

EXPORT AND GDP: THE CASE OF MACEDONIA

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"Free Trade is God's diplomacy and there is no other certain way of uniting people in the bonds of peace"- Richard Cobden

Abstract

The fact that international trade is welfare-enhancing is one of the most fundamental doctrines in economics. The issues of export and GDP have gained substantial importance with the introduction of trade liberalization policies in the developing nations across the world. In open economy, development of foreign trade greatly impacts GDP growth.

The present study focuses on the correlation dependence between Export and Gross Domestic Product per capita. Time series data for Export and Gross Domestic Product and its components has been taken for the period 1998-2010. In this study the coefficient of correlation dependence for the period 1998-2010 between GDP per capita and export is 99% and the coefficient of determination is 98%. The empirical results indicate that the role of export for Republic of Macedonia have a positive and significant impact on GDP.

Keywords: *Macedonia, export, GDP, coefficient of correlation, coefficient determination*

JEL classification: F10, O10, C10

Introduction

Export earnings are the most important source of foreign exchange that can be used to ease the pressure of balance of payment and reduce the impact of external shocks on domestic economy. It is generally accepted that economies having high export performance also perform well in their GDP growth and vice versa.

The relationships between exports and growth domestic product have been observed positively correlated. Management authorities usually intend to encourage expansion in exports through in various ways such as, for instance, export subsidies etc., because it's widely known as the level of export of a country represents an indicator of economic development.

Republic of Macedonia is a small and open economy with about 40% of the domestic production being exported and because of that, the sustainable growth of the Macedonian economy should be based on the export, and since the positive effect of trade-driven expansion in market size for a small country is greater than it is for a large country. In particular, small countries might benefit from economies of scale, from having access to and being part of a larger marketplace, and from more efficient factor allocation, reduced macro volatility, innovation and so on.

Export and GDP the Case of Macedonia

According statistics information taken from the Ministry of Finance¹, we can see that the gross domestic product in the Republic of Macedonia from 1998 till 2010 year also increases as export.²

Table 1. (Export f.o.b. and GDP per capita million US dollars)

Year		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
GDP per capita	Y	1.783	1.821	1.771	1.689	1.866	2.285	2.641	2.855	3.124	3.709	4.159	4.554	4.975
Export	X	1.292	1.19	1.321	1.155	1.112	1.363	1.675	2.041	2.396	3.349	3.518	3.918	4.324

We used econometric analysis to examine the impact of exports on GDP and we obtained next results:

$$\hat{Y} = \beta_0 + \beta_1 \cdot X + \varepsilon \quad (1)$$

Where

$$\hat{Y} = \text{GDP}$$

X= export

ε = stochastic term (shows effect of the other factors)

$$\hat{Y} = 0,717 + 0,974 \cdot X \quad (2)$$

Ordinary Least Squares Estimation

Dependent variable is Y

13 observations used for estimation from 1998 to 2010

¹ http://www1.finance.gov.mk/mk/mp/Makro_indikatori_08.pdf

² The political crisis of 2001 worsened export performance and growth.

Regressor	Coefficient	Standard Error	T-Ratio [Prob]
C	.71671	.11173	6.4149[.000]
X	.97420	.045148	21.5780[.000]

R-Squared	.97692	R-Bar-Squared	.97482
S.E. of Regression	.18313	F-stat.	F (1, 11) 465.6093[.000]
Mean of Dependent Variable	2.8640	S.D. of Dependent Variable	1.1541
Residual Sum of Squares	.36890	Equation Log-likelihood	4.7079
Akaike Info. Criterion	2.7079	Schwarz Bayesian Criterion	2.1430
DW-statistic	.98700		

With the increasing of export of one percentage point on average, the gross domestic product will be increased by 0.974 percentage points.

The coefficient of determination that we obtained is:

$$R^2 = 1 - \frac{\sum \varepsilon_t^2}{\sum y_t^2} = 97,6\%$$

In this case the export variable with the assessed values explains 97,6% of the GDP variable. Of course the coefficient of determination is not always the best indicator of the quality of regression because there are number of factors *ceteris paribus* in this case.

Obtaining data on the correlation dependence of GDP (Y) and exports (X)

Sample period : 1998 to 2010

Variable(s)	:	Y	X
Maximum	:	4.9750	4.3240
Minimum	:	1.6890	1.1120
Mean	:	2.8640	2.2042
Std. Deviation	:	1.1541	1.1709
Skewness	:	.59253	.68288
Kurtosis - 3	:	-1.0495	-1.1226
Coef of Variation:	:	.40297	.53124

It can be noted that the average level of export is less than the average of gross domestic product. The standard deviation is actually greater in gross domestic product than in export.

Estimated Correlation Matrix of Variables

	Y	X
Y	1.0000	.98839
X	.98839	1.0000

Coefficient of correlation

$$r_{xy} = \frac{\sum_i^n x_i y_i}{\sqrt{(\sum_i^n x_i^2)(\sum_i^n y_i^2)}} = 99\%$$

The coefficient of correlation calculates reliability between exports and gross domestic product of Macedonia. The coefficient of correlation is 99% and that means that among the analyzed (observed) variables is a high direct (positive) linear relationship correlating.

Conclusion

Economic development is one of the main objectives of every society in the world and economic growth is fundamental to economic development. There are many contributors to economic growth. Export is considered as one of the very important contributors among them.

The impacts of exports on gross domestic product are statistically significant in this study during the study period. The positive impact of exports on gross domestic demonstrates that expansion in exports is highly important for the encouragement of desirable level of economic development in selected country – Macedonia.

Obviously increase in exports represents improvement in economic development of a country and expansions in exports improve social welfare of the people.

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