

## **NORTH MACEDONIAN EXPORT STRUCTURE AND RELATIONSHIP WITH ECONOMIC DEVELOPEMNT**

Snezana Bilic<sup>1</sup> and Galina Zaharieva<sup>2</sup>

<sup>1</sup>*International Balkan University - Republic of North Macedonia, sbilic@ibu.edu.mk*

<sup>2</sup>*D. A. Tsenov Academy of Economics - Bulgaria, g.zaharieva@uni-svishtov.bg*

### **ABSTRACT**

North Macedonia as a small and open economy, highly integrated into international trade has export - oriented growth model. The main challenge for the Macedonian government is the improvement of the economic situation in the country, taking into account the country specificities and aspiration of the country for EU membership. The paper investigates the relationship between export structure and economic development in the Republic of North Macedonia, decomposing the change in the growth of exports into four components (Global component, Geographical component, Composition component and Performance component) using the constant market shares (CMS) approach. The paper focuses on the export volume, destination and product mix using the secondary data from UNComtrade database, the third disaggregation level according to SITC Rev.3. The findings from analysis can enhance the government in taking corrective action in terms of product mix, business partners, or individual sectoral policies. This would identify the products and markets, which are of the great importance for the North Macedonian exports, respectively for the economic development of the country.

### **KEYWORDS**

Export Structure, Economic Development, CMS analysis, North Macedonia.

### **JEL CLASSIFICATION CODES**

F10, F13, F19

### **INTRODUCTION**

In the last 40 years, or more preciously with the globalization process, in the world economic development is dominating the concept of the export-led growth or export promotion strategies for industrialization. Export-led growth occurs when a country seeks economic development by engaging in international trade and is opposite from the developing model of import substitution industrialization. This model as an economic development strategy shown relative success in Germany, Japan, and East and Southeast Asia, but current conditions suggest that a new development paradigm is needed. This issue has become even more popular for a number of emerging reasons like the various types of crises, including the global economic crisis, global pandemic crisis, the processes of globalization and integration, and the closer ties between political and economic issues.

The classical model of international trade is that growth in trade leads by way of comparative advantages to stronger economic performance in the future. From the long-term perspective, however, not all goods (and services) have the same character in terms of the impact of its trade on economic performance. The future growth brought by specialization is greater with certain products (commodities) than with others. Economic growth in the years ahead is affected not just by the volume of trade, but particularly by its qualitative composition. For this reason, is important to focus on the

methodology for measuring the structural aspect of exports in the specific country or the group of the countries.

North Macedonia has an open economy and is highly integrated into international trade, with a total trade to GDP ratio of over 133% (World Bank, 2018). North Macedonia became a member of the World Trade Organization in April 2003. In 2004, the country has a status of EU candidate country, which concedes the country duty free access to European markets. In 2006 the country became a member of the Central European Free Trade Agreement (CEFTA), generally considered as the antechamber of the EU. Lastly in March 2020 EU gave its formal approval to North Macedonia to begin accession negotiation process.

The North Macedonian economic policy mix is the model of export-led growth. That strategy has led to the economy being more open, in terms of export share in production, than most others in the region. The country mainly exports leather products, reaction initiators and accelerators, centrifuges and insulated electric conductors; importing chiefly platinum, petroleum oil and ceramic wares.

In 2018, its main export partners were Germany, which accounted for almost half of total exports alone (47%), Serbia (7.9%) and Bulgaria (5.2%); with the main import origins being Germany (11.6%), the United Kingdom (9.5%) and Greece (8.5%) (Comtrade, 2018). To what extent they contribute to economic growth, is a matter of a close analysis. This analysis should consider factors such as volume, destination and product mix. The purpose of this paper is to analyze the main changes in the structure of the North Macedonian exports of goods, taking into account their technological complexity and the quality of the workforce and to what extent they relate to economic growth. The used methodology is based on the constant market shares (CMS) approach, as technique for undertaking decompositions of the export.

To date, no empirical study to the best of our knowledge has addressed the extent to which North Macedonians exports are destined for markets whose growth is promising or stagnant using CMS approach. Thus, no study in the context of North Macedonia has addressed North Macedonian's comparative export performance.

## LITERATURE REVIEW

The importance of trade and the relationship between trade and economic welfare has been examined in economic theory. Adam Smith first espoused the benefits of free trade that David Ricardo built upon to emphasize that a nation must specialize in the production of goods in which it has comparative advantage. Specialization and exchange lead to greater output and greater consumption. In Ricardo's theory, trade is based on labor productivity differences between nations. The Heckscher-Ohlin (H-O) theory refines Smith and Ricardo's idea of unfettered trade to imply that countries need to export products based on factors in relative abundance and import products that require factors in relative scarcity (Schneewes, 1985). Thus, under the H-O theory, the larger a country's physical capital endowment, the more physical capital-intensive will its exports be (Havrylyshyn, 1985). Similarly, larger endowments of human capital would lead to more exports of human capital relative to labor. The framework emphasizes comparative advantage in production through technology or resource endowments as an explanation of the volume and composition of international trade. Termed "classical", the theories of Smith, Ricardo, and Heckscher-Ohlin help to explain the pattern of international trade observed in most of the world economy.

From the late 70s onwards, the literature has produced numerous studies, mostly for developing countries, relating exports and economic growth. According to Hausmann, Jason Hwang and Dani Rodrik (2006) there are economically meaningful differences in the specialization patterns of otherwise similar countries. They have captured these differences by developing an index that measures the "quality" of countries export baskets and provided evidence that shows that countries that latch on to a set of goods that are placed higher on this quality spectrum tend to perform better. The clear implication is that the gains from globalization depend on the ability of countries to appropriately position themselves along this spectrum.

Santos, Ribeiro and Carvalho (2013) in their paper "Export-Led Growth in Europe: Where and What to Export?" examine how the product and the destination structures of exports influence the growth of

EU countries. Since several EU countries face strong recessions in the sequence of the economic crisis and the related fiscal consolidation measures, exports emerge as a meaningful source of growth for developed countries with rather stagnant domestic markets. In this context, they assess if and how the product and the destination structures of exports shape the growth dynamics for the EU countries. Using panel data estimation to 23 of the 27 EU members over the period 1995-2010, they find that economic growth is fostered through export specialization in high value-added products, such as manufactures and high-technology. Moreover, they find evidence that higher growth is fostered by export diversification across partners while enlarging the portfolio of partners, mainly to less developed and more distant countries, has negative impacts on European growth. Unambiguously, relative concentration of exports should be directed towards higher growth countries.

A decomposition of a country's export growth can be indicative of the extent to which a country has outperformed or underperformed its competitors in selecting high growth destination markets and product categories (sectors). The proposed method for such decomposition involves carrying out Constant Market Share Analysis (CMSA) when applied to international trade (Piezas-Jerbi and Nee, 2009). According to proponents of the model (Tyszynski, 1951; Leamer and Stern, 1970; Richardson, 1971) despite a country's efforts to sustain and maintain its share of every product in every market, it can still experience a reduction in its market share if it continues to export to markets that grow relatively slowly than the world average or if it continues to export products whose demand is declining (Skriner, 2009).

Ahmadi-Esfahani and Anderson (2006) note that such an analysis will provide an indication to whether a country's comparative export performance reflects changing global trends in demand. According to the World Bank, success or failure of a country's exports relative to world averages can be attributed to any or all of the following three reasons; the nation's exports may concentrate in commodities in which the demand is growing relatively fast (slowly), the nation's exports may be going to relatively growing (stagnant) or, the country might have been able (unable) to compete effectively with supplying nations. Jimenez and Martin (2010) noted "a country's export market share and the changes in it over time are often used as measures of competitive capacity abroad". They use the illustration that 'if a nation specializes in exports of goods (towards areas) where demand is particularly buoyant, the market share will increase even though competitiveness doesn't improve".

The Republic of North Macedonia as an EU candidate country member complies with both its own interests and with the guidelines for integrated community development. In accordance with the EU strategy "Europe 2020" for smart, sustainable and inclusive growth and directions of the EU is working on development of the strategy for smart specialization. In the 1999 the Macedonian Academy of Science and Arts published the Export Strategy for the Republic of Macedonia where the concept of the country has developed numerous sectoral export strategies designed to promote the internationalization of Macedonian companies and their competitiveness in international markets, especially of small and medium enterprises.

## **RESEARCH METHODOLOGY**

Research methodology that is used for the purpose of this study is related including the analysis of the secondary research sources available on internet as an open access sources, like policy paper documents, scientific articles, models for disaggregation and databases. Also various general research and quantitative methods, such as nominal values and relative weights of commodity groups in total export to analyze the trends in the volume and the structure of the export of the country, depending on their complexity. The data used is third disaggregation level according to UNComtrade SITC Rev. 3 and are grouped according to the classification of UNCTADSTAT "Manufactured goods by degree of manufacturing groupings", in which the goods are classified as "Labour intensive and resource-intensive manufactures" (LIRIM), "Low-skill and technology intensive manufactures" (LSTIM), "Medium-skill and technology-intensive manufactures" (MSTIM) and "High-skill and technology-intensive manufactures" (HSTIM). The goods that are not included into this classification are labeled as other goods.

Another method that is used is constant market shares (CMS) approach analysis for decomposing the changes into component parts that can help us to better understand the forces underlying the observed changes. CMS analysis is a technique for decomposing the growth in a country's exports into components that correspond to holding its market shares constant at various levels. A country's trade may grow faster or slower than the world average because its export profile is concentrated in commodities for which demand is growing relatively quickly/slowly, or because its regional export profile is dominated by countries that are growing relatively quickly/slowly, because the economy is gradually becoming more or less competitive, or some combination thereof. Preferential trading agreements have the potential to change these effects. CMS analysis is designed to help us better understand the relative importance of the various possible drivers of export growth. Advantages that are relatively simple way of analyzing complex growth patterns with strong theoretical foundation that can be derived from the Armington trade model. CMS analysis can concisely summarize key aspects of a large volume of data, can provide insights into competitiveness that are useful for designing export strategy as well as evaluating the impact of existing policies. Disadvantages of the methods are that it is descriptive not causal, measurement errors in the data flow directly into the results, care must be taken to apply indicators at an appropriate level of aggregation, trade shares can vary from year to year, especially at a disaggregate level, leading to misleading results. This problem can be mitigated by comparing average shares over a longer period, or by constructing moving averages of the decomposed effects.

There are actually a number of different CMS decompositions in the literature. The original CMS analysis is Leamer and Stern version, which applies to growth in the value of trade, then Fagerberg and Sollie version, which is applied to the growth in export shares. For this analysis we used the formulas proposed by Wawan Juswanto and Puji Mulyanti (2003), and by Ninez Piezas-Jerb and Coleman Nee (2009). This variation of the method allows us to analyze the change in the market share of the country due to the growth rates of the export compared to the world export, of the product mix or the specific features of the countries targeted by commodity flows. One of the assumptions of the method is that if the country's competitiveness has not changed, and all other factors are held constant, the market share will remain constant over time as well.

Under these conditions, the change in the growth of exports can be decomposed into four components:

- Global component (GLOBO) indicating changes due to overall growth of world trade,
- Geographical component (GEO) indicating changes due to the country's distribution of trading partners,
- Composition component (COMPO) indicating growth due to the mix of products exported, and
- Performance component (PERFO) a residual term indicating changes in competitiveness.

The analysis was performed at three levels. To describe the various levels and effects we use the following notations:

$i$  - commodity,

$j$  - country,

$X_i$  - Value of A's exports of commodity  $i$  in the period 1,

$X'_i$  - Value of A's exports of commodity  $i$  in the period 2,

$X_j$  - Value of A's exports of country  $j$  in the period 1,

$X'_j$  - Value of A's exports of country  $j$  in the period 2,

$X_{ij}$  - Value of A's exports of commodity  $i$  to country  $j$  in the period 1,

$X'_{ij}$  - Value of A's exports of commodity  $i$  to country  $j$  in the period 2,

$r$  - Percentage change in the world export between period 1 and 2,

$r_i$  - Percentage change in the world export of commodity  $i$  between period 1 and 2,

$r_{ij}$  - Percentage change in the world export of commodity  $i$  to country  $j$  between period 1 and 2,

Then, we can obtain the total exports of the commodity  $i$  by summing up the export flow to the different countries  $j$ , and the total export to the country  $j$  by summing up all products  $i$ :

$$\sum_j X_{ij} = X_i, \sum_i X_{ij} = X_j \quad (1)$$

Therefore, the total export of commodities from one country is obtained by summing up the total values of the different commodity groups or the values of the export by partners:

$$\sum_i \sum_j X_{ij} = \sum_i X_i = \sum_j X_j = X.. \quad (2)$$

At the first level, it is assumed, that commodities and countries do not differ, i.e. as in the case of the export of one commodity for one country. Therefore, if we change the market share of a country A, then the increase in exports will be  $rX$  and we will have the following relationship:

$$X'.. - X.. \equiv rX.. + (X'.. - X.. - rX..) \quad (3)$$

The one-level analysis divides the export growth into a part associated with general increase in world exports (GLOBO) and a residual, the competitiveness effect. This relationship can be used for a product class, if we assume that we have different products and different markets. In this case we have the following relationship:

$$X'_i - X_i \equiv r_i X_i + (X'_i - X_i - r_i X_i) \quad (4)$$

which may be aggregate to:

$$X'.. - X.. \equiv \sum_i r_i X_i + \sum_i (X'_i - X_i - r_i X_i) \equiv (rX..) + \sum_i (r_i - r) X_i + \sum_i (X'_i - X_i - r_i X_i) \quad (5)$$

The “two-level” analysis examines the growth of the export of country A resulting from the general increase in world exports, commodity composition (COMPO)  $\sum_i (r_i - r) X_i$  and a residual. The  $\sum_i (r_i - r) X_i$  indicates whether the country exports commodities at a higher rate compared to the world average for all commodities. In this case  $(r_i - r) X_i$  has a positive value.

The three-level analysis assumes that both countries and commodities differ. Some are characterized by higher growth rates, other – by lower. In this case we can use the equation:

$$X'_{ij} - X_{ij} \equiv r_{ij} X_{ij} + (X'_{ij} - X_{ij} - r_{ij} X_{ij}) \quad (6)$$

It can also be presented as:

$$\begin{aligned} X'.. - X.. &\equiv \sum_i \sum_j r_{ij} X_{ij} + \sum_i \sum_j r_{ij} X + (X'_{ij} - X_{ij} - r_{ij} X_{ij}) \\ &\equiv (rX..) + \sum_i (r_i - r) X_i + \sum_i \sum_j (r_{ij} - r_i) X_{ij} + \sum_i \sum_j (X'_{ij} - X_{ij} - r_{ij} X_{ij}) \end{aligned}$$

Here the growth in exports is due to the general increase in world exports, commodity composition, the market distribution of A's exports (GEO) and a residual indicating “competitiveness” or “performance” (PERFO).

This method was used to analyze data of UNComtrade SITC Rev. 3 at third disaggregation level.

## RESULTS

According to the UN Comtrade, the analysis of the data on the North Macedonian's exports shows the trend of increase in value of exported goods to all trade partners and increases in the number of trade partners. Its value decreasing in 2001 and 2002 due to national ethnical armed conflict and 2009 due to the global economic crisis and the global decrease in demand. (Table 1).

In terms of geographical diversification, it was found that Republic of North Macedonia has a significant number of commercial partners, exporting to 140 countries in 2019. In the analysis of the geographic diversification we should pay attention to the value of commodity flows to commercial partners. The relative shares of exports to the countries shows that despite the large number of partners, more than 60% of exports were concentrated in a few countries. The top 5 main export partners are Germany, Serbia, Bulgaria, USA and Czechia. We can say that, except of the USA that is main foreign direct investor in Free Economic Zones in North Macedonia, the others are close markets and according to the reviewed theoretical concepts, dealing with them should be beneficial with the appropriate product mix.

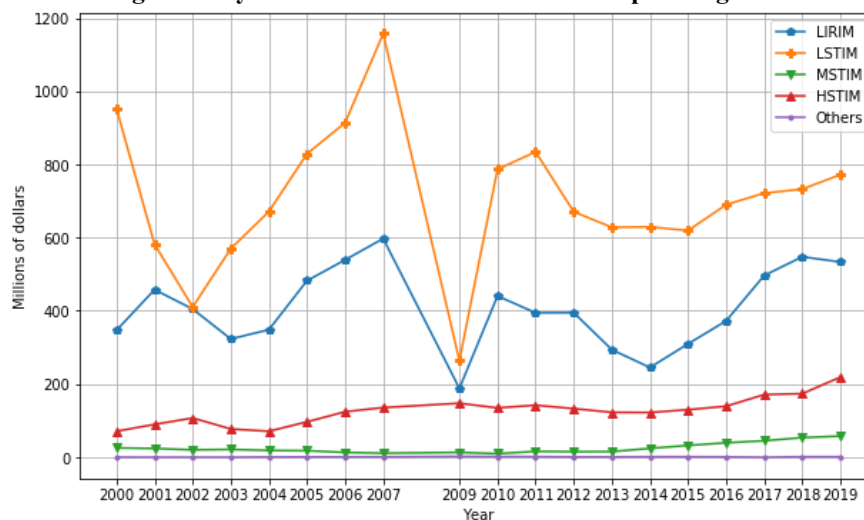
In the UNComtrade data base, the data for the year 2008 are not available in all categories. At the same time the data for 2019 is available only in the total value but is not available for specific export partners.

**Table 1. North Macedonian's export of goods in Value to all trade partners**

Year	Total export (in mln USD)	Number of export partners
2000	1322,6	95
2001	1155,1	87
2002	1115,5	93
2003	1363,3	96
2004	1673,5	91
2005	2041,3	101
2006	2400,7	102
2007	3356,2	109
2008	Data not available	
2009	2691,5	108
2010	3351,4	111
2011	4478,3	118
2012	4015,4	121
2013	4298,8	116
2014	4964,1	120
2015	4530,1	131
2016	4784,6	129
2017	5670,4	132
2018	6906,3	129
2019	7186,0	140

Source: Authors' Calculations based on UNComtrade Statistics

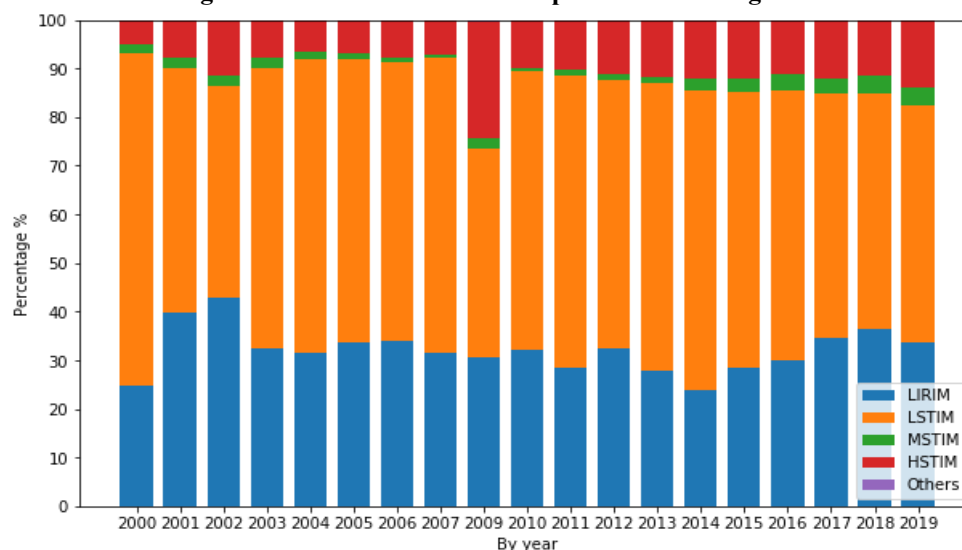
The values of exports of the groupings formed by degree of manufacturing show that the highest absolute value and relative share of exports have commodities that fall under the categories of LSTIM (Low-skill and technology intensive manufacturers) and LIRIM (Labour intensive and resource intensive manufacturers) under the classification of UNCTADSTAT "Manufactured goods by degree of manufacturing groupings". These are products with low added value (Fig. 1 and Fig. 2).

**Figure 1. Dynamics of North Macedonian's export of goods**

Source: Authors' Calculations based on UNComtrade Statistics

Products high added value in the categories HSTIM (High-skill and technology intensive manufacturers) and MSTIM (Medium-skill and technology intensive manufacturers) show slight increase in the export structure of goods proportionally with the total increase of the export of goods. The category others is no significant in the total export of goods.

Figure 2. North Macedonian's export structure of goods



Source: Authors' Calculations based on UN Comtrade Statistics

The statistics on the main countries-importers of North Macedonian goods outline similar trends. The highest export is in the LIRIM commodities and the lowest export is in the MSTIM commodities. What is favorable here is, that there is considerable diversification of commodity exports of HSTIM, as well as of the exports of MSTIM. It is evident that the trade in HSTIM increased in the period 2015-2018 for 33 mln USD; in MSTIM slightly increased in the period 2015-2018 for 10 mln USD and the highest increase is in LIRIM of 179 mln USD and in LSTIM of 125 mln USA in the period 2015-2018

It is interesting to analyse the trends country by country for the period of 2015 – 2018. In the HSTIM category or commodities with the highest added value, the substantial increase of 16 mln USD is recorded in the export to Serbia, increase of 9 mln USD in export to Bulgaria and 7 mln USD in the export to Germany. In the MSTIM category or commodities with high added value, the substantial increase of 10 mln USD is recorded in the export to Germany and less than 1 mln USD in the export to USA. In the LSTIM category of commodities the highest increase of export of 46 mln USD is recorded in export to Germany, 40 mln USD in the export to Serbia 32 mln USD in the export to Czechia, 5 mln USD in the export to Bulgaria and 2 mln USD in the export to USA. In the LIRIM category of commodities in the period 2015-2018 only one country, Bulgaria, recorded decrease of 21 mln USD. The other countries recorded increase in the export as follows: increase of export to Serbia of 196 mln USD, increase of export to Germany for 3 mln USD, increase of 1 mln USD to Czechia and 0.7 mln USD increase of export of commodities to USA (see Table 2).

Table 2. Export of manufactured goods by degree of manufacturing groupings

Country	LIRIM				LSTIM			
	2015		2018		2015		2018	
	Commodity groups – in number	Mln. USD	Commodity groups – in number	Mln. USD	Commodity groups – in number	Mln. USD	Commodity groups – in number	Mln. USD
Bulgaria	19	31,598	21	10,550	16	41,999	15	46,519
Czechia	19	2,599	23	3,381	8	8,641	11	40,622
USA	16	0,121	19	0,833	10	3,142	12	5,308
Serbia	20	245,778	21	441,528	15	115,113	15	155,320
Germany	23	11,860	22	14,657	14	15,596	17	61,237
	Total:	291,956	Total:	470,949	Total:	184,490	Total:	309,006

Country	MSTIM				HSTIM			
	2015		2018		2015		2018	
	Commodity groups – in number	Mln. USD	Commodity groups – in number	Mln. USD	Commodity groups – in number	Mln. USD	Commodity groups – in number	Mln. USD
Bulgaria	23	1,918	19	1,711	33	57,055	33	66,989
Czechia	12	0,079	16	0,198	10	0,154	15	0,166
USA	12	0,057	14	0,600	13	0,004	16	0,011
Serbia	17	7,048	20	7,068	36	50,306	38	66,607
Germany	19	9,162	15	19,053	25	12,789	28	19,308
	Total:	18,263	Total:	28,629	Total:	120,308	Total:	153,081

Source: Authors' Calculations based on UNComtrade Statistics

The analysis of the export structure can be complemented with the results of the Constant Market Share Analysis (see Table 3). Such an analysis can enhance the government in taking corrective action in terms of product mix, business partners, or individual sectoral policies. The results show that growth in world exports (GLOBO) has had a positive impact of North Macedonia's exports. The positive values indicate that the export of the country in the period grows faster than the average growth for the world. The higher the growth rate of the country, the smaller this effect is (Piezas-Jerbi, Nee; 2009).

Table 3. Constant Market Share Analysis of North Macedonia's Export (%)

	2015-2018
GLOBO	90,00
COMPO	13,45
GEO	- 3,16
PERFO	- 0,39
TOTAL CHANGE	100

Source: Authors' Calculations based on UNComtrade Statistics

The factor commodity composition (COMPO) had a positive impact on the export growth, which means that North Macedonia exported commodities the markets of which were growing relatively faster. The market distribution (GEO) had a negative impact on the export growth. This means that the country has concentrated its exports in a more stagnant region. The competitiveness component (PERFO) also has a small negative effect and is related to the slight loss of competitiveness of North Macedonian commodities to the export markets. This analysis would be much more informative if it was made at a higher disaggregation level. This would allow identifying products and markets, which are of great importance for the North Macedonian exports, respectively for the economic development of the country.

## CONCLUSION

Literature review shows that numerous empirical studies confirm a correlation between economic growth and exports. Export – led growth model is marked as successful model at the global level, especially with the specialization in high-tech products that generates higher growth rates compared to specialization in more low-tech. Research can be used by the governments in taking corrective action in terms of product mix, business partners, or individual sectoral policies. In the case of the North Macedonia, the global component results show that growth in world exports has had a positive impact of North Macedonia's exports, indicated that the export of the country in the analyzed period grows faster than the average growth of the world. The sectoral or commodity composition component shows that North Macedonia exported commodities to the markets which were growing relatively fast. The



geographical distribution component shows that the country has concentrated its exports in a more stagnant region and the competitiveness component shows that North Macedonian slightly loss competitiveness of commodities to the export markets.

## REFERENCES

- Ecel A., et al. (2014), Uganda's Comparative Agricultural Export Performance: A Shift-Share Analysis Approach, *European Journal of Business and Management*, ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online), Vol.6, No.4, 2014, p. 262 – 269
- Edith Skriner (2009), Competitive and Specialization of the Australian Export Sector- a Constant-Market Share Analysis, *FIW Working paper*, No.32
- Fredoun Ahmadi-Esfahani and Glenn Michael Anderson (2006), Constant Market Shares Analysis: Uses, Limitations and Prospects, *Department of Agricultural Economics the University of Sydney, Australia*
- Hausmann, Ricardo and Hwang, Jason and Rodrik, Dani, (2006), What You Export Matters, *KSG Working Paper* No. RWP05-063. Available at SSRN: <http://dx.doi.org/10.2139/ssrn.896243>
- Havrylyshyn, O. (1985). The Direction of Developing Country Trade: Empirical Evidence of Differences Between South-South and South-North Trade. *Journal of Development Economics*, Vol. 18: 253-271.
- Juswanto, W and P. Mulyanti.(2003) Indonesia's Manufactured Exports: A Constant Market Shares Analysis. *Journal Keuangan dan Moneter*, Volume 6 Nomor 2, December 2003, p. 97- 103.
- Ninez Piezas-Jerbi and Coleman Nee (2009), Market shares in the post-Uruguay round era: a closer look Using shift-share analysis, *World Trade Organization, Economic Research and Statistics Division, Staff Working Paper* ERSD-2009-14.
- Richardson, J.D. (1971), Constant market share analysis of export growth, *Journal of International Economics*, 1:2, 227-239.
- Santos, P., Ribeiro, A. and V. Carvalho. (2013), Export-Led Growth in Europe: Where and What to Export? *FEP Working Papers*. n. 479
- Schneewes, T. (1985). A Note on International Trade and Market Structure, *Journal of International Business*. Summer, p. 139-150
- Tyszynski, H. (1951), orld Trade in Manufacturing Commodities, 1899-1950", *the Manchester school of economics and social studies*, p. 272-304.
- Zaharieva, G., (2016), The Relationship between Export Structure and Economic Development: The Bulgarian Case, *Економіка і організація управління*, Vol. 4 (24) 2016 p. 21 - 27