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BULGARIA'S FOREIGN TRADE AND ITS INFLUENCE ON ECONOMIC GROWTH

E. Genchev*

Department of Industrial Business and Entrepreneurship, Faculty of Economics,
Trakia University, Stara Zagora, Bulgaria

ABSTRACT
There is also a growing body of literature on the relationship between foreign trade and economic growth, but many of these studies need to include the import variable. This study examines the state of trade in goods between Bulgaria and the world for 2018-2022 and investigates the cointegration between both export/import and economic growth of Bulgaria through employing yearly data for 1990 -2022. The Engle-Granger's cointegrating test was used to study the long-term relationship between variables. The results show a positive and significant long-term relationship between Bulgarian exports and imports and gross domestic product at a 99% confidence level.
This leads us to two conclusions: first, Bulgarian exports are more variable over time than Bulgarian imports, and second, the development of Bulgarian foreign trade will positively affect its economic growth.

Key words: foreign trade, economic growth, cointegration analysis, Bulgaria
JEL classification: F14; F43, O47

INTRODUCTION

International trade is one of the most essential factors in a country's economic development. Many articles are aimed at the Bulgarian foreign trade with a particular group of countries.

PURPOSE

This study examines the state of trade in goods between Bulgaria and the world for 2018-2022 and investigates the cointegration between both export/import and economic growth of Bulgaria through employing yearly data for 1990 -2022.

Lenkov (1) researched the main trading partners of Bulgaria for the period 2005-2018. He found that a permanent orientation of our exports and imports towards the EU countries. Their share in Bulgarian exports increased from 62% to 65% in ten years, and their share in imports it remains stable at 50%.

Lozanov and Zhivkova (2) analyzed the development, structure, and geographical distribution trends of the country's export during the ten year period of the country's EU membership (2007-2016). The main conclusion of their study was that during the ten years after the accession of Bulgaria to the EU (2007-2016) the overall pattern of the export structure remained almost the same, despite the registered fluctuations in the main commodity groups.

Kyurova (3) evaluated the development of foreign trade in goods between Bulgaria and the Balkan countries. Statistical data from 2011 to 2015 was analyzed to study the trend. The dynamics of foreign trade - total, by trading partners, and by individual products are explored.

Dimanov (4) studied Bulgaria's trade with EU countries for the period 2012-2021 using the International Trade Centre database and draws the following conclusions:

The most significant trade flows in terms of the country's exports to the main trade partners from the EU are goods, such as electrical machines, apparatus, and electrical materials; mechanical machines, appliances, and parts; fuels and oils. At the same time, Bulgaria carries

***Correspondence to**: *Correspondence to: Evgeni Genchev, Faculty of Economics, Trakia University, Stara Zagora, Bulgaria, evg_gen2000@abv.bg*

out the most significant import in terms of products from these commodity groups.

• Bulgaria's goods trade balance with the world has been negative for the entire period, but to our main trading partners from the EU, there have been significant dynamics for the last ten years.

A growing number of recent research analyze the trade balance impact on economic growth. Despite the intense interest, the impact of the trade balance on economic growth in the context of Bulgaria has yet to be extensively studied in individual country cases.

Economic growth is measured through Gross Domestic Product (GDP). Theoretically, the four components of GDP are all private expenditures, investment, government spending, and net exports (export minus import). In this study, we focus on this issue by analyzing the impact of exports and imports on economic growth. Export expansion is considered a key determinant of economic growth since it is considered one of the most important sources of foreign exchange.

The dataset of Fetahi-Vehapia et al (5) study covers a slightly unbalanced panel of 10 South East European (SEE) countries (including Bulgaria) from 1996-2012. The authors indicated positive effects of trade on economic growth conditioned by the initial income per capita and other explanatory variables, such as human capital and gross fixed capital formation

Bakari (6) investigated the relationship between exports, imports, and economic growth in Germany. In order to achieve this purpose, annual data were collected from the reports of the World Bank for the periods between 1985 and 2015. He found unidirectional causality between exports and imports and exports and economic growth. In addition, he concluded that there is strong evidence of bidirectional causality from import to economic growth.

Riyath and Jahfer's research (7) aimed to see the relationship between export, import, and economic growth in Sri Lanka from 1960 to 2015. This study investigated the long-run causal relationship among export, import, and economic growth in Sri Lanka using annual data from 1962 to 2015. Johansen's cointegration test finds that export, import, and economic growth are cointegrated. VECM results demonstrate a long-run equilibrium relationship among the variables and a unidirectional causality between export and economic growth in the short run.

Shihab, Soufan, and Abdul-Khaliq (8) investigated the link between exports and growth in Jordan from 2000-2012. The empirical results indicated a unidirectional causality between export and economic growth in Jordan, and the direction of causality runs strictly from economic growth to exports.

Genkova (9) claims that the productivity of Bulgaria's macro system can be assessed through the distribution of the total product by main areas of use: intermediate consumption, investments, final consumption, and export. Based on her research for the period 2000-2014 concluded that our economy has shifted its focus concerning the four types of needs, becoming more oriented towards current productive consumption and foreign markets. The shares of intermediate consumption and the sum on account of the shares of the product for final use (including final consumption and domestic investment) have increased.

The Bulgarian traditional trade with agricultural goods is very difficult. Velkovski (10) points out that there has been a steady downward trend in the production of fruits and vegetables and other agricultural products of plant and animal origin in recent years.

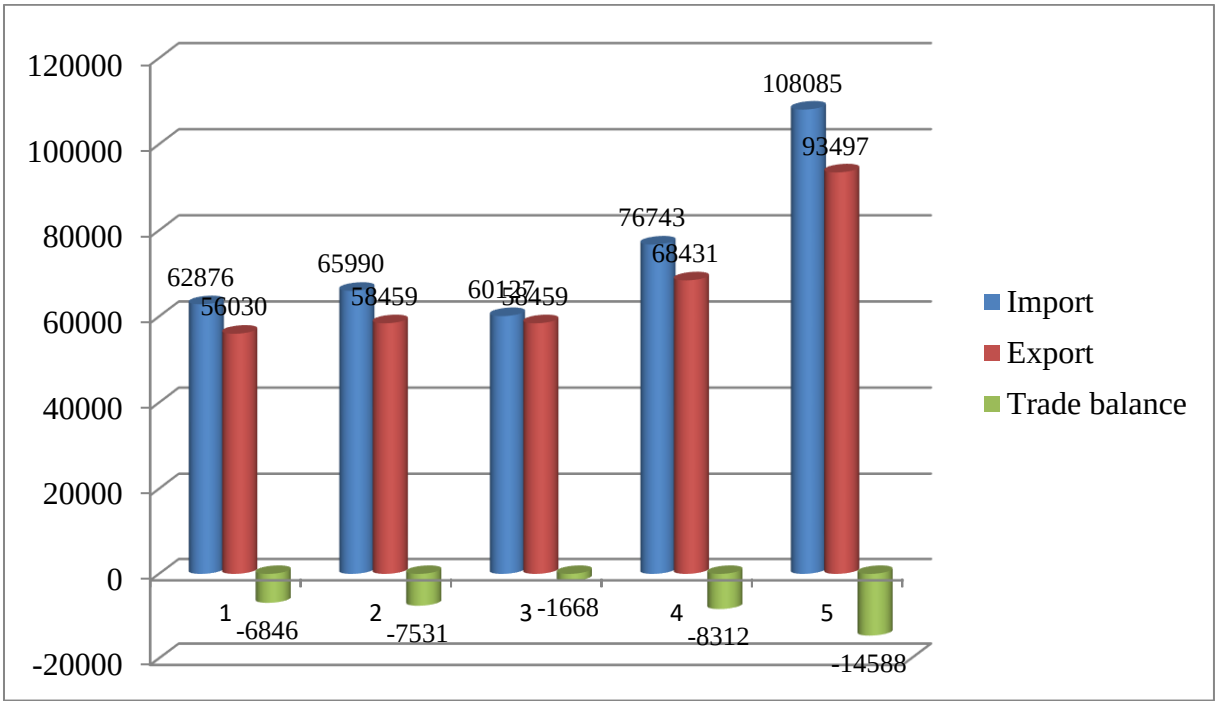
METHODS

1. In order to achieve this purpose, annual data were collected for the periods between 1990 and 2022. Data were sourced from World Development Indicators (WDI) (11), which include the logarithm of accurate GDP measure of economic growth, the logarithm of exports of goods and services (Current US$), and the logarithm of imports of goods and services (Current US$). After that, data was tested by using the Augmented Dickey-Fuller (ADF) stationary test and the Engle-Granger cointegration test. The research was carried out using the GRETL.

RESULTS

Analysis of the trade balance and the leading export and import product groups of Bulgaria

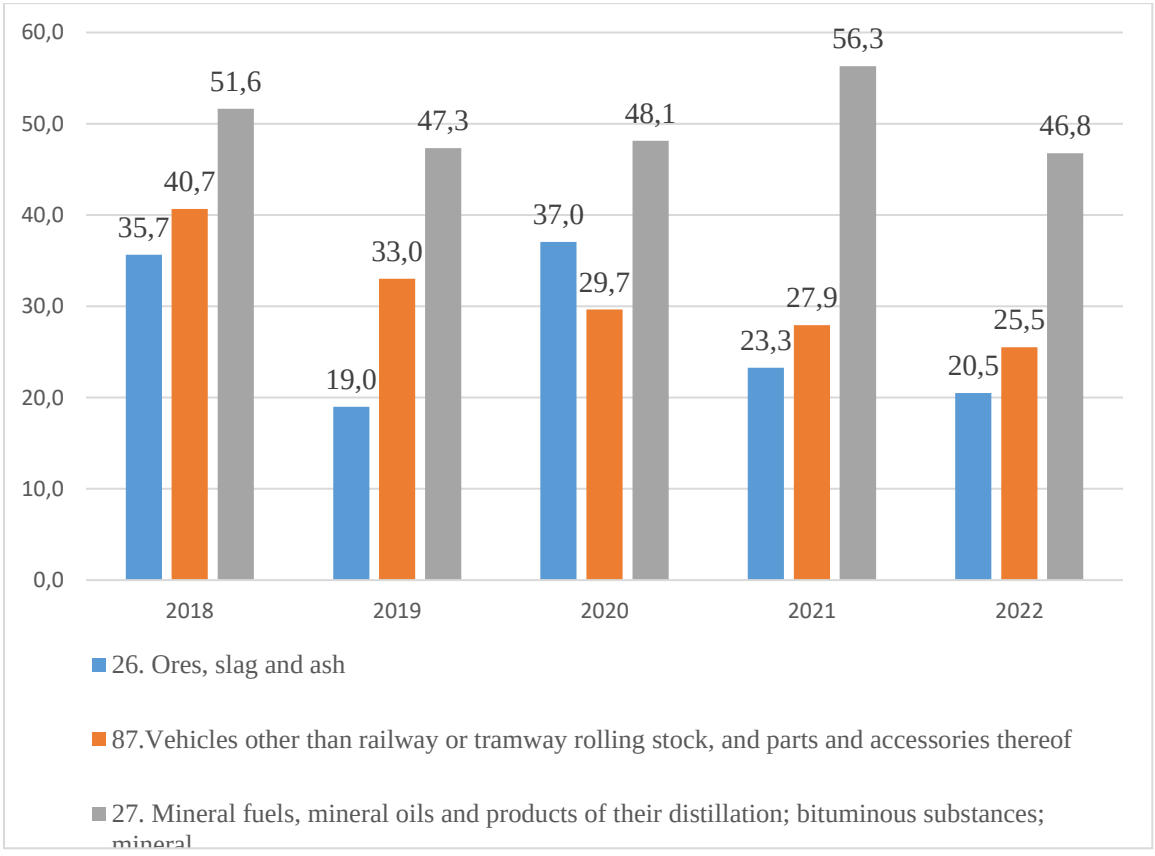
Figure 1 Bulgaria trade balance for 2018-2022



Source (12)- https://www.trademap.org

Figure 1. Bulgaria trade balance for 2018-2022

Bulgaria's trade balance for the whole period is always negative. The slightest negative balance in value is in 2020, and the highest in 2022.



Source: https://www.trademap.org and own calculations

Figure 2. Share of the three groups with the most negative balance to Bulgaria's trade balance for the period 2018-2022.

The most considerable imbalance of Bulgaria's foreign trade with the world for 2018-2022 **(Figure 2)** is due to the group of 27 "Mineral fuels, oils and products from their distillation". They contribute to 46.8-56.3% of the total negative balance. In second place is the group 87 Vehicles other than railway or tramway rolling stock", which adds another 25 to 40% for a negative balance.

Table 1. *Top 5 export groups products of Bulgaria for the period 2018-2022.*

Year/ Products group		2018	2019	2020	2021	2022	Average share in export	Change in % 2022/2018
85.Electrical machinery and equipment and parts thereof		10,9	11,0	10,9	10,5	9,2	10,5	-1,6
74.Copper and articles thereof		8,9	7,2	8,9	9,1	8,4	8,5	-0,5
27. Mineral fuels, mineral oils and products of their distillation		8,9	9,5	4,6	6,0	12,2	8,3	3,3
84.Nuclear reactors, boilers, machinery and mechanical appliances		8,1	8,4	8,4	8,1	7,4	8,1	-0,7
10.Cereals		3,6	4,5	4,2	4,8	4,0	4,2	0,3
Total 5 top export groups		40,4	40,6	37,0	38,4	41,1	39,5	-0,9

Source: https:www.trademap.org and own calculations

Basic conclusions about Bulgaria's export trends

In Bulgaria's export **(Table 1),** with an over 2% lead, first comes 85.Electrical machinery and equipment and parts thereof (average 10,5%). The most significant decrease was in 2022, when its share dropped to 9,2% **(Table 3).** In second place is Group 74 "Copper and articles thereof," with a share of 8.5%, and very close to it is Group 27 "Mineral fuels, mineral oils and products of their distillation," with an average share of 8.3%. For the whole period, the only sharp changes in the dynamics of the relative share are in the case of mineral fuels and oils, which range from 4.6 to 12.2%. Group 10 "Cereals" also features a permanent presence in Bulgain export. For the entire period, the total share of the top five export products varies from its lowest 37% in 2022 to 41,1% in 2022, with an average of 39,5%.

The total share of the leading five groups **(Table 2)** of imported products for Bulgaria ranges between 41.7-46.9%, with the highest value observed precisely in 2022. The top product group, which comes first in Ukraine's imports, is Group 27 "Mineral Fuels, Mineral Oils, and Products of Their Distillation," which has an average share of 12,9 % from 2018-2022. The leader was followed closely by the Group 85 "Electrical machines and equipment" with a share of 10.4%. The Group 27 "Mineral fuels and oils" lost its leading position in imports only in 2020. The last product group among the top five was Group 26 "Ores, slag and ash". The total share of the top five products has its lowest value in 2020, i.e., 41,7% with the highest value being in 2021, i.e., 46,9%, with an average of 44,7%, and remains relatively stable. For all these 5 years 2018-2022, exactly these product groups were always in the top 5 imported products with the largest relative share.

Table 2. *Top 5 import groups products of Bulgaria for the period 2018-2022*

Year/ Products group	2018	2019	2020	2021	2022	Average share in import	Change in % 2022/2018
27. Mineral fuels, mineral oils and products of their distillation	13,6	13,9	8,5	11,5	16,9	12,9	-0,4
85.Electrical machinery and equipment and parts thereof	9,6	10,1	10,6	10,9	10,7	10,4	0,8
84.Nuclear reactors, boilers, machinery and mechanical appliances	8,9	7,2	8,9	9,1	8,4	8,5	-0,5
87. Vehicles other than railway or tramway rolling stock, and parts and accessories thereof	7,2	6,8	6	6,2	6,2	6,5	-0,7
26. Ores, slag and ash	5,7	4,6	6,2	5,3	4,4	5,2	-1,3
Total top 5 import groups	46,3	45,3	41,7	43,5	46,9	44,7	-1,6

Source: https://www.trademap.org/ and own calculations

Basic conclusions about Bulgaria's import trends

The total share of the top five import products (44,7%) is larger than that of the top five export products (39,5%), meaning the degree of Bulgarian import concentration is higher. It leads us to two conclusions: Bulgarian exports are more variable over time than Bulgarian imports, and secondly, import traditions are more durable than export traditions.

2. The Cointegration analysis of the effect of Bulgarian foreign trade on economic growth

The research analyses is there an effect of export/import on economic growth?

Let us go through the individual steps of the Engle-Granger approach. Steps in Engle-Granger Cointegration (13).

2.1 Step A Testing variables for stationary

An important question pertinent to time series data is whether each variable is stationary in levels or stationary after first differencing. If the data series are stationary after first differencing, testing for cointegration may be necessary. The time series for the first differences are, in principle, stationary, which would give the basis to conclude that the variables are integrated in grade I(1).

Table 3 presents the results of the ADF tests. It is evident from the unit root tests that at level, none of the variables represents a stationary process. The unit root tests computed using the first difference of GDP (Log_GDP), exports (Log_Export), and imports (Log_Import) indicate that all variables become stationary at the 1% level of significance. Overall, the results from the ADF test suggest that the variables are integrated into order one. This implies the possibility of cointegrating relationships among the variables.

Table 3. *Tests for Unit Root (ADF) in variables*

Variable	Level tau_nc(1)/p-value	1st Differences tau_nc(1)/p-value	Conclusion
Log_GDP	1,41/0,958	-6,59/ 3,172e-008***	I(1)
Log_Export	1,84/0,982	-5,18/6,256e-006***	I(1)
Log_Import	1,74/0,98	-5,21/ 5,607e-006***	I(1)

*** denotes rejection of the null hypothesis of unit roots for the (Augmented Dickey Fuller) ADF tests at the 1% significance levels

Source: Authors' calculations

2.2 Step B Slelecting of optimal lag

The cointegration test is applied to determine whether a long-run (or cointegrating) relationship exists between the GDP and export/import. The optimal lag length is selected for the cointegration tests. The lag length of the tests is based on the). In choosing the optimal lag between the variables, we are guided by the smallest Akaike information criterion (AIC) values (14). Applied to the variables GDP and exports, the smallest value is 2, and for GDP and imports, the smallest value is one.

2.3 Step C Applying Engle-Granger cointegration 1990-2022 (T = 33) and

2.4 D The null hypothesis of stationarity in the residual values is tested using the Dickey-Fuller test.

Table 4. *Engle-Granger cointegration for GDP-export*

Variable	Koeff.	Stand. Erorr	p-value	Conclusion
include two lags	0,882	0,002	1,73e-061 ***	
the unit-root hypothesis for the residuals			p-value 0,004 the unit-root hypothesis is rejected for the residuals	There is evidence for a cointegrating relationship

Source: Gretl and own calculations

One of the tasks of this research is to investigate the following hypotheses: i) whether exports and GDP are cointegrated using the Engle-Granger approach as (15) studied. (Sharma, A., and T. Panagiotidis) The cointegration analysis confirms a positive and significant long-term relationship between export and gross domestic production at 99% confidence level. The regression coefficient in this case is 0,882.

Let us apply the same procedure to the other equation. Only in the role of variable we will take Bulgarian import.

Table 5. *Engle-Granger cointegration for GDP-import*

Variable	Koeff.	Stand. Erorr	p-value	Conclusion
include one lag	0,858	0,002	6,25e-058 ***	
the unit-root hypothesis for the residuals			p-value 0,007 the unit-root hypothesis is rejected for the residuals	There is evidence for a cointegrating relationship

Sources: Gretl and own calculations

Also, it was determined by using cointegration analysis that there is a relationship between imports and GDP in Bulgaria for the 1990-2022 period. The regression coefficient in this case is 0,858.

CONCLUSIONS

Regarding the structural differences between exports and imports, Bulgarian imports have more established traditions than exports, and this is evident from the degree of concentration of the leading five products. Exports and imports are based on identical product groups for all five years of the analyzed period.

The analysis of this study supports that foreign trade has a positive effect on economic growth, as expected from theory. The cointegration analysis shows a slightly stronger dependence

between Bulgarian exports and gross domestic product than the analogous one for imports.

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