prema istraživanju Eurobarometra (Sport i fizička aktivnost, 2022) za države EU-27 o sportskim i rekreativnim aktivnostima njenih stanovnika moguće je uspoređivati kako se prema fitnesu odnose stanovnici Hrvatske u odnosu na prosjek Europske unije. Odgovori na pitanje o učestalosti vježbanja ili bavljenja sportom predočavaju se na slici 1.

Tablica 2. Razlog za bavljenje fitnesom

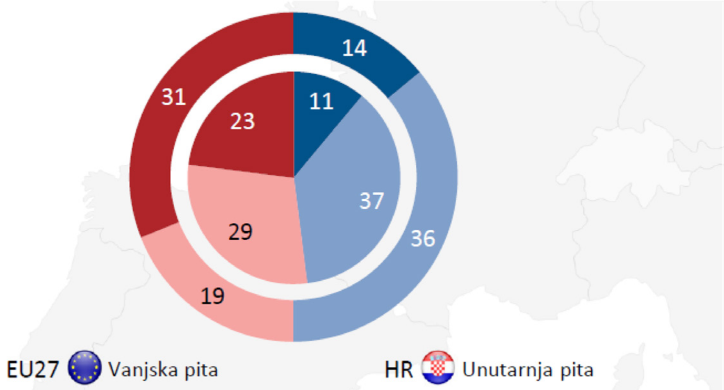
	EU27	Belgija	Bugarska	Češka	Španjolska	Francuska	Hrvatska	Italija
Da poboljšaju svoje zdravlje	54%	51%	33%	54%	59%	47%	47%	48%
Da poboljšaju svoj fizički izgled	21%	17%	21%	20%	25%	15%	25%	31%
Za suzbijanje učinaka starenja	17%	23%	14%	19%	7%	12%	16%	19%
Zabaviti se	27%	34%	21%	38%	24%	18%	13%	17%
Opustiti se	39%	49%	33%	24%	31%	50%	33%	39%
Biti s prijateljima	19%	24%	21%	19%	14%	18%	15%	21%
Za sklapanje novih poznanstava	5%	6%	5%	4%	3%	6%	7%	6%
Upoznati ljude iz drugih kultura	3%	4%	1%	1%	1%	4%	2%	4%
Za poboljšanje fizičkog stanja	27%	18%	9%	16%	26%	14%	29%	21%
Za poboljšanje kondicije	43%	44%	19%	43%	32%	54%	42%	42%
Da kontroliraju svoju težinu	25%	33%	26%	23%	18%	20%	28%	26%
Da poboljšaju svoje samopoštovanje	13%	14%	20%	8%	13%	11%	8%	8%
Za razvoj novih vještina	6%	7%	8%	5%	5%	6%	9%	4%
Za natjecateljski duh	6%	6%	7%	5%	5%	5%	5%	8%
Da se što bolje integriraju u društvo	3%	3%	5%	3%	1%	2%	3%	5%
Ostalo	1%	1%	6%	1%	2%	1%	3%	1%

Izvor: WHO&EC, 2018



Slika 1. Učestalost bavljenja sportom i rekreacijom u %
Izvor: Eurobarometar, 2022.

Vidljivo je da hrvatski ispitanici ne odstupaju značajnije od europskog prosjeka. Slika 2 pokazuje frekvenciju i distribuciju odgovora vezano uz bavljenja nekom drugom fizičkom aktivnošću poput vožnje bicikla, trčanja, pješačenja, plesanja i sl.



	EU27		HR	
	2022	Δ 2017	2022	Δ 2017
Redovito	14	=	11	+3
Donekle redovito	36	+6	37	+11
Malokad	19	-2	29	=
Nikada	31	-4	23	-14
Ne znam	0	=	0	=

Slika 2. Učestalost bavljenja nekim drugim vidom aktivnosti u %

Izvor: Eurobarometar, 2022.

Vidljivo je kako se rekreacijom redovito bavi 11% Hrvata što je manje u odnosu na 14% europskog prosjeka, dok se ‘’donekle redovito’’ bavi rekreacijom 37% Hrvata u odnosu na 36% europskog prosjeka.

Znakovito je da 9% Hrvatskih ispitanika kao mjesto bavljenja rekreacijom navodi fitnes centre što je ipak manje od europskog prosjeka (13%). Ali za razliku od europskog prosjeka (12%) nešto više (14%) Hrvata su članovi fitnes centara. Hrvatski fitnes centri u pravilu se nalaze u gradovima ili turističkim mjestima. Prema Web stranici WWW.HR - početna stranica Hrvatske (CARNET i FER, 2023) u Republici Hrvatskoj na poveznici Sport i rekreacija→ Sportovi→ Body building i fitnes→ Fitnes centri nabrajaju se i opisuju mjesta za upražnjavanje fitnessa.

Europski zdravstveni i fitnes sektor sustavno raste, a broj korisnika fitnesa porastao je za 72% u drugoj dekadi 21. stoljeća. Štoviše, gotovo 10% svih odraslih Europljana korisnici su fitnes usluga sa stopom uzlaznosti od 7,6% (Deloitte, 2022, str. 3-6). Prema podatcima europeacive u Europskoj uniji je 2022. godine bilo više od 56,3 miliona članova u 63.173 fitnes kluba koji su ostvarili prihod od 17,1 milijardu € (Deloitte, 2022, str. 3).

Prema tim podacima, europska fitnes industrija smatra se rastućim sektorom oblikovanim brojnim inovacijama u proteklim godinama i pokazuje veliki potencijal za profesionalne prilike i poslovni razvoj (Batrakoulis, 2019, str. 28). Ali ipak, gotovo 50% odrasle populacije trenutno vodi sjedilački način života, a više od 60% njih ima prekomjernu tjelesnu težinu (Lancet Glob Health, 2023, str. 191).

6. ZAKLJUČAK

U suvremenom društvu aktivnosti u slobodno vrijeme dobivaju sve više na važnosti i pozornosti. Taj je razvoj poduprla ne samo promjena iz industrijskog u uslužno društvo, a kasnije i u društvo dokolice, što je u isto vrijeme povećalo opću razinu blagostanja i količinu slobodnog vremena svakog pojedinca. Sport kao važan dio slobodnog vremena nije pošteđen svih ovih promjena. Relativno mlada vrsta sporta koja služi kao ogledni primjer za zadovoljenje novih motiva, ali i zastupanje novih vrijednosti, te je tako postala simbol novog doba, je fitnes sport. U fitnesu su koncentrirane mnoge ljudske ovisnosti i želje – u pozitivnom i negativnom smislu: razni ideali ljepote, potraga za osobnošću, inscenirana samo-prezentacija, mlado-manija, ali i težnja za očuvanjem i promicanjem zdravlja, wellnessa i dobrobiti. U radu se ističe kako se stanovnici Europe uvelike složni kako su tjelesne aktivnosti poželjne i prihvatljive posebice kod gradskog stanovništva. Tome svjedoče brojni fitnes i rekreacijski centri koji promoviraju zdrav način života bilo u dvoranama ili na otvorenom prostoru. Prihvaćanjem filozofije zdravog života i bavljenja sportom, europsko stanovništvo je, posebice u vremenu zatvaranja zbog pandemije, svoje tjelesne aktivnosti iz klubova preselilo u stanove, kuće ili otvoreni prostor. To je povećalo potražnju za rekvizitima što je pak povećalo njihovu proizvodnju i dobit fitnes industrije. Stečene navike tjelovježbe odrazile su se i na turistička putovanja jer sada turisti žele i na svojem odmoru upražnjavati svoju naviku tjelovježbe. Takve poruke prihvatila je i turistička industrija obogaćivanjem fitnes ponude. Europski fitnes sustav i ponuda konstantno raste a broj korisnika takve ponude je u porastu. Kada se razmatraju podaci za hrvatske građane u odnosu na europski prosjek u smislu bavljenja fitnesom i rekreacijom, može se zaključiti da pomaka ima ali da Hrvatska zaostaje, odnosno da je ispod europskog prosjeka što dovodi do zaključka da je fitnes još uvijek nedovoljno promoviran u hrvatskom društvu i nedovoljno eksponirano područje.

Reference

Batrakoulis, A. (2019). European survey of fitness trends for 2020. *ACSM's Health & Fitness Journal*, str. 28-35.

CARNET i FER. (2 2023). *WWW.HR-početna stranica Hrvatske.* Dohvaćeno iz Sport i rekreacija Sportovi Body building i fitness Fitness centri: https://www.hr/wwwhr/sports/sports/body/centers/index.hr.html

Deloitte. (2022). *EuropeActive European Health & Fitness Market Report 2022.* Brisel: EuropeActive. Dohvaćeno iz https://www.europeactive.eu/news/2022-european-health-fitness-market-report-memberships-and-number-clubs-grew-2021

Eurobarometar. (2022). *Sport i fizička aktivnost.* Brisel: Europska komisija. Dohvaćeno iz https://europa.eu/eurobarometer/surveys/detail/2668

Lancet Glob Health. (2 2023). Health and wellbeing of older people in LMICs: a call for research-informed decision making. *Lancet Glob Health*, str. 191-192.

Little, J. K. (2015). Transformational Tourism, Nature and Well-being: new perspectives on fitness and the body. *Sociologia Ruralis*, str. 1-22. Dohvaćeno iz http://hdl.handle.net/10871/17407

Stupariu, M. I. (2017). Study on structural dimensions of establishment of touristic reception with functions of touristic accommodation in countries of European union. *Folia Geographica, 59*(2), str. 60-77.

Tokarski, W., Tosounidis, A., & Zarotis, G. F. (2023). Society: Sport, Fitness & Wellness. *IOSR Journal of Sports and Physical Education (IOSR-JSPE), 10*(1), str. 1-11. doi:DOI: 10.9790/6737-10010111

WHO&EC. (2018). *Physical activity country factsheets of the 28 European Union Member States of the WHO European Region.* Copenhagen: WHO Regional Office for Europe. Dohvaćeno iz http://www.euro.who.int/pubrequest

Dodatne preporučene reference

Gammon, S., & Robinson, T. (2003). Sport and Tourism: A Conceptual Framework. *Journal of Sport Tourism, 8*(1), str. 21-26. doi:DOI: 10.1080/14775080306236

He, X., & Li, Y. (2020). Research on the Sustainable Development Path of Sports Tourism. *Frontiers in Sport Research, 6*(2), str. 90-97. doi:DOI: 10.25236/FSR.2020.020612

Prokopenko, O., Rusavska, V., Maliar, N., Opanasiuk, N., & Aldankova, H. (5 2020). Digital-Toolkit for Sports Tourism Promoting. *International Journal of Advanced Research in Engineering and Technology (IJARET)*, str. 84-96.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.401

Interesne skupine i veličina javnog sektora: Postoji li veza?

Interest Groups and the Size of the Public Sector: Is There a Relationship?

Silvia Golem[1]

Received: April 25, 2023
Accepted: July 7, 2023
Published: October 30, 2023

Ključne riječi:
Lobiranje;
Javni sektor;
Mjerenje koncepta

Keywords:
Lobbying;
Public sector;
Concept measurement

Sažetak: *Dobro organizirane i jake interesne skupine mogu imati koristi od raznih vladinih akcija na štetu ukupne populacije poreznih obveznika. U zamjenu za takve usluge, posebne interesne skupine nude političku potporu izravno ili neizravno utječući na stajališta opće javnosti ili na oba načina. Koristi za svakog pojedinca male lobističke grupe od posebnog interesa mogu biti ogromne, dok se troškovi takvih političkih „transakcija" obično raspoređuju kroz veće poreze (ili dug) na cijelu populaciju poreznih obveznika. Posljedično, troškovi za prosječnog poreznog obveznika čine se malima i stoga će se vjerojatno tolerirati. Kao rezultat toga, stvara se mali trošak za vladu da zadovolji zahtjeve interesnih skupina, dok (političke) koristi mogu biti znatne. Na taj način interesne skupine mogu u konačnici utjecati na djelovanje vlade i njezin udio u gospodarstvu. Međutim, nisu sve interesne skupine jednako učinkovite u ostvarivanju svojih ciljeva. Glavni cilj ovog rada je istražiti teorijske postavke i empirijske pokušaje procjene odnosa između veličine javnog sektora u gospodarstvu i interesnih skupina.*

Abstract: *Well-organized and powerful interest groups can benefit from various government actions to the detriment of the general population of taxpayers. In exchange for such favors, special interest groups offer political support directly or indirectly by influencing the views of the general public, or both. The benefits to each individual of small special interest lobbying groups can be enormous, while the costs of such political "transactions" are usually distributed through higher taxes (or debt) to the entire population of taxpayers. Consequently, the costs to the average taxpayer appear small and are therefore likely to be tolerated. As a result, there is little cost to the government to satisfy interest group demands, while the (political) benefits can be substantial. In this way, interest groups can ultimately influence the actions of the government and its share in the economy. However, not all interest groups are equally effective in achieving their goals. The main goal of this paper is to investigate theoretical assumptions and empirical attempts to assess the relationship between the size of the public sector in the economy and interest groups.*

1. UVOD

U literaturi o veličini državne intervencije u ekonomiji, "naklonosti" koje posebne interesne skupine uživaju od strane javne vlasti važan su i nezanemariv dio državnih rashoda. U Olsonovom (1965) seminalnom radu dana je prva sveobuhvatna teorijska analiza ideje da su vlade sklone pružanju "usluga" dobro organiziranim i jakim interesnim skupinama koje dolaze iz redova proizvođača, zaposlenika, potrošača itd., na štetu svih ostalih skupina društva.

[1] University of Split, Faculty of Economics, Business and Tourism, Cvite Fiskovica 5, 21000 Split, Croatia

Temeljna pretpostavka je da posebne interesne skupine mogu imati direktne i indirektne koristi od različitih vladinih aktivnosti i usluga, na trošak cjelokupne populacije poreznih obveznika. U zamjenu za takve usluge, vlast od članova takvih internih skupina očekuje izravnu i neizravnu političku potporu - interesna grupa može javno podržati vlast, ponuditi volontere, pridonijeti sredstva stranačkoj kampanji ili na različite neizravne načine osigurati potporu. Članovi interesnih skupina „nude“ glasove kojima pokušavaju „trgovati“ s određenom političkom strankom u zamjenu za obećanu uslugu, ako ta stranka osvoji vlast (Mueller & Murrell, 1986). Na taj način interesne skupine mogu u konačnici utjecati na djelovanje vlade i njezin upliv u gospodarstvu. Korist za svakog člana interesne skupine može biti velika, a troškovi takvih političkih „transakcija“ podmiruju se i dijele na cijelu populaciju poreznih obveznika, obično kroz više poreze ili povećanje javnog duga. Drugim riječima, „naklonost“ vlade koncentrirana je na interesne skupine koje tu „naklonost“ uživaju, a troškovi za financiranje takvih „naklonosti“ dijele se među velikim brojem poreznih obveznika (Beck & Connolly, 1996). Posljedično, za prosječnog poreznog obveznika, troškovi financiranja takvih usluga i „naklonosti“ su neprimjetni i stoga će ih porezni obveznici teško opaziti i vjerojatno tolerirati. Sa aspekta vlasti, takva razmjena „naklonst“ je vrlo interesantna i koristonosna - za relativno nezamjetan trošak po glavi poreznog obveznika, moguće je dobiti značajnu potporu interesnih skupina. Državne aktivnosti koje pogoduju posebnim interesnim skupinama mogu imati različite oblike, uključujući različite oblike subvencija, vladine propise za ograničavanje proizvodnje i podizanje cijena, niske ili beskamatne zajmove, jamstva za zajmove, bespovratna sredstva, niže poreze ili tantijeme, više tarife i kvote itd.

Empirijski se čini kako je neto učinak aktivnosti različitih interesnih skupina u većini zemalja bio povećanje ukupne državne potrošnje (Muller, 2003), iako je moguće da aktivnosti nekih interesnih skupina zapravo dovedu do smanjenja veličine javnog sektora (na primjer, kada poslovni lobiji uspiju postići niže oporezivanje). Moguće je da neke vladine “pogodnosti” koje pojedine interesne skupine traže, kao što su na primjer uvođenje tarifa, gornjih granica cijena, propisa koji smanjuju tržišno natjecanje i sl. neće rezultirati povećanjem proračunskih rashoda i veličine javnog sektora, budući da niti jedna od gore navedenih vrsta državnih intervencija ne utječe izravno na “mjerljivu” veličinu javnog sektora. Naime, zbog kompleksnosti javnih rashoda i ostalih aktivnosti kojima javni sektor intervenira u ekonomiji, još uvijek nije konstruirana sveobuhvatna mjera veličine javnog sektora koja bi kvantificirala sve proračunske i neproračunske aktivnosti vlada.

Interesne skupine, kao racionalni ekonomski akteri s ograničenim resursima i s ciljem maksimiziranja učinka svojih akcija, organizirat će se i lobirati za zaštitu i promicanje svojih interesa; bilo izravno ili neizravno putem utjecaja na stavove šire javnosti, ili na oba načina. Međutim, nisu sve interesne skupine jednako učinkovite u ostvarivanju svojih ciljeva. Olson (1965) tvrdi da će manje i kompaktnije interesne grupe biti moćnije od većih interesnih grupa, kod kojih može doći do problema „slobodnih jahača“ od strane pojedinih članova unutar interesne grupe.

Ekonomisti još uvijek pokušavaju razumjeti i objasniti kako nastaju uspješne interesne skupine i što pridonosi njihovom nastanku i širenju. Olson (1965) tvrdi da je stabilno ekonomsko i političko okruženje važan čimbenik koji pogoduje formiranju i rastu interesnih skupina. Ideja kako razdoblja demokratske stabilnosti pogoduju stvaranju interesnih skupina implicira kako starije i politički stabilne zemlje imaju najjače interesne skupine. S druge strane, društveni, ekonomski i politički šokovi, preokreti, revolucije ili ratovi uništavaju postojeće interesne skupine zajedno s ukupnom “tkaninom” društva. Posljedično, za očekivati je da će broj interesnih skupina u društvu koje je nedavno doživjelo veliki društveni, ekonomski ili politički šok biti manji. Murrell (1984) empirijski ispituje potencijalne determinante formiranja interesnih skupina, koristeći uzorak zemalja OECD-a iz 1970. godine. Rezultati ove kros-sekcijske studije pokazuju da su najvažnije odrednice broja interesnih skupina: veličina stanovništva, stupanj decentralizacije vlasti i vrijeme tijekom kojeg su se interesne grupe mogle formirati. Međutim, te rezultate valja uzeti sa oprezom budući da gore navedena studija koristi statičku analizu, a ispituje fenomen koji je u svojoj prirodi dinamičan, dakle, razvija se kroz vrijeme i traži dinamički pristup.

Kada govorimo o smjeru utjecaja između veličine javnog sektora i snage interesnih skupina, moguće je da se radi o dvosmjernoj uzročnosti. Ne samo da veći broj i snaga interesnih skupina utječe na veličinu javnog sektora, već je moguće i da taj smjer ide od strane veličine javnog sektora prema broju i snazi interesnih skupina. Kako tumači Grossman (1987), očekuje se da će utjecaj interesnih skupina rasti s veličinom vlade. Naime, povećanje veličine i opsega javnog sektora u gospodarstvu moglo bi potaknuti veće mogućnosti za nastanak i napredovanje interesnih skupina. Intuitivno, što je veći stupanj uključenosti javnog sektora u gospodarstvu, to je veći prostor za utjecaj interesnih skupina, što će rezultirati većim brojem interesnih skupina. Kad uloga i intervencija javnog sektora u gospodarstvu nije velika, interesne skupine nemaju motiva da se formiraju i lobiraju za „naklonost". S druge strane, kako javni sektor raste, povećava se motiv za formiranje i aktiviranje posebnih interesnih skupina. Osim toga, kako javni sektor raste, glasačima je skuplje i teže dobiti i razumjeti informacije o aktivnostima koje akteri u javnom sektoru poduzimaju, a što ovima omogućava neprimjetno, ili barem manje primjetno osiguravanje „usluga" interesnim skupinama (Richardson, 2000; Skorkjær Binderkrantz i dr., 2014).

Što se tiče efekata koje aktivnosti interesnih skupina imaju na ekonomiju, Olson (1965) je predvidio da će aktivnosti lobiranja interesnih skupina i neučinkovitosti koje iste stvaraju u politički stabilnim okruženjima smanjiti inovacije i negativno utjecati na ekonomski rast. On tvrdi da, povećanjem veličine javnog sektora u gospodarstvu, donositelji političkih odluka i drugi akteri u javnom sektoru preusmjeravaju oskudne ekonomske resurse od tehnološki naprednih sektora i drugih aktivnosti koje pospješuju ekonomski rast, kada pogoduju parcijalnim interesima pojedinih interesnih skupina.

2. OPERACIONALIZACIJA I MJERENJE INTERESNIH SKUPINA

Iznimno je teško, ako ne i nemoguće, operacionalizirati koncept interesnih skupina, te izmjeriti njihovu snagu i broj u nekoj zemlji, posebice za skup različitih zemalja u relativno dugom razdoblju. Značajke, resursi i aktivnosti različitih interesnih skupina nisu dosljedno praćene i evidentirane u nacionalnoj statistici, između ostalog i zbog činjenice da ne postoji sveobuhvatna definicija pojma interesna skupina. Kao rezultat takvih poteškoća u definiranju i kvantificiranju ovog koncepta, empirijske studije unutar ovog područja obično koriste metodu studije slučaja, fokusirajući se na mali broj zemalja i/ili na određene vrste interesnih skupina. Murrell (1984) i Mueller i Murrell (1986) prvi su, prema našim saznanjima, koji su koristili apsolutni broj interesnih skupina - zbroj industrijskih i trgovačkih udruženja, radničkih sindikata i gospodarskih komora - koji formalno djeluju u zemlji, kao mjeru snage interesne skupine. Što se tiče izvora podataka, koriste se raznim specijaliziranim kompilacijama, a ponajprije kao izvor podataka koriste Svjetski vodič za trgovačka udruženja (The World Guide to Trade Associations). Coates i dr. (2007) koriste isti izvor podataka za analizu procesa formiranja interesnih skupina. Njihova baza podataka pokriva velik broj zemalja, međutim, što se tiče vremenske dimenzije, onda je ograničena samo na godine objavljivanja Svjetskog vodiča za trgovačka udruženja.

Zbog dostupnosti podataka, neki autori za aproksimaciju broja interesnih skupina koriste podatke o članstvu u sindikatima, odnosno, postotak zaposlenika koji su članovi sindikata. Iako se sindikati mogu smatrati razumnim primjerom interesne skupine koja apelira na određene vladine aktivnosti i utječe na njih, ovaj indikator zasigurno ne mjeri na odgovarajući način ukupnu snagu interesnih skupina u nekoj zemlji, posebno na primjer u SAD-u ili Ujedinjenom Kraljevstvu, gdje članstvo u sindikatima opada od 1960-ih, odnosno 1980-ih. Može se raspravljati o tome da bi snagu sindikata u nekoj zemlji mogao potaknuti veći udio vlade u gospodarstvu, posebno s obzirom na tradicionalno višu razinu sindikalnog članstva u javnom sektoru. Čini se da je sindikalno članstvo uglavnom fenomen javnog sektora (Smith, 2006), s obzirom na to da je vjerojatnije da će zaposlenici u javnom sektoru biti sindikalno organizirani nego zaposlenici u privatnom sektoru, te da su strateški bolje pozicionirani za pregovaranje za veće plaće i mirovine (Rose, 1981).

Moguće je, također, promatrati i veličinu birokracije kao potencijalan empirijski pandan za koncept interesnih skupina (Olsen, 2006). Naime, Niskanen (1971) pretpostavlja da birokrati, osobito birokrati na najvišoj razini, žele veće proračune, jer su za njih veći proračuni izvor viših plaća, prestiža i moći, više podređenih itd. Kao rezultat toga, oni kontinuirano nastoje povećati njihove proračune, i iznad razine koju žele oni koje birokrati opskrbljuju; naime zakonodavna tijela i građani. Niskanen (1971) tvrdi da je ponašanje birokrata, ili zaposlenika u javnom sektoru, u potpunosti vođeno njegovim osobnim motivima. Pretpostavlja se da birokrati imaju dobru pregovaračku poziciju, zbog svoje monopolske moći s jedne strane, te relativno pasivnog zakonodavnog tijela koje ih nadzire, s druge strane. Pretpostavlja se da birokrati imaju monopolski položaj i povlaštene informacije o kvaliteti i cijeni njihovih usluga, što im daje moć prikrivanja stvarnih troškova proizvodnje i nuđenja usluga. S druge strane, pasivna zakonodavna tijela, ovisna su o birokratskom uredu za pružanje određene javne usluge, te nemaju poticaja niti priliku dobiti istinitu informaciju o minimalnom proračunu potrebnom za pružanje te usluge. Ukratko, prema Niskanenovom modelu, birokracija ima informacijsku prednost u usporedbi s vladom, koju može iskoristiti u smjeru zahtijevanja (pre)velikih proračuna, a sve u funkciji služila vlastitoj svrsi.

Kao alternativni pokazatelj snage interesnih skupina, valja razmotrili i korištenje varijable pokrivenost kolektivnim pregovaranjem, koja se mjeri kao postotak zaposlenika obuhvaćenih kolektivnim ugovorom (Nickell, 2006)[2].

3. ZAKLJUČAK

Kao što je već ranije istaknuto, broj empirijskih studija koje testiraju utjecaj interesnih skupina na veličinu javnog sektora vrlo je ograničen. Upravo bi u tom pravcu bilo korisno i zanimljivo poširiti istraživanje, te ispitati postoji li stvaran utjecaj interesnih skupina na veličinu države ili je smjer utjecaja obrnut tako da veličina javnog sektora zapravo utječe na broj i snagu interesnih skupina. Svako empirijsko istraživanje koncepta interesnih skupina nailazi i nailazit će na brojna ograničenja, od kojih se najvažnije odnosi na definiranje odgovarajuće varijable za mjerenje snage interesnih skupina u zemlji. Problem mjerenja prisutan je i kod operacionalizacije koncepta javnog sektora. Naime, zbog kompleksnosti i neopipljivosti pojedinih mjera i aktivnosti, vrlo je problematično izmjeriti ukupan, direktan i indirektan, angažman javnog sektora u ekonomiji. Ova ograničenja mogu djelomično objasniti činjenicu da je iznenađujuće malo učinjeno da se empirijski testira hipoteza o utjecaju interesnih skupina na veličinu javnog sektora u gospodarstvu, i obrnuto, o utjecaju veličine javnog sektora na broj i snagu interesnih skupina.

[2] Moguće je, međutim, da je ovaj pokazatelj vjerojatno dobra zamjena za mjerenje snage interesnih skupina samo u nekim zemljama (npr. zemlje njemačkog govornog područja), ali ne i u drugima (npr. SAD i UK).

Interesne skupine općenito traže „naklonost“ ili „usluge“ od javne vlasti koje rezultiraju ekspanzijom državnih rashoda, programa, subvencija, potpora, javnih radova, ili sindikata - socijalne zaštite, prekvalifikacije itd. Međutim, u teoriji, neke interesne skupine mogu vršiti pritisak za manje državne rashode, a kako je već naglašeno i ranije u radu. Na primjer, mali i srednji poduzetnici mogu lobirati za niže poreze ili porezne olakšice.

Snaga utjecaja pojedinačne interesne skupine nije jednostavna pozitivna funkcija njezine veličine. Veće šanse za ostvarenje svojih ciljeva imaju kompaktne interesne skupine s involviranim i angažiranim članovima, te one koje koriste prikladnije taktike i/ili raspolažu sa više resursa. Prema Mahoneyju (2004), one interesne skupine koje tradicionalno imaju više resursa čine veći udio zajednice interesnih skupina i imaju jači utjecaj na donošenje politika općenito. To, dakako, otežava operacionalizaciju tog učinka, budući da podaci o snazi interesnih skupina, prema našim saznanjima, nisu dostupni.

Uz pretpostavku da, u prosjeku, programi i aktivnosti koje nastaju kao rezultat nagodbi između vlade i posebnih interesnih skupina zahtijevaju povećanje državnih rashoda, za očekivati je da je relativna veličina javnog sektora u gospodarstvu pozitivno povezana s brojem ili, točnije, snagom organiziranih interesnih skupina. U uzorku zemalja OECD-a za 1970., Mueller i Murrell (1986) sugeriraju da broj organiziranih interesnih skupina u zemlji, mjeren kao broj industrijskih i trgovinskih udruženja, radničkih sindikata i gospodarskih komora, ima pozitivan i značajan učinak na relativnu veličinu države, mjerenu trima različitim indikatorima veličine javnog sektora u gospodarstvu - naime, udjelom ukupnih državnih rashoda u BDP-u, udjelom ukupnih poreznih prihoda u BDP-u i udjelom ukupne državne potrošnje u BDP-u. Ta pozitivna povezanost između broja interesnih skupina i veličine javnih rashoda pokazala se robusnom čak i kada su autori promijenili skup nezavisnih varijabli, promijenili uzorak i način na koji su ekonometrijski tretirali broj interesnih skupina. Slijedom takvih rezultata, autori smatraju kako interesne skupine doista mogu utjecati na javne politike, a što u konačnici rezultira povećanjem ukupnog udjela javnog sektora u gospodarstvu.

Reference

Beck, R. L., & Connolly, J. M. (1996). Some Empirical Evidence on Rent-seeking, *Public Choice*, Vol. 87, 19-33.

Coates, D., Heckelman, J., & Wilson, B. (2007). Special-Interest Groups and Volatility, *Economics Bulletin*, Vol. 15 (18), 1-13.

Grossman, P. J. (1987). The Optimal Size of Government, *Public Choice*, Vol. 53, 131-147.

Lybeck, J. A. (1986). *The Growth of Government in Developed Economies*, Gower Publishing Company, Aldershot.

Mahoney, C. (2004). The Power of Institutions: State and Interest Group Activity in the European Union, *European Union Politics*, Vol. 5, 441-466.

Mueller, D. C., & Murrell, P. (1986). Interest Groups and the Size of Government, *Public Choice*, Vol. 48, 125-145.

Muller, D. C. (2003). *Public Choice III*, Cambridge University Press, New York.

Murrell, P. (1984). An Examination of the Factors Affecting the Formation of Interest Groups in OECD Countries, *Public Choice*, Vol. 43, 151-171.

Nickell, W. (2006). The CEP-OECD Institutions Data Set 1960-2004, Centre for Economic Performance, CEP Discussion Paper Nr. 759, London 2006, available at: http://cep.lse.ac.uk/pubs/download/dp0759.pdf, Accessed 15 December 2019.

Niskanen, W. A. (1971). *Bureaucracy and Representative Government*, Aldine-Atherton, Chicago.

Olsen, J. P. (2006). Maybe It Is Time to Rediscover Bureaucracy, *Journal of Public Administration Research and Theory*, Vol.16(1), 1-24.

Olson, M. (1965). *The Logic of Collective Action: Public Goods and the Theory of Groups*, Harvard University Press, Cambridge.

Richardson, J. (2000). Government, Interest Groups and Policy Change. Political Studies, 48(5), 1006-1025.

Rose, R. (1981). What If Anything Is Wrong with Big Government?, *Journal of Public Policy*, Vol. 1 (1), 5-36.

Skorkjær Binderkrantz, A., Munk Christiansen, P., & Helboe Pedersen, H. (2014). A Privileged Position? The Influence of Business Interests in Government Consultations, *Journal of Public Administration Research and Theory*, Vol. 24 (4), 879-896.

Smith, D. B. (2006). *Living with Leviathan: Public Spending, Taxes and Economic Performance*, The Institute of Economic Affairs, London.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.407

Neoliberalna ekonomija u sudaru sa pravoslavnom eklisiologijom
Neoliberal Economy in Collision with Orthodox Ecclesiology

Nenad D. Dugalić[1]

Received: April 19, 2023
Accepted: June 28, 2023
Published: October 30, 2023

Ključne reči:
Neoliberalna ekonomija;
Pravoslavlje;
Konkurencija;
Sabornost;
Država

Keywords:
Neoliberal economy;
Orthodoxy;
Competition;
Concordance;
State

Sažetak: *Bezidejnost modernog društva rezultira u obezboženju ekonomije i identifikaciji ljudskog progresa sa privrednim rastom i razvojem. Tendencija jeste da se minimizira uticaj bilo kakve moralne i duhovne vrednosti koje sprečavaju ostvarenje materijalnog dobitka. Neprekidna akumulacija kapitala i enormno povećanje profita, bez ikakvog krajnjeg smisla dovodi do ekonomske i društvene krize. Problem nije u progresivnom razvoju, već u jednostranosti i apsurdnom ekonomskom rastu čiji je cilj stvaranje viška vrednosti, a ne služenje ljudskim potrebama. Upravo se zbog toga javljaju socijalni problemi i društvene nejednakosti, gde se čovek ne sagledava kao jedinstveno psihofizičko biće satkano iz Božije ljubavi. Zato se u ovom radu čini pokušaj da se barem malo ukaže na dosta divergentne odnose pravoslavnog predanja i neoliberalne ekonomije u savremenom svetu.*

Abstract: *The lack of ideas (principles) of modern society results in the undeification of the economy and the identification of human progress with economic growth and development. The tendency is to minimize the influence of any moral and spiritual values that could prevent material benefit. The continuous accumulation of capital and the enormous increase in profits, without any ultimate meaning, leads to an economic and social crisis. The problem is not in progressive development but in one-sidedness and absurd economic growth whose goal is to create surplus value and not to serve human needs. This is exactly why social problems and social inequalities occur, where man is not seen as a unique psychophysical being created from God's love. Consequently, in this paper, an attempt is made to at least slightly indicate the quite divergent relations between the Orthodox tradition and the neoliberal economy in the modern world.*

1. UVOD

Suštinska ideološka načela na kojima je nastala neoliberalna ekonomija nisu tako nova, to su ista ona načela koja su dovela svet do ovog društveno-ekonomskog i ekološkog stanja u kojem se sad nalazi. Ona podrazumevaju forsiranje privrednog rasta, slobodnu trgovinu koja bi ubrzala rast proizvodnih aktivnosti, bezgranično “slobodno tržište,“ ukidanje državnog monitoringa, sveopšti potrošački mentalitet u sinergiji sa ofanzivnim promovisanjem jedinstvenog svetskog modela koji verodostojno odslikava zapadnu korporativnu viziju i koji služi istim tim interesima. Takvo dizajniranje sveta pospešili su ekonomisti i korporacije a ohrabrivale servilne vlade širom sveta. Svi oni tvrde da će društvo imati koristi od onoga što oni čine.

2. TRŽIŠNA KONKURENCIJA I PRAVOSLAVNA SABORNOST

Neoliberalizam stavlja u fokus ljudskih odnosa konkurenciju kao definišuću paradigmu. On percipira građane kao puke potrošače, koji samo na tržištu mogu da donose svoje najbolje odluke jednostavnom kupovinom i prodajom. To je mesto na kome se nagrađuju uspešni a kažnjavaju neefikasni, tvrde neoliberali. Međutim, upravo pospešivani individualizam produkuje

[1] Visoka poslovna škola strukovnih studija, Gradski park 2, 11080 Beograd, Srbija

neumerenost za bogaćenjem i tome sledstveno konzumerizmom, što dovodi do još većeg dispariteta između bogatih i siromašnih. Upravo ta dva aspekta neoliberalne doktrine su udaljila ljude od ljubavi prema Bogu i bližnjima. Pravoslavlje je verodostojni branilac siromašnih i razobličitelj argumenata bogatih, smatrajući "najgorim nečoveštvom" ne biti zastupnik obespravljenih (Chrysostom, 1998, p. 131). U tom smislu, za razliku od neoliberalne politike koja forsira individualnost iz koje proizilazi i svaka vrsta sebičnosti, ekonomija podsticana pravoslavljem produkuje stvaralaštvo koje nije vezano samo za ličnu korist. Ono poziva na opšte-društveno delovanje kao glas vapijućeg u pustinji (Sveto Pismo, 2012., p. 1308). U suprotnom, sudbina celokupne prirode i ljudi može ostati u rukama onih koji grabe do krajnjih granica. Istinski pravoslavno osvešćen čovek nikada neće koristiti javne resurse u lične svrhe. S druge strane, bezbožna potrošačka civilizacija razgrađuje i razara sve ono što je humano. Zato su pozivi na borbu za sprečavanje pada ekonomije očiti pokušaji zamagljivanja pravih uzroka depresije. To i ne čudi, s obzirom da savremene nacionalne države čine samo ekonomije bez ikakve ideologije što ih predstavlja vrlo neozbiljnim.

Preusmeravanje nacionalne države na trajektoriju globalnog tržišta posledica je uzajamnog odnosa neoliberalne i potrošačke ekspanzije (Gauthier, 2020). Potrošnja se u poslednjih nekoliko decenija razvila u planetarni, ne samo društveni već i kulturni fenomen, koji je obuhvaćen konzumerističkim konceptom. To je jedna od karakterističnih osobina koja je imanentna savremenim globalnim društvima, dok konzumerizam stvara nove vrednosti unutar samog društva, a usput redefiniše i međuljudske odnose kao i odnose između država. Takvom transformacijom ličnih identiteta u nove stilove života potrošački koncept pokušava da prilagodi i religiju kako bi se zadovoljio savremeni etički princip –"hoću sad i hoću sve".

U sistemu neoliberalne ideologije nacionalno strategijsko planiranje potisnuto je dnevnim, strogo komercijalnim zahtevima. Takav zapanjujući prodor neoliberalne politike danas, dovodi u pitanje i samo postojanje nacionalne države u smislu prirode i funkcija koje je ona obavljala, pri tome zanemarujući njen sotiriološki i eshatološki značaj koji je imala u interakciji sa crkvom. Jer, „ako država treba da sprovodi vladavinu prava, ako je zaista slobodna i demokratska, onda bi crkva koja funkcioniše u takvom društvu imala neophodnu slobodu delovanja, odnosno slobodu da svoju misiju sprovodi u delo" (Bigović, 2013, p. 60).

U sadašnjim prilikama duhovne dezorijentacije i ekonomskog siromaštva, ljudi shvataju veru kao nešto što je nezavisno od realnog života. Tako shvaćena odvojenost duhovnog i fizičkog za posledicu ima nastajanje izmišljenih sopstvenih životnih orijentira. Najvažniji glasnogovornici postaju elektronski i pisani mediji sa opšte prihvaćenom parolom "jednom se živi", što implicira da treba uzeti sve što se može i to odmah. Međutim, u zdravom hrišćanskom društvu vera podstiče čovekovu savest da on svoje odluke donosi u skladu sa datom situacijom.

Za razliku od savremenog doba, u osvitu čovečanstva obrise svesti su formirale vera i tradicija. Hrišćansko gledište na čovečanstvo bilo je osnovni element mnogobrojnih kulturnih viševekovnih tradicija i njihovih etičkih normi. Zahvaljujući tome, izgrađena je vrlo pogodna klima za egzistenciju i razvoj društva u celini. Protekom vremena, u procesu nastajanja države ona je polako preuzevši ovu ulogu određivala pravce kojima ljudi treba da se rukovode. Proces zanemarivanja hrišćanskih smernica od strane današnjeg čoveka, doveo ga je do velikog broja gorućih problema i nepremostivih prepreka. Nametanje bezbožnog pogleda na svet, gde je na prvom mestu potrošački način života koji ističe materijalne vrednosti usmerene ka hedonističkom ponašanju, stvara od ljudi pogodan manipulativni objekat sa kojim se može raditi bilo šta (Этика, 1993, c. 62). Napokon, kada je država obavila taj glavni zadatak onda se posledično prelazilo na stvaranje ekonomije. Smisao postojanja države kod velikih hrišćanskih državnika nije bio shvatan kao imperativni razvoj ekonomskog blagostanja, već se ogledao u stvaranju uslova koji pomažu da svaki pojedinac od seljaka do vladara spase svoju dušu. U suprotnom, egzistiranje takve države ne bi imalo smisla, dok se ekonomski razvoj shvatao samo kao pomoćno sredstvo koje doprinosi ostvarenju primarnog zadatka.

Da bi čovek bio sposoban da napravi izbor mora da poseduje slobodnu volju. Sloboda kod pravoslavnih ljudi se ispoljava u svom najvišem obliku kada neko izabere da služi Bogu. Pravoslavlje ne poseduje nikakav poseban program ekonomskog ustrojstva države, ono ne daje uputstva niti predlaže određene planove za funkcionisanje ekonomije kao ni smernice za razvoj poslovnih aktivnosti. Ipak, u epicentru skoro svih civilizacijskih institucija, pa shodno tome i u sferi ekonomije na jedan ili drugi način „nalaze se principi te religiozne etike, koji su vekovima formirali arhetipove i kodekse kulture“ (Vasilenko, 2002). Otuda potiče i moral a ranije, kad se on manifestovao kod visoko slobodnih ljudi oni su bili prihvatani kao prirodni nosioci vlasti. U eri kapitalizma, gde je ekonomija postavljena na prvo mesto, nastaje nova snaga koja isključivo pretenduje na stvaranje profita po bilo koju cenu, bez obzira što to može da dovede i do entropije samog društva. Taj mehanizam je danas oličen u transnacionalnim korporacijama koje imaju različite pa čak i suprotne ciljeve od društvenih interesa. Ovakav nametnuti proces nije bilo moguće opravdati u okviru pravoslavlja. Umesto ideje sabornosti, koju nudi hrišćanstvo, neoliberalna ideologija projavljuje lični uspeh kao vrhunsko načelo. Ona usmerava celokupnu energiju savremenog čoveka na potrošački kolosek. Upravo i smisao života koji proklamuju neoliberalne apologete se sastoji u što većem sticanju materijalnog bogatstva, pre svega novca, kako bi se podsticala što veća potrošnja. Iz toga proizilazi sama suština savremene demokratije i smisla ljudskog postojanja valorizovanih u materijalnom blagostanju i apsolutnoj slobodi.

Ta dva pogleda na svet su u neprestanom antagonizmu. Naime, ako pravoslavna eklisiologija ističe ljubav kao prirodno stanje ljudske zajednice, nova ekonomska teorija neoliberalnog kapitalizma proglašava konkurenciju (borba svakog protiv svakog) za prirodno stanje društva. U takvim demokratskim kapitalističkim društvima na vlast ne dolazi onaj koji je dobio od Boga razum (iako je po pravoslavnom eshatonu svaka vlast od Boga data ili dopuštena) ispunjen ljubavlju za celokupni narod, već onaj koji je napravio najbolju sopstvenu reklamu i delovao prihvatljivije za široke narodne mase. Ipak, na osnovu eklisiološke usmerenosti koja vodi sotiriološkoj punoći, pravoslavna dogmatika veruje da sve ekonomske teorije i prakse mogu biti podvrgnute izmenama i prilagođavanjima sa ciljem prevazilaženja onih njihovih segmenata koji stvaraju nepravednu raspodelu. Tržišna logika ne treba samo da očekuje i forsira maksimiranje profita dajući prednost i koristeći jedino onima koji raspolažu ekonomskim kapitalom i društvenom moći. Te ekonomske prakse i zakonska regulativa moraju obezbediti ravnopravan položaj za održivi razvoj i poštovanje digniteta svih ljudi. Ne može se govoriti o realno slobodnoj tržišnoj ekonomiji bez zalaženja u pojedine situacije o tome kakva slobodna trgovina pospešuje i odgovara prosperitetu života svakog čoveka, a kakve ne. Pravoslavna crkva, vođena svojom verom, zalaže se za proaktivnu ulogu u podsticanju takvih ekonomskih praksi koje odslikavaju i sjedinjuju one učesnike društvenog života koji proklamuju empatiju među ljudima.

Međutim, logika neoliberalne ideologije polazi od stvaranja želja kod ljudi koje podstiču potrošački mentalitet što za posledicu ima održavanje premisa tržišnih vrednosti (Bell, 2005). Dok sa druge strane, pravoslavni eshaton podrazumeva drugačiji prilaz ljudskom društvu i nudi „suparničku sabornost i suparnički način života“ (Smith, 2010, p. 14). U tom smislu, delovanje tržišta je negativno jer je usmereno samo ka materijalističkom pogledu na svet i čovekov život, dok je delatnost pravoslavne etike korisna upravo zbog toga što je posvećena društvenom poretku u kome su zajedničarenje i gostoljubivost kao bolji antropološki koncepti neodvojivi delovi života ljudi, a nisu samo izuzeci od tržišnih pravila. Dakle, učešće ljudi na tržištu ne implicira ništa više od pukog zadovoljenja ličnih želja, dok sabornost unutar Crkve ima smisla u eksplicitno određenom cilju koji pravilno usmerava želje pojedinaca.

3. ZAKLJUČAK

Sve što je ovde pomenuto može dovesti do čitavog niza najrazličitijih zaključaka. Naime, renesansa bilo kakve ideologije bez vere je apsolutno nemoguća. U tom smislu, neoliberalna ideologija stvara zabrinutost sa aspekta pravoslavne etike kada je u pitanju materijalno blagostanje iz više razloga: prvo, ekonomski razvoj ne sme da bude primaran u odnosu na ostale životne aspekte, kao što su odnosi među ljudima, poštovanje verskih tradicija i običaja; drugo, enormno bogaćenje pojedinaca je moralno neprihvatljivo i međunarodna zajednica kroz svoje institucije mora da podstiče razvoj siromašnih, a ne da omogućava napredak samo bogatih; i treće, prirodnom sredinom se mora upravljati sa velikom pažnjom, a ne isključivo iz sopstvenog ugla, posmatrajući prirodu kao Božiji dar. U suprotnom, međunarodni ekonomski sistem u kome mi participiramo neće biti “prirodan“ (Long et al., 2012, p. 196). Na kraju, smena hrišćanskog puta ekonomskim, dovodi do procesa entropije društvenog sistema, a među prvima u malim i slabim državama.

Reference

Bell, D. (2005). Liberation Theology After the End of History; Bell, “What Is Wrong with Capitalism? The Problem with the Problem with Capitalism,” *The Other Journal.*

Bigović, R. (2013). *The Orthodox Church in the 21st Century*, Belgrade.

Chrysostom, J. (1998). Homily 10 on Almsgiving, 10. 1 in *The Fathers of the Church*, vol. 96 (Washington, D.C.: Catholic University of America Press).

Gauthier, F. (2020). *Religion, modernity, globalisation*. In Nation-State to Market. London: Routledge.

Long, S., Fox, R. N., & York, T. (2012). *Calculated Futures*, 101; Smith, “The ‘Ecclesial’ Critique of Globalization: Rethinking the Questions”; Smith, Introducing Radical Orthodoxy.

Smith, K. A. J. (2010). “The‘ Ecclesial’ Critique of Globalization: Rethinking the Questions,” *Faith & Economics* 56.

Sveto Pismo. (2012). Sveti arhijerejski sinod Srpske pravoslavne crkve, preveli: Stari Zavet Đura Daničić, Novi zavet Komisija Svetog arhijerejskog sinoda Srpske pravoslavne crkve, Devterokanonske knjige Mitropolit Amfilohije (Radović) i Episkop Atanasije (Jevtić), Sveto Jevanđelje od Jovana 1:23, Beograd.

Vasilenko, I. A. (2002). Pravoslavnaя эtika i civilizacionnый arhetip russkoй vlasti/Tribuna russkoй mыsli, №2, S. 115.

Эtika. (1993). Materialы meždunarodnoй konferencii. - M., S.6.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.411

Nastava usmjerena na učenika
Student-Centered Teaching

Jasmina Kurpejović[1]
Marinko Savić[2]
Ibro Skenderović[3]
Suada Aljković Kadrić[4]

Received: March 12, 2023
Accepted: March 28, 2023
Published: October 30, 2023

Ključne riječi:
Nastava;
Aktivna nastava;
Učenik

Keywords:
Teaching;
Active teaching;
Student

Sažetak: *Vaspitno-obrazovni sistem koji se temelji na zadacima koji se realizuju na didaktički oblikovanim sadržajima, kroz raznovrsne oblike i pomoću različitih sredstava i društveno određenim ciljevima naziva se nastava. Planski organizovan vaspitno - obrazovni sistem kojim se nastavnik rukovodi da pomogne učenicima da se razvijaju kao ličnosti, stiču nove navike, znanje i vještine. Nastava se ne ograničava na jedan dan, sedmicu ili mjesec, ona uvijek traje duži vremenski period zato što je ona procesualna aktivnost, dok polaznici ili učenici ne postignu ciljeve postavljene nastavnim programom. Ona je neophodna da bi se pokazao osnovni sadržaj te aktivnosti. Ona i vaspitava i obrazuje učesnike ili polaznike. Ako se ona svede samo na vaspitni ili ipak samo na obrazovni aspekt to je pogrešno, takvih pokušaja je bilo dosta ali nijesu bili uspješni već pogrešni.Aktivna nastava je savremeni oblik nastave koja se uspješno primjenjuje u savremenim školama.*

Abstract: *An educational system that is based on tasks that are implemented on didactically shaped content, through various forms and with the help of different means and socially determined goals, is called teaching. A planned educational system, which is managed by the teacher to help students develop personalities, and acquire new habits, knowledge and skills. Teaching is not limited to one day, week, or month, it always lasts for a longer period because it is a procedural activity until the participants or students achieve the goals set by the curriculum. It is necessary to show the basic content of that activity. It educates the participants or trainees. If it is reduced only to the upbringing aspect, or even only to the educational aspect, it is wrong, there were many such attempts, but they were not successful, but wrong. Active teaching is a modern form of teaching that is successfully applied in modern schools.*

1. UVOD

Nastava je dio vaspitno-obrazovnog sistema koji se temelji na zadacima koji se realizuju na didaktički oblikovanim sadržajima. Vaspitanje je širi pojam od nastave. I obrazovanje je širi pojam od nastave jer se obrazovanje stiče vremenom i prije polaska u školu a i nakon. Uz pomoć nastavnika učenici savlađuju sadržaje nastave koji su naučno zasnovani, ali između nastave i nauke ne može se staviti znak jednakosti, jer nastavni sadržaji su već poznati i naučno objašnjeni. Nastavni sadržaj je didaktički oblikovan (prilagođen nastavi), psihološki primjeren, (prilagođen sposobnostima odgovarajućeg uzrasta učenika) i pedagoški pogodnan za vaspitno djelovanje. Nastava je tako priređena da učenici lakše shvate i nauče (Ivić i dr., 2001).

[1] International University of Novi Pazar, Serbia
[2] International University of Novi Pazar, Serbia
[3] International University of Novi Pazar, Serbia
[4] International University of Novi Pazar, Serbia

Nastavnici u skladi sa ovim ciljevima i zadacima, pripremaju poseban plan, metode i nastavna sredstva. Društveno-istorijska uslovljenosti je jedna od osnovnih odlika nastave, jer je ona nastala u društvu i radi društva. Cilj i zadaci nastave ne mogu biti jednom zauvijek dati, oni se moraju mijenjati. Zato pri utvrđivanju cilja i zadataka treba voditi računa o svakom pojedincu i njegovim ličnim potrebama jer je društvo zainteresovano za razvoj svakog pojedinca i time obezbjeđuje brzi društveni napredak.

Cilj ovog rada je da iznese informacije o oblicima nastave i učenja iz ugla nastavnika, tj. školskog rada u kome učenik biva u najvećoj mjeri aktivan.

2. TRADICIONALNA ŠKOLA NASPRAM AKTIVNE ŠKOLE

Tradicionalna škola se zasniva na koncepciji koja je po mnogim svojim karakteristikama održava i danas u obrazovanju gotovo svih zemalja.

Ona ima sljedeće karakteristike: unaprijed definisan plan i program; cilj nastave jeste usvajanje programa; osnovna metoda nastave je predavanje (verbalno prenošenje znanja) uz neka pomagala ili bez njih; uloga učenika jeste da sluša, da pokuša da razumije i da zapamti obavezno gradivo; ocjenjivanje (usmeno ili pismeno) sastoji se u provjeravanju u kojoj mjeri je obavezno gradivo usvojeno; motivacija za učenje je više spoljna (ocjene, pohvale, nagrađivanja – kazne); u školi se na dijete gleda samo kao na učenika, tj. na onoga ko bi trebalo s razumijevanjem da ponovi ispredavano gradivo (Bakovljev, 1992).

Aktivna škola u izvornom smislu predstavlja obrazovnu instituciju koja se fokusira na individualni razvoj djeteta kao kompletnog pojedinca, ne samo kao učenika. Ova vrsta škole integriše različite aspekte djetetove ličnosti u nastavni proces. Osnovne karakteristike ovakvog pristupa uključuju fleksibilan kurikulum koji može uključivati orijentacione smjernice umjesto fiksnih planova i programa. Nastava se temelji na interesovanjima djece, pri čemu se učenje povezuje sa njihovim prethodnim iskustvima i ličnim životom. Motivacija za učenje je individualna, a metode nastave podrazumijevaju praktične, radne i kreativne aktivnosti kao što su crtanje, laboratorijske vježbe, terenski rad i posmatranje prirodnih pojava.

Cilj aktivne škole nije samo usvajanje školskog programa, već razvoj ličnosti i individualnosti svakog djeteta. Evaluacija se vrši kroz zadovoljstvo djece u vezi s aktivnostima, napredak djeteta u odnosu na početno stanje, motivaciju i interesovanje za rad, kao i razvoj djetetove ličnosti.

Iz ovog sažetog opisa dva tipa škole praktično je upotrebljivo sljedeće:
- napuštanje nekih karakteristika tradicionalne škole (predavanje kao dominantni vid nastave, pasivnost učenika, ocjenjivanje samo tačne reprodukcije znanja itd);
- uvažavanje djeteta u školi, uzimanje u obzir njegovih uzrasnih i individualnih karakteristika, proširivanje repertoara nastavnih metoda pri realizaciji unaprijed utvrđenih programa, vođenje računa o motivaciji djeteta za učenje, podsticanje razvoja kao jedan od ciljeva učenja, a ne samo usvajanje gradiva itd. (Vilotijević, 1999).

S obzirom da se pojam „aktivna nastava“ različito tumači i definiše, mi u ovom radu, polazimo od toga da je aktivna nastava ona nastava koja učenike stavlja u aktivan odnos sa predmetom učenja, a te aktivnosti od učenika zahtijevaju viši nivo misaone aktivnosti, pored reprodukcije i primjenu, analizu, sintezu, vrednovanje i slično.

3. METODE UČENJA/NASTAVE

Postojeća pedagoška teorija i praksa okrenute su u potpunosti ka nastavniku i onome šta on čini/ili bi trebalo da čini u okviru nastave. Time se bave sve teorije nastave, a tako su, na primjer, pisani i programi ili pripreme za pojedini čas. Klasifikacija metoda učenja/nastave koju ovdje izlažemo, okrenuta je prvenstveno onome šta dijete u nastavnom procesu radi i tome kako organizovati rad škole da dijete u njoj bude u najvećoj mjeri aktivno (Đorđević, 1997).

Definisanje metode nastave/učenja izvršili smo, po uzoru na Ivić i dr. (2001), na osnovu pet različitih dimenzija. Te dimenzije definisane su pomoću dva suprotna pola:

a) **Smisleno** naspram **mehaničkog** (doslovnog) učenja - ;
b) **Praktično** (tj. učenje u vidu praktičnih spoljašnjih aktivnosti) naspram **verbalnog**;
c) **Receptivno** naspram **učenja putem otkrića**;
d) **Konvergentno** (logičko) naspram **divergentnog** (tj. stvaralačkog) učenja;
e) **Transmisivno** naspram **interaktivnog** učenja;
f) Oblici učenja **bez pomagala** naspram metoda učenja koje se oslanjaju na **različita pomagala**.

3.1. Smisleno naspram mehaničkog (doslovnog) učenja

Smisleno naspram mehaničkog je suštinska dimenzija za razlikovanje raznih metoda nastave/učenja, jer se u školi masovno sreće smisleno učenje, ali i učenje napamet (doslovno, mehaničko učenje i „bubanje“). Gotovo da bismo sve ono što se zbiva u učionici i u radu učenika mogli, bez mnogo teškoća, razvrstavati u ove dvije kategorije (Ivić, 1973).

3.2. Mehaničko učenje (učenje napamet)

Učenik se u tradicionalnom pristupu upoznaje s gradivom koje treba naučiti, fokusirajući se na aktivnost pamćenja. Glavna metoda postizanja ovog cilja je ponavljanje i preslišavanje, bilo samostalno ili u društvu, tiho ili naglas, ponekad koristeći mnemotehničke tehnike kako bi olakšao proces memorisanja. Međutim, motivacija za ovakav način učenja često je slaba i dolazi iz vanjskih izvora.

3.3. Smisleno verbalno receptivno učenje

Ova metoda čini srž školskog rada, jer je u redovnim školama najčešći i glavni oblik učenja (to nije slučaj u nekim eksperimentalnim školama). Ova metoda se neopravdano i paušalno kritikuje, obezvređuje i izjednačava sa mehaničkim učenjem, verbalizmom, „bubanjem“, „papagajskim recitovanjem“, mehaničkim pamćenjem izolovanih podataka i tretira kao „zastareli ostatak diskreditovane obrazovne tradicije“. Stoga je u savremenoj školi neophodna snažna rehabilitacija ove metode učenja (Poljak, 1985).

3.4. Praktično mehaničko učenje

U praktično mehaničko učenje spadaju sva učenja praktičnih motoričkih vještina koje se moraju strogo naučiti, kao što su: vezivanje kravate, veći dio učenja u fizičkom vaspitanju (stoj na šakama, „zvijezda“. „svijeća“ itd.), plivanje, rukovanje raznim tehničkim uređajima i instrumentima (Ivić i dr., 2001). Ovaj oblik učenja često je dio nekog šireg učenja, u kome su te motoričke vještine nužan dio, kao, na primjer, rukovanje uređajima i instrumentima u laboratorijiskom radu, u izvođenju ogleda.

Aktivnosti nastavnika: Nastavnik daje uputstva o onome što treba naučiti, osigurava uređaje, instrumente, sredstva čije rukovanje treba naučiti, daje obrazac vještine koja se uči, izvodi aktivnost pred učenicima, vrši nadzor nad praktičnim radom učenika i koriguje ga kada je to potrebno (Ivić i dr., 2001).

Aktivnosti učenika: Potrebno je minimalno razumijevanje vještina koje se uče, osnovna aktivnost učenika je praktikovanje (praktično izvođenje) vještine koja se uči, ponavljanje djelatnosti uz eventualno korigovanje grešaka, tehničko usavršavanje vještine.

3.5. Praktično smisaono učenje

U praktično smisaono učenje spadaju svi oni oblici učenja u kojima je izvjesna aktivnost praktična (u vidu spoljašnjih, motoričkih aktivnosti), ali je neophodno i razumijevanje smisla praktičnih radnji.

Aktivnost nastavnika: Organizovanje procesa učenja i priprema uslova za takvo učenje, demonstracija kako se izvode praktične aktivnosti ovog tipa, praćenje i kontrola toka učenja (Janjušević, 1996).

Aktivnost učenika: Razumijevanje smisla praktičnih radnji (postupaka) koji se uče, praktično izvođenje, tehničko i metodološko usavršavanje naučenog, povećavanje tačnosti, brzine i preciznosti izvođenja postupaka koji se uče. Najkraće bi se moglo reći da ovim aktivnostima učenici stiču umjenja (kako se nešto radi), naspram znanja (skupa određenih informacija).

3.6. Receptivno naspram učenja putem otkrića

Receptivno je svako učenje u kome je zadatak onoga ko uči da usvoji, primi neka znanja ili umjenja koja su propisana, najčešće školskim programima (Ivić i dr., 2001). Dakle, osoba koja uči nije nužno aktivna u istraživanju i otkrivanju znanja, već obično prima informacije na gotovo mehanički način ili, u nekim slučajevima, s razumijevanjem i primjenjuje ih na svoj način (kroz smisleno učenje). Receptivne metode učenja se češće koriste u školama, posebno u osnovnoj školi, u poređenju s drugim pristupima. Sve dosad opisane metode pripadaju kategoriji receptivnog učenja.

3.7. Rješavanje problema (problemska nastava)

Ovo je tipičan oblik nastave/učenja u kome ono što se uči nije dato u finalnom obliku u kojem treba da bude usvojeno (kao što je slučaj kod svih metoda učenja koje nazivamo receptivnim učenjem) (Prodanović & Ničković, 1974).

U ovom pristupu nastavi, proces počinje s postavljanjem problemske situacije, kao što je na primjer pitanje učenika "Ko je bio prisutan u istoriji prije Rimljana ili Indijanaca?", na koje nema direktan odgovor u već prethodno naučenom gradivu. Učenici zatim samostalno (bilo individualno, u parovima ili u grupama) rade na pronalaženju rješenja za postavljenu situaciju.

Ova metoda rada pokriva čitavu skalu zadataka rješavanja problema, od jednostavnijih, gdje se traži fleksibilna primjena učenog (pri čemu učenik sam treba da odredi šta mu je od onoga što je učinio potrebno da rješi zadatak), do veoma složenih projekatskih zadataka (koji, opet, mogu da variraju u težini, zavisno od uzrasta i nivoa školovanja) (Trnavac & Đorđević, 1995).

Jednostavniji zadaci rješavanja problema su, na primjer, rješavanje problemskih zadataka u matematici, ispravljanje gramatičkih grešaka u ponuđenom tekstu, određivanje kom žanru pripada određeni tekst. Nešto složeniji su zadaci povezivanja znanja iz različitih školskih predmeta, a da učenici sami uspostave te veze, rješavanje životnog, vanškolskog problema uz korišćenje školskih znanja, ili rješavanje raznih problemskih situacija u svakodnevnom životu (Stevanović, 1988).

Aktivnosti nastavnika: Nivo nastavnih intervencija u učenju putem otkrića i rješavanju problema može varirati značajno, počevši od pružanja potpune i jasne pomoći, pa sve do suptilnog vođenja procesa. Ovaj spektar intervencija uključuje diskretni nadzor, rad na zajedničkom problemu u suradnji s učenicima, te primjenu interaktivnih metoda u nastavi.

Aktivnosti učenika: Ovaj oblik učenja izaziva kod učenika vrlo složene i osmišljene aktivnosti – uočavanje, definisanje i preciziranje problema; postavljanje relevantnih pitanja sebi i drugima; preuzimanje inicijative za rješavanje problema; planiranje rješenja; samostalno prikupljanje i analiziranje činjenica koje su potrebne za rješavanje; samostalno čitanje tekstova i pravljenje izvoda o onome što je potrebno za rješavanje problema; davanje ideja za rješavanje problema; samostalno otkrivanje tehnika i metoda rješavanja problema i provjera rješenja (Šehović, 2006).

3.8. Kooperativno učenje nastavnik – učenik

Ovaj oblik učenja polazi od temeljne činjenice da učenici posjeduju značajna prethodna znanja i umjenja u domenu u kome se uvodi novo znanje. Sa takvom pretpostavkom učenje više nije proces prenošenja onoga ko zna onome ko ne zna, nego je dobrim dijelom prava pedagoška interakcija nastavnika i učenika (Ivić i dr., 2001).

Aktivnosti nastavnika: U svakodnevnom radu u školi, saradnja nastavnika se ostvaruje kroz različite korake. Nastavnik najprije konceptualizuje situaciju učenja prilikom uvodjenja nove lekcije. Zatim priprema didaktička sredstva, planira tok časa te kreira problemske situacije za učenike. Ove situacije mogu uključivati postavljanje problemskih pitanja, predstavljanje novih činjenica, čitanje teksta koji sadrži nove ideje, izvođenje eksperimenta i slično. Nastavnik takođe organizuje grupe učenika kako bi olakšao timski rad i interakciju među učenicima.

Aktivnosti učenika su sljedeće: da mobilišu svoja postojeća znanja i iskustava, da rješavaju predočene problemske situacije, da izvode praktične i intelektualne radnje koje su nužne u toj problemskoj situaciji. Komplementarne uloge vrlo često izgledaju tako da nastavnik igra ulogu „građevinske skele", koja služi kao oslonac sve dok se učenik ne osposobi da sam obavlja ono što se uči (npr. davanje definicija pojma, izvođenje ogleda, pisanje sastava, klasifikacija itd.) (Ivić i dr., 2001).

3.9. Timska nastava

Specifičnost timskog rada, upravo, čini podjela uloga (sportski timovi su čist oblik takve organizacije). Da bi se riješio problem, radna grupa učenika vrši podjelu uloga (može i nastavnik da podijeli uloge učenicima, zavisno od cilja koji želi da ostvari takvim načinom rada). Svaki učenik obavlja određeni vid aktivnosti (i na taj način ih uči) (Ivić i dr., 2001). U ovoj vrsti pristupa, nastavnik može biti organizator, suptilni vođa procesa ili partner koji aktivno sarađuje s učenicima kao član njihovog tima, učestvujući direktno u rešavanju problema.

4. ZAKLJUČAK

Model aktivne nastave nedovoljno se koristi u našim školama. Pri obradi novog gradiva i dalje preovlađuje verbalno-predavački način rada, gdje je učenik pasivan slušalac i upućen na memorisanje gradiva. Nastavnici nijesu u dovoljnoj mjeri osposobljeni da organizuju nastavu i obradu po problemskom modelu.

Neopremljenost škola, nedostatak literature koju bi koristili i nastavnici i učenici ometa izvođenje ovakvog oblika nastave. Aktivna nastava polazi od učenika, uvažavajući njegove mogućnosti, potrebe i interesovanja. U njoj se uloga nastavnika i učenika kvalitetno mijenja. Učenik postaje aktivan subjekat u nastavnom procesu, a sigurno je da ovakav rad u našim školama nije svemoguć niti može da riješi sve propuste i neefikasnosti nastave. Tako da se ne može u toj mjeri koristiti da u potpunosti zamijeni ostale vidove nastave.

Svrha korišćenja aktivnog modela nastave u funkciji osamostaljivanja i bržeg napredovanja učenika je između ostalog i lična korist za svakog nastavnika jer će se početni trud isplatiti s obzirom na kasnije olakšanje rada, a racionalnije korišćenje vremena na samom času i na trajnija znanja učenika.

Reference

Bakovljev, M. (1992). *Didaktika*, Naučna knjiga, Beograd.
Đorđević, J. (1997). *Nastava i učenje u savremenoj školi*, Beograd.
Ivić, L. (1973). *Pedagogija, Psihološke osnove učenja čitanja kod dece, 2-3*.
Ivić, I., Pešikan, A., & Antić, S. (2001). *Aktivno učenje 2*, Beograd, Institut za psihologiju.
Janjušević, M. (1996). *Didaktika*, Beograd.
Poljak, V. (1985). *Didaktika*, Školska knjiga, Zagreb.
Prodanović, T., & Ničković, R. (1974). *Didaktika*, ZUNS, Beograd.
Šehović, S. (2006). *Didaktika*, Beograd.
Stevanović, B. (1988). *Pedagoška psihologija*, Zavod za udžbenike i nastavna sredstva, Beograd.
Trnavac, N., & Đorđević, J. (1995). *Pedagogija*, Naučna knjiga, Beograd.
Vilotijević, M. (1999). *Didaktika 1,2,3*, Naučna knjiga, Učiteljski fakultet.

EMAN 2023 – Conference Proceedings
https://doi.org/10.31410/EMAN.2023.417

Rešitve iz narave kot izziv in priložnost za podjetje Dorssen

Solutions from Nature as a Challenge and Opportunity for Dorssen Business

Robert Harb[1]
Maja Harb[2]
Darja Harb[3]

Received: June 5, 2023
Accepted: September 8, 2023
Published: October 30, 2023

Ključne besede:
Bionika;
Organiziranje;
Vodenje;
Kolektivna inteligenca – inteligenca roja;
Komunikacija;
Izboljšanje organizacijske strukture v podjetju Dorssen

Izvleček: *Osnovna značilnost bionike je interdisciplinarnost. Narava je daleč najuspešnejši arhitekt in konstruktor. V končni fazi je le-ta naredila človeka, ki je najbolj zapleten sistem, kar jih poznamo. V preteklosti so tradicionalne organizacije temeljile na hierarhiji in odločanje je bilo v rokah tistih, ki so bili na hierarhični lestvici uvrščeni višje. Sodobne organizacije se danes soočajo s številnimi različnimi situacijami, ki so posledica globalizacije in spreminjajočega se okolja in zaradi tega postajajo mnogo bolj sploščene. V vsaki organizaciji je najpomembnejše, da vemo, kdo ima glavno besedo, kdo ima največjo avtoriteto. Po drugi strani pa nam narava ponuja primere organizacij živih bitij, ki so učinkovite in delajo brez nadzora, brez vodij in navodil, pa vendarle vsak del organizacije točno ve, kaj mora delati. In predvsem to nas je v tem članku zanimalo; kako je to možno, da narava oz. živalski svet deluje brez vodij in nadzora, a kljub temu preživi v svetu velike naravne selekcije.*

Navajamo nekaj načinov, kako lahko bionika izboljša organizacijske strukture podjetja Dorssen.

Prva je uporaba bioloških omrežij za oblikovanje organizacijskih struktur. Pri oblikovanju organizacijske strukture podjetja Dorssen smo uporabili podoben pristop, kjer se organizacija prilagaja spremembam v okolju. Prav tako uporaba naravnih materialov za delo, kot so les, kamni, rastline itd., izboljša delovno okolje in spodbuja kreativnost in produktivnost zaposlenih. Uporaba naravnih oblik pri oblikovanju prostorov za delo, kot so krogi, spiralne oblike in valovite linije, izboljšajo vizualno estetiko in ustvarijo bolj naravno delovno okolje. Uporaba bioloških procesov za izboljšanje učinkovitosti delovanja podjetja, kot so procesi fotosinteze ali biološkega kroga, služijo kot modeli za izboljšanje učinkovitosti poslovnih procesov, kot so proizvodnja, dobava in upravljanje zalog. Prav tako uporaba pristopa »od spodaj navzgor«: podobno kot v naravi, kjer so manjše enote odgovorne za delovanje celotnega sistema, podjetje izboljša svojo organizacijsko strukturo tako, da daje večjo odgovornost manjšim delovnim skupinam. To spodbuja inovativnost in samostojnost vseh zaposlenih. Vodstvo podjetja Dorssen je vzor svojim zaposlenim s svojim ravnanjem in odločitvami. S tem pritegnemo spoštovanje in zaupanje zaposlenih ter ustvarjamo pozitivno delovno okolje.

Metode, ki jih živa bitja uporabljajo za osvajanje novega življenjskega okolja z razvojem novih sposobnosti, lahko v človeški družbi postanejo vzor za izgradnjo doslednega in dinamičnega strokovnega znanja za inovacije v podjetjih. Že vrsto let potekajo proučevanja učinkovitost in delovne učinkovitosti žuželk, kot so mravlje in čebele. V članku smo se tako osredotočili na fascinantni svet in življenje mravelj.

[1] Visoka šola na PTUJU, Slovenia
[2] Študentka EF LJ, Slovenia
[3] Visoka šola na PTUJU, Slovenia

Keywords:
Bionics;
Organization;
Leadership;
Collective intelligence – swarm intelligence;
Communication;
Improvement of the organizational structure in the Dorssen company

Abstract: *In the past, traditional organizations were based on a hierarchy and decision-making was in the hands of those who were ranked higher on a hierarchical scale. As a result of globalization and a changing environment, modern organizations nowadays face several different situations, and therefore they become much more flattened. In every organization, it is most important to know who a decision-maker is and who has the highest authority. On the other hand, nature offers examples of organizations of other living beings that are effective and work without control, without leaders or instructions, yet everyone in this organization knows what to do. Our main interest in this article was how is it possible that nature and the animal world survive without leadership and control, yet they still survive in the world of great natural selection.*

Here are some ways in which bionics can be used to improve the organizational structure of the Dorssen company:

- *Using biological networks to design organizational structures: Similar to how organisms adapt to changes in their environment, the Dorssen company can use a similar approach to design its organizational structure.*
- *Using natural materials for work, such as wood, stones, plants, etc., can improve the work environment and promote creativity and productivity among employees.*
- *Using natural forms in the design of workspaces, such as circles, spirals, and curvy lines can improve the visual aesthetics and create a more natural work environment.*
- *Using biological processes to improve the efficiency of company operations, such as photosynthesis or the biological cycle can serve as models for improving the efficiency of business processes, such as production, supply, and inventory management.*
- *Using a "bottom-up" approach: Similar to how smaller units are responsible for the functioning of the entire system in nature, the Dorssen company can improve its organizational structure by giving more responsibility to smaller working groups. This promotes innovation and independence among all employees.*

The leadership of the Dorssen company sets an example for its employees with its actions and decisions. This fosters respect and trust among employees and creates a positive work environment.

The methods used by living beings to conquer a new living environment by developing new abilities can become a model in human society to build a consistent and dynamic expertise for innovation in enterprises. For many years, the study has been studying the efficiency and working efficiency of insects such as ants and bees. In this article, we focused on the fascinating world and the life of the ants.

1. UVOD

Beseda bionika izhaja iz kombinacije dveh pojmov- **bio**logije in teh**nika**. Osnovna značilnost bionike je interdisciplinarnost. Bionika pomeni uporabo izkušenj iz narave za reševanje kompleksnih problemov v tehničnih, socialnih in družbenih sistemih. Ukvarja se s prenosom in uporabo rešitev, ki so se v milijonih let razvile in izboljševale v naravi, na področje tehnike. Strokovnjaki s področja bionike priznavajo danes definicijo, ki jo je 1993 opredelil Neumann: »Bionika kot znanstvena disciplina se sistematično ukvarja s tehničnimi prilagoditvami in uporabo konstrukcij, postopkov in razvojnih principov bioloških sistemov«. Bionika vsekakor ne pomeni popolnega posnemanja narave, četudi je kaj takega v posameznih primerih možno. Mnogi principi iz narave se tudi ne dajo dalje tehnično razvijati.

Narava je daleč najuspešnejši arhitekt in konstruktor. V končni fazi je naredila človeka, ki je najbolj zapleten sistem, kar jih poznamo. Zato je zgledovanje po naravi priložnost, da izkoristimo to, kar je naravni laboratorij skozi dolga obdobja izpopolnil. Da bi bolje obvladovali našo prihodnost, moramo upoštevati dano prednost, ki jo imamo v zgledu narave, torej slediti njenemu zgledu in uporabiti metode in strategije, ki jih je narava milijone let uporabljala za reševanje izzivov v tehnologiji, poslu in družbi. Inovacije v naravi se odlikujejo zlasti po tem, da poznajo razvojno pot k rešitvam, ki varčujejo z materiali, energijo in jih je po uporabi mogoče razgraditi in ponovno uporabiti - krožno gospodarstvo.

Bionika pomeni nekakšno »bližnjico« do teh odkritij, na katera bi sicer čakali še veliko časa. Leteti kot ptica, plavati kot riba ali graditi kot žuželke, želje so stare toliko kot človeštvo samo. Raziskovalci so vedno uporabljali naravne modele za nove izume, od opreme za letenje, do strešnih konstrukcij, ki spominjajo na pajkove mreže. Bilo bi več kot nesmiselno, da ne upoštevamo rešitve laboratorijskega preskusa narave, ki so dokazano uspešni milijone let. Namen ni neposredno kopirati naravo, ampak odkrivanje temeljnih načel in metod ter jih preoblikovati glede na zahteve. Osredotočimo se na iskanje inteligentnih rešitev v naravi, katera lahko naši družbi izboljšajo življenje.

2. NAVDIHI SO POVSOD V NARAVI

Bionika, ki nam razkriva fascinantne dosežke in rešitve iz narave in jo danes povezujemo z medicino in tehniko, je **uporabna tudi na področju organizacije in vodenja**. Interdisciplinarno področje bionika pomeni preučevanje in prenašanje »izumov narave« v realno okolje. V času evolucije je narava razvijala, izboljševala in preizkušala te izume skozi milijone let. Bionika ni sredstvo za izdelavo načrtov posameznih strokovnjakov, ampak kot interdisciplinarna veda uspeva v izmenjavi med strokovnjaki različnih strok.

Kaj bi bilo lahko bolj očitno, bolj uspešno kot to, da bi uporabili uspešna načela evolucije pri upravljanju, na primer za razvoj novih izdelkov in njihovo trženje, za optimizacijo organizacijskih struktur, za sprejemanje odločitev v kompleksnih strukturah ali za pospeševanje komunikacijskih procesov? Metode, ki jih živa bitja uporabljajo za osvajanje novega življenjskega okolja (habitata) z razvojem novih sposobnosti, so lahko vzor oz. ključnega pomena za izgradnjo doslednega in dinamičnega strokovnega znanja za inovacije v podjetju. Na podlagi modela človeškega centralnega živčnega sistema se lahko organizacijam dodajo nadzorne in usmerjevalne strukture, ki bistveno povečajo sposobnost preživetja institucij, kot so podjetja v nenehno spreminjajočem se okolju (Malik, 2007).

3. IMPRESIVNI SVET MRAVELJ

Okolje, ki nas obdaja, nam ponuja veliko lekcij. Samo vprašanje časa je, preden jih vidimo in uresničimo. Že vrsto let potekajo proučevanja učinkovitost in delovne učinkovitosti žuželk, kot so mravlje in čebele. Posamezne žuželke niso inteligentne, ampak kot skupina so zelo inteligentne. Kolektivno vedenje teh žuželk so poimenovali kot »*inteligenca roja*«.

Na svetu danes poznamo več kot 10.000 vrst mravelj. Možgani mravelj imajo približno 250.000 možganskih celic, medtem ko jih imajo človeški možgani 10.000 milijonov, kar pomeni, da ima kolonija 40.000 mravelj enake možgane kot en človek. Mravlje so čiste in urejene žuželke, skrbijo za čistočo v svojih gnezdih, zbirajo hrano in pazijo na svoje mladiče. Vsaka kolonija ima svoj vonj in tako lahko hitro prepoznajo vsiljivca. Spijo sedem ur na dan in njihova povprečna pričakovana življenjska doba je 45 do 60 dni (Shlosberg, 2010; Ants manegement, b.d.).

Znanstveniki že desetletja preučujejo njihovo vedenje. Poskušajo razumeti, kakšna so pravila, ki veljajo v svetu mravelj v smislu preživetja in iščejo sledi o tem, kako mravlje usklajujejo vedenje, brez prisotnosti vodje. Največja kolonija na svetu se razteza na več kot 3.700 kilometrih in je v celoti zgrajena s strani mravelj, ki se organizirajo skozi interakcijo posameznikov. In to mravljam uspe, pri tem ni nihče odgovoren, ni načrta, ni vodje. Samo samoorganizacija in sodelovanje. Mravlje so sposobne ustvariti neverjetne strukture; strukture, ki bi jih lahko primerjali z nebotičnikom, gradijo mostove, ki jim omogočajo, da gredo na odprave in vodne splave, da lahko pobegnejo pred morebitnimi poplavami. Kolonije mravelj so prikazane kot super organizmi, ki se obnašajo kot en organizem. Presenetljivo in neverjetno je, ko pomislimo, da lahko te drobne žuželke s tako majhnimi možgani ustvarijo tako čudovite stvari. Mravlje delujejo preko kolektivne inteligence, čeprav niso sposobne zavestne organizacije (Brace, 2016).

Mravlje obstajajo na svetu že 130 milijon let in brez njih bi svet bil popolnoma drugačen. Dejstvo je, da so majhne stvari izredno pomembne. In mravlje so majhne. Če bi stehtali vse mravlje in termite v tropskem deževnem gozdu in primerjali njihovo maso z maso vseh vretenčarjev, kot so ptice ali sesalci, bi ugotovili, da imajo prvi trikrat večjo biomaso. Mravlje predstavljajo odličen primer delovanja socialnih modelov, prednosti in slabosti mrež ter prevlado žensk. Na prvi pogled se zdi, da mravlje tekajo okrog brezciljno. Oseba z Marsa bi verjetno imela podobno dojemanje, če bi opazovala množice ljudi na mestni železniški postaji. Analogije med človeško družbo, kolonijami mravelj in razvijajočimi se bitji so fascinantne; ravno tako fascinantno je dejstvo, da mravlje, tako kot ljudje, gojijo določen "način življenja". Na primer, raziskovalci so vedno zmedeni glede pomena delitve dela pri južnoameriških krojaških mravljah, slika 1. Njihove kolonije so sestavljene iz pet do osem milijonov mravelj - ženskih delavk, največje so poslane, da žvečijo liste, rože in travo, velikost pa jim omogoča prenašanje kosov v gnezdo kraljice. Ugotovili so, da krojaške mravlje na sliki 1 začutijo, da bo začelo deževati in takrat pospešijo korak. In zakaj? Če se namreč košček lista, ki ga nosijo, zmoči, postane dvakrat težji, kar pomeni, da bi ga lahko izgubile. Darwin je trdil, da so listi, ki jih mravlje prenašajo, namenjeni zaščiti pred močnim dežjem. Vendar se je ta trditev pokazala kot napačna. Izkazalo se je namreč, da mravlje žvečijo liste in to tako dolgo, da so listi primerni kot humus za gojenje posebne vrste gliv, s katerimi se mravlje prehranjujejo (Malik, 2007).

Slika 1. Krojaška južnoameriška mravlja
Source: Photos of Genus Camponotus, b.d.

4. POMEN KOMUNIKACIJE PRI MRAVLJAH

Pojavlja se vprašanje, kako lahko živali, kot so mravlje, sploh preživijo v svetu naravne selekcije? Holldobler (Malik, 2007) je trdno prepričan, da je to mogoče le zato, ker so mravlje skozi evolucijo razvile tesno obliko sodelovanja in zelo zapleteno delitev dela. Resnica je, da ena sama mravlja ne more preživeti. Mravlje lahko preživijo in prenesejo svoje gene samo v svojih socialnih mrežah. To pa velja enako tudi za ljudi.

Osrednje vprašanje v celotnem družbenem življenju je komunikacija. Kjerkoli je sodelovanje, kjerkoli je interakcija, mora obstajati nek mehanizem, ki aktivira sodelovanje med individualnimi posamezniki. Ali so to celice, ali so le geni. In tudi geni morajo nekako sodelovati. Komunikacijski sistem pri mravljah temelji na kemijskih signalih, na tako imenovanih feromonih. Feromoni so najpogostejša oblika komunikacije večine vrst mravelj in zajemajo od 10 do 20 kemijskih "besed" in "stavkov", od katerih vsak prenaša izrazit, vendar zelo splošen pomen. Med kategorijami »pomena« so privlačnost, alarm, prepoznavanje drugih kast, prepoznavanje ličink in diskriminacija med sorodniki in neznanci (Hearts Pest Management, b.d.). Na primer, če mravlja najde piškot, ki ostane na kuhinjskem pultu, bo pustila sled feromonov na poti domov, da bodo tudi druge mravlje lahko našle piškot.

5. ORGANIZIRANOST IN SAMOORGANIZACIJA PRI MRAVLJAH ALI ZAKAJ MRAVLJE NE POTREBUJEJO VODJE

Ljudje smo obsedeni z vodenjem. Mravlje nimajo vodij. Ljudje gradijo ogromne neučinkovite organizacije, po drugi strani so mravlje zelo učinkovite in njihove organizacije so tisočkrat večje od organizacij ljudi. Ljudje se učijo upravljanja, uspešnosti, kakovosti in produktivnosti. Mravlje ne skrbijo za to, vendar pa delujejo bolje kot ljudje. Morda je čas, da se kaj naučimo od mravelj (Shlosberg, 2010).

Mravlje so veličastna bitja v tem smislu, da so zelo organizirane v okviru svojih odločitev. Ni veliko živali, ki bi prikazovale tako veliko, vendar sistematično kolonijo. Sledijo formuli kompleksnega decentraliziranega sistema. Vse, kar počnejo, temelji na medsebojnem delovanju številnih posameznih mravelj, namesto da bi imeli enega vodjo, ki naloge prenese v hierarhijo. Sledijo nekaj preprostim pravilom, da bo ta sistem uspešen. Eno od teh pravil je potreba po interakciji na lokalni ravni. Ko mravlje gradijo, komunicirajo z drugimi mravljami na lokalni ravni. Mravlje, ki zbirajo umazanijo, sodelujejo; tiste, ki ustvarjajo kup umazanije, delajo skupaj, in tiste, ki tvorijo strukturo, se prav tako držijo skupaj. Strukture, na katerih delajo, se pojavljajo brez centralnega usklajevanja. Njihove organizacijske sposobnosti so fenomenalne. Nobena mravlja ne vidi velike slike. Nobena mravlja ne pove drugi, kaj naj počne. Bistvo je, da ni potrebno vodstvo. Celo kompleksno obnašanje se lahko usklajuje s sorazmerno enostavnimi interakcijami.

Znanstveniki še zdaleč ne razumejo, kako se mravlje organizirajo tako, kot to počnejo. In še vedno ni prepričljivo, zakaj so mravlje tako osredotočene brez pritiska vodstva. Organizacije in proizvajalci prav tako preučujejo svoje znanstvene teorije, da bi videli, kako se lahko koordinacijsko obnašanje mravelj uporablja za delavce in proizvodne procese (Brace, 2016).

Človeški možgani imajo 92.000-krat večjo moč procesiranja in spomina v primerjavi z možgani mravelj. Kljub tej prednosti se zdi, da nismo tako organizirani, ko se ukvarjamo z lastnim delom.

Razlog za to mora biti in verjetno obstaja veliko možnih razlag kot na primer, da sprejemamo pravila, ki so preveč zapletena in tudi, ko uporabljamo enostavna pravila, jih na koncu izkrivljamo z uvajanjem novih pravil kot stranskih učinkov naših kompleksnih osebnosti (Fare, 2016).

Švicarski znanstvenik so raziskovali, kako mravlje delijo svoje delo, kar je prikazano na *sliki 2*. Ustvarile so zelo urejeno poklicno lestvico - tisto, ki jih osredotoča na trenutno nalogo, ne pa na tisto, kar jih še čaka vnaprej. Mravlje opravljajo tri različne funkcije in običajno s starostjo prehajajo iz ene delovne skupine v drugo. Najmlajši naj bi služili kot strežniki kraljici, naslednji po starosti kot čistilci, najstarejši pa gredo ven ter iščejo hrano in druge vire. Ta zadnja vloga, ki poteka po relativno neznanem terenu in je oddaljen od domače baze, je običajno rezervirana za "najbolj izkušene" mravlje (Wartzman in Drucker, 2013).

Slika 2. Mravlje pri svojem delu – sodelovanje
Source: Dominvrt.si, b.d.

Slika 3. Mravlje pri delu – gradnja infrastrukture
Source: Shriber, 2020.

Ljudje veliko časa porabimo za oblikovanje vodij, pa vendarle vodstvo za ljudi ni naravno. Ljudje delujemo po svojih najboljših močeh, ko delamo nekaj naravnega. Zakaj torej oblikujemo vodje? Zakaj se ne moremo osredotočiti na tisto, kar je naravno? Problem je, da je vodstvo neke vrste duševne blokade. Kadar ljudje ne vemo, kako nekaj narediti, pridemo do slabega delovnega sistema in ga imenujejo "najboljša praksa". Ta najboljša praksa postane standard in vsi sledijo temu. Vendar ta standard temelji na omejitvah človeške inteligence. Mravlje nas lahko veliko naučijo o vodenju. Živijo v kolonijah, ki jih sestavljajo milijoni posameznikov. Nimajo vodij, vendar delujejo dobro, kar lahko vidimo na *sliki 3*. Prva stvar, ki jo ljudje lahko naredimo, je osredotočenje na naravni pristop. Ljudje se rodimo z določenimi naravnimi težnjami, vendar se večino nagibov naučimo. Te naučene težnje ustvarjajo razlike zaradi številnih razlogov. Ti razlogi vključujejo vir znanja, način izvajanja, izkušnje, pričakovanja in motivacijo tistih, ki se učijo. Posledica tega je, da so naučene težnje zelo nepopolne. Vodstvo je ena takšnih teženj. Odstranitev koncepta vodenja je prvi korak k potencialno bolj optimizirani organizaciji (Wartzman in Drucker, 2013).

6. KAJ SE LJUDJE LAHKO PRI ORGANIZACIJI IN VODENJU NAUČIMO OD MRAVELJ

Filozofija mravelj je, da je prava mravlja na pravem delovnem mestu. Vsaka šteje. Mravlje ne razlikujejo med dobrimi in slabimi izvajalci. Preprosto postavijo prave mravlje na prava delovna mesta. Močne mravlje postanejo bojevniki, srednje velike postanejo delavci. Ko se jim približajo mravlje iz drugih kolonij, jih takoj prepoznajo kot »napačne na napačnih položajih« in jih odstranijo. Ljudje lahko storimo enako. Če oseba ne deluje dobro, ga lahko postavimo na pravo mesto, namesto da jo kritiziramo. Če za osebo ne najdemo pravega dela, ga šele takrat odslovimo. Če pa se odločimo, da jih bomo obdržali, se moramo prepričati, kaj res počnejo in da vsi v organizaciji to priznavajo.

Vse mravlje imajo v mislih en cilj - preživetje. Vse, kar počnejo, je povezano s tem ciljem. Tudi ljudje lahko razvijejo skupni cilj. Ljudem je potrebno predstaviti vizijo, poslanstvo. Vsi bi morali poznati vizijo in se strinjati s poslanstvom in strategijo. Pravi skupni cilj pa lahko vodi vsako organizacijo v pravo smer. Samo prepričati se je treba, da je vizija pravilna in da so podana orodja za izvajanje. Raziskovalci so ugotovili, da je uvajanje spremembe način življenja mravelj. V enem poskusu je raziskovalec postavil strup na drevo, ki je bil glavni vir hrane za mravlje. Ko so mravlje v kolonijo prinesle strup in ugotovile, da je to nekaj, kar je na njih negativno vplivalo, so prenehale hoditi na tisto drevo. V drugem poskusu je raziskovalec odstranil dostop mravelj do hrane. Namesto da bi organizirale stavko, kot bi to naredili ljudje, so se mravlje preusmerile na drugo nalogo - skrb za otroke. Mravlje lahko uspejo, ker sprejemajo spremembe. Ljudje bi morali storiti enako. Vključevanje sprememb v organizacijo namreč spodbuja inovativnost in produktivnost (Shlosberg, 2010).

Mravlje se bolj osredotočajo na potrebe kolonije kot na lastne potrebe. Skrbijo za svoje matere, pomagajo drugim mravljam pri gradnji in prinašajo hrano ter se borijo za preživetje kolonije. Ljudje lahko in bi morali sprejeti podoben pristop. Delo v korist sebe namreč lahko škoduje splošni uspešnosti ali celotne organizacije. Ljudje bi se morali bolj osredotočiti na skupine in organizacije. Večina ljudi verjame, da jih že veliko dela za skupno dobro, vendar pa raziskave kažejo, da je večina ljudi samocentrična, čeprav verjamejo drugače (Shlosberg, 2010).

S trdim delom, timskim pristopom, marljivostjo in vztrajnostjo so mravlje sposobne zgraditi nebotičnike. Ne potrebujejo nekoga, da jih napoti na delo, so proaktivne (Ants management, b.d.). Pomeni, da se lahko ljudje naučimo od mravelj te pomembne lekcije. Proaktivnost na delovnem mestu se namreč nanaša na vedenje, ki vključuje samoiniciativno prevzemanje kontrole in povzročanje sprememb v delovnem okolju. Glavna značilnost proaktivnega vedenja je vnaprejšnje ukrepanje s ciljem vplivanja na prihodnje stanje. Pomeni povzročiti spremembo namesto na spremembo zgolj čakati. Spremembe pa so glavno vodilo razvoja in inovacij. Mravlje delajo zvesto in ne potrebujejo zunanjih vzvodov, ki bi jim dajali smernice, da delajo prav in delajo prave stvari. So zveste same sebi in tega bi se morali naučiti tudi ljudje. Delajo trdo, so marljive in bodo v primeru, da je njihovo mravljišče uničeno, zgradile novo. Na slabe čase mislijo tudi takrat, ko uživajo in načrtujejo vnaprej. Na primer, medene mravlje celo poletje zbirajo in skladiščijo hrano, da bodo potem lahko preživele zimo. Prav tako mravlje vedo, da zima ne bo trajala za vedno, da bodo lahko kmalu prišle na plano, torej ostajajo vedno pozitivno naravnane (Ants manegement. b.d.).

Ljudje velikokrat obupamo pri svojem delu, organizacije ne obvladujejo sprememb ali pa jih zaposleni enostavno ne želijo sprejemati. Zgodi se, da opustimo svoje cilje. Mravlje nas učijo drugače in po njih bi se lahko zgledovali tudi v organizacijah in posamezniki. Če opazujemo mravlje na njihovi poti in jih poskušamo ustaviti, bodo poiskale novo pot. Nikoli ne odnehajo. Preplezale bodo ovire, se vzpenjale, spuščale ali šle okrog, vedno bodo iskale novo pot. So torej fleksibilne in vedno pripravljene na spremembe in vedno pripravljene najti način, da pridejo tja, kamor želijo.

Mravlje so disciplinirane, hodijo v vrsti ena za drugo, vestno sledijo mravlji spredaj, se premikajo v vrsti in nikoli ne prekinejo te linije. Tudi v organizacijah se ne bi smelo dopuščati napačnega vedenja in nediscipline. Vodja bi moral voditi in motivirati svojo ekipo v isti smeri za doseganje skupnega cilja. Karkoli mravlje delajo, je to v dobrobit kolonije, vse delajo skupaj, poznajo svoje delo in ga tudi dokončajo. Vsako delo pri mravljah je pomembno in opazile bodo, če katera ne bo opravila svojega dela. Pomembno je tudi zaupanje. Ko mravlja označi sled, ki vodi do hrane, vse ostale mravlje sledijo tej poti. Zaupajo prvi mravlji, da je označila pravo pot. Podobno bi se moral tudi vodja v organizaciji vzdržati mikro upravljanja in zaupati vsakemu posamezniku.

Bodimo kot mravlje. Nikoli ne obupajmo, glejmo naprej, ostanimo pozitivni in naredimo vse, kar lahko. Mravlje nas lahko naučijo nekaj dobrih lekcij, vendar pa ni nujno, da kolektivni konsenz vedno vodi do učinkovite odločitve v poslovnem svetu in življenju. Morda je pri tem vredno upoštevati še misel filozofa Kanta »*drzni si biti pameten in uporabiti svoje znanje*«.

7. PODJETJE DORSSEN SE PRI VODENJU LJUDI ZGLEJUJE PO BIONIKI

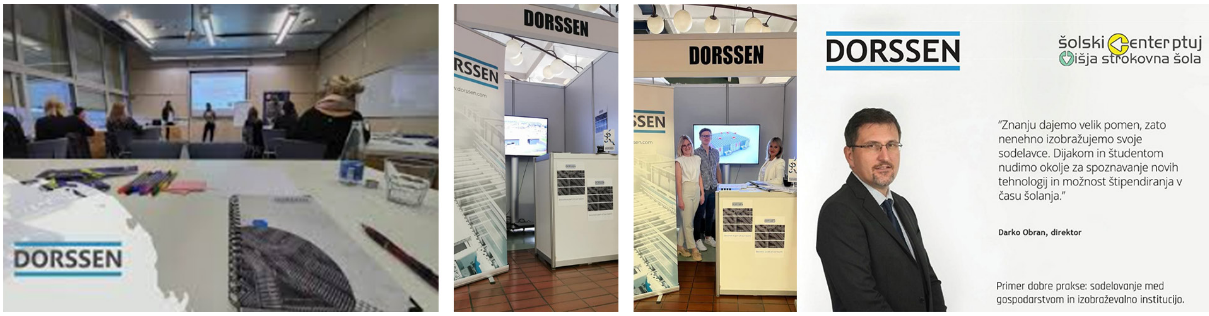
Primer dobre prakse najdemo pri oblikovanju organizacijske strukture podjetja Dorssen.

Organizacijska struktura je način, kako so zaposleni v našem podjetju razporejeni in kako so odgovornosti in naloge razporejene med nami. Dobra organizacijska struktura je ključnega pomena za učinkovito delovanje našega podjetja in dosego ciljev. Uporaba bionike pri oblikovanju organizacijske strukture nas privede do učinkovitejšega delovanja in izboljšanja uspešnosti.

Navajamo nekaj načinov, kako se bionika uporablja za izboljšanje organizacijske strukture podjetja Dorssen:

1. Uporaba bioloških omrežij za oblikovanje organizacijskih struktur: biološka omrežja, kot so nevronski sistemi in hormonski sistemi, so primeri kompleksnih sistemov, ki se odzivajo na spremembe in se lahko prilagajajo okolju. Pri oblikovanju organizacijske strukture podjetja Dorssen smo uporabili podoben pristop, kjer se organizacija prilagaja spremembam v okolju.
2. Uporaba naravnih materialov za gradnjo prostorov za delo: uporaba naravnih materialov, kot so les, kamni, rastline itd., izboljša delovno okolje in spodbuja kreativnost in produktivnost zaposlenih.

3. Uporaba naravnih oblik pri oblikovanju prostorov za delo: naravne oblike, kot so krogi, spiralne oblike in valovite linije, izboljšajo vizualno estetiko in ustvarijo bolj naravno delovno okolje.
4. Uporaba bioloških procesov za izboljšanje učinkovitosti delovanja podjetja: biološki procesi, kot so procesi fotosinteze ali biološkega kroga, služijo kot modeli za izboljšanje učinkovitosti poslovnih procesov, kot so proizvodnja, dobava in upravljanje zalog.
5. Uporaba pristopa »od spodaj navzgor«: podobno kot v naravi, kjer so manjše enote odgovorne za delovanje celotnega sistema, podjetje izboljša svojo organizacijsko strukturo tako, da daje večjo odgovornost manjšim delovnim skupinam. To spodbuja inovativnost in samostojnost vseh zaposlenih.
6. Spodbujamo stalni razvoj zaposlenih in jim pomagamo, da razvijajo svoje spretnosti in znanja. Na ta način izboljšamo učinkovitost zaposlenih, kateri s svojo produktivnostjo in motivacijo prispevajo k uspehu podjetja.
7. Vodstvo podjetja Dorssen je vzor svojim zaposlenim s svojim ravnanjem in odločitvami. S tem pritegnemo spoštovanje in zaupanje zaposlenih ter ustvarjamo pozitivno delovno okolje.



Slika 4. Podjetje Dorssen – oblikovanje organizacijske infrastrukture

8. ZAKLJUČEK

Rezultat podjetij so izdelki, njihova kakovost povečuje prodajo. Kakovost izdelka pa je odraz dela vsakega posameznika v tem procesu. Mravlje težijo k opravljanju svojega dela in tako bi morala tudi organizacija, vodstvo podjetja težiti v tej smeri. Ustvariti bi morala okolje, kjer se delavec počuti pomembnega, potrebnega in da se njegovemu delu zaupa. Tako bomo dobili samoorganizacijo, kjer bodo zaposleni sami, kakor mravlje, izločili tiste, ki ne skrbijo za dobrobit podjetja.

Literatura in viri

Ants manegement. (b.d.). https://www.slideshare.net/PranavT94/ants-management-ppt

Brace, L. (2016). *What ants can teach us about self-organization*. https://management30.com/blog/what-ants-can-teach-us-about-self-organization/

Dominvrt.si. (b.d.). https://www.dominvrt.si/dobro-je-vedeti/kako-se-znebiti-mravelj-2.html

Fare, A. (2016). *What can ants teach us about organization design* (or the lack thereof). https://medium.com/@andreafare/what-can-ants-teach-us-about-organization-design-or-the-lack-thereof-27b73a7cb330

Hearts Pest Management. (b.d.). *How Ants Communicate*. https://www.heartspm.com/fascination-with/ants/how-ants-communicate.php

Malik, F. (2007). *Bionics Fascination of Nature*. 1. izd. Munchen: MCB Verlag, Photos of Genus Camponotus. (b.d.) https://www.inaturalist.org/taxa/62781Camponotus/browse_photos

Shlosberg, M. (2010): *What Ants Can Teach Us About Leadership*. https://www.managementexchange.com/hack/what-ants-can-teach-us-about-leadership

Shriber, T. (2020). *Ants (Active Non-Transparent ETFs) Are on the Rise* https://www.etftrends.com/active-etf-channel/ants-active-non-transparent-etfs-are-on-the-rise/

Wartzman, R., Drucker, P. (2013). *A Bug's Life: What Managers Can Learn From Ants*. https://www.forbes.com/sites/drucker/2013/05/07/managers-can-learn-from-ants/#320f37226243