

## REGIONAL DETERMINANTS OF EXPORT COMPETITIVENESS IN MANUFACTURING INDUSTRY IN CANTON SARAJEVO, BOSNIA AND HERZEGOVINA

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### Abstract

*Located in Southeast Europe, Bosnia and Herzegovina suffered from the negative trade balance. There is an increase of export performance; however, the import value is much higher exceeding the export value. To solve that issue, this research aims to investigate regional determinants and its impact on export competitiveness of manufacturing industry in Canton Sarajevo, the center of economy of Bosnia and Herzegovina. Regional determinants assessed are foreign ownership, urbanization, and localization. Regression analysis using SPSS software was conducted. Type of manufacturing industry, urbanization, and localization were the independent variables, meanwhile export competitiveness was the dependent variable. Type of manufacturing industry shows positive impact on export competitiveness. There are 94 out of 490 exporting companies in Canton Sarajevo that belong to manufacturing industry. Out of 94 companies, the most represented companies are fabricated metal products. The manufacturing industry plays a significant role to the export competitiveness in Canton Sarajevo. The biggest urbanization ratio percentage was 23.08% in 2018. The biggest localization ratio percentage was 9.33% in 2016, meaning that localization dropped in years. According to the export incomes data, results show that a small municipality, such as Ilijaš, gains the biggest export incomes. The regression analysis shows positive linear correlation between variables.*

**Key words:** *export competitiveness; foreign ownership; localization; manufacturing; urbanization.*

**JEL Classification:** *F14, F23, L25, O14*

### I. INTRODUCTION

In the world of open market competition, the biggest effort that companies are doing to maintain their existence is exporting their products through the international market. According to that strategic struggle, companies are trying to accomplish as many as positive and useful export determinants that will affect their position, performance, and power. Analysts are giving the effort in investigation of factors and determinants that affect the industrial performance, especially in terms of export competitiveness. European countries are facing such struggle in the global market, including Bosnia and Herzegovina.

Located in Southeast Europe, Bosnia and Herzegovina gained the export performance of goods of \$7.2 billion in the end of 2018. It increased about 12.8% compared to 2016. However, Bosnia and Herzegovina suffered from negative trade balance. Trade deficit occurs due to the huge amount of import of goods and services. Sarajevo, which is a part of Canton Sarajevo, is the capital city of Bosnia and Herzegovina. Sarajevo is a center of economy and the most powerful city in Bosnia and Herzegovina (Sarkar, Arcaute et al., 2020). At the end of 2017, exports of goods and services from Sarajevo were over \$760 million. On the other side, Sarajevo was importing goods and services in a value of \$2.2 billion. There was a deficit of around 35%. It then affected the whole Canton Sarajevo trade performance, although their export value is increasing 46.1% compared to the previous year.

To improve performance and export competitiveness of the companies, experts face international competition, especially against companies which have better goods and services offered to the market. Therefore, this research aims to investigate regional determinants impact on export competitiveness of manufacturing industry in Canton Sarajevo. Regional determinants assessed in the research are foreign ownership, urbanization, and localization. Regional determinants have an important impact on achieving benefits from export and have a better competitiveness which leads to higher profit and better performance of the companies. The research will be focused on types of manufacturing industry by which industry are classified by its main class and location which means positioning, access to knowledge and technologies, and urbanization of the industry in Canton Sarajevo as well.

## II. LITERATURE REVIEW

International trade as it is based on export-import is the most traditional form in business and has one of the most important roles in creating global markets. It is also first chances for companies to create foreign business opportunities. They are using intermediaries who are carrying out process of foreign sales for both sides benefits (Seyoum, 2009). The term regional competitiveness is not commonly used, but it is mostly described as a power of producing goods and services capable for international markets and in the same time ensuring reliability and stability of income (Martin, 2003). To overcome struggle in international market, geographical position is important to be better achieve competitive advantage in maintain greater position towards the competition (Skawinska, 2002).

Foreign ownership encompasses all types of foreign private investment in a foreign country that gives power and ownership over a resource bundle. It includes the skill, technology, energy, management, and finance. Success stories from foreign investors confirm that Bosnia and Herzegovina are desirable destinations for foreign investment. Foreign ownership significantly improved financial conditions of the targeted firms compared to domestic acquisitions. Improving financial conditions can help companies to increase sales and market shares relative to their rivals (Wang and Wang, 2015). In some African countries, increased foreign ownership has often evoked nationalist feelings and fears about increased foreign ownership and control of the economy and international political pressures. Therefore, some restrictions are applied including nationalizations, expropriations, ownership restrictions, rate of return restrictions, conditions for project approval, as well as trade and financial restrictions (Gamariel and Hove, 2019).

Urbanization and localization in economies refer to input sharing, knowledge spillovers, and labor market pooling, which are also known as agglomeration economies. According to Sarkar, Arcaute et al. (2020), an increase of production is a result of different factors outside one individual business. The highly intensive high-tech industries in Sarajevo give an example of urbanization and localization. The rise of industries in Sarajevo created positive business externalities for the firms in the region. Production process is easier due to the many activities taking place in the nearby areas. When innovation occurs in one industry, it also enhances innovation of another industry (Halaba et al, 2017). Location is shaping competitiveness and impacts on the decisions and possibilities of industry to coordinate export operations (Clark, Feldman et al, 2002). According to Farahmand (2012), localization is also called clustering. Clusters are geographical concentrations of interconnected companies that compete and cooperate (Porter, 2003). Urbanization economies are increasingly significant between businesses, while localization economies enhance innovation exchange inside businesses (Hafner, 2013). The economies of urbanization generate benefits for companies throughout the city, not just companies in a particular sector (O'Sullivan, 2003). Localization externalities are measured by the variable characterized as average number of companies from specific industry in the region and total number of companies in the same region (Stojčić, Benić et al, 2014).

Competitiveness is the capacity of an economy to contend reasonably and effectively in business sectors for globally exchanged products and enterprises. In many cases, economies depend on primary products to become crucial exporters in the market. Primary products when carefully managed can serve as the engine to the economic growth (Hakobyan, 2011). The question of competitiveness has been discussed in recent times with the intensification of trade, with the fastened market life, with the exhausting of natural resources (Schmuck, 2008). Export orientation has many positive implications for the domestic economy. It increases competitiveness through specialization and integration of the national economy (Halilbegovic and Ertem, 2020). Exports drive domestic market expansion through the demand channel and trigger an increase in productivity, jobs, wages, and other earnings benefits. Global trade has risen much faster than global Gross Domestic Product over the past two decades, indicating the international economy is a source of dynamism and prosperity (Fetscherin, Alon et al., 2010).

## III. METHODOLOGY

Data were taken from the record of 490 manufacturing companies in Canton Sarajevo, during the period 2016–2018. The data were mainly obtained from the Tron Business Intelligence Database that provided relevant information about the companies, including export, income, profit, foreign ownership, as well as list of the companies which are not falling out of the scope. Financial reports of the manufacturing companies were considered as well. Some data were also collected from Institute for Statistics of Federation of Bosnia and Herzegovina, Foreign Investment Promotion Agency of Bosnia and Herzegovina, and Registers of Business Entities in Bosnia and Herzegovina (Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina).

Fig. 1 illustrates the research model which was developed to address the research objectives. Type of manufacturing industry as well as urbanization and localization were independent variables, meanwhile export competitiveness was a dependent variable. Type of manufacturing industry was measured by classification of

industry according to government classification standards. The concentration of foreign ownership in a region was characterized as a ratio of revenue generated by foreign-owned companies and total revenue generated in a particular year in the same region. Urbanization externalities were measured by the variable characterized as a ratio of total number of companies in some specific region and total number of companies in a country in a specific year. Localization externalities were measured by the variable characterized as a ratio of average number of companies from a specific industry in the region and total number of companies in the same region. From Fig. 1, two hypotheses were generated. First, type of manufacturing industry has a positive impact on export competitiveness of companies in manufacturing industry in Canton Sarajevo, Bosnia and Herzegovina (H1). Second, urbanization and localization of firms have a significant impact on export competitiveness in manufacturing industry of Canton Sarajevo, Bosnia and Herzegovina (H2).

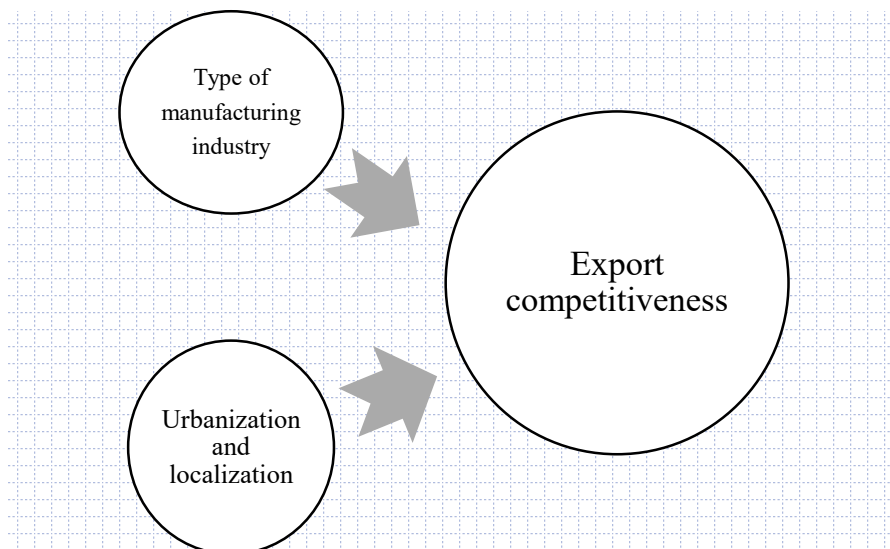


Figure 1 - Research model

Regression analysis was conducted to the compiled data with SPSS software, to provide meaningful information for decision-making in relevant sectors. The analysis will enable decision-making based on the customer trends and behavioral predictions. It helps companies in better targeting, understanding their targeted customers better, enhancing new innovations, minimizing costs of operation, and helping to solve problems.

In general, linear regression is used to predict the value of a variable based on the value of another variable. A variable to predict is called the dependent variable (in this case, export competitiveness). The variables used to predict the other variable's value is called the independent variables (in this case, type of manufacturing industry and urbanization and localization). Regression model, basically, specifies the relation of dependent variable (Y) to a function combination of independent variables (X) and unknown parameters ( $\beta$ ), as formulated in following equation.

$$Y \approx f(X, \beta)$$

To study a relationship between variables, data are collected on each of a number of units or cases of the variables. The regression model specified some of the characteristics of the failure to provide an exact fit through hypothesized error terms. The data were then used to obtain estimates of the unknown parameters. This method is known as least squares estimation. The least squares estimation provides rationale for the placement of the line of best fit among the data plots. The line of best fit explains potential relationship between independent and dependent variables.

The example of a scatter plot in Fig. 2 indicates a good linear relationship between variables, so the linear regression analysis could be conducted further. The scatter plots are useful for interpreting trends in statistical data. The good linearity illustrated in the scatter plots is one of prerequisites to conduct regression analysis. Homoscedasticity (equal variances), absence of collinearity or multicollinearity, and normal distribution are other prerequisites to include.

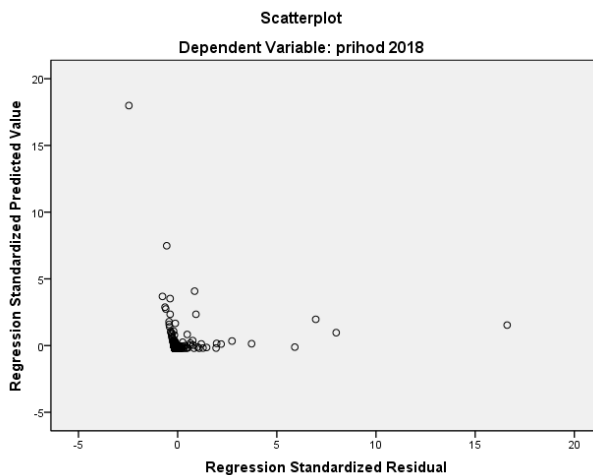


Figure 2 - Scatter plot of regression analysis of sales and export incomes in 2018

IV.RESULTS AND DISCUSSION

Canton Sarajevo is struggling to attract foreign investments due to the contradictory legal framework which leads to multi-interpretation of regulations. In addition, high level of corruption and long registration process have decreased chances of foreign owned companies to compete in domestic market which have been fully supported by the government. In 2018, Russia is the largest investor (EUR71.7 million), followed by Croatia (EUR54.2 million) and the Netherlands (EUR48.1 million). A significant amount of Foreign Direct Investment was registered for Austria (EUR44.5 million), Germany (EUR42.8 million), the United Kingdom (EUR41.6 million), Switzerland (EUR20.6 million), Slovenia (EUR16.7 million), and Italy (EUR12.0 million). As shown in Table 1, there are 206 foreign owned companies out of 490 total exporting companies in Canton Sarajevo. The majority of exporting companies (57.6%) are domestic owned companies.

Table 1. Percentage of domestic and foreign owned companies in Sarajevo in 2018

Type of ownership	Number of companies	Percentage
Domestic	284	57.6%
Foreign	206	42.4%

Fig. 3 clearly indicates the fluctuation of number of foreign owned companies in 2013–2018. The highest number of foreign owned companies occurred in 2013, which were 283 companies. In the following year, the number dropped by 81.63% to 52 companies due to the effect of great recession during 2008–2013. In 2015 and ahead, the numbers were relatively increasing, except a decrease of 0.62% in 2017.

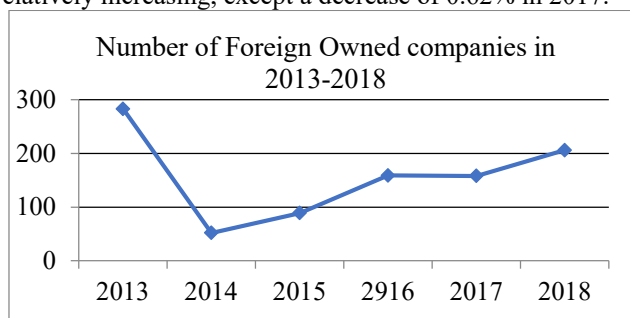


Figure 3 - Number of foreign owned companies in 2013–2018

According to the list of areas of industrial classification of Bosnia and Herzegovina, manufacturing industry is recorded in area C with 23 different categories, ranging from category 10 to category 33. There are 94 out of 490 exporting companies in Canton Sarajevo that belong to manufacturing industry. Out of 94 companies, the most represented companies are coming from category 25 (fabricated metal products, except machinery and equipment) with 23.4%. Metal industry has been one of the leading industries in Bosnia and Herzegovina. By the end of 2017, those companies generated revenue of KM2.16 billion, 53% of which comes from exports, mostly

to European Union countries (Deutsche Gesellschaft für Internationale Zusammenarbeit-GIZ GmbH, 2018). Category 25 is followed by category 10 (food products) with percentage of 14.9%, category 16 (wood and products from wood and cork, except furniture, products from straw and plaiting materials) with 12.8%, and category 22 (rubber and plastic products) with 10.6%.

Structures, ownership, and legal forms of such industry differ from one country to another. There are several types of business legal forms which exist in Bosnia and Herzegovina, including sole proprietorship (sole ownership), limited liability Company (partnership), and cooperation. The number of companies in terms of its legal form is listed in Table 2. Most of the companies (89.70%) operate the limited liability company legal form. Furthermore, most of the companies (86.86%) are classified as small sized companies.

**Table 2. Number of companies based on its legal form**

Legal form	Number of companies	Percentage
Limited Liability Company	29,259	89.70%
Sole Proprietorship	76	0.23%
Association	299	0.92%
Joint Stock Company	655	2.04%
Non-profit Organization	100	0.31%
Cooperation	1	0.00%
Other companies	2,220	6.81%
<b>Total Number of Companies</b>	<b>32,620</b>	<b>100%</b>

Table 3 shows the comparison of export incomes from 94 manufacturing companies and from overall 490 exporting companies. The manufacturing companies only cover about 19.2% of the total exporting companies but the export incomes significantly contribute to the total export incomes. In 2018, it contributes up to 33.1% of the total export incomes. It shows that the manufacturing companies play a significant role in export competitiveness of Canton Sarajevo.

**Table 3. Export incomes ratio of manufacturing companies to overall exporting companies in 2016–2018**

Year of export incomes	Export incomes of manufacturing companies (A)	Export incomes of overall exporting companies (B)	Ratio of A to B in percentage
2016	BAM391,712,067	BAM1,626,356,844	24.1%
2017	BAM483,134,605	BAM1,564,938,460	30.9%
2018	BAM520,081,927	BAM1,571,786,190	33.1%

Moreover, export competitiveness is also related to urbanization and localization externalities. Urbanization externalities include a cross-sectoral agglomeration benefits, such as sharing information and easier access to institutions and resources (Woodward and Yoruk, 2005). Meanwhile, localization externalities include intra-industrial advantages, such as access to new technology, specific knowledge for a particular industry, and information sharing on current market conditions (Stojčić, Benić et al, 2014). The Federation of Bosnia and Herzegovina’s Law on Freedom of Access to Information provides all physical and legal access to that information under the supervision of related institution.

Table 4 listed the urbanization externalities measurement. It shows the benefits experienced by companies located in large cities like access to large markets, educated people or even strong R&D centers; in this case large city is Sarajevo, Bosnia and Herzegovina. Economies of urbanization generate benefits for companies throughout the city, not just companies in a particular industry (O’Sullivan, 2003). Also Table 4 is showing the number of companies in Canton Sarajevo and Bosnia and Herzegovina and ratio of number of companies in Canton Sarajevo out of number companies in Bosnia and Herzegovina.

**Table 4. Urbanization externalities measurement from 2016–2018**

Year	Number of companies in Canton Sarajevo (A)	Overall number of companies in Bosnia and Herzegovina (B)	Ratio of A to B in percentage
2016	6,617	31,080	21.29%
2017	7,125	32,141	22.17%
2018	7,529	32,620	23.08%

Table 5 listed the localization externalities measurement. It shows that the concentration of companies in a given region that belong to the same industrial classification typically yields common economic benefits to the industry as a whole. The table below is showing the ratio percentage between companies from manufacturing industry of Canton Sarajevo and all of the companies from Canton Sarajevo, Bosnia and Herzegovina.

**Table 5. Localization externalities measurement from 2016–2018**

Year	Number of manufacturing companies in Canton Sarajevo (A)	Overall number of companies in Canton Sarajevo (B)	Ratio of A to B in percentage
2016	618	6,617	9.33%
2017	627	7,125	8.80%
2018	643	7,529	8.54%

Canton Sarajevo consists of 9 municipalities, which are Ilidža, Novi Grad, Novo Sarajevo, Centar, Stari Grad, Hadžići, Ilijaš, Trnovo, and Vogošća. Out of 490 exporting companies in Canton Sarajevo, 85 of it are manufacturing companies located in 8 of those 9 municipalities. There are 22 of them in Ilidža (25.9%), 16 in Vogošća (18.8%), and 15 in Novi Grad (17.6%). The complete distributions of such companies are listed together with the export incomes data in Table 6.

**Table 6. Export incomes of manufacturing companies in Canton Sarajevo municipalities in 2016–2018**

Municipality	Number of manufacturing companies	Export incomes in 2016	Export incomes in 2017	Export incomes in 2018
Ilidža	22	BAM34,629,142	BAM50,860,596	BAM60,744,504
Novi Grad	15	BAM7,822,064	BAM8,776,196	BAM10,469,225
Novo Sarajevo	6	BAM11,626,287	BAM13,352,498	BAM9,794,509
Centar	5	BAM116,440,318	BAM134,361,856	147.313.048 BAM
Stari Grad	3	BAM362,200	BAM980,086	BAM396,043
Hadžići	8	BAM17,368,473	BAM24,316,523	BAM28,258,487
Ilijaš	10	BAM130,105,661	BAM169,148,430	BAM172,909,545
Trnovo	0	0	0	0
Vogošća	16	BAM73,357,922	BAM81,338,422	BAM90,196,566

According to Table 6, the highest export incomes was obtained by Ilijaš, which does not have the highest number of manufacturing companies and is classified as the least populated municipalities in Canton Sarajevo. Therefore, it can be concluded that the size of the municipality and its population are not variables that drives the localization. After Ilijaš, following municipalities are sorted from the second highest export incomes to the lowest: Centar, Vogošća, Ilidža, Hadžići, Novi Grad, Novo Sarajevo, Stari Grad, and Trnovo (no export incomes).

Correlation was then used to measure the strength of relationship among the variables. Correlation coefficient always lies between -1 to +1. If the coefficient is 1, then it is total positive linear correlation. The coefficient between sale incomes and export incomes in 2018 is .391, which shows a weak positive linear correlation. In 2017, the coefficient is .378, which also shows a weak positive linear correlation. Meanwhile, in 2016, the correlation is .420 which shows a moderate positive linear correlation.

After the correlation test, the F-test was conducted to test the hypothesis. A general rule of thumb applied is that if F-value>2.5, then null hypothesis is rejected. The F-value of ANOVA test for 2018 data is 88.293, which is greater than 2.5. Therefore, the null hypothesis is rejected. It means that there is a linear relationship between variables. The F-value for 2017 data and 2016 data are 81.334 and 104.391, respectively. It also proves that there is a linear relationship between variables.

The next step of the regression analysis is identifying the regression coefficients, the intercept and the significance of all coefficients and the intercept in the model. We find out the regression line formula  $y = \beta_0 + \beta_1 x$ , where  $\beta_0$  and  $\beta_1$  are the regression coefficients. The  $\beta_0$  represent intercepts and the  $\beta_1$  represents slope, which tells about how much change in dependent variable if we increase 1% independent variable. According to export and income data, regression analysis was conducted, with export as the independent variable and income as the dependent variable.

The regression line formula  $y = \beta_0 + \beta_1 x$  was utilized for 2018, 2017, and 2016 data. The 2018 regression line formula would be: sale incomes 2018=9164955.60+1.612 export incomes 2018. This 2018 regression line formula indicates that if there is an increase of export incomes 2018 for US\$1, the average 2018 sale incomes increase US\$1.612. The 2017 regression line formula would be: sale incomes 2017=9728126.393+1.417 export incomes 2017. This 2017 regression line formula indicates that if there is an increase of export incomes 2017 for US\$1, the average 2017 sale incomes increase US\$1.417. The 2016 regression line formula would be: sale incomes 2016=8428236.30+1.419 export incomes 2016. This 2016 regression line formula indicates that if there is an increase of export incomes 2016 for US\$1, the average 2016 sale incomes increase US\$1.419.

Another value to consider is t-value. A general rule of thumb applied is that if t-value>2, the null hypothesis is rejected. In 2018 data, the t-value is 3.326, therefore null hypothesis is rejected. It means that the slope coefficient plays a significant role in the regression model. The t-value for 2017 data and 2016 data are 3.409 and 3.323, respectively. Therefore, null hypothesis is rejected.

Last but not the least; the R Square value was identified to represent the proportion of the variance for the

dependent variable that is explained by the independent variable in the regression model. The R Square for 2018 data is .391. It shows that there is about 39.1% variation in the dependent variable of 2018 data that is explained by the model. The R Square for 2017 data and 2016 data are .378 and .420, respectively. It indicates that there is about 37.8% variation in the dependent variable of 2017 data and 42.0% variation in the dependent variable of 2016 data, which are explained by the model. The R Square even if it is small, the regression model may be significantly different from 0, suggesting that it has statistically significant explanatory power.

## V.CONCLUSION

The results and discussion revealed that type of manufacturing industry has a positive impact on export competitiveness of manufacturing industry. There are 206 foreign owned companies out of 490 exporting companies in Canton Sarajevo. Out of all categories, manufacturing industry belong to area C with 23 different categories. There are 94 out of 490 exporting companies in Canton Sarajevo that belong to manufacturing industry. Out of 94 companies, the most represented companies are coming from category 25 (fabricated metal products, except machinery and equipment), followed by category 10 (food products), category 16 (wood and products from wood and cork, except furniture, products from straw and plaiting materials), and category 22 (rubber and plastic products). It can be argued that manufacturing industry play a significant role to the export competitiveness in Canton Sarajevo.

Urbanization and localization results and analysis can be found separated by the year from 2016–2018. The biggest urbanization ratio percentage was 23.08% in 2018, which means the biggest urbanization was achieved in 2018. This means there is increase in number of companies situated in Canton Sarajevo. If there is a question of localization, the biggest localization ratio percentage was 9.33% in 2016, which means that localization was dropped in years and that does not give the great and desired result. Those results mean that there is a decrease in number of manufacturing companies in Canton Sarajevo.

Out of 490 exporting companies in Canton Sarajevo, 85 companies are classified as manufacturing companies located in municipalities of Canton Sarajevo. There are 22 of them in Ilidža, 16 in Vogošća, and 15 in Novi Grad. According to the export incomes data, it can be concluded that the variables are not relevant since one of the relatively small municipalities, which is Ilijaš, gains the biggest export incomes from that period.

The 2018 regression line formula indicates that if there is an increase of export incomes 2018 for US\$1, the average 2018 sale incomes increase US\$1.612. Meanwhile, the 2017 regression line formula indicates that if there is an increase of export incomes 2017 for US\$1, the average 2017 sale incomes increase US\$1.417. Furthermore, the 2016 regression line formula indicates that if there is an increase of export incomes 2016 for US\$1, the average 2016 sale incomes increase US\$1.419.

The results further demonstrate that the territorial centralization of Sarajevo exporters negatively affects the organizations fare force in neighboring areas. In the future, it is critical to assess the need of amending the current legal frameworks and measure that will empower changes in the Canton Sarajevo.

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