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Professional paper

THE ROLE OF TRADE IN THE INTEGRATION OF THE REPUBLIC OF NORTH MACEDONIA IN THE EMU

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Abstract

The Economic and Monetary Union is an integration area, the membership to which it can be possible only for countries that have already met the convergence criteria and are already members of the European Union. The analysis of this paper will be focused to determine the impact of the European Monetary Union (EMU) on trade between the euro area and North Macedonia. One objective of this study is to investigate how the EMU countries will help the development of the North Macedonian economy. This paper addresses several economic issues in further examining the quantitative impact of EMU on trade between EMU countries and North Macedonia. Trade effects are examined more closely for the period from 1995 to 2015 using a simple OLS regression with panel data at the individual country level. The gravity model that is used in this paper is based on several explanatory variables that will give a clear picture of the factors that will impact trade, between EMU and North Macedonia, the most. The model has based on the hypothesis that trade has a positive relationship with the gross domestic product and a negative one with the distance between the countries that trade. In total 533 observations are made between North Macedonia and its partners. The data that is applied to the model was collected from the State Statistical Office of the Republic of North Macedonia and the World Bank. The model shows that North Macedonia's trade with the countries that are members of the euro area, for the period from 1995 to 2015, although it is not significant at any level, it is negatively correlated.

Keywords: Trade, Euro area, Integration, Growth.

1. Introduction

Signing the Treaty of Rome in 1957 by several European countries enabled the initiative to create an integration process which would result in the formation of a common market that would have as a main goal enabling people and goods to circulate more freely between the signatory states of the treaty. Advancement in the further integration processes required a great deal of determination, especially from states who are known as the founding states of the common market, because it took extraordinary cooperation in the economic and monetary field to create the necessary conditions for growing the level of integration from a common market into a Monetary and Economic Union, (EMU).

All countries that want to be part of the European Union have the obligation to accept the euro as their currency and, as a result, to adopt a common monetary policy with the Eurozone member states. To assess whether North Macedonia's membership in the European Monetary Union would be positive for the economy, considering a trade, there should be an objective analysis of the potential costs and benefits that can be derived from this membership.

Regarding the positive effects of the euro, membership in an economic and monetary union brings benefits that are related to reducing transaction costs, eliminating the risk of the exchange rate between the country candidate/member and monetary area, lows interest rates, increases macroeconomic stability, etc. All these factors are important determinants in the development of international trade for a country.

The benefits that a particular economy can derive from membership in an economic and monetary union are largely related to the impact of the single currency on trade. Trade exerts its influence on the development of a country through several mechanisms. As a start it affects the reduction of fixed and fluctuating production costs, then because of the cooperation formed between domestic and foreign enterprises it helps to bring new techniques, technologies, and management methods, which are very little present in the Republic of North Macedonia, that can significantly improve the level of productivity and this increase in productivity will enable the local enterprises to export.

2. Literature review

Different studies claim that a common currency or a monetary and economic union has a positive effect on international trade. Rose (2000) who used a gravity model to estimate the impact of monetary union on trade concluded that two countries who use a common currency can trade three times more than if they use different currencies. According to him, monetary unions, such as the euro area, can stimulate international trade and, consequently, economic development.

Chen and Novy (2019) relying on a translog gravity equation that predicts variable trade cost elasticities they estimated that currency union is associated with a trade increase of around 38 percent on average. Analysing the heterogeneous effects of currency unions on bilateral trade flows they concluded that there is weak evidence that the euro has promoted bilateral trade among Eurozone members on average. Also, even within the Eurozone, the currency union effect is heterogeneous across and within country pairs.

Alesina and Barro (2002), by analysing the role of the monetary union by reducing the transactions costs to develop trade, concluded that the benefits are greater if the size of the union is larger. The effects of these unions, according to the authors, are of two types. In real terms view, lowering the cost of doing business leads to an increase in gross domestic product and at the same time consumption. Meanwhile, from the monetary point of view, the country gains credibility for the monetary policy and as a result, reduces the risk of rising inflation in the future.

Analysing the criteria of the optimum currency area theory by calculating the advantages and costs of becoming part of a monetary and economic union, an important criterion to be considered is related to the degree of a country's openness to trade with member states. Frankel and Rose (1997), in their study, showed that the increase in trade resulting from participation in the monetary area could lead to an improvement of the business cycle correlation in some specific cases. Most authors agree that the advantages that arise from accepting a common currency as a means of payment have a positive correlation with the rate of growth of a country's trade, which comes because of stabilization of the exchange rate and reducing transportation costs.

According to Rose (2016), it seems that longer, wider spans of data over both time and countries are systematically associated with higher estimates of the effect of EMU on trade/exports. From his perspective, the point estimate of the EMU effect seems to rise with the number of observations/years/countries, even if these extra observations are not directly relevant to the phenomenon of EMU.

Maliszewska (2006) trying to assess the impact that the single currency has had on new member states of the Eurozone, in the same direction as Rose (2000), proved that there is a strong correlation between trade development and a monetary and economic union. The author using a gravity model like that of Rose, came to the same conclusion, according to her the new states which become part of the euro area can expect an increase in the level of their trade with the member states of this area.

Kopecky (2019) finds the puzzling result that the currency union effect on trade for the euro declined over the period from implementation until the recession in 2008. Since then, the expected effect should be fixed over time.

Micco, Ordoñez and Stein (2003) using data after 1999 for the euro area pointed out that, since the start of the implementation of the common currency, the euro has affected the growth of trade between member countries. Using different types of methodologies for calculating this effect, as well as constantly changing their sample, they concluded that the effect of improving trade because of the euro was in the range of 4 to 16 percent and that it is significant. The authors in their analysis also focused on the impact of trade with countries that are not part of the European monetary area. In fact, according to the results obtained, the Eurozone member states had increased trade even with non-member states.

Felbermayr and Steininger (2019) by using sectorial trade data from 1995 to 2014 and applying structural gravity modeling, conducted an ex-post evaluation of the European Monetary Union (EMU). In aggregate data, they found a significant average trade effect for goods of almost 8 percent, but a much smaller effect for services trade. According to the author's trade ties between the EMU members intensified and some trade relationships within the currency union substituted former trade with non-EMU members.

By using a gravity-based model of trade, Startienė et al (2019), analyzing the role of the euro on the International Trade of new EMU members, more precisely on the Lithuanian economy, showed that the euro has significantly increased the Lithuanian intra-Eurozone trade, with an effect of 23-44%.

When, Larch, et al (2017) applied to a large sample of more than 200 countries, trading over 65 years, the PPML method instead of a structural gravity model with high-dimensional fixed effects they flipped the conclusions of the specified linear model. They estimated that both the overall currency union effect on trade and the Euro effect is economically small and statistically insignificant. But contrary, according to them, the effect of non-Euro members, however, is large and significant.

3. Methods

Trade, which is one of the main factors for the convergence of the business cycle, may increase because of a possible membership of the Republic of North Macedonia in the Eurozone. How positive this effect will be, it can only be seen after its membership. However, using certain methods a rough estimate can be drawn. The analysis is conducted based on 20 years of data, respectively for the period from 1995 to 2015. To see more clearly the impact of the explanatory variables on trade, i.e., exports, during this period the method used is that of panel data by simple OLS regression.

The general form of regression – the model, will take the following form

$$Ln(X_{ijt}) = \beta_0 + \beta_1 \ln(Y_{it}Y_{jt}) + \beta_2 \ln(Gdp\ per\ capita_{it} Gdp\ per\ capita_{jt}) + \beta_3 lnDist_{ij} + \beta_4 EU + \beta_6 EMU + \varepsilon_{ijt}$$

$\boldsymbol{X_{ijt}}$ - The country's exports i to the country j,
$\boldsymbol{Y_{it}Y_{jt}}$ – Nominal Gdp of country i and country j,

$\boldsymbol{Gdp\ per\ capita_{it} Gdp\ per\ capita_{jt}}$ – The income per capita of the country i and j at the time t,

$\boldsymbol{Dist_{ij}}$ - Distance in kilometres between country i and j, which is calculated as the distance between the capitals of the two countries,

$\boldsymbol{EU}$ **–** Binary variable which takes the value 1 if one country in the analysis is part of the European Union and 0 on the contrary,

$\boldsymbol{EMU}$ **–** Binary variable which will take the value 1 if one country in the analysis is part of the European Monetary Area, respectively, the Eurozone and 0 on the contrary,

As can be seen from the table below, for the variables stated in the model, 533 observations are made between North Macedonia and its partners. The data was collected from the State Statistical Office of the Republic of North Macedonia and the World Bank.

4. Results

Table 1. Estimation results

Variables	Model Trade
Gdp	1.039***
	(0.0503)
Gdp per capita	0.643***
	(0.157)
Distance in km	-2.731***
	(0.124)
Eu	-0.824***
	(0.225)
Emu	-0.0332
	(0.160)
Constant	-26.28***
	(2.649)
Observations	533
R-squared	0.697

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1 above are presented the results obtained from the regression equation. According to the results obtained, they are in line with those mentioned in the contemporary literature. In the estimation of the model, the variable Gdp is positive and significant at the level of 1 percent, indicating that its increase of one percent positively affects the growth of exports by somewhere around one percent. The impact of Gdp per capita can also be described as positive where an increase in per capita income by one percent would positively affect export growth by 0.65 percent, although the increase is less than proportional it is considered as positive. Another factor that affects the growth of foreign trade is the distance, which has a negative relationship, in line with that of various contemporary studies. A negative value indicates that an increase in the distance between trading countries has negative consequences on trade between them. Namely, an increase in the distance of 1 percent will affect the decrease of a trade by -2.73 percent. Regarding the analysis of binary variables, the results cannot be concluded to be positive as they are not in line with those of economic theory. It is observed that we have a negative relationship with the countries which are members of the European Union. North Macedonia's exports to European partners are declining. This means that increasing trade with European Union member partners by 1 percent will negatively affect Macedonia's total exports, from -0.8 percent. Another point of view from which it can be analysed is that when the trade takes place between North Macedonia and the countries of the European Union, the trade ratio is more positive for the member states of the European Union than for North Macedonia they manage to export more in North Macedonia than the opposite. The same conclusion is reached by the analysis of the Emu binary variable, which takes the value 1 if the trade takes place between North Macedonia and a country that is a member of the euro area and 0 in other cases. The ratio of this variable to exports is negative, which means that trade with member states of this area is in negative correlation but is not considered significant at any level.

From the heteroskedasticity test, presented in table 2 through Breusch-Pagan / Cook-Weisberg, it is noticed that chi2 is less than 5 percent, this means that the hypothesis of constant variance can be rejected and that the data have heteroskedasticity.

Table 2. Breusch-Pagan / Cook-Weisberg

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Ho: Constant variance Variables: fitted values of exports
chi2(1) = 30.47 Prob > chi2 = 0.0000

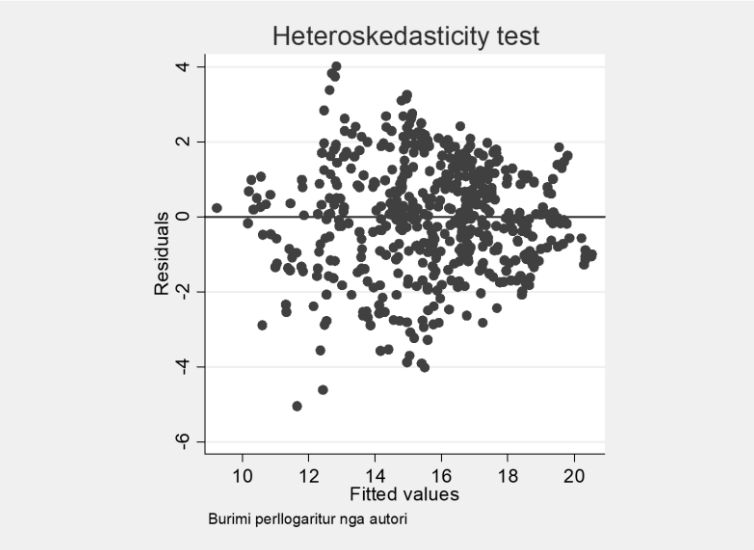

Figure 1. Heteroskedasticity Test

The presence of heteroskedasticity causes standard errors to skew, which in turn causes bias even in the test and confidence interval. To correct the error skew, the Robustness Standard Error method was used, which assumes that the errors may not be evenly distributed and dependent. As a result of these assumptions standard errors are more reliable when heteroskedasticity is present in the data. In table 3, the estimation using the robust standard error method is presented, where it is observed that only the errors are changed compared to the OLS method, while the coefficients of the variables used in the model remain the same.

Table 3. Robust estimation

	robust b/se	Ols b/se
Gdp	1.038983***	1.038983***
	0.050815	0.0503253
Gdp per capita	.643491***	.643491***
	0.1672032	0.1574199
Distance	-2.730783***	-2.730783***
	0.1124821	0.1239881
EU	-.8239696***	-.8239696***
	0.2269129	0.2252769
EMU	-0.0331599	-0.0331599
	0.1417062	0.1595531
_cons	-26.27567***	-26.27567***
	2.24799	2.649072

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Robustness test

	robust b	Ols B
Gdp	1.038983	1.038983
Gdp per capita	0.643491	0.643491
Distance	-2.730783	-2.730783
EU	-0.8239696	-0.8239696
EMU	-0.0331599	-0.0331599
_cons	-26.27567	-26.27567

From the Kernel density estimate, the residues are dispersed almost normally. The value q, which is most sensitive at the edges of the distributions indicates that they have a deviation from the normal distribution, while the rate p, which is more sensitive in the middle of the distribution indicates that the residues are more normal and that there is no significant deviation.

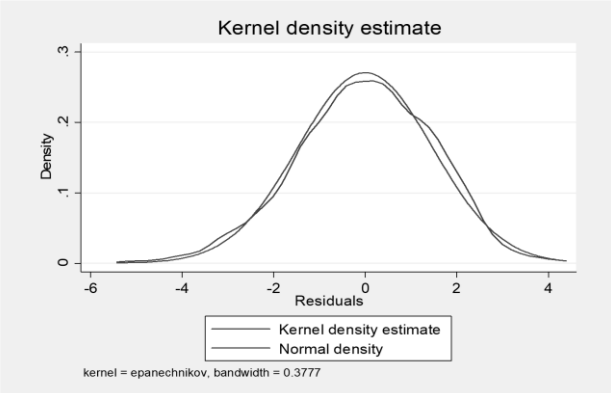

Figure 2. Kernel density

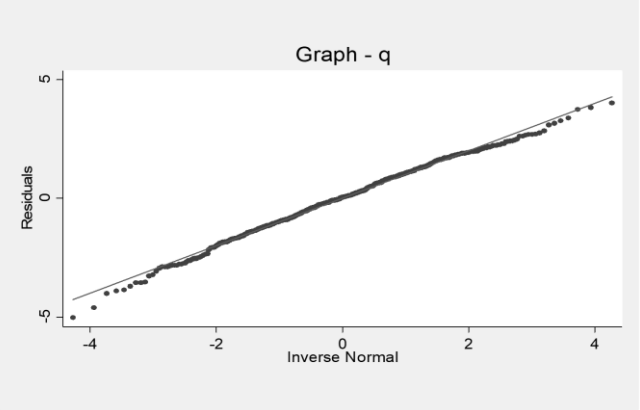

Figure 3. Graph - q

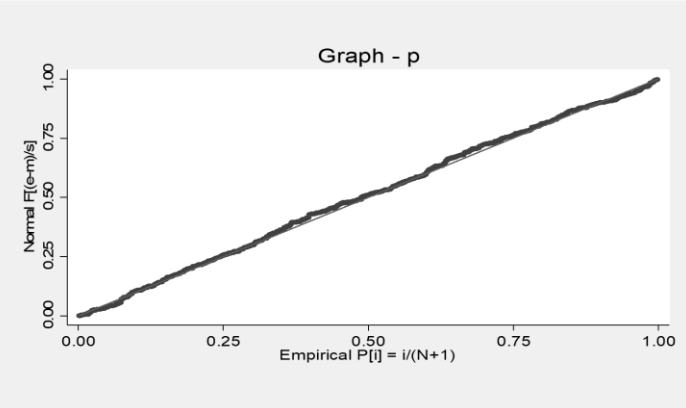

Figure 4. Graph - p

5. Discussion and conclusions

Several factors influence trade that was analyzed in this paper to see how appropriate it would be to integrate the economy of the Republic of North Macedonia into a monetary area such as the euro area. According to the model presented here is a negative correlation between the eurozone countries and North Macedonia concerning trade. One of the main factors influencing economic development is trade, so a greater openness to the outside world would help bring North Macedonia's economy closer to those of European countries.

Trade is considered an important factor that influences the convergence of the business cycle of countries that are members of an economic and monetary union. In this paper, an attempt has been made to provide an overview of how important the trade between North Macedonia and the partner countries is that are members of the euro area. By using an OLS estimation method it is shown that North Macedonia's trade with countries that are members of the euro area, for the period from 1995 to 2015, although it is not significant at any level, it is negatively correlated. A Robustness Standard Error method was used to correct for the heteroskedasticity in the data. According to the robustness method, only the errors changed by comparison to the OLS method. According to the kernel density estimate, the residues are almost normally dispersed. Same for the rate p, but from the value q, can be concluded that the residues have a deviation from the normal distribution.

Due to the nature of the study that was conducted, there was only one method used to interpret the data collected. The results are based on a single model with a limited number of determinants to analyze the trade effects therefore they are subject to biases. The estimates used in the model may underestimate the full length of the impact of trade between North Macedonia and the euro area countries. The studies that analyze the impact of EMU on trade for the case of North Macedonia should continue to evolve. The factors used to describe this impact should evolve also. There must be different methods to analyze the data collected, so we could have a clearer picture of the trade effect.

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