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# Trends and challenges of export performance in the Republic of Macedonia

Nehat Ramadani<sup>1</sup>, Violeta Madzova<sup>2</sup>

**Abstract.** Republic of Macedonia, as a small and open economy, continuously works on improving its export performance, aiming not only to increase the quantity and value of the its total export, but also to improve the export quality, hereby moving the export structure from dominant traditional export products to new capital intensive goods. However, despite successful integration of Macedonian exporters into European supply chains, there is a significant room for improvement in the overall quality of export performance.

The paper aims to give empirical evidence of the selected performance indicators of the Macedonian exports over a ten years' period. It's used the Theil index to determine the diversified level of Macedonian exports (by product and destination) while the Revealed Comparative Advantage analysis, are used to be identified the potential of the exports of new nontraditional products .

**Keywords:** export growth, Revealed Comparative Advantages, Constant Market Share Analysis

## Introduction

The economic development and progress in Republic of Macedonia very much depends on its export performance. Export of goods and services has been presenting significant share of the economy's GDP, providing major contributions to the real growth, and therefore, helping to pull the country out of the recession over the global financial crisis. Export increase derives mostly from the export oriented production in the subsidized Technological Industrial Development Zones (TIDZ) representing about half of the total exports in the recent years. However Macedonian export is still concentrated in few labor intensive sectors (textile, food and tobacco), making the country sensitive and vulnerable in case of certain commodity shocks at the international markets.

Therefore it is very important to analyze the different aspects of the Macedonian export performance and to identify the opportunity for potential improvements which turns out to be very challenging process.

## Data and methodology

The paper is focused on analysis of the export performance of Macedonia through different export performance indicators, in other to identify if the quality of the exports in terms of product and country diversification is improving or derogating and if there space for improvements in the future. For that purpose the following indicators have been analyzed: Export annual growth rate, export contribution in % of GDP, export /import coverage rate , trade deficit annual change in %. All these data are taken from the World Bank data base, World Integrated Trade Solution database in the period 2005-2015, as well as from the State Statistical office of the Republic of Macedonia at annual basis for the same observed period , which is presented in the Table 1 as follows:

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**Table 1 ; Summary of the data and their sources**

| Variable                     | Abbreviation | Description   | Source                                   |
|------------------------------|--------------|---|--|
| Export share in GDP in %     | EXP          | export share as % in GDP                                    | World Bank data base                     |
| Export annual growth rate    | EXPGr        | Percentage annual change                                    | World Bank data base                     |
| Export /import coverage rate | CovR         | The % of coverage of import with export                     | Macedonian State Statistical Office      |
| Export market share growth   | EMShGr       | Annual % change of the country share in global export       | World Integrated Trade Solution database |
| Export Value Index           | EXPVINX      | The index of the export value related to baseline year 2005 | World Bank data base                     |

**Source: Related sources, created by the author**

Additionally for the comparison purposes certain indicators historical data for other Western Balkan Countries are used for the same time period.

In order to analyze the trend of diversification as well as potential export structure quality improvement the trend of export by sectors according to Standard International Trade Classification (SITC) is presented.

To analyze if the potentials and threats of Macedonian export due to its diversification from the product and destination perspective , the trend of Theil index for diversification for traditional and newly export products have been calculated and presented . The Theil index is a statistics commonly used to measure inequality, which computes the ‘distance’ between some parameter values and an ‘ideal’ egalitarian state where they would be the same for each member of a given population. Its formula is given by:

$$T = \frac{1}{N} \sum_{i=1}^N \frac{x_i}{\bar{x}} \cdot \ln \left( \frac{x_i}{\bar{x}} \right)$$

where  $x$  is the parameter of interest (in this paper, the value of export lines in total and of traditional or newly important export products) and  $N$  is the total number of population members. A further decomposition of the index allows to distinguish an intensive margin that reflects the degree of inequality prevailing between the shares of existing parameter values (in our case, the value of active export lines or traditional export product lines) and an extensive margin that reflects the increase in the number of parameter values (in our case, a rising number of active export lines of products). In all cases, the higher the index, the more concentrated the distribution of the parameter across the population is, so that declining trend is indicative of greater diversification. Thus, an increased dispersion in the value of already exported good categories would be reflected in a decline in the intensive margin, while the addition of new categories to the exported production would be indicated by a decline in the extensive margin; both developments would result in a decrease of the overall index, pointing to increased diversification. To analyze the potential and further development opportunities of the Macedonian export the Revealed Comparative Advantage analysis are made. Namely, the Revealed Comparative Advantages analysis are made to measure the relative comparative advantages of countries for various export lines as evidenced by trade flows. The index is constructed as the proportion of an export product line in a country’s total exports to a specific destination (in this paper, the world ) relative to the average share of the same product line in the total world’s exports.

For the paper analysis Balassa's Revealed Comparative Advantage index (Balassa, 1965) , calculated and presented as a ratio of product *j*'s share in country *i*'s exports to its share in world trade. It is expressed as follows:

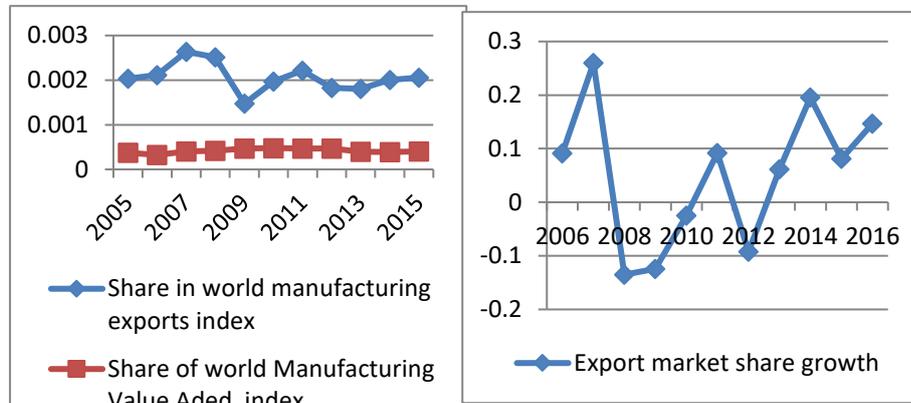
$$RCA = (X_{ij} / X_{it}) / (X_{nj} / X_{nt}) = (X_{ij} / X_{nj}) / (X_{it} / X_{nt}), \text{ where :}$$

*X* represents exports, *i* is a country, *j* is a commodity (or industry), *t* is a set of commodities (or industries) and *n* is a set of countries , or the world. Revealed Comparative Advantage (RCA) measures a country's exports of a commodity (or industry) relative to its total exports and to the corresponding exports of a set of countries, or the world at average level. A comparative advantage is "revealed", if  $RCA > 1$  i. e. if RCA is less than unity, the country is said to have a comparative disadvantage in the commodity / industry.

## Macedonian Export Performance indicators

Although Macedonian economy is export oriented, due to its size, its export contribution in the total world's export is almost insignificant. Namely with over 5,3 million \$ exports of goods and services , Macedonia is at the 102nd position in the world. **The same conclusion would be made if the indicators such as:** share of Macedonian exports of manufactured good in the global manufacturing exports index as well as the share of the Macedonian export value added manufactured goods in the global Manufactured Value Added Index are analysed. Namely , the both indicators are very modest as Macedonian export share in the world manufacturing exports index is at the level between 0,0015 ( in 2009) and 0,0025 ( 2007) , while the Macedonian share in the world's value added manufactured index is even lower at the level bellow 0,0005, and indicate very flat trend over the whole observed period . The market share growth indicator ( representing the annual % change of the Macedonian export share in the world's export, shows very dynamic trend over the observed period , but with small amplitudes marking the market share growth from – 1.14% in 2008 till + 2.27%. in 2007. The trend of the indicators is presented in the Figure 1.

**Figure 1. Macedonian export indicators in the global framework**



Source : WITS data base , created by the authors

However much more significant conclusions can be made while analysing the trend of developing of certain trade indicators in the observed period such as:

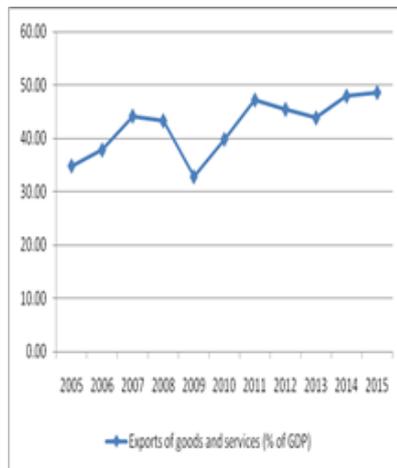
- a. Export's share as % of GDP,
- b. Export annual growth rate ,
- c. Export /import coverage rate ,
- d. Trade balance and Trade Balance annual change in %.

In the following each of these indicators will be presented and analyzed.

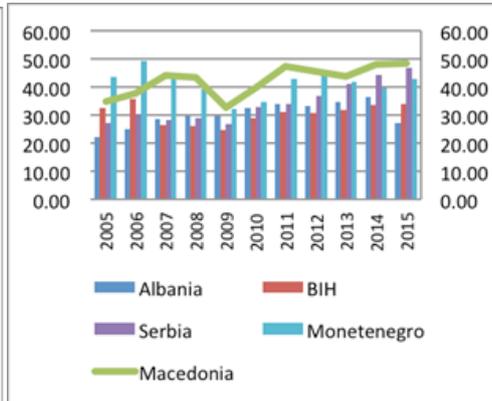
**a) Export of goods and services share as % of GDP**

The turbulence of the crisis period affected the positive and upward trend of the export of goods and services contribution in nominal GDP of the country. Exports of goods and services have been presenting contribution in the nominal GDP at the level between 35% in 2005 up to 50% at the end of 2015( Figure 2). In that respect, the most critical year was 2009, when Macedonian export reached the its lowest share of 32 % in the national GDP, due to the canceled arrangement from the EU countries which suffered tremendous consequences from global financial crisis. The trend of turbulence is evident for all Western Balkan countries (WBC) except for Serbia, which previously suffering with both economical but as well as political problem, increased its openness to the world and increased its export of goods and services from 27.14 % to 46,7 % from the GDP. (Figure 3).

**Figure 2: Republic of Macedonia  
Export of goods and services (% of GDP)**



**Figure 3: Western Balkan Countries  
Export of goods and services (% of GDP)**



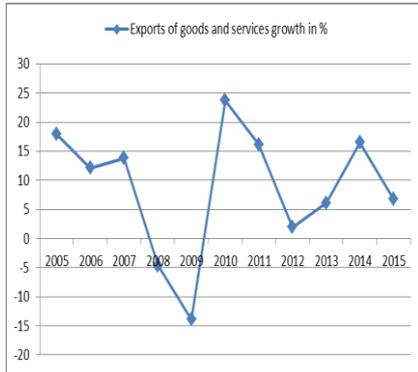
Source: WB database, author's calculations

Albania as the country with the lowest level of participation of the export in GDP is also marking upward trend till 2014 when it reached the level of 36,37% of export in GDP , however experienced drop to 27.19% in the next year. Macedonia and Montenegro are the two countries who have the highest level of export at the beginning of observed period but experience significant ups and downs in the export participation in gross domestic product of their countries.

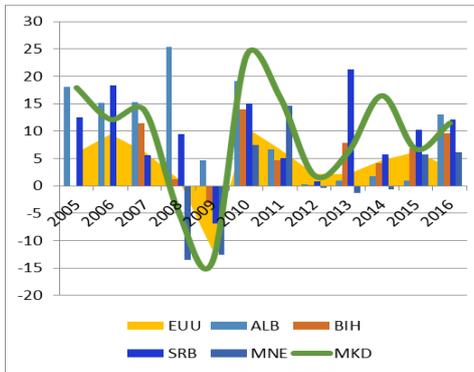
**b) Export of goods and services annual growth rate**

The ability of Macedonian exporters to maintain or even increase their positions during times of severe contraction in trade flows has allowed for steady market share gains within the European Union, as well as in the world. During the observed period the exports of goods and services marked 8% average annual growth rate , achieving the highest annual growth rate of 23,7% in 2010 related to the previous year (2009) marked as the worst economic year not only for Macedonia but for the whole Western Balkans. Namely , the turbulence of the financial crises affected the Macedonian export annual growth , marking negative trend in 2008 and 2009 ( - 4,6% and -13,9% respectively) , but as well as modest growth rate of less than 2% in 2012 caused by the sovereign debt in Euro zone . (Figure 4).

**Figure 4: Republic of Macedonia**  
Export growth change in %



**Figure 5: WBC & EU countries**  
Export growth change in %



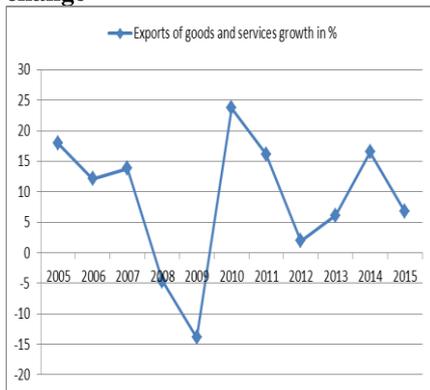
Source : WB database , author's calculations

Comparing with the exports growth rate in the neighborhood and EU countries the exports of Republic of Macedonia has marked much higher positive growth rate than its peers countries in the period of prosperity and stabilization, but also significant negative export growth rate in the period of the crisis.(Figure 5)

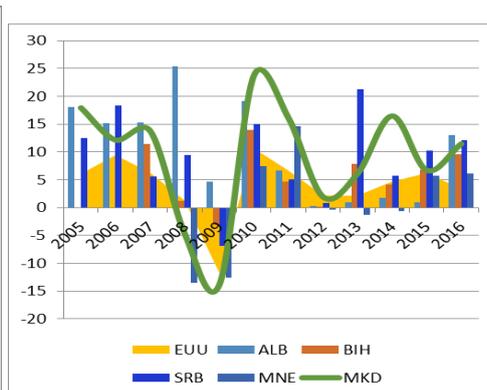
**c) Export /import coverage rate**

The positive tendency of increasing import coverage by export is evident throughout the whole observed period with some downfalls in 2009 and 2012. Namely, at the beginning of the observed period about 63 % of the import was covered by export , while in 2015, export /import coverage rate increased at the level of over 70%. (Figure 6)

**Figure 6: Export/import coverage rate**



**Figure 7: Trade Balance & TB annual change**



Source : State Statistical Office of RM, author's calculations

**d) Trade Balance and Trade Balance annual change**

The trade balance and thus the trade balance annual change didn't follow the improving trend of exports and export share in the nominal GDP in the observed period. Actually, besides the

fluctuations in the crisis years, the level of trade deficit reached in 2005 (amounting 1,1 million\$) has even been worsened over the observed period, including 2015, when the trade deficit was almost doubled reaching 1,9 billion \$. The trend of trade balance annual change was also unlike the other analyzed indicators, as it has shown the biggest drop in 2008, due to the sudden cuts in exports (as the foreign trade partners have canceled their trade arrangement), but still keeping the imports on the high level. However in the next 2009, which is considered as the worst year for the Macedonian economy, the decreased export was accompanied with even the lower import, reflecting the improvement in the trade balance annual change of 18%.

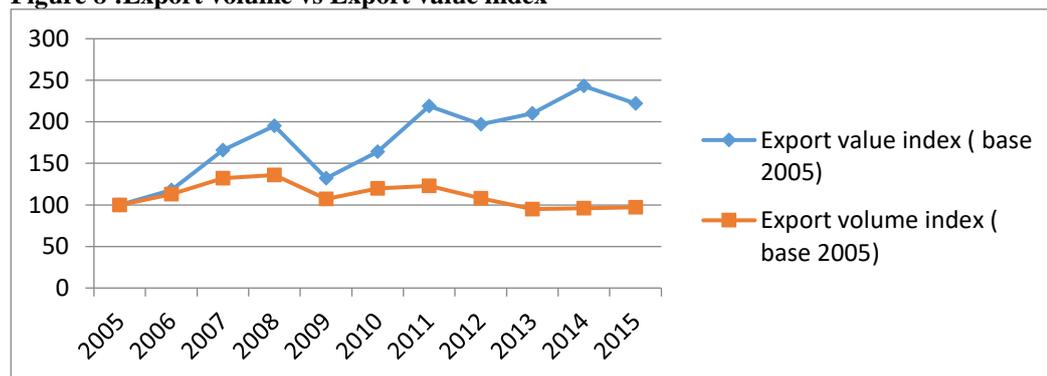
## Trend of improving quality of Macedonian exports

Despite successful integration into European supply chains, Macedonian export is still concentrated in certain sectors (textile, food and tobacco) exporting over 87% of its goods and services in the European Union and Western Balkan countries. However in the recent years there is a trend of improvement, regarding quality of the Macedonian economy exports, in terms of product diversification, moving the export structure from dominant traditional export products to new capital intensive goods, as well as from low technology export structure to high technology one.

### Improving export quality through introducing value added products

The increasing trend of exported goods with higher value added is at first glance evident when analyzing the trend of export volume versus export value index over the observed period. Assuming the 2005 as a baseline year, the exports volume index hasn't been changed much, as it has increased slightly till 2008 and then with fluctuations even marked values slightly below 100. In the same time, the export value index in 2015 has been more than doubled comparing with the baseline year, which refers to conclusion that in the export structure it is trend of increasing of high skills and technology intensive products, having in mind the very low level of inflation rate for the observed period. (Figure 8)

**Figure 8 :Export volume vs Export value index**



Source : State Statistical Office of RM, author's calculations

The positive change in the Macedonian export structure is even more obvious, when analyzing the trend of exports by sectors, according to Standard International Trade Classification (Table 3).

**Table 3: R. Macedonia export structure by sectors according to SITC (2005-2015) in mill.\$**

| export in mill. \$                  | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| 0 Food and live animals             | 167  | 192  | 250  | 308  | 283  | 328  | 373  | 339  | 365  | 388  | 339  |
| 1 Beverages and Tobacco             | 163  | 193  | 209  | 218  | 197  | 202  | 234  | 237  | 270  | 223  | 160  |
| 2 Crude Materia (except fuels)      | 67   | 113  | 170  | 272  | 173  | 259  | 288  | 265  | 278  | 267  | 216  |
| 3 Mineral fuels, lubricants,...     | 163  | 225  | 165  | 314  | 202  | 257  | 390  | 258  | 106  | 87   | 61   |
| 4 Animal&vegetable oils, fats&waxes | 2.8  | 2.1  | 2.5  | 12.4 | 8    | 11   | 10   | 17.8 | 15.5 | 9.7  | 12   |
| 5 Chemicals &realeted products      | 90   | 100  | 133  | 181  | 172  | 381  | 747  | 681  | 838  | 1053 | 1022 |
| 6 Manufactured goods by material    | 682  | 853  | 1513 | 1602 | 771  | 990  | 1233 | 1038 | 1030 | 962  | 802  |
| 7 Mashines and transport equipmnt   | 109  | 118  | 151  | 186  | 153  | 198  | 353  | 398  | 571  | 1044 | 1118 |
| 8 Miscalenous manufactures articles | 590  | 612  | 800  | 892  | 745  | 717  | 836  | 779  | 825  | 920  | 787  |
| 9 Other unclassified goods          | 3    | 3    | 2    | 1    | 1    | 2    | 3    | 1    | 3    | 4    | 1    |

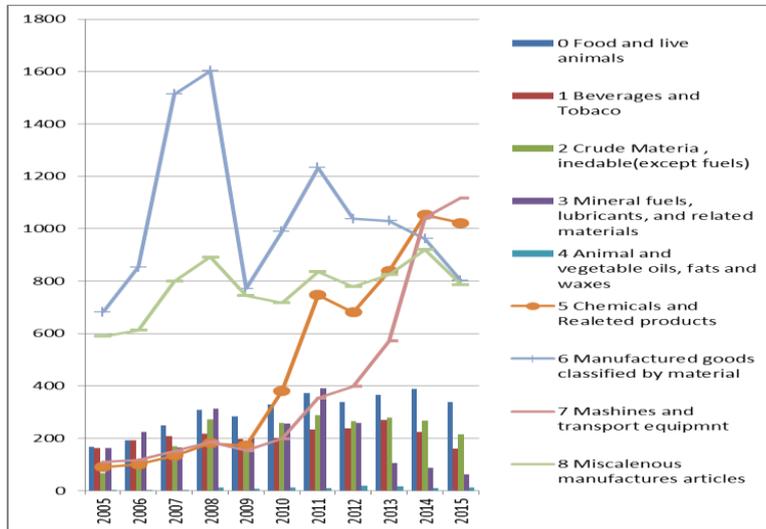
**Source: State Statistical Office of RM, author's calculations**

Namely, although the exports value has been more than doubled in the analyzed period, the export structure has been change in favor of certain group of products, while the other are participating with the same or even lower value in the total Macedonian export. In that respect the traditional exporting products from the sector “Food and live animals” doubled its export value in the observed period, while tobacco products within sector 1 (Beverages and Tobacco) (although with some increasing fluctuations), have finished the observed period with the same (even decreased) export value index. It is also important to notice that there is a negative trend of export value index in the sector 3 “Mineral fuels, lubricants and other...”, as the value of the export is threefold lower than the one at the beginning of the observed period.

This fact confirms the notion about the trend of decreasing share of the low-skills & technology products in the Macedonian exports structure. The exported goods from the sectors 6 and 8 (“Manufactured goods by material” and “Miscellaneous manufactured articles”) have noted about 50% increase, which is also a sign of improving expert quality structure. However the biggest improvement is noticed in the case of the two sectors according to SITC, “sector 5 – Chemicals and related products” as well as the sector 7 “Machines and transport equipment”. Both of these two sectors marked tenfold increase of their export value in the observed period, both presenting almost half of the Macedonian export value in 2015. The other two sectors – sector 2 “Crude materials, except oil” and sector 4 – “Oils, fats and waxes”, although marking 2-6 times increase introspectively over the observed period, their share in the overall export is still insignificant to reflects the change in the export structure. The trend of exporting value of the goods clarified as per SITC is even more evident in the presented Figure 9.

As a conclusion it can be said that the textiles, beverages, tobacco, and food products remains to be highly dominant in the Macedonian overall expert of goods, however the country managed to push its advantage in chemical products and production of transport equipment and other manufactured goods with higher added value.

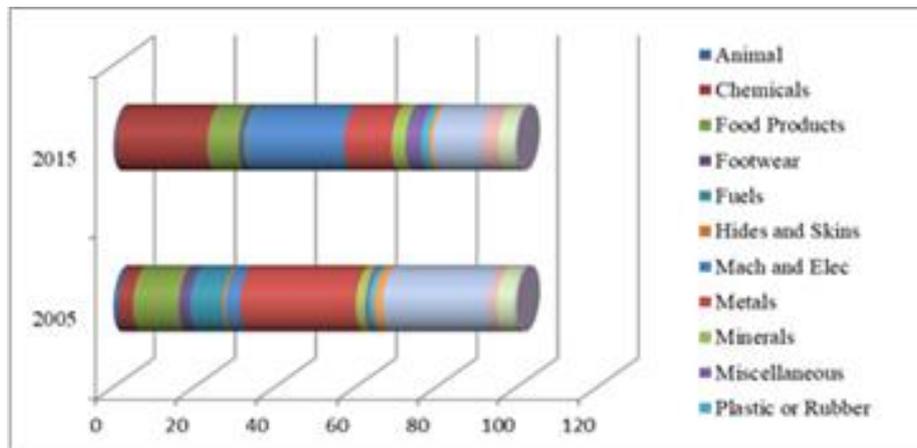
**Figure 9: Macedonia export structure by sectors according to SITC (2005-2015) in mill.\$**



Source: State Statistical Office of RM, created by the authors

Therefore, if we compare Macedonian export structure at the beginning and the end of the observed period, the difference is more than obvious. (see Figure 10).

**Figure 10: Macedonian merchandise export structure 2005 vs. 2015**



Source : WITS data base , created by the authors

While only ten years ago , the dominant exports products were “Textiles” (with 26,4%) and “Metals” (with 28,72%) , followed by Food processed products( 11,35%) , Fuels ( 8%) and Vegetables (4,5%) , in 2015 the exports structure have been changed in favor of “Machines and el. Parts” line products( 23,6%) and Chemical products (22,7%) , while the traditional export goods have decreased their participation at the level of 12% for “Textiles” , 11,8% for Metals

and only 7,7 for food processed products. The obviously increased participation in the current Macedonian export structure is “Transport” line of products from 1,4% in 2005 to 4,19 % in 2015

### Improving export quality through export diversification

Parallel to the improvement of the Macedonia export structure moving from labor intensive towards high skills and technology intensive products, the quality of the Macedonian export can be analyzed from its diversification perspective, focusing on its diversification by product and by destination country.

Generally, within the ten years period, 326 new products in the Macedonian exports structure have been included, while over 30 new export destinations have been introduced (Table 2).

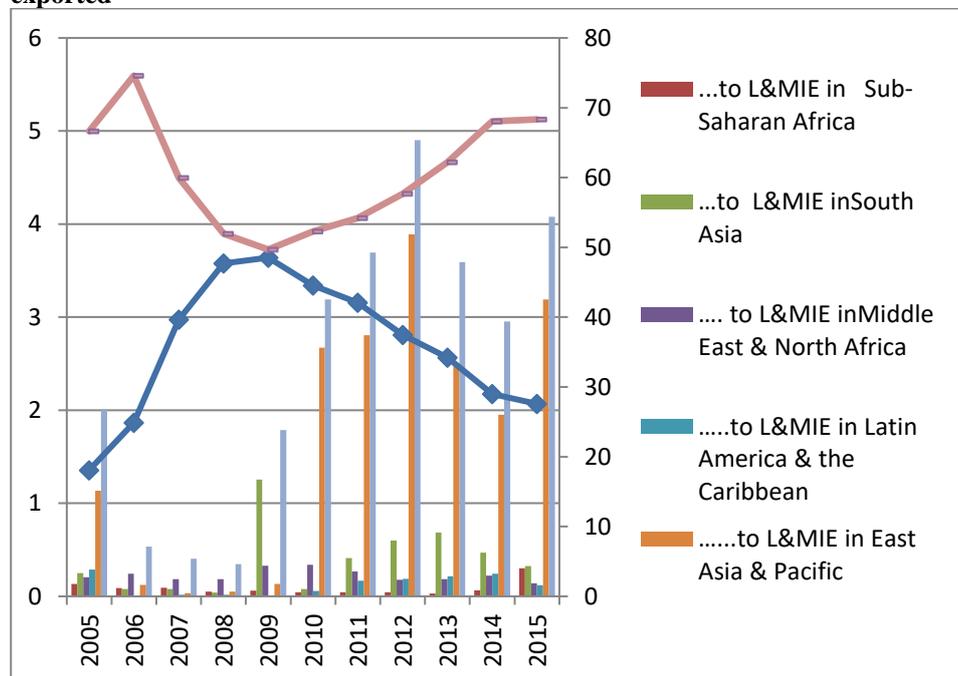
**Table 2 : Trend of Macedonian exports by number of products and partners**

|                             | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|
| Number of products exported | 2508 | 2541 | 2595 | 2670 | 2710 | 2673 | 2792 | 2750 | 2738 | 2742 | 2834 |
| Number of export partners   | 101  | 102  | 109  | 108  | 108  | 111  | 118  | 121  | 116  | 120  | 132  |

Source : WITS data base

However, analyzing the trend of diversification of Macedonian merchandise export by destination, it can be noticed that the main group of trade partners are those classified as “high income economies” (with domination of EU members countries) and the Western Balkan Countries (including Turkey), being the destinations for over 90 % of Macedonian export throughout the whole observed period.(Figure 11)

**Figure 11: Merchandize Exports by destination as % of total merchandize exported**



Source: World Bank database, created by the author

However, the trend of development of these two groups of countries over the observed period has been dramatically changed. Namely while in the period of economic expansion 2005-2007, the high developed countries (EU countries, USA, Canada, Japan) were the destinations for more than 70% of Macedonian export, and the Western Balkans and Turkey imported less than 20% of Macedonian exports, in the crisis period 2008-2009, the structure of Macedonian export towards these two groups of countries was equalized at the level of 48-49% for both destinations. It means that due to the high concentration of Macedonian exports in developed EU countries which suffered from financial and economic crisis and later on, with European sovereign debt crisis, many trade agreements and partnership with developed countries have been canceled and Macedonian exporters have redirected its exports mostly to Western Balkan Countries and partly to Turkey. Having in mind limited absorption capacities of the Western Balkan countries, the stagnation in Macedonian trade which reflected to GDP growth was inevitable. However, as of 2011, the trend of increasing exports towards high income economies has been continuing till the end of observed period, yet below the level of pre-crisis period (67%), while the concentration in Western Balkan countries is still at the significant level of 26%. Analyzing the other exports destinations, it can be noted that in the recent years the countries of East Asia as well as other Non-European countries are increasing its contribution to the level of 3-4%. All other destinations are contribution in Macedonian export with less than 0.5%.

### Diversification of Macedonian exports measured through Tail index

The Theil index is a statistics used to measure inequality, which computes the difference between the value of export by product lines and by destinations and an 'ideal' egalitarian state where they would be the same for each member of a given population. Its formula is given by:

$$T = \frac{1}{N} \sum_{i=1}^N \frac{x_i}{\bar{x}} \cdot \ln \left( \frac{x_i}{\bar{x}} \right)$$

where  $x$  is the parameter of interest (in this paper, the value of export lines in total and of traditional or newly important export products) and  $N$  is the total number of population members.

A further decomposition of the index allows to distinguish an intensive margin that reflects the degree of inequality prevailing between the shares of existing parameter values (in our case, the value of active export lines or traditional export product lines) and an extensive margin that reflects the increase in the number of parameter values (in our case, a rising number of active export lines of products).

In the following, the Theil index for diversification for traditional and newly export products have been calculated. After the calculations the following export diversification index (including extensive and intensive margin is presented in the Table 3.

**Table 3: Trend of Macedonian export diversification index, 2005-2015**

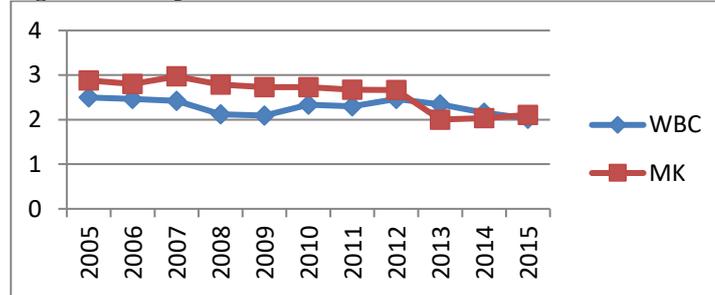
|                                      | 2005     | 2006     | 2007     | 2008     | 2009     | 2010     | 2011     | 2012     | 2013     | 2014     | 2015     |
|--------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Export Diversification index         | 2.87764  | 2.80262  | 2.97044  | 2.78847  | 2.73096  | 2.73078  | 2.674325 | 2.665321 | 2.002135 | 2.032465 | 1.983458 |
| Extensive margine of diversification | 0.088558 | 0.081644 | 0.095347 | 0.090088 | 0.079909 | 0.079909 | 0.081644 | 0.095347 | 0.089548 | 0.097872 | 0.099767 |
| Intensive margine of diversification | 2.78908  | 2.72098  | 2.87509  | 2.69838  | 2.65105  | 2.65087  | 2.145725 | 2.010023 | 1.867432 | 1.743753 | 1.727695 |

**Source : WITS data base Authors' calculations**

The figures explains relatively high, but decreasing trend of diversification index by product, explaining that that the exports is still concentrated in certain products exported by the limited number of exporters. However it counts for both, general export diversification index and for the exports of traditional goods (expressed through intensive margin off diversification). The goods which are recently recognized as potentially increasing export products the level of concentration is very low, (i. e diversification is very high) since its extensive margin of diversification is much bellow unity. Yet in the recent years it is evident slight increase of concentration in these particular product lines too, as the extensive margin index is about 0,088 in 2005, while in 2015 is increased at the level of 0,099.

Being compared with the countries from its neighborhood , the export diversification index shows the signs of improvement too. While at the beginning of the observed period the average level of export diversification for the Western Balkan Countries is much bigger related to the Macedonian export diversification, as of 2013 , diversification is improved in the favor of Macedonian export.

**Figure 12: Export diversification index Macedonia vs. WBC (average)**



Source: Authors' calculations

### Analysis of improvements of Macedonian export through Revealed Comparative Advantage

To analyze the potential and further development opportunities of the Macedonian export, the Revealed Comparative Advantage analysis are made.

Revealed Comparative Advantage (RCA) measures a country's exports of a commodity (or industry) relative to its total exports and to the corresponding exports of a set of countries, or the world at average level. Thus, the index is constructed as the proportion of an export product line in a Macedonian total exports to a specific destination (in this paper, the world) relative to the average share of the same product line in the total world's exports.

For the paper analysis Balassa's Revealed Comparative Advantage index (Balassa, 1965), calculated and presented as a ratio of product lines  $j$ 's share in Macedonian ( $i$ 's) exports to its share in world trade. It is expressed as follows:

$$RCA = (X_{ij} / X_{it}) / (X_{nj} / X_{nt}) = (X_{ij} / X_{nj}) / (X_{it} / X_{nt}), \text{ where :}$$

$X$  represents exports,  $i$  is a country,  $j$  is a commodity (or industry),  $t$  is a set of commodities (or industries) and  $n$  is the world.

A comparative advantage is "revealed", if Reveled Comparative Advantage for a certain  $RCA > 1$  i. e. if  $RCA$  is less than unity, the country is said to have a comparative disadvantage in the commodity / industry.

Calculating the proportion of each export product line in total Macedonian exports relative to proportion of the same export product line in total global export the indicators of Reveled Comparative Advantage for each of Macedonian export lines have been presented on the Table 4.

From the table it can be concluded that although the country's main comparative advantages still remain in the traditional exports product lines (textiles, food & vegetables, footwear, metals and minerals), the radical increase of chemical products have pushed them at the second position in terms of comparative advantages, just behind the textiles product line. Analyzing the trend of development of the Reveled Comparative Advantage indexes over the observed ten years period, it can be concluded that there is a decreased level of comparative advantages at traditional exports products such as "Metals" (with  $RCA$  index of 5,17 in 2005 to 1,53 in 2015); "Textiles" (having  $RCA$  index of 5,14 in 2005 to 3,14 in 2015), Food Products (with  $RCA$  index of 4,32 in

2005 to 2,00 in 2015) , Footwear ( with RCA index of 4,11 in 2005 to 1,58 in 2015) and “Vegetables “( RCA index of 1,96 in 2005 to 1,12 in 2015).

“Minerals ” are however the only export product line that has slightly increased its comparative advantage over he observed period , starting with index 2,17 in 2005 and achieving 2, 28 in 2015.

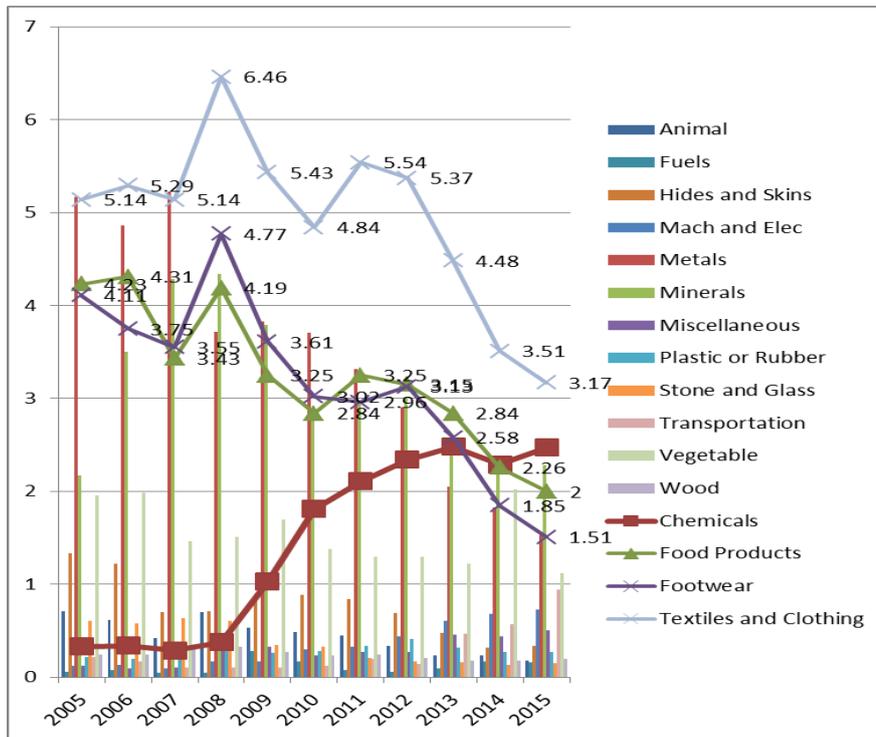
**Table 4 : Reviled Comparative Advantage- Macedonian exports product lines 2005-2015**

|                       | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| Animal                | 0.71 | 0.62 | 0.42 | 0.7  | 0.53 | 0.49 | 0.45 | 0.34 | 0.24 | 0.24 | 0.18 |
| Chemicals             | 0.33 | 0.34 | 0.29 | 0.38 | 1.03 | 1.81 | 2.11 | 2.34 | 2.48 | 2.29 | 2.47 |
| Food Products         | 4.23 | 4.31 | 3.43 | 4.19 | 3.25 | 2.84 | 3.25 | 3.15 | 2.84 | 2.26 | 2    |
| Footwear              | 4.11 | 3.75 | 3.55 | 4.77 | 3.61 | 3.02 | 2.96 | 3.13 | 2.58 | 1.85 | 1.51 |
| Fuels                 | 0.06 | 0.08 | 0.05 | 0.05 | 0.28 | 0.17 | 0.08 | 0.06 | 0.1  | 0.17 | 0.16 |
| Hides and Skins       | 1.33 | 1.22 | 0.7  | 0.71 | 0.86 | 0.89 | 0.84 | 0.69 | 0.48 | 0.32 | 0.34 |
| Mach and Elec         | 0.12 | 0.13 | 0.1  | 0.17 | 0.17 | 0.3  | 0.33 | 0.44 | 0.61 | 0.68 | 0.73 |
| Metals                | 5.17 | 4.86 | 5.22 | 3.72 | 3.83 | 3.71 | 3.32 | 2.91 | 2.05 | 1.83 | 1.53 |
| Minerals              | 2.17 | 3.5  | 4.28 | 4.34 | 3.79 | 2.82 | 2.96 | 3.02 | 2.49 | 2.32 | 2.28 |
| Miscellaneous         | 0.12 | 0.1  | 0.11 | 0.32 | 0.33 | 0.24 | 0.27 | 0.27 | 0.46 | 0.44 | 0.51 |
| Plastic or Rubber     | 0.22 | 0.2  | 0.22 | 0.41 | 0.26 | 0.28 | 0.34 | 0.41 | 0.32 | 0.27 | 0.27 |
| Stone and Glass       | 0.61 | 0.58 | 0.64 | 0.61 | 0.35 | 0.33 | 0.21 | 0.17 | 0.16 | 0.13 | 0.15 |
| Textiles and Clothing | 5.14 | 5.29 | 5.14 | 6.46 | 5.43 | 4.84 | 5.54 | 5.37 | 4.48 | 3.51 | 3.17 |
| Transportation        | 0.22 | 0.17 | 0.11 | 0.11 | 0.11 | 0.12 | 0.2  | 0.14 | 0.47 | 0.57 | 0.94 |
| Vegetable             | 1.96 | 1.99 | 1.46 | 1.51 | 1.7  | 1.38 | 1.3  | 1.3  | 1.22 | 2.02 | 1.12 |
| Wood                  | 0.25 | 0.25 | 0.3  | 0.33 | 0.27 | 0.24 | 0.25 | 0.21 | 0.18 | 0.18 | 0.2  |

**Source: World Integrated Trade Solution database, created by the author**

This drastic drop of the traditional export products RCA index ( see Figure 13) can be considered as trend of improving the structure of the Macedonian export , as all of these product lines are generally considered as labor intensive or low value adding goods.

**Figure 13: Trend of Revealed Comparative Advantage-Macedonian export product lines (2005-2015)**



World Integrated Trade Solution database, created by the author

Thus the trend of newly revealed comparative advantage in export of chemical products with the RCA index of 2,47 comparing with the same index ten years ago ( 0,33) can be seen as good advantage and improvement of the Macedonian export. Although the RCA index of the chemical products has reached the unity level since 2009, in recent several years it is extremely increased, with the tendency of further increasing. When analyzing the other potential export product lines, it can be noticed that there is potential for future RCA index increase for Machines and Electric devices ( as in 2015 the RCA index was 0,73, close to the unity level) as well as the product lines related to “Transportation” as the RCA index is just below the unity.

## CONCLUSIONS

Although Macedonian export is still concentrated in certain sectors (textile, food and tobacco), there is a trend of improvement, regarding quality of the Macedonian economy exports, in terms of product diversification, moving the export structure from dominant traditional export products to new capital intensive goods, as well as from low technology export structure to high technology one. In that respect, the exports value has been more than doubled in the analyzed period, while the export structure has been changing in a favor of high-skills & technology products. In particular, the biggest improvement is noticed in the case of the sector “Chemicals

and related products” marking tenfold increase of their export value in the observed period. Therefore it can be finally concluded that the textiles, beverages, tobacco, and food products remains to be highly dominant in the Macedonian overall export of goods, however increased competitiveness in the recent years contributed in improving the quality of the export structure pushing its advantage in chemical products and transport equipment as well as other manufactured goods with higher added value. . When analyzing the other potential export product lines, it can be noticed that there is potential for future RCA index increase for Machines and Electric devices) as well as the product lines related to “Transportation” as the RCA index is just below the unity.

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