

# IMPACT OF EXPORTS ON ECONOMIC GROWTH IN BOSNIA AND HERCEGOVINA

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## ABSTRACT

The importance of foreign trade and its impact on the economic growth have been the subject of numerous studies. There is no doubt that exports have a multiplier effect on the growth of gross domestic product, but economists are constantly interested in what the foreign trade multiplier is and why it is not higher. This paper deals with the analysis of foreign trade of Bosnia and Herzegovina, its geographical and production structure and concentration, as well as the causes of high and continuous deficits. The analysis indicates potential opportunities to improve the poor production structure of foreign trade and ways in which foreign trade, and especially exports, could increase in order to improve the foreign trade balance. The analysis is especially focused on determining the foreign trade multiplier, and the results show the great importance of exports for economic growth. It also aims to emphasise how to improve export potential of Bosnia and Herzegovina in the future.

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## 1. INTRODUCTION

The importance of foreign trade for the functioning and development of every country in the world is not in question. No country, small or large, developed or less developed, can produce all that is needed to meet the demand of its population or economy. However, the level of importance is not the same for different countries. It depends on the size of the country or its market, the diversity and volume of resources available to the country, the level of economic development, economic structure, as well as the economic policy pursued by the country, and trends in the world market.

The benefits of foreign trade in terms of supplying the domestic market with products and services that are not produced in the country is evident. There is a high level of agreement that foreign trade has a positive effect on the growth and development of countries. This is especially pronounced for the impact of exports on output growth and national income. Exports cause the increase in production greater than the one placed abroad, which is determined through a foreign trade multiplier (Maklup, 1950).

The main reason why a country has the potential benefits of trade is that trade increases the choice of economy, which means that it is always possible to distribute income so that everyone makes a profit from trade (Samuelson, 1962). Foreign trade is a potential source of gains for all if trade gains outweigh losses, regardless of the possible impact on income redistribution. A better way to estimate overall gains from trade is to set a different question: could those who make gains from trade compensate losses to those who suffer from them, and again be in a better position? If so, then trade is a potential source of gain for all (Krugman and Obstfeld, 2009). Trade growth and export orientation have a positive effect on production, economic growth and prosperity. As a result, world trade growth is faster than production growth (Stiglic and Charlton, 2005).

However, the impact of foreign trade on economic growth is not the same in all countries and under different conditions. The benefits of international trade liberalization are not the same for all countries. If the foreign trade is important for every country in the world, then due to economies of scale and the introduction of new technologies, the same foreign trade is even more important for smaller

and lower developed economies (Krugman and Obstfeld, 2009). The openness of economy is measured by the share of foreign trade in its gross domestic product. According to this criterion, small economies are more dependent on foreign trade and their degree of openness is generally higher than in large countries. Thus, for 2018 the openness rate of Sudan was 22%, Brazil 29%, USA 27%, Japan 37%, China 38%, India 43%, Russia 51%, Germany 89%, while this rate was in Slovakia 190%, Ireland 211%, Malta 269%, Singapore 326%, Hong Kong 376% and Luxembourg 487%.<sup>1</sup> With 96% openness of the economy in 2018, Bosnia and Herzegovina was on the 60th place on this list. Greater openness requires a higher level of trade liberalization, which small highly developed countries are especially interested in.

However, the high level of openness of the economy, which implies the high level of liberalization of foreign trade, should be harmonized with the level of economic development of the country and the competitiveness of its business entities. Excessive openness of the economy and exposure to strong foreign competition at the low level of development usually results in a high foreign trade deficit. Weak domestic industry finds it difficult to cope with strong foreign companies on the domestic market, so goods that can be produced in the country are often imported, for the production of which there are resources, and high sophisticated technology is not necessary. This fact indicates the possibility of applying the policy of import substitution, bearing in mind that it has certain advantages, but also disadvantages (Salvatore, 2009). The advantages are that the domestic market for industrial products already exists and that it is easier to protect the domestic market from import competition than to win abroad. The disadvantages are that in the absence of foreign competition, domestic companies do not have enough incentives to become more efficient. Then the limited domestic market does not allow the use of the advantages provided by economies of scale, which with the technological development of import substitution becomes more complex and expensive.

History teaches us that some countries, using export orientation, have made excellent results in terms of economic development. Taught by the negative experiences of countries that followed the policy of import substitution, in the 60s

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<sup>1</sup> Source: [https://www.theglobaleconomy.com/rankings/trade\\_openness/](https://www.theglobaleconomy.com/rankings/trade_openness/)

Taiwan, Singapore, Korea and Hong Kong made a turn towards export orientation, while other developing countries followed the strategy of import substitution until the debt crisis of the early 1980s. Export-oriented industrialization has significant advantages, which are reflected in the fact that it is not limited by the domestic market, it allows taking advantage of economies of scale, and export production requires and encourages efficiency in the whole economy. On the other hand, there are two very serious disadvantages which are reflected in the fact that it can be very difficult for developing countries to develop export-oriented industries due to strong competition from well-known and efficient industries in developed countries. Another reason is that developed countries often have a high level of effective protection for their labor-intensive industries, for which developing countries already have or may soon gain a comparative advantage (Salvatore, 2009).

In terms of entering the world market for many domestic companies, the situation is even more unfavorable due to low competitiveness, but also numerous non-tariff barriers that make it difficult for export to many markets. Although many non-tariff barriers are regulated within the GATT and later the World Trade Organization, still some of them are often abused (Bjelić, 2008). Non-tariff barriers resulting from various technical regulations or introduced by countries to protect the health and safety of consumers often, in essence, serve to protect domestic industry. These barriers hinder international trade and very often prevent producers from less developed countries from entering developed markets. Countries that advocate the liberalization of world trade protect their markets precisely through non-tariff barriers.

At the end of the last century, many studies that prove a significantly positive relationship between export and GDP growth as well as the positive impact of liberalization on trade and income were done. New theories of trade (the theory of endogenous growth - P. Romer, R. Lucas, G. Grossman, E. Helpman), which emerged from the late 80s and early 90s, have made significant progress in understanding the correlation between trade and growth, i.e. the impact of trade policy on growth. The basic assumption is that increased yields are a major factor in “endogenic” growth. “Machines” of growth are “spreading knowledge” (thanks to foreign trade and foreign direct investment) and the ability to imitate foreign products, while import protection slows growth (Nikolić, 2005).

The development of the theory of endogenous growth provides a convincing theoretical basis for a positive relationship between international trade and long-term economic growth and development. This theory argues that reducing barriers to trade in the long run will accelerate the rate of economic growth and development by allowing developing countries to absorb technologies developed in advanced countries much more easily and faster than with lower degree of openness. Hence, reducing barriers to foreign trade increases the benefits of research and development, promotes greater economies of scale in production, and leads to faster introduction of new products and services (Romer, 1986).

During the 1990s, a large number of cross-country analyses were conducted and possible with improvements in the growth theory and the availability of a large amount of data, which showed the positive and significant relationship between export-oriented policy and growth. Analyses of the channels through which foreign trade stimulates GDP growth prove that foreign trade encourages the accumulation of new technologies and knowledge, and thus, through specialization, increases returns on capital (Romer, Frankel, 1999). Many authors did not doubt that the openness of the economy promoted economic growth and that there were many other benefits from trade. However, some of them point to the fact that there is a possibility that in many countries there will be “growth with impoverishment”, i.e. the worsening of terms of trade. Their view is that trade liberalization stimulates growth in the world economy, as it creates the conditions for economies to specialize through international flows of knowledge and innovation, but at the same time some economies may specialize in areas where low job skills are needed, or in slow-growing sectors, which reduces the initiative for education and business development (Dowrick, Golley, 2004). There is a real basis for some countries to specialize in being poor in the global environment.

In certain circumstances, the international trade affects productivity growth in developing countries. In these countries, the productivity growth largely depends on the ability to access technology from industrialized countries, and thus, the international trade for developing countries is the most important channel of technology transfer, which allows them to achieve faster productivity growth (Choudhri, Hakura, 2000).

Research in this area at the beginning of the 21st century was mainly focused on the analysis of the impact of legislation, the quality of institutions and trade policy on the volume of trade and economic growth. After the economic crisis that engulfed the whole world in 2008, the questions like what factors could improve economic growth and overcome the difficulties that the world economy has fallen into have become relevant again. Issues of the impact of foreign trade on economic growth are now very current due to the disrupted trade relations of major world players - US, China, Russia and the European Union, as well as changes in integration processes, especially in the most developed regional economic integration, the European Union and Eurasian Union and the North American Free Trade Area. Of course, these processes also affect the position of small open economies such as Bosnia and Herzegovina.

## **2. ANALYSIS OF THE FOREIGN TRADE OF BOSNIA AND HERCEGOVINA**

### **2.1. Analysis of the foreign trade position of Bosnia and Herzegovina**

Foreign trade is important for all national economies, and especially for small open economies such as Bosnia and Herzegovina. Foreign trade for B&H economy is important for its economic growth and development, given the limited domestic capacity and market. International trade provides the economy of Bosnia and Herzegovina with the opportunity to place surplus goods and services on foreign markets, as well as to procure the goods and services that are not produced at all or are produced in insufficient quantities in B&H.

Since exports in B&H participated in the total world exports with only 0.037%<sup>2</sup> in 2018, from the point of view of international trade, it can be concluded that it is really a small economy<sup>3</sup>. It is precisely small economies that are more dependent on foreign trade than large economies. As an indicator of dependence on

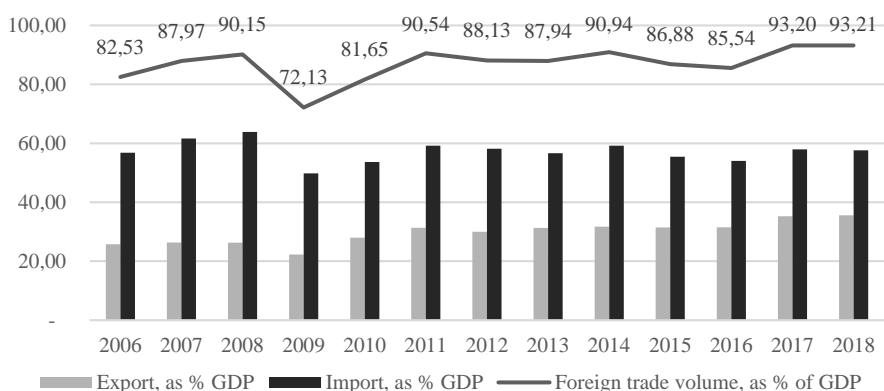
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<sup>2</sup> Source: UNCTADstat. <https://unctadstat.unctad.org/>. Accessed on 01.03.2020.

<sup>3</sup> From the point of view of international trade, a small open economy refers to a country that has a very small share in the total world trade, so its policies and activities do not affect world prices and world trade trends.

foreign trade and the involvement of individual national economies in the international division of labor, the rate of openness of the economy is used. Measured by the share of foreign trade in gross domestic product, B&H openness rate is relatively low for small economies. The rate of openness of the economy of B&H by years in the period from 2006 to 2018 is shown in the following chart.

Small economies are also more dependent on foreign trade than large economies. As a measure of the degree of dependence on foreign trade and the involvement of individual national economies in the international division of labor, the economy openness rate is used. Measured by the share of foreign trade in gross domestic product, for B&H as a small economy, openness rate is relatively low. The openness rate of economy in Bosnia and Herzegovina per year in the period from 2006 to 2018 is shown in the following chart.



**Graph 1:** Volume of foreign trade, exports and imports of B&H as a percentage of GDP in B&H, in the period 2006-2018. Source: Graphic presentation of the analysis by the authors based on data on foreign trade and GDP of B&H from the Agency for Statistics of Bosnia and Herzegovina.

The data shown in the previous chart indicate that the openness degree of the B&H economy tends to grow. The openness rate ranged from 82.53% in 2006 to 88.13% in 2012, and to 93.20% in the last two years. The openness of the B&H economy shows that it is highly dependent on other countries in the world. However, in relation to small developed economies whose rate is above 100% and even 200%, the openness rate of B&H is low. The reason for this is that more

developed countries record higher average export rates relative to GDP than it is the case in B&H. The average export rate was around 30% of GDP in B&H, which is significantly lower than the average import rate which was of around 50% of GDP.

In order to review the foreign trade position of B&H and to observe the basic characteristics and long-term tendencies of foreign trade of B&H, the basic indicators of foreign trade of B&H in the period 2006-2018 are analyzed below.

**Table 1:** The value of exports, imports, foreign trade balance, volume of foreign trade of B&H in millions of BAM and coverage of imports by exports of B&H in %, for the period 2006-2018

Year	Exports, in	Import, in	Foreign trade	Volume of for-	Coverage of im-
	millions of BAM	millions of BAM	balance, in millions of BAM	ign trade, in millions of BAM	ports by exports, in percentage
	(1)	(2)	(3)=(1) - (2)	(4)=(1)+(2)	(5)=(1) / (2) * 100
2006	5.164,30	11.388,79	-6.224,49	16.553,08	45,35
2007	5.936,58	13.898,24	-7.961,66	19.834,83	42,71
2008	6.711,69	16.292,52	-9.580,83	23.004,21	41,19
2009	5.531,19	12.355,18	-6.823,99	17.886,37	44,77
2010	7.095,50	13.616,24	-6.520,74	20.711,74	52,11
2011	8.222,16	15.526,13	-7.303,97	23.748,30	52,96
2012	7.858,34	15.253,04	-7.394,70	23.111,38	51,52
2013	8.380,50	15.170,17	-6.789,68	23.550,67	55,24
2014	8.681,74	16.199,28	-7.517,54	24.881,02	53,59
2015	8.987,32	15.851,86	-6.864,55	24.839,18	56,70
2016	9.418,11	16.161,01	-6.742,91	25.579,12	58,28
2017	11.055,38	18.185,64	-7.130,26	29.241,03	60,79
2018	11.900,25	19.273,97	-7.373,72	31.174,22	61,74

Source: Agency for Statistics of Bosnia and Herzegovina. (2019). *Foreign trade of B&H in 2018*. Thematic bulletin TB 06, retrieved from: <http://www.bhas.gov.ba/>, accessed 16.03.2020.

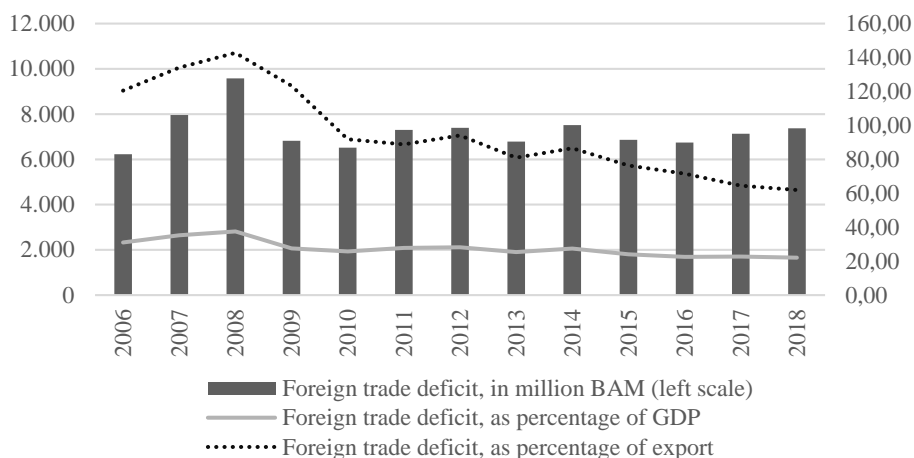
The value of exports and imports, and thus the total volume of foreign trade of Bosnia and Herzegovina, has a tendency to increase in the observed period, except for the decline in 2009. The total volume of foreign trade of Bosnia and Herzegovina, in the observed period, decreased for the first time in 2009, when



there was a decrease of 22,25% compared to the previous year. Then the exports decreased by 17.59% and the imports by 24.17% compared to their values in 2008. This movement of foreign trade of Bosnia and Herzegovina in 2009 is the consequence of the global economic crisis, which through the reduction of foreign demand of countries that are the main foreign trade partners of B&H, affected the volume of foreign trade in the form of declining values of B&H exports and imports.

The nominal value of exports and the volume of foreign trade in 2018 almost doubled compared to their values from 2006. Although the total volume of foreign trade tends to increase in the observed period, such developments did not significantly affect the improvement of the foreign trade balance of B&H. The value of imports is higher than the value of B&H exports in all years of the observed period, which shows that the foreign trade balance of B&H is continuously in deficit.

The following chart shows the movement of the foreign trade balance of B&H, i.e. the foreign trade deficit in the period 2006-2018, and the coverage of imports by exports of B&H by observed years.

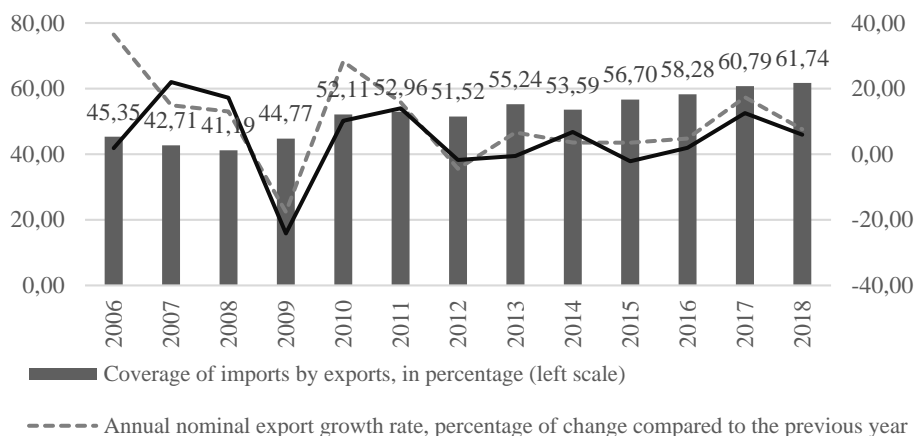


**Graph 2:** Foreign trade deficit of Bosnia and Herzegovina in millions of BAM and as the percentage of GDP, in the period 2006-2018. Source: Graphic presentation of foreign trade indicators by the authors based on data from: Agency for Statistics of Bosnia and Herzegovina (2019). *Foreign trade of B&H in 2018*. Thematic bulletin TB 06.

The lowest foreign trade deficit was recorded in 2006, when its level was reduced by about 16 percent compared to the previous year. On the other hand, the largest amount of the foreign trade deficit was realized in 2008, when it amounted to 9.58 billion BAM, i.e. 37.54% of the GDP in B&H and 142.75% of the value of B&H exports in that year. Although the foreign trade deficit was reduced in 2015 and 2016, its nominal value has increased in the last two years. In 2018, the foreign trade deficit in the amount of 7.37 billion BAM was recorded, which is only slightly lower than the level recorded six years ago, when it amounted to 7.39 billion BAM. The aforementioned shows that the foreign trade balance, i.e. the deficit of Bosnia and Herzegovina in trade with the world is high and continuous, i.e. the foreign trade deficit is the long-standing problem of the B&H economy.

The movement of relative indicators of the foreign trade balance shown in the previous chart indicates the reduction of the foreign trade deficit in relation to exports and GDP in B&H. In 2018, the foreign trade deficit as the percentage of exports amounted to 62%, which is twice lower than the rate recorded ten years ago. On the other hand, in the last three years the foreign trade deficit as the percentage of GDP was around 22% of GDP in B&H, which was about 15 percentage points less than ten years ago. Despite the improvement of the mentioned relative indicators, they do not show that the foreign trade balance has improved. Such movement of relative indicators is primarily the result of the nominal growth of the B&H exports value and GDP, while the level of foreign trade deficit ranged from about 6 to 7 billion in almost all years of the observed period, except for 2008.

In order to analyze the ability of the B&H economy to achieve and maintain the balance of foreign trade, following chart shows the movement of the coverage of imports by exports ratio for B&H in the observed period. The same chart also shows the movement of annual nominal growth rates of exports and imports.



**Graph 3:** Coverage of imports by exports and annual nominal growth rates of exports and imports of Bosnia and Herzegovina in the period 2006-2018, in percentage. Source: Graphic presentation of foreign trade indicators by the authors based on data from: Agency for Statistics of Bosnia and Herzegovina (2019). *Foreign trade of B&H in 2018*. Thematic bulletin TB 06.

The annual nominal growth rate of exports is higher than the annual nominal growth rate of imports in almost all years of the observed period. Higher export growth rates compared to import growth rates contributed to the increase in the coverage of imports by exports of Bosnia and Herzegovina. The coverage of imports by exports in 2018 was 61.74%, which is slightly more than ten percentage points than its value in 2012, when it was recorded at the level of 51.52%. Based on the previous chart, it can be concluded that the indicator of the coverage of imports by exports for Bosnia and Herzegovina in the last ten years, except for the decline in 2012, recorded growing tendency.

## 2.2. Analysis of production and geographical structure and concentration of foreign trade of Bosnia and Herzegovina

Despite the fact that there is an agreement that the high and chronic foreign trade deficit is one of the key economic problems of Bosnia and Herzegovina, not enough attention is paid to the analysis of structural problems of the B&H economy and the structure of its foreign trade. In order to get a clear picture of foreign trade position of B&H in trade with other countries in the world, in addition to

the previous analysis of foreign trade indicators, the production and geographical structure of foreign trade of B&H in 2018 was analyzed.

The production and geographical structure of foreign trade of Bosnia and Herzegovina have not changed significantly in recent years. The following table shows the production structure of exports and imports of Bosnia and Herzegovina for 2018 by product groups in accordance with the Harmonized Commodity Description and Coding System of the World Trade Organization.

**Table 2:** Analysis of the production structure of B&H exports and imports in 2018

Product group	In millions BAM			Percentage of participation		Sectorial coverage of imports by exports	Relative competitiveness of the sector
	Export	Import	Balance	Export	Import		
Animals and products of animal origin	170.69	544.55	-373.86	1.43	2.83	31.34	50.77
Products of plant origin	224.42	757.82	-533.40	1.89	3.93	29.61	47.96
Food products	319.32	1,576.19	-1,256.87	2.68	8.18	20.26	32.81
Products of mineral origin	1,299.55	2,979.41	-1,679.86	10.92	15.46	43.62	70.64
Chemical industry products or related industries	991.95	1,786.47	-794.53	8.34	9.27	55.53	89.93
Plastics and rubber	415.15	1,254.91	-839.76	3.49	6.51	33.08	53.58
Leather and fur	191.65	448.91	-257.26	1.61	2.33	42.69	69.15
Wood and wood products	801.68	291.27	510.41	6.74	1.51	275.24	445.78
Pulp, paper and paperboard and their products	324.71	454.34	-129.63	2.73	2.36	71.47	115.75
Textiles and textile products	627.19	1,232.53	-605.34	5.27	6.39	50.89	82.42
Footwear, hats, caps and similar products	757.03	343.03	413.99	6.36	1.78	220.69	357.43
Base metals and base metal products	2,289.35	2,203.20	86.15	19.24	11.43	103.91	168.30
Machinery, apparatus, mechanical and electrical devices	1,437.05	2,664.19	-1,227.13	12.08	13.82	53.94	87.36
Vehicles and their parts and accessories	370.78	1,354.64	-983.86	3.12	7.03	27.37	44.33
Various products	1,227.11	469.81	757.31	10.31	2.44	261.20	423.04
Other product groups <sup>4</sup>	452.62	912.70	-460.08	3.80	4.74	49.59	80.32
<b>TOTAL</b>	<b>11,900.25</b>	<b>19,273.96</b>	<b>-7,373.70</b>	<b>100.00</b>	<b>100.00</b>	<b>61.74</b>	

Source: Calculation and presentation of analysis by the authors based on data on trade in B&H for 2018 of the Agency for Statistics of Bosnia and Herzegovina.

<sup>4</sup> As a criterion for presenting the product group, the participation percentage of foreign trade of every product group in the B&H's total foreign trade for 2018 was used. In accordance with the stated criteria, "Other product groups" collectively present the groups of products that have had up to 1% share in the total foreign trade of B&H.

By analyzing the share of each individual product group in the total exports of B&H in 2018, it can be concluded that the product group “Base metals and base metal products” had the largest share in total exports with 19.24%. The export of “base metals and base metal products” in 2018 amounted to 2.29 billion BAM, i.e. it accounted for almost one fifth of the total export of B&H. In addition to this product group, significant share in exports had the product group “Machinery, apparatus, mechanical and electrical devices” with almost 12%, “Products of mineral origin” with about 11% and “Chemical industry products” with more than 8.3% of total B&H exports. These product groups are important for foreign trade of B&H since their exports account for slightly more than half of B&H total exports.

On the other hand, the analysis of the imports production structure according to the Harmonized System, shows that the group “Products of mineral origin” had the largest share with 15.46% share in the total import of B&H in 2018. This is followed by the group of products “Machinery, apparatus, mechanical and electrical devices” with a share of 13.82%, and “Base metals and base metal products” whose share was 11.43% in total imports of B&H.

Almost all product groups of Bosnia and Herzegovina are net importers, i.e. their imports are higher than their exports. The only product groups whose foreign trade of B&H has a surplus are “Wood and wood products”, “Footwear, hats, caps and similar products”, and “Base metals and base metal products”.

Based on the analysis presented in the previous table, it can be concluded that the coverage of imports by exports is very unfavorable for “Food and agricultural products” (products of plant and animal origin). More precisely, the coverage of imports by exports for these product groups was up to 30%. Positive coverage of imports by exports, i.e. higher exports than imports was achieved for the following product groups: “Wood and wood products” with 275% and “Footwear, hats, caps and similar products” with 220%. This shows that for these product groups the value of exports was much higher than the value of their imports. Positive coverage of imports by exports was also achieved for the product group “Base metals and base metal products” (103.91%).

The coefficient of relative coverage of imports by exports shown in the previous table point out the relative competitiveness of each product group. The mentioned coefficient is obtained by comparing the coefficient of coverage of import by export of a certain group of products and the coefficient of coverage of import by export in total for all products of B&H. The highest value of this coefficient was achieved for the group of products “Wood and wood products” (445.78), then for the group “Footwear, hats, caps and similar products” (357.43), as well as “Base metals and base products metals” (168.30) and “Pulp, paper and paper-board and their products” (115.75). These groups of products with the values of the coefficient of relative coverage of imports by exports above 100, given their higher competitiveness compared to other product groups, could be carriers of exports of the B&H economy.

The coefficient of production concentration of exports, calculated by the Gini-Hirschman method<sup>5</sup>, for 2018 was 31.44. This coefficient has shown that the structure of B&H exports consists of the large number of different products. Also, the coefficient of production concentration of imports, which was 30.36 for 2018, was obtained by the same method. The obtained coefficient of production concentration of imports has shown a high differentiation, i.e. diversity in the types of imported products.

The low level of production concentration, i.e. high production diversification is the indicator of production structures and levels of economic development. Lower level of production concentration reduces the vulnerability of the economy to external shocks related to certain sectors. On the other hand, the low level of production concentration of exports could be the indicator of the fragmented structure of production or the low level of specialization, i.e. the absence of strategic export products (Krajišnik, Tomaš, 2014).

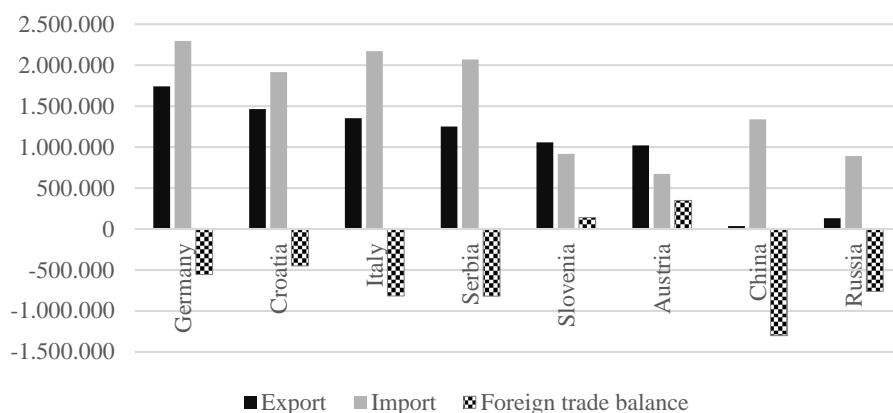
The production structure of B&H exports has shown that the dominant place in total exports is occupied by groups of products that are resource-intensive and

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<sup>5</sup> The production concentration coefficient by Gini-Hirschman method is calculated as the square root of the sum of the squares of the share of exports of product divided by the total exports of all products of Bosnia and Herzegovina in a given year. For a more detailed explanation of the methodology see: Krajišnik, M. (2014).

labor-intensive, with the low newly added value and the low degree of finalization. The analysis of exports according to statistical procedures has shown that almost 30%, i.e. almost one third of the total exports of B&H in 2018, were categorized as export after inward processing, i.e. the so-called “lohn jobs”. Based on the abovementioned, it can be concluded that the production structure of exports of Bosnia and Herzegovina is unfavorable.

The following chart shows foreign trade of B&H with countries that are the main foreign trade partners of B&H. Foreign trade of B&H with Germany, Croatia, Italy, Serbia, Slovenia, Austria, China and Russia accounts for about 60% of total foreign trade of B&H.



**Graph 4:** Value of exports, imports and foreign trade balance of B&H in thousands of BAM, by main foreign trade partners, in 2018. Source: Graphic presentation of foreign trade indicators by the authors based on data from: Agency for Statistics of Bosnia and Herzegovina. (2019). Foreign trade of B&H in 2018. Thematic bulletin TB 06.

The countries to which Bosnia and Herzegovina exports most are Germany with 14.63% of total exports, Croatia with 12.30%, Italy with 11.37% and Serbia with 10.52% of total exports of B&H. The analyses of the countries from which B&H imported most have shown that in total B&H imports, imports from Germany

with the share of 11.92%, followed by Italy with 11.26% and Serbia with 10.74% of total B&H imports in 2018 were dominant.<sup>6</sup>

The data that was shown in Chart 4 indicate that the foreign trade position of Bosnia and Herzegovina is very unfavorable since B&H has the negative foreign trade balance with its main foreign trade partners. The coverage of imports by exports with Germany and Croatia is about 76%, and with Serbia and Italy about 60%. The highest coverage of imports by exports in 2018 at the level of 151.71% was achieved with Austria and Slovenia with 115.27%.

The coefficient of geographical concentration of exports, which was calculated by the Gini-Hirschman method as well as the coefficient of production concentration, in 2018 was 74.88. This coefficient has shown that B&H exports achieved lower market diversification of partner countries, i.e. B&H exports to the relatively small number of countries. Also, the coefficient of import production concentration of 62.65 was obtained by the same method. The obtained coefficient of geographical concentration of imports also has shown the high geographical concentration, which indicates that the number of countries from which B&H imports is relatively small.

The analysis of the geographical structure of B&H exports and imports have shown that the main foreign trade partners of B&H are EU member states. EU member states participated with 73% in the total export of B&H and with 60.5% of the total B&H import. Such high participation of the EU as the foreign trade partner in B&H foreign trade indicates the high dependence of the B&H economy on the movements in the EU countries with which the largest volume of foreign trade is realized.

The high geographical concentration of B&H exports and imports increases its dependence on the small number of countries as foreign trade partners, and thus its vulnerability to external shocks, i.e. economic and political developments in those countries. Given that the level of geographical concentration of exports is

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<sup>6</sup> Source: Agency for Statistics of Bosnia and Herzegovina.2019). *B&H foreign trade in 2018*. Thematic bulletin TB 06.



higher in relation to the geographical concentration of imports, dependence of B&H on export markets is higher than on import markets.

Given the size of the B&H economy in terms of international trade, its poor economic structure and low level of economic and technological development, the high openness degree of the B&H economy with highly liberalized foreign trade, the B&H economy is exposed to strong foreign competition. All of the above-mentioned leads to the poor foreign trade performance of the B&H economy in trade exchange with other countries in the world. The success of a national economy in foreign trade with the world largely depends on the international competitiveness of its domestic companies. The B&H economy was ranked as 107th in 2008, while according to the latest ranking, B&H was ranked as 92nd out of 141 ranked economies in the world.<sup>7</sup> Although the ranking of B&H based on the Global Competitiveness Index has improved in recent years, it is the worst in relation to all countries in the region and in relation to main foreign trade partners of B&H (Krajišnik, Popović, 2019).

Considering the high openness degree of the B&H economy with the low level of its global competitiveness, it is clear that Bosnia and Herzegovina has the poor foreign trade position. Despite the increase in the coefficient of import coverage by exports, the poor foreign trade position of B&H is reflected in the chronically high foreign trade deficit and poor geographical structure due to the high level of export and import concentration, as well as the poor production structure of foreign trade in which groups of products with the low degree of finalization and low newly value added predominate.

### 3. MATERIALS AND METHODS

This research deals with the analysis of foreign trade and the impact of exports on economic growth in B&H. Establishing interrelationships and connections of two or more observed phenomena is the subject of regression and correlation analysis, with the aim of quantitatively expressing the average regular relation

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<sup>7</sup> Source: World Economic Forum. (2020). *The Global Competitiveness Report 2019*, retrieved from: <https://www.weforum.org/reports/global-competitiveness-report-2019>, accessed: 01.03.2020.

of observed phenomena by the regression equation (if in reality it exists as such!), as well as the degree and direction of their interconnectedness. If only the two phenomena are observed, then this analysis is reduced to a simple regression and correlation analysis (Komić, 2000). The relationship between movement of export and GDP will be analyzed using the simple linear regression analysis. For this purpose, foreign trade and exports will be explanatory variables, while GDP will be a dependent variable, as follows:

$$Y = f(FT, X) \quad (1)$$

In order to establish the average regular quantitative relationship between the two observed phenomena, it is necessary to determine the parameters of simple linear regression. The simple linear regression model can be written as:

$$Y_i = \beta_0 + \beta_1 x_i + \varepsilon_i, \quad i = 1, 2, \dots, N \quad (2)$$

where:

- $Y_i$  means dependent variable, in this analysis, gross domestic product – GDP;
- $x_i$  means independent variable, in this analysis, export and volume of foreign trade;
- $\beta_0$  and  $\beta_1$  are unknown constants or regression parameters;
- $\varepsilon_i$  is a stochastic member or a disorder, or accidental error and
- $N$  means the size of the base set.

Since the analysis will be done on the sample, and not on the whole basic set, because the available data do not allow it, the estimated simple linear regression function will be used, based on the sample, which is defined as follows:

$$\hat{Y}_i = b_0 + b_1 x_i. \quad (3)$$

In the given relation,  $\hat{Y}_i$  denotes the value of the dependent variable which is exactly on the best-adjusted regression line, while  $b_0$  and  $b_1$  are the estimates of the unknown regression parameters of the basic set.

The estimates of the parameters in the regression equation are obtained on the basis of the least squares method, which implies minimizing the squares of the vertical linear deviations of the original data from the regression line. In this way, a system of normal equations for determining parameters in the regression equation is obtained (Lovrić et al. 2006), and the solution of the above system of equations enables direct calculation of parameter values in the regression equation, as follows:

$$b_1 = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2} \quad (4)$$

$$b_0 = \bar{y} - b_1 \bar{x}. \quad (5)$$

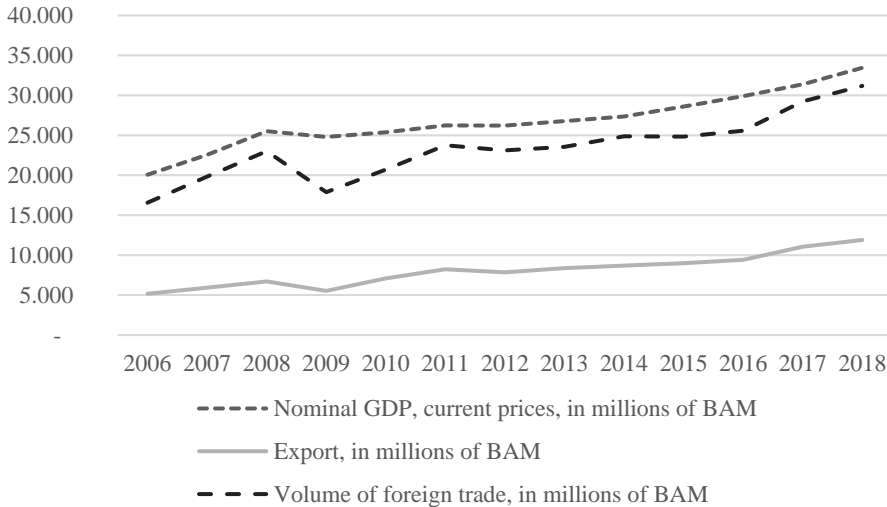
The parameter  $b_0$  shows the expected value of the dependent variable Y, if the independent variable X has the value of zero, while the parameter  $b_1$  shows the average change of the dependent variable with a unit increase of the independent variable.

For the needs of the analysis, the econometric program EViews was used, by applying the least squares method. This method is simple and reliable because it mutually excludes positive and negative errors. The analysis also contains the standard deviation, mean, maximum and minimum value, distribution asymmetry and measure of serial distribution tendency. Regression analysis provides the estimate of the significance of the following variables: probability (p), t-statistics, standard estimation error, and coefficient of determination  $r^2$ . The statistical basis consists of data from the Agency for Statistics of Bosnia and Herzegovina in the period from 2006 to 2018. The relatively short time data series in the regression model is conditioned by the limited availability of relevant data.

#### **4. EMPIRICAL ANALYSIS OF THE IMPACT OF EXPORTS ON ECONOMIC GROWTH**

Exports represent foreign demand for domestic products and their realization leads to the funds inflow and income growth, which increases domestic demand.

Therefore, the link between export trends and gross domestic product is quite expected. The trends shown in the following chart confirm this assumption.



**Graph 5:** Trends of GDP, foreign trade and exports of Bosnia and Herzegovina. Source: Graphic presentation of the analysis by the authors based on data on foreign trade and GDP of B&H from the Agency for Statistics of Bosnia and Herzegovina.

Regression analysis shows that there is a very high direct relationship between exports and GDP because the correlation coefficient ( $r$ ) is 0.96. Table 3 shows the results of the regression analysis of exports and GDP. The analysis shows that the coefficient of determination ( $r^2$ ) is 0.917939, i.e. the changes in GDP are determined by the variations in exports with 92%.

**Table 3:** Results of regression analysis of exports and GDP

Dependent Variable: GDP

Method: Least Squares

Date: 03/28/20 Time: 12:54

Sample: 2006 2018

Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13247.99	1255.079	10.55551	0.0000
EXPORT	1.676805	0.151163	11.09267	0.0000
R-squared	0.917939	Mean dependent var		26784.08
Adjusted R-squared	0.910479	S.D. dependent var		3537.135
S.E. of regression	1058.311	Akaike info criterion		16.90737
Sum squared resid	12320248	Schwarz criterion		16.99429
Log likelihood	-107.8979	Hannan-Quinn criter.		16.88951
F-statistic	123.0472	Durbin-Watson stat		1.174527
Prob(F-statistic)	0.000000			

Regression equation  $Y = 13.247,99 + 1,676805 * EXPORT$  shows that every increase in exports by 1 million BAM leads to the increase in GDP by 1.68 million BAM. It is clear that foreign trade multiplier of the impact of exports on GDP growth is very pronounced in B&H.

Regression analysis of the foreign trade volume and GDP shows that there is a pronounced direct relationship, and that the change in GDP is determined by variations in foreign trade with 90%, because the coefficient of determination  $R^2$  is 0.903986. Based on coefficients along with variables in Table 4, it could be seen that the estimated regression equation is  $Y = 7.569,27 + 0,821375 * OBIMSTR$ , which confirms that, unlike exports, imports do not have the multiplier effect on GDP growth, but that the economy of B&H is import dependent.

**Table 4:** Results of regression analysis of foreign trade volume and GDP

Dependent Variable: GDP

Method: Least Squares

Date: 03/28/20 Time: 12:58

Sample: 2006 2018

Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7569.274	1914.610	3.953429	0.0023
OBIMSTR	0.821375	0.080711	10.17679	0.0000
R-squared	0.903986	Mean dependent var		26784.08
Adjusted R-squared	0.895258	S.D. dependent var		3537.135
S.E. of regression	1144.755	Akaike info criterion		17.06441
Sum squared resid	14415100	Schwarz criterion		17.15132
Log likelihood	-108.9186	Hannan-Quinn criter.		17.04654
F-statistic	103.5670	Durbin-Watson stat		1.616160
Prob(F-statistic)	0.000001			

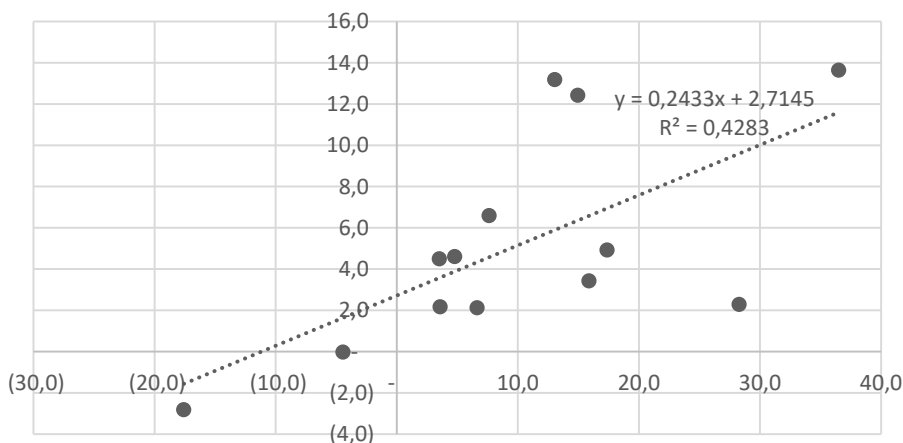
For the analysis of the impact of exports on economic growth, the analysis of the impact of the export growth rate on the GDP growth rate is particularly interesting. Regression analysis shows that the correlation coefficient ( $r$ ) is 0.66 and there is a pronounced direct relationship between the rate of change in exports and the rate of change in GDP. Table 5 shows the results of the regression analysis of the export growth rate as explanatory, i.e. independent variable and GDP growth rate as dependent variable.

**Table 5:** Results of regression analysis of export growth rate and GDP growth rate

Dependent Variable: GDP  
 Method: Least Squares  
 Date: 03/28/20 Time: 13:04  
 Sample: 2006 2018  
 Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.714532	1.402919	1.934917	0.0791
EXPORTSR	0.243335	0.084768	2.870599	0.0152
R-squared	0.428284	Mean dependent var		5.152416
Adjusted R-squared	0.376310	S.D. dependent var		5.098122
S.E. of regression	4.026192	Akaike info criterion		5.764158
Sum squared resid	178.3125	Schwarz criterion		5.851073
Log likelihood	-35.46702	Hannan-Quinn criter.		5.746292
F-statistic	8.240337	Durbin-Watson stat		0.993267
Prob(F-statistic)	0.015225			

The analysis shows that the coefficient of determination  $R^2$  is 0.428284, i.e. the GDP growth rate is determined by the export growth rate with 43% without including other factors that affect GDP growth. The results of the F-test (8.24), standard errors (0.08) and probabilities of 1.5% confirm the significance of the export growth rate in explaining the GDP growth rate.



**Graph 6:** Relationship between export growth rate and GDP growth rate. Source: Graphic presentation of the analysis by the authors.

The regression equation  $Y = 2.714532 + 0.243335 * \text{EXPORTSR}$  shows that any increase in the export growth rate by 1% leads to the increase in the GDP growth rate by 0.25%. This analysis also indicates that the GDP growth rate would be halved if there were no exports from Bosnia and Herzegovina.

## 5. CONCLUSION

Bosnia and Herzegovina is one of the small economies and therefore foreign trade is considered very important for its development. The degree of openness of economy of Bosnia and Herzegovina, regardless of the growing trend, is still relatively low and amounts to 93%. The main characteristic of foreign trade in Bosnia and Herzegovina is reflected in the continuing deficit, which, despite the downward trend, is still high. Therefore, increasing exports is very important for the economic growth of Bosnia and Herzegovina. The production structure of exports is unfavorable because products of the low stage of processing with low newly added value are dominant in B&H export. The production concentration export coefficient is also low. On the other hand, the coefficient of geographical concentration of exports is high and amounts to 74.8, which indicates the high dependence of economy of Bosnia and Herzegovina on the economic trends in the main foreign trade partners. Regression and correlation analysis has showed that there is a very high direct relationship between export trends and GDP, and that changes in GDP are determined by variations in exports with 92%. Also, the results of analysis have shown that the foreign trade multiplier of the impact of exports on GDP growth is high and amounts to 1.68. The analysis of the impact of the volume of foreign trade on GDP has shown that the economy of Bosnia and Herzegovina is import dependent. The analysis of the impact of the export growth rate on the GDP growth rate has shown that the correlation coefficient ( $r$ ) is 0.66 and that there is a pronounced direct relationship between the rate of change in exports and the rate of change in GDP. Also, the results of analysis have shown that the rate of economic growth in Bosnia and Herzegovina is determined by the rate of export growth of 43% excluding other factors that affect growth. Without diminishing the importance of the influence of other factors on economic growth, it can be concluded that increasing exports and improving the structure of foreign trade is extremely important for the future development of Bosnia and Herzegovina. In order to achieve that, it is necessary to use the potentials offered by fast-growing markets, increase the export of products with higher newly added value, and to achieve that it is necessary to change the economic structure and increase the competitiveness of domestic producers.



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## УТИЦАЈ ИЗВОЗА НА ЕКОНОМСКИ РАСТ У БОСНИ И ХЕРЦЕГОВИНИ

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### САЖЕТАК

О значају спољне трговине и њеном утицају на економски раст урађена су бројна истраживања. Нема дилеме да извоз има мултипликативни ефекат на раст бруто домаћег производа, али економисте стално занима колики је спољнотрговински мултипликатор и који су разлози да он не буде већи. Овај рад се бави анализом спољне трговине Босне и Херцеговине, њене географске и производне структуре и концентрације, као и узроцима високог и континуираног дефицита. Анализа указује на потенцијалне могућности побољшања лоше производне структуре спољне трговине и начине на који се спољнотрговинска размјена, а посебно извоз може повећати како би се поправио спољнотрговински биланс. Анализа је посебно усмјерена на утврђивање спољнотрговинског мултипликатора, а резултати показују велики значај извоза за економски раст. Такође се покушава указати на начине како би се извозни потенцијали Босне и Херцеговине што боље искористили у будућем периоду.

**Кључне ријечи:** спољна трговина, извоз, економски раст, БДП, Босна и Херцеговина.