AN ANALYSIS OF THE EU'S INVESTMENT POLICY AFTER CETA: EFFECTS ON THE BULGARIAN ECONOMY

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Abstract: In this paper we analyze the changes of the EU's investment policy provoked by the mixed trade agreements. The EU's investment policy has turned towards attaining bilateral trade agreements. One of these "new-generation" agreements is the Comprehensive Economic and Trade Agreement (CETA). It is in a process of being ratified by the national parliaments of the EU members. This study is focused on the general characteristics of CETA and the eventual problems posed by its regulatory and wide-ranging nature. We prove that the significance of this agreement pertains not only to the economic influence, that it will have on the European and Canadian economies, but CETA is also the first trade agreement to have been negotiated with a focus on investment protection and a change in the EU's investment policy. The current study reveals the influence arising from the conclusion of CETA on the Bulgarian economy with an emphasis on electronic industry, machinery industry and manufacturing. We estimate both – the direct and indirect effects on Bulgaria's exports, imports, value added and employment. In order to estimate the influence, we apply the multi-regional input-output model. It is proved that CETA will have a low but positive impact on the Bulgarian economy. After constructing different scenarios of development, we prove that the influence of CETA on the Bulgarian economy will amount to 0.010% GDP. The average total employment will be increased by more than 172 jobs in Bulgaria, which in turn, relative to the labor market, represents less than 0.01% of the total employment.

Keywords: International Investment Agreement, CETA, Investment Court System.

1. INTRODUCTION

A nalyzing the concept of "investment", "investor" is an important issue not only from a theoretical and practical point of view, but because of their definition, scope and application in the legal systems of EU Member States. Canada and Bulgaria enjoy mutually beneficial commercial relations – trade, investment, corporation on innovation, science and technology. The Comprehensive Trade and Economic Agreement (CETA) is defined as a complex trade agreement because it liberalizes economic relations between the parties, not only in the sectors that concern trade of goods and services but in "investor-to-state-dispute settlement". The settlement of investment disputes between investors and countries within the scope of CETA is a new procedural and legal mechanism, replacing the ISDS method. The focus is on the protection of investments, in particular those related to the settlement of disputes between states and investors. There are questions whether the text of CETA is "in favour" of corporate investors over the states or enables investors to arbitrage against state under ISDS. *Important contribution of this research is the description of the positives and negatives of CETA ratification with a focus on the investment policy, measuring the economic effects on the Bulgarian economy.*

Methodological and theoretical basis of the research can be formulated in the following sequence:

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- 1. Theoretical analysis based on previous theoretical and empirical researches;
- 2. Development and implementation of practical econometric models. The analysis which reflects the quantitative results of the application of econometric methodology is based on the Multi-regional Input-output Model.

2. THEORETICAL AND LITERATURE REVIEW

In recent years, as the processes of globalization and liberalization of the financial markets have increased, customs duties are increasingly losing their fiscal function. Therefore, the EU policy, aiming to conclude economic agreements with strong and developed economies such as the US and Canada, is rather geopolitical in nature rather than commercial and fiscal. According to Grigonis (2019) the Court of Justice of the European Union has estimated the compatibility of the reformatory Investment Court System of the EU's trade agreement with Canada. He considers that CETA's ICS mechanism could result in adverse effects on uniform interpretation of EU law and negatively affect the autonomy of the EU legal order. He describes that the use of "prevailing interpretation" foreseen in CETA does not ensure the CJEU's exclusive jurisdiction. Involvement of the CJEU in the proceeding of the ICS mechanism is suggested as an option to resolve the incompatibilities of the ICS with the autonomy of EU legal order.

CETA is considered as a new generation agreement. It does not concern only free trade; it regulates the investments' flows and intellectual property rights. CETA will eliminate 98% of custom duties and import tariffs. The final chapter of CETA concerning a new version of investor state dispute settlement sets CETA apart from the others existing bilateral trade agreements. The principal sectors that CETA promise to bring changes and facilitate accelerated smooth trading relationship are exposed in Figure 1. CETA will be one of the most ambitious and comprehensive FTAs ever signed by either Party, and covers namely: Comprehensive tariff elimination across all sectors; Improved access for goods and services; Greater certainty, transparency, and protection of investments; New opportunities in procurement markets.



Figure 1. Principal Components of CETA **Source:** Government of Canada https://www.fdfa.be

CETA is an important trade agreement, not only because of its content and text, but because of the two parties – EU and Canada. EU and Canada represent 23% of the world's GDP. The Canada-EU Comprehensive Economic and Trade Agreement gives companies based in Canada unprecedented access to 28 countries, more than half a billion consumers and a \$24-trillion market. In 2018, Canada's merchandise exports to the EU were nearly \$44.5 billion, an increase of 7% over 2017. The European Commission has published a comparative analysis – 2018 vs 2017. The results prove that CETA will boost EU export. It is reported an increase of 15% of EU goods exports to Canada in 2018 compared to 2015-2017 and an increase equal to 7% of EU agricultural exports to Canada in 2018 compared to 2015-2017.



Figure 2. The trade deal is boosting EU exports Source: www.consilium.europa.eu

Bulgaria's export growth has increased with 31%. It is one of the European countries whose export has boosted as a result of CETA. The countries, that we should focus on are the following ones: Cyprus – an increase in export growth about 84%; Estonia – an increase in export growth about 29%; Hungary – an increase in export growth about 28% and Ireland – an increase in export growth about 25%.



Figure 3. European countries with the highest export growth Source: www.consilium.europa.eu

In 2018, the top five fastest growing large export sectors were aluminum (up 378%), motor vehicles and parts (up 89%), mineral fuels and oils (up 84%), inorganic chemicals (up 82%) and wood pulp (up 45%). CETA will give opportunities for greeting new jobs. According to the results of the European commission 865,000 in the EU are tied to exports to Canada in 2018 compared to 2015-2017, and 221,000 people in the EU are working for Canadian companies.

CETA is an agreement that provoked debates about the positives and negatives by its ratification. According to Glossop, Dattu and Kim (2017) CETA presents essential opportunities for Canadian and EU businesses. CETA will confer significant tariff and non-tariff trading advantages over competitors in countries who are not entitled to the benefits of CETA. In addition, CETA can also potentially benefit EU and non-EU companies who invest in Canada and then use Canada as a "gateway" to conduct business on a free trade basis in both North America (using the North American Free Trade Agreement or "NAFTA") and the EU (using CETA). CETA will ensure investors are accorded both "national treatment" and "most-favoured-nation treatment," meaning that investors cannot be treated in a less advantageous manner than domestic investors or investors of any other country. However, governments may act in the public interest when regulating health, safety and the environment and this will not be considered contrary to the investment provisions. In Figure 4, we have systematized the main positive and negative effects of CETA.

| Strengths | Weaknesses |
|---|---|
| CETA is boosting EU export; Tariff Elimination for Trade in Goods; Facilitate mutual recognition of diplomas and regulate investment disputes by creating a new system of courts. | Unclear definition of ISDS mechanism; It benefits only big business and multinational corporations; Tariff Elimination for Unhealthy food (GMFs) |
| Opportunities 1. Labour mobility and new jobs; 2. Investment protection; 3. It creates a more level playing field between Canada and EU on intellectual property rights. | Threats CETA may weaken consumer rights; The impact intellectual property rights in CETA will grant monopoly to a given medicine.; ISDS mechanism which makes critics fear that multinational corporations could sue national governments for a great sum of money if they considered that the government policies had a bad impact on their business |

Figure 4. Benefits and Threats of CETA Source: Authors' systematization

According to a report of the European Commission (2016) Bulgaria will benefit from tariffs in machinery and electrical equipment; optical instruments and medical instruments; chemicals; pharmaceuticals. Bulgarian farmers will benefit by the offered opportunities by CETA. With CETA, Bulgarian corporations will get an access to Canada's public procurement market. Canada will bring copyright protection of Bulgarian innovations in line with international standards.

CETA requires a relationship between investors and the assets without defining its notions. Section F of CETA Chapter 8 defines the rules on the settlement of investment disputes between investors and State. CETA includes a new model of investor-to state dispute settlement".

| | | | U | U | |
|-----|------|--|---------------------------|--------------------|-----------------------------------|
| N⁰ | Year | Case name | Home state of investor | Responded State | Outcome of original proceeding |
| 1. | 2018 | ACF v BG | Malta | Bulgaria | Pending |
| 2. | 2018 | Levy and Ramot v. BG | Israel | Bulgaria | Pending |
| 3. | 2016 | CEZ v. BG | Czechia | Bulgaria | Pending |
| 4. | 2015 | ENERGO PRO v. BG | Czechia | Bulgaria | Pending |
| 5. | 2015 | Shareholding in Corporate Commercial Bank v. BG | Oman | Bulgaria | Pending |
| 6. | 2013 | EVN v. BG | Austria | Bulgaria | Decided in favour of State |
| 7. | 2012 | Novera v. BG | Netherlands | Bulgaria | Data not available |
| 8. | 2011 | Accession Easternv. BG | Sweden | Bulgaria | Discounted |
| 9. | 2010 | ST-AD v. BG | Germany | Bulgaria | Decided in favour of State |
| 10. | 2003 | Nova Plama AD v. BG | Cyprus | Bulgaria | Decided in favour of State |

| | Table 1. | Number | of cases | against | Bulgaria |
|--|----------|--------|----------|---------|----------|
|--|----------|--------|----------|---------|----------|

Source: https://icsid.worldbank.org/en/Pages/cases/AdvancedSearch.aspx

From the data in Table 1, we may conclude that there are five pending cases against Bulgaria and only three of the cases are closed. It seems that during the recent years, investors and corporations are realizing the opportunity that arbitration gives them. The files of the cases against Bulgaria are secret, so there is no formal information for their effects on the Bulgarian economy.

Kirkpatrick et. al (2011) describe the expected impact of the CETA in a long-term aspect. In the study positive impact for both parties of the partnership is predicted: namely on population welfare, real GDP (CETA should contribute to an increase in EU economic growth of approximately 0.1 to 0.2% and in Canada by 0.18 to 0.36%), exports, and positive impact on wages.

Dovalova et. al (2018) examine the impact of the Economic and Trade Agreement (CETA) between the European Union and Canada on the Slovak economy, with an emphasis on the automotive, mechanical engineering and electronics industries. The aim is to assess the direct and indirect effects of changes in international trade on Slovakia, applying the multi-regional entry-exit model. Based on different development options, it is estimated that the average impact of CETA on the Slovak economy as a result of the removal of tariff barriers will amount to 0.013% of GDP, while the impact on job creation is estimated at 0.012% of total employment. Removing tariff barriers should lead to an 8% increase in exports to Canada on average, with a strong price response of as much as 18%

Ventura and Prego (2017) examine the impact of CETA on trade flows between Portugal and Canada with wine, assessing its impact on the Portuguese wine sector. The research contains an in-depth study of the Canadian wine sector, Canadian profile and trends analysis to deal with strengths, weaknesses, opportunities and threats related to the positioning of Portugal on the Canadian market with a view to the entry into force of CETA.

Gullu, Kilic and Sanlioglu (2017) evaluate the EU-Canada Comprehensive Economic and Trade Agreement (CETA) in terms of Turkish foreign trade. According to them CETA that European Union signed with Canada on November 30, 2016 has the quality to result in economic, social

and cultural consequences by making norms as compatible not only by removing tariff barriers differently from formers. In addition to this, consequences that cause some concerns in terms of Turkey that is still candidate country to EU are possible. They mention that Turkey had stayed out of negotiation period of CETA as is the case with meetings of Transatlantic Trade and Investment Partnership (TTIP) that EU started negotiations with USA. On the other way, Turkey has been affected by CETA because of applying Customs Union Agreement with EU since 1996. Like agreements that EU has made with other countries, CETA will deepen the negative effects of Customs Union Agreement on foreign trade of Turkey. According to them, Turkey has been affected by CETA because it was applying Customs Union Agreement with EU since 1996. Like agreements that EU has made with other countries, EU-Canada Comprehensive Economic and Trade Agreement is going to deepen the negative effects of Customs Union Agreement on foreign trade of Customs Union Agreement on foreign trade of Customs Union Agreement on foreign trade of Customs Union Agreement with EU since 1996. Like agreements that EU has made with other countries, EU-Canada Comprehensive Economic and Trade Agreement is going to deepen the negative effects of Customs Union Agreement on foreign trade of Turkey.

In a report of Department of International Trade, Ciuriak, Dadkhah, and Xiao (2018) explored the impact assessment for the UK ratification of CETA. The study shows the potential consequences of this agreement for the UK economy. They analyse the impacts of the European Union (EU)-Canada Comprehensive Economic and Trade Agreement (CETA) on the United Kingdom (UK) and Canada. The majority of this agreement came into effect when it was provisionally applied on 21 September 2017. Their analysis focuses on the economic impact of CETA under two scenarios: 1. CETA comes into effect, liberalising trade between the EU28 and Canada in 2017. The UK and Canada continue to trade on CETA terms following the UK's exit from the EU. 2. CETA comes into effect, liberalising trade between the EU28 and Canada. From 2019, the UK and Canada trade under WTO Most Favoured Nation (MFN) rules, while EU27 and Canada continue to trade under CETA preferences. Their results from scenario 1 show CETA increases UK bilateral exports (£676 million), GDP (£730 million) and economic welfare (£408 million) in 2030 against a baseline of no CETA. The UK's reversion to MFN-based trade with Canada (scenario 2) generates minor negative impacts on the UK from trade diversion, equivalent to a fall in UK GDP by £69 million. Ciuriak, Dadkhah, and Xiao (2018) prove that the difference between the two scenarios quantifies the net contribution of liberalisation between the UK and Canada, and thus the opportunity cost to the UK of not remaining in CETA following EU exit. This is estimated at just under £800 million in forgone GDP.

Tamminen, Niemi and Hakkala (2017) explore the expected economic impacts of the EU-Canada Comprehensive Economic and Trade Agreement in Finland. Their study analyses the expected impacts of the agreement to the Finnish economy by applying a GTAP CGE model and microdata analyses on the current trade structures. They prove that the expected GDP impact of 0.04 percent to Finland is slightly higher than the EU average (0.03 percent). In terms of value added, most sectors in Finland grow minimally as a result of the CETA. The highest bilateral trade effects are found for motor vehicles and transport equipment industries where both bilateral exports and imports are expected to increase by over 100 percent. Further, the extensive liberalisation of services trade is likely to have some positive effects for Finland as some 30-50 percent of the current domestic value added from Finnish exports to Canada originated from service exports. Even nearly total opening of public procurement markets to EU exporters in Canada is not, again, likely to result in very large benefits for EU firms in absolute terms, while some increases are possible. One of their most significant result is that the reduction of fixed and marginal costs of exporting in the CETA agreement is likely to open the Canadian market to Finnish SME exporters, which have not entered the Canadian market as well as other export markets until now.

3. ECONOMETRIC METHODOLOGY FRAMEWORK

The current research is based on the applied methodology of Dovalova et al (2018). The data were provided by the following sources: National Statistical Institute, Eurostat, the World Bank, United Nations Conference on Trade and Development (UNCTAD) and the International Trade Centre (ITC). The basic source of data for the model estimates of the impact of CETA on the economy of Bulgaria is the World Input-Output Database, which includes the World Input-Output Tables (WIOT). The applied econometric methodology is Multi-regional Input-output Model (MIOM). Because of the fact that the applied input-output tables include: intermediate consumption data, value added data and final use table. We have constructed matrices and vectors based on the WIOT. The intermediate matrices are defined by Z, the final demand matrix by Y, the total production by X, the value added by p and the employment by e. The Z matrix has the following form:

$$Z = \left\{ z_{ij}^{pu} \right\} = \begin{bmatrix} z^{11} & \cdots & z^{1k} \\ \vdots & \ddots & \vdots \\ z^{k1} & \cdots & z^{kk} \end{bmatrix}$$
(1)

Where the production of industry i from the country of origin p intended for intermediate consumption in industry j in the target country u. Total production matrix includes information for the production of industry **i** in **k** country. We apply an input coefficient matrix with the following form:

$$A = z \widehat{x^{-1}}$$
⁽²⁾

As it is detailed explained by Davalova et. al. (2018) and Kirckpatrick (2011) by applying total production vector, final demand vector and intermediate consumption matrix, we have the ability to construct a system of equations in order to deduce the MIOM. Following the aforementioned steps, MIOM gets the following form:

$$x = (I - A)^{-1}y = Ly$$
(3)

Where

L - Leontief inverse matrix. Leontief (1953) uses data from 1947 input – output model of the U.S economy. He proves that the US was a capital – rich country and had abundance of capital relative to labour than did its trading partners.

In order to analyze the effects on final demand, we apply value added and employment vectors. The vector of value added may be presented by the following equation:

$$p' = [p'^1 \dots p'^k] = [p_1^1 \dots p_n^1 \dots p_1^k \dots p_n^k]$$
(4)

When we divide by the production of industry, the result is value added coefficient. It presents the value added produced by individual industries to one unit of production. Adding the Leontief inverse matrix, we aim to calculate a matrix of cumulative value-added coefficients. The matrix will be presented by the following form:

$$P = \widehat{p_c}L = \begin{bmatrix} \widehat{p_c^1} & \cdots & 0\\ \vdots & \ddots & \vdots\\ 0 & \cdots & \widehat{p_c^k} \end{bmatrix} x \begin{bmatrix} L^{11} & \cdots & L^{1k}\\ \vdots & \ddots & \vdots\\ L^{k1} & \cdots & L^{kk} \end{bmatrix}$$
(5)

The influence of the changes on value added and employment may be presented as:

$$p^{gen} = \hat{p_c} L y^{ex} \tag{6}$$

$$e^{gen} = \hat{e_c} L y^{ex} \tag{7}$$

Where

 p^{gen} - effects on value added;

 e^{gen} - effects on changes of employment;

 y^{ex} - changes in the final demand.

In order to establish which industries should be included in the current research, we observe trade flows between Canada and Bulgaria (Figure 5 and Figure 6). Bilateral merchandise trade between Canada and Bulgaria in 2016 is \$450.6 million. The highest-valued imports in 2016: men's suits and ensembles, medications, electrical and electronics together accounting for 11.9% of the total value of Canadian imports from Bulgaria. The highest-valued exports in 2016: dredgers and floating or submersible vessels, and copper ores, together accounting for 84.9% of the total value of Canadian exports to Bulgaria.



Figure 5. Most Highly Valued Exports by Product Category (\$ millions) **Source:** https://lop.parl.ca/staticfiles



Figure 6. Most Highly Valued Imports by Product Category (\$ millions) Source: https://lop.parl.ca/staticfiles

The direct effects of CETA on the Bulgarian economy are measured by the exports of intermediates and final products to Canada. The indirect effects are measure by the exports of intermediates to other countries which export them to Canada. In order to reveal the effects of CETA on the Bulgarian economy, we import the following variables as exogenous in the constructed model: dynamic in GDP in EU Member states; dynamic in GDP in Canada; an increase in total exports of the EU and Canada; an increase in the total export of Bulgaria.

To estimate the change of exports from Bulgaria to Canada we need to calculate the elasticity. The values of elasticities are generally not known with precision. According to Donnely et. al (2004) elasticities are preferably generated by statistical or econometric methods based on the historical behavior of prices and quantities and then examined for consistency with economic theory and analysts' intuition about products and industrial processes. In this study, we apply three methodologies in order to estimate elasticity. The USITC model is a single country model which includes 497 sectors (Ingersoll et. al., 2004). The GTAP model is a global model that includes 497 sectors. It depicts 78 countries and includes 57 commodities (Ingersoll et. al., 2004). Gallaway, McDaniel and Rivera (2002) estimate short – term elasticity by an econometric approach.

| | GTAP | USITC | Gallaway* | | | |
|------------------------|------|-------|-----------|--|--|--|
| Electronic Industry | 2.1 | 3.0 | 1.024 | | | |
| Manufacturing industry | 2.1 | 3.2 | 2.125 | | | |
| Machinery industry | 3.5 | 4.5 | 3.15 | | | |

| Table 2. | Estimated | Elasticities |
|----------|-----------|--------------|
|----------|-----------|--------------|

Note: *Calculated based on converters and aggregated using weightings of the most important export commodities from Bulgaria to Canada in corresponding industries.

Source: Ingersoll et al. (2004); Gallaway, McDaniel and Rivera (2002).

To estimate direct and indirect effects, various scenarios are constructed (Kirckpatrick, 2011). The Baseline scenario aims to quantify the effects in the absence of CETA.

| | Variant (1-4) | Change in the Bulgarian GDP (5) | Elasticity of the change of export (a-c) |
|----|--|---|---|
| 1 | Scenario A, indirect effects | It is characterized by a lack of direct change in the exports of final production from Bulgaria to Canada | - |
| 2 | In increase in the export to 0,05 % (average leve the EU Member States) | | - |
| 3 | Scenario A, limited | Depending on the elasticity | Galllaway |
| 4 | liberalisation | Depending on the elasticity | USITC |
| 5 | | Depending on the elasticity | GTAP |
| 6 | Scenario D, indirect effects | It is characterized by a lack of direct change in the exports of final production from Bulgaria to Canada | - |
| 7 | Scenario | In increase in the export to 0,07 % (average level of the EU Member States) | - |
| 8 | D, absolute | Depending on the elasticity | Galllaway |
| 9 | liberalisation | Depending on the elasticity | USITC |
| 10 | | Depending on the elasticity | GTAP |

| Fable 3. | The constructed | scenarios for | estimation | of CETA | effects |
|-----------------|-----------------|----------------|------------|---------|---------|
| | on the | e Bulgarian ec | conomy | | |

Source: Authors' modification based on Davalova (2018)

4. EMPIRICAL ANALYSIS

4.1. Indirect effects of CETA on the Bulgarian economy

The low final result of the indirect effects (scenario 1) implies an increase of gross value added in the whole Bulgarian economy by approximately \$3 million while the highest estimate (scenario 6) is about \$4 million. We get identical results when exploring the effects on individual industries. Scenarios that do not imply a direct change in the volume of trade with final production between Bulgaria and Canada report an increase in the employment from 78 to 93 workers as e result of a change in the volume of national demand caused by trade flows between Canada and EU Member States. So, the structure of impacts in individual industries is very similar to the structure of the influences on value added.

| Table 4. Indirect Effects on | Value Added and Em | ployment in Se | lected Scenarios |
|------------------------------|--------------------|----------------|------------------|
| | | | |

| | Effects on v USD r | value added nillion | Effects on employment USD million | | |
|------------------------|-----------------------|------------------------|--------------------------------------|----|--|
| Scenario | 1 6 | | 1 | 6 | |
| National economy | 3.08 | 4.25 | 78 | 93 | |
| Electronic Industry | 0.08 | 0.15 | 8 | 11 | |
| Manufacturing industry | 0.19 | 0.28 | 14 | 27 | |
| Machinery industry | 0.14 | 0.14 0.21 7 | | 11 | |

Source: Authors' calculations

The expected increase in the gross exports of Bulgaria as a result of the indirect ones the effects of CETA range from \$ 120,000 to \$ 230,000. Estimates on the effects on net exports range from \$ 120,000 to \$ 250,000. In both scenarios, there is a significant trade surplus. The most significant effect from the explored industries is recorded in the manufacturing sector.

| Table 5. Indirect Effects on Exports and Net Exports to Canada in Selected Scenarios |
|--|
|--|

| | Effects on of Bulgaria USD n | the export to Canada nillion | Effects on the net export of Bulgaria to Canada USD million | | |
|------------------------|------------------------------------|------------------------------------|---|-------|--|
| Scenario | 1 6 | | 1 | 6 | |
| National economy | 0.12 | 0.23 | 0.12 | 0.25 | |
| Electronic Industry | 0.01 | 0.02 | 0.01 | 0.02 | |
| Manufacturing industry | 0.01 | 0.03 | 0.01 | 0.031 | |
| Machinery industry | 0.01 | 0.02 | 0.01 | 0.024 | |

Source: Authors' calculations

4.2 Total effects of CETA on the Bulgarian economy

The direct effects of CETA are measured by quantifying effects on value added and employment. In a report of the European Commission: "On the output side, GDP measures the sum of the gross value added created through the production of goods and services in the individual sectors of the economy. On the income side, it measures the sum of all incomes generated by the production of goods and services, and on the expenditure side, it measures the sum of domestic and (net) external demand for the produced goods and services" (https://www.ecb.europa.eu/ pub/pdf/other/mb200312_focus06.en.pdf). So, we may conclude that value added is considered to be one of the most important parts of GDP.

From the results in Table 6 the most optimistic scenario (i.e. the highest positive scenario for the Bulgarian economy) seems to be number 10. In the case of elastic changes after the removal of duties and the optimistic option D, we expect an increase of 0.012% of GDP to Bulgaria, which in absolute terms is \$ 9.35 million. Following the complete abolition of the tariff restrictions on textile exports to Canada, and taking into account the sensitivity of the textile industry to this change, we find that the increase in exports will lead to an increase in value added by 0.192%. The negative impact of CETA on the Bulgarian economy is presented in scenario 3. Short - term elasticity of Gallaway, McDaniel, and Rivera (2002) reveals almost completely non-elastic relation between the reduction of customs duties and the export of final products in the textile industry. In combination with partial tariff liberalization, the total impact on Bulgaria's GDP reaches \$ 4.20 million, which represents approximately 0.003% of GDP. The average value of the total impact of the considered scenarios for the national economy is \$ 10.15 million, with a standard deviation of \$ 4.28 million. This increase corresponds to approximately 0,010% of GDP, with a major contribution from the manufacturing sector and the mechanical engineering industry. The difference between the most optimistic and the most pessimistic scenario for the impact of the CETA is approximately \$ 5.15 million, depending on the level of tariff liberalization and the sensitivity of Bulgarian exports.

| | Effect o added in national | n value the whole economy | Effect o added in e indu | on value electronics istry | Effect o added in 1 indu | on value nachinery istry | Effe value a manufa | ct on dded in cturing |
|-----------------------|----------------------------------|---------------------------------|--------------------------------|----------------------------------|--------------------------------|--------------------------------|---------------------------|-----------------------------|
| Scenario | USD million | % change | USD million | % change | USD million | % change | USD million | % change |
| 2 | 4.23 | 0.003 | 0.12 | 0.018 | 0.51 | 0.021 | 0.48 | 0.020 |
| 3 | 4.20 | 0.003 | 0.13 | 0.009 | 0.49 | 0.018 | 0.95 | 0.044 |
| 4 | 6.28 | 0.006 | 0.15 | 0.012 | 0.61 | 0.023 | 3.12 | 0.118 |
| 5 | 7.65 | 0.008 | 0.20 | 0.017 | 0.48 | 0.022 | 4.25 | 0.135 |
| 7 | 6.28 | 0.006 | 0.19 | 0.015 | 1.09 | 0.037 | 3.64 | 0.121 |
| 8 | 9.12 | 0.011 | 0.20 | 0.019 | 1.21 | 0.039 | 4.58 | 0.139 |
| 9 | 8.94 | 0.009 | 0.23 | 0.020 | 1.84 | 0.042 | 4.27 | 0.136 |
| 10 | 9.35 | 0.012 | 0.24 | 0.023 | 2.12 | 0.061 | 5.12 | 0.192 |
| Average | 10.15 | 0.010 | 0.23 | 0.014 | 1.24 | 0.033 | 3.56 | 0.118 |
| Standard deviation | 4.28 | 0.004 | 0.08 | 0.004 | 0.51 | 0.017 | 3.04 | 0.092 |
| Minimum | 4.20 | 0.003 | 0.12 | 0.018 | 0.49 | 0.018 | 0.48 | 0.020 |
| Maximum | 9.35 | 0.012 | 0.24 | 0.023 | 2.12 | 0.061 | 5.12 | 0.192 |

Table 6. Effects of CETA on the Creation of Value Added of Bulgaria

Source: Authors' calculations

The effects of CETA on the export of Bulgaria to Canada are presented in Table 7. The export of final products is an exogenous variable in the MIOM. The high sensitivity to the respective scenario is evidenced by the standard deviation, whose values are approximately equivalent to the average export value in the five forecast scenarios. In all variants, the dominant sector is manufacturing. This can be explained by the fact that among the main export products are textiles, clothing, equipment. In the most optimistic scenario, exports of textile goods and products will increase by \$ 11 million, due to the high elasticity and liberalization of duty rates. In this option, an increase in exports of goods from the manufacturing sector would represent almost

99% of the total increase in total exports. We should also note the high dependence of exports on elasticity in Scenarios 2 and 7. These scenarios may also be considered as the most pessimistic in the context of the impact on Bulgaria's exports to Canada. In these two scenarios, the effect of indirect links in the economy is clearly visible. Assuming that exports to Canada will increase by 0.05%, the overall increase in exports under partial liberalization will be equivalent to 0.009%, and in the case of complete liberalization, it will reach almost 0.06%.

| | | e | | | - | | | |
|--------------------|---|----------|--|-------|--|----------|--|-------------|
| | Effects on the total export of Bulgaria to Canada | | Effects on the export of electronics industry of Bulgaria to Canada | | Effects on the export of machinery industry of Bulgaria to Canada | | Effects on the export of manufacturing of Bulgaria to Canada | |
| Scenario | USD million | % change | USD million | % | USD million | % change | USD million | % change |
| 2 | 0.11 | 0.009 | 0.01 | 0.008 | 0.02 | 0.112 | 0.05 | 0.024 |
| 3 | 3.15 | 0.018 | 0.01 | 0.007 | 0.02 | 0.124 | 0.09 | 0.032 |
| 4 | 8.12 | 0.048 | 0.02 | 0.015 | 0.04 | 0.191 | 1.28 | 0.217 |
| 5 | 11.08 | 0.057 | 0.03 | 0.020 | 0.06 | 0.201 | 11.03 | 0.024 |
| 7 | 0.10 | 0.006 | 0.01 | 0.017 | 0.02 | 0.105 | 0.12 | 0.012 |
| 8 | 3.05 | 0.016 | 0.04 | 0.012 | 0.03 | 0.152 | 6.15 | 0.031 |
| 9 | 10.02 | 0.051 | 0.04 | 0.013 | 0.05 | 0.194 | 5.18 | 0.028 |
| 10 | 12.84 | 0.062 | 0.05 | 0.021 | 0.07 | 0.217 | 11.85 | 0.051 |
| Average | 6.12 | 0.052 | 0.02 | 0.09 | 0.04 | 0.127 | 5.26 | 0.024 |
| Standard deviation | 6.01 | 0.050 | 0.05 | 0.08 | 0.03 | 0.118 | 5.14 | 0.022 |
| Minimum | 0.10 | 0.006 | 0.01 | 0.007 | 0.02 | 0.112 | 0.05 | 0.024 |
| Maximum | 12.84 | 0.062 | 0.05 | 0.021 | 0.07 | 0.217 | 11.85 | 0.051 |

Table 8. Effects of CETA on Bulgaria's Exports to Canada

Source: Authors' calculations

| Table 9: | Effects | on | employ | yment | of | Bul | garia |
|----------|---------|----|--------|-------|----|-----|-------|
|----------|---------|----|--------|-------|----|-----|-------|

| | Effects on employment in the whole economy | | Effects on employment in electronic industry | | Effects on employment in machinery industry | | Effects on employment in manufacturing industry | |
|-----------------------|--|-------------|--|-------------|---|-------------|--|-------------|
| Scenario | Jobs | % change | Jobs | % change | Jobs | % change | Jobs | % change |
| 2 | 124 | 0.004 | 4 | 0.002 | 12 | 0.007 | 11 | 0.001 |
| 3 | 134 | 0.005 | 6 | 0.003 | 28 | 0.009 | 31 | 0.015 |
| 4 | 178 | 0.009 | 4 | 0.002 | 26 | 0.009 | 48 | 0.021 |
| 5 | 215 | 0.012 | 7 | 0.003 | 12 | 0.004 | 53 | 0.027 |
| 7 | 184 | 0.010 | 9 | 0.005 | 32 | 0.002 | 15 | 0.009 |
| 8 | 241 | 0.019 | 7 | 0.004 | 16 | 0.0011 | 24 | 0.023 |
| 9 | 259 | 0.021 | 7 | 0.004 | 37 | 0.024 | 19 | 0.009 |
| 10 | 312 | 0.027 | 11 | 0.006 | 45 | 0.029 | 145 | 0.035 |
| Average | 172 | 0.011 | 4 | 0.002 | 23 | 0.021 | 28 | 0.016 |
| Standard deviation | 89 | 0.003 | 2 | 0.001 | 14 | 0.009 | 13 | 0.013 |
| Minimum | 124 | 0.004 | 4 | 0.002 | 12 | 0.007 | 11 | 0.001 |
| Maximum | 312 | 0.027 | 9 | 0.006 | 45 | 0.029 | 59 | 0.035 |

Source: Authors' calculations

Creating new jobs, boosting productivity are issues that are researched and analyzed when analyzing changes in the ratio of exported goods. The results of the MIOM and the effects on employment of CETA ratification are set out in the following table. The ratification of the CETA and the liberalization of duties and customs duties will help to create jobs in the 124-312 range.

When comparing the results of CETA's impact on value added, export and employment, we reveal that on value added and export, CETA will impact on the manufacturing industry mainly. When we report the influence on the employment, it should be mentioned that new jobs will be created in the whole economy. In scenario 2, a constant increase in the volume of exports by 0.05% leads to nearly 124 new jobs, of which only 11 will be created in the export-dominant manufacturing sector for Canada. In optimistic options 7 and 10, high labor productivity is balanced by relatively higher elasticity to changes in duty rates. Taking all the scenarios into account, we can summarize that the average total employment will increase by more than 172 jobs in Bulgaria, which in turn, relative to the labor market, represents less than 0.01% of the total current employment.

5. CONCLUSION

The current study reveals the influence arising from the conclusion of CETA on the Bulgarian economy with an emphasis on electronic industry, machinery industry and manufacturing. We estimate both – the direct and indirect effects on Bulgaria's exports, imports, value added and employment. In order to estimate the influence, we apply the multi-regional input-output model. It is proved that CETA will have a low but positive impact on the Bulgarian economy. After constructing different scenarios of development, we prove that the influence of CETA on the Bulgarian economy will amount to 0.010% GDP. The average total employment will be increased by more than 172 jobs in Bulgaria, which in turn, relative to the labor market, represents less than 0.01% of the total employment. Even that we report positive effects of CETA ratification on the Bulgarian economy, we should notify that they are too weak.

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