The Impact of Import and Export to GDP Growth – The Case of Albania

Entela Velaj[1,*] and Eda Bezhani[2]

[1]*Lecturer at the Economics Department, Aleksandër Moisiu University of Durrës, Albania.*

[2]*Lecturer at the Marketing Department, Aleksandër Moisiu University of Durrës, Albania.*

Abstract: The purpose of this paper is to study the impact of imports, exports and the gross formation of fixed capital on the growth of GDP (gross domestic product) for Albania. The data are for the period 2000-2020 and the source of statistical data is INSTAT. The calculation of GDP with the expenditure method is based on the equation GDP = C + I + G + NX. From a theoretical point of view, if the net export volume will have a positive value, then we have larger exports than imports. This means that it positively affects the growth of a country's GDP. All the variables taken into consideration are annual growth with the prices of the previous year. For Albania, the volume of net exports measured in millions of ALL with the prices of the previous year for the entire period under study has negative values. So in Albania, imports are higher than exports.

Keywords: Import, export, gross formation of fixed capital, GDP growth, etc.
JEL classification: F43, E21, C12, C22.

INTRODUCTION

The estimation of the GDP with the expenditure method includes the connection between the 4 sectors of the economy: Households, Enterprises, Government and the Foreign Sector. Since GDP measures the output of a country's entire economy, it can also be measured by adding up all expenditures made by these four sectors. The use of this method is called the Expenditure method, which is based on the equation: GDP = C + I + G + NX.

From this equation we obtain the value of the nominal GDP (at current prices), which is adjusted with the price index, giving us the value of the real GDP (at the prices of the previous year), as the most important indicator for determining growth in annual GDP volume.

Real growth Indicator used to compare changes in the volume of GDP and its components from one period to another. Final consumption is one of the main components of GDP with the expenditure method. Final consumption consists of spending on goods and services used by individual families or communities and are calculated as the sum of the final consumption of families, the final consumption of public administration and the final consumption of Non-Profit Institutions that serve families. The final consumption of households consists of the total expenditure of goods and services by resident households to meet their individual requirements.

Final consumption of public administration and non-profit institutions contains the value of non-commercial services provided by public administration and by non-profit institutions for the benefit of communities or groups of families. This is calculated as the difference between the output of public administration and non-profit institutions and their value of commercial output.

Imports are products and services that citizens, the government or any resident of a country will buy from another country. Exports are the goods and services that you will trade outside your country.Net export is calculated as the difference between the export of goods and services and the import of goods and services. The formation of gross fixed capital consists of the investments of domestic producers and purchases minus sales of fixed assets during a certain period. It also includes certain additions to the value of non-productive assets realized by productive activity or institutional units. Fixed assets are tangible or intangible assets used in production for more than one year.

LITERATURE REVIEW

If a country's imports are greater than its exports, then we have a trade deficit. If the opposite happens, then we have a trade surplus. For the economy of a country, the second situation is better than the first. The increase in the volume of exports would bring a reduction in unemployment, an increase in income for both individuals and companies. A country that has a trade surplus is more independent from the economies of other countries. The war situation in Ukraine showed us that the economies of countries that depend on foreign products are very sensitive to the political or economic situation of other countries. The war caused an increase in the prices of most products such as fuel, energy, grains and many other products. Many researchers have done different research to see the impact that imports, exports or the gross formation of fixed capital have on the economic growth of a country.

*Address correspondence to this author at Economics Department, Alexander Moisiu University of Durres, Albania. E-mail: entelavelaj@yahoo.com

(Morozumi, Veiga, 2016) conducted a study for 80 countries for the period 1970-2010 and showed that if governments act responsibly in relation to public spending, this has a positive impact on economic growth.

The formation of gross fixed capital is an essential component for promoting economic growth (ODI, 2016). According to the Keynesian theory, investments increase aggregate demand (Tobin, 1965). The increase in investments is accompanied by the opening of new jobs, increased productivity, increased income and consumption, which in the end gives a direct impact on the economic growth of a country. (Davis, 1991).

Summers and Heston (1991) studied 101 Organizations (OECD). They found that increased investment causes long-term economic growth.

Mogoe and Mongale (2014) studied the impact of trade on economic growth. They studied the countries of South Africa. Their secondary data was for the period 1990 to 2013. They found that exports have a positive impact while imports have a negative impact on economic growth.

Table 1. Studies Related to the Relationship Between Exports, Imports and Economic Growth.

Authors	The Object of Study	The Results
Mohsen (2015)	Syria annual data between years 1980-2010	The cointegration test indicates that GDP is positively and significantly related to the trade openness. The Granger causality test indicates bidirectional short-run causality relationships between trade openness, and GDP.
Mogoe and Mongale (2014)	South Africa for a quarterly data from 1990Q1-2013Q2	The study found that export has a positive effect on economic growth and import has a negative effect
Miyan and Biplob (2019)	annual data period of 1981 to 2017 in Bangladesh	The study found unidirectional short run causality from export to economic growth and from economic growth to import.
Vardari (2015)	Kosovo, country located in South Eastern Europe, for the period of 2004-2014	The study found two ways causality between export and GDP growth, and one way causality from import to GDP
Ucan O., Akyildiz A., and Maimaitimansuer M. (2016)	Turkey Quarterly data between years 2006-2015.	The study found evidence of unidirectional causality running from export to Turkish economy and no evidence of causality between import and GDP growth in their study
Khaled R.M. Elbeydi and Vladimír Gazda (2010)	Libya 1980 – 2007	Cointegration analysis EX => GDP
Qazi Muhammad Adnan Hye (2012)	China 1978 - 2009	Cointegration analysis GDP <=> EX, Granger causality tests GDP <=> IM
Velnampy. T and Achchuthan. S. (2013)	The Sri Lankan data from the year 1970 to 2010	The study found that export and import have the significant positive relationship. Export and import have the significant impact on the economic growth
Tagavhi(2012)	Iran for the period between 1962 and 2011	The study found that in the long run, export had positive relationship with economic growth, and import had a negative relationship with economic growth.
Guntukula (2018)	India, monthly time series data from April 2005 to March 2017.	The study found a long run relationship between export, import, and economic growth for the study period.
Kogid, M., Mulok, D., Ching, K. S., Lily, J., Ghazali, M. F., & Loganathan, N. (2011)	In Malaysia using annual time series data from 1970 to 2007	The study found that import could indirectly contribute to economic growth, and economic growth could directly contribute to import.
Ramos (2001)	Portugal over the period 1865-1998	The results of the study didn't confirm a unidirectional causality between the variables considered.

METHODOLOGY

The data taken into consideration are for the period 2000-2020. The source of the data is INSTAT. All the variables taken into consideration are annual growth with the prices of the previous year.

Real annual GDP growth (Y) – is dependent variable.

Gross Formation of Fixed Capital (GFFC) - is independent variable.

Final Consumption of the Population (FCP) –is independent variable.

Final Consumption of Public Administration (FCPA) – is independent variable.

Exports of goods and services (EXPGS) - is independent variable.

Imports of goods (IMPG) – is independent variable.

Imports of services (IMPG) –is independent variable.

The objectives of this study are:

To determine the relationship between imports and economic growth

To determine the relationship between exports and economic growth

To determine the relationship between Gross Formation of Fixed Capital and economic growth

To determine the relationship between the final consumption of the population and public administration in economic growth

The model used in our study is the multiple linear regression models. The purpose of the multiple regression method is to analyze the relationship between independent variables and a dependent variable. Dependent variables can be ordinal, continuous, or dischotomous, i.e. nominal variables with two values. The dependent variable must be metric. The regression method checks if such a relationship exists, and if it does, it aims to use existing information about the independent variables to improve accuracy in predicting the value of the dependent variable.

Three types of multiple regressions are known. Standard multiple regression is used to estimate the relationship between a set of independent variables and a dependent variable. Statistical regression (or stepwise) used to find the subset of independent variables (Stepwise) that have the strongest relationship with the dependent variable. Hierarchical regression used to check the relationship between a set of independent variables and a dependent variable, when previously controlling for the effect of some independent variable on the dependent variable.

The mathematical treatment of the multiple linear regression problems is as follows:

We assume that the variable y depends on p "statistically non-independent" variables x1, x2, xp, which are called independent variables. The problem of multiple regression is about building a model, where y is expressed as a function of these variables in the form y= f(x1, x2… xp) + ε, where ϵ has distribution N (0, σ2).

When we build the model in the form y= β0+ β1x1 +β2 x2+...+βpxp+ϵ, where ϵ has distribution N (0, σ 2), mathematically we are dealing with the polynomial multiple regression model. In the construction of this model, the following steps are followed:

1. ESTIMATION OF MULTIPLE LINEAR REGRESSION PARAMETERS

Determining the choice under consideration can be done in two ways: First, for a fixed value of the variables x1,x2,...xp, we make several measurements and get different values of yi, and then, we fix another p of values of x1,x2,...xp we measure some values of Y, taking a sample of the subpopulation in question. We continue this process until we have n observations. According to this way, only Y is seen as a random variable. Second, we take n individuals from the population in question and define p+1 variable we are interested in.

Thus to build the shape model:

yi= β0+ β1xi1 +β2 xi2+...+βpxip+ϵ for i= 1....n

We need to estimate β0, β1, β2, βp which are the parameters of this model and ϵ1ϵ2ϵ3…ϵn, n independent variables N (0, σ 2).

To estimate the parameters β0, β1, β2, βp we use the method of least squares, constructing the following sum:

$$S(\beta) = \sum_i (Yi - \beta 0 - \beta 1x1 - \beta 2x2 - \cdots .. \beta pxp)^2$$

Thus the matrix on which the assessment is based can be presented in matrix form

S=(y-X'β)' (y-X'β)

σS / σB =-X(Y-XTβ) + (Y-XT β)T (-xT)

XXT β =XY

The vector of regression coefficients b = (b0, b1….bp) can be calculated by solving the normal equation (XX') β = Xy. The values of the parameters β are determined by seeking the minimization of this sum, the solution of which is b = (XX')-1 (Xy).

2. INTERVAL ESTIMATION OF REGRESSION PARAMETERS:

In addition to the point evaluation of the parameters β0, β1, β2... βp, the method of least squares also provides information on the confidence intervals. Through the use of the SPSS program, the standard errors of the coefficients are calculated.

3. HYPOTHESIS TESTING:

For hypothesis testing for coefficients β1, β2... βp, we can test all coefficients β1, =β2=....βp, =0

H0: β1, = β2=….βp, =0 so the independent variables X1, X2….Xp do not affect the evaluation of Y.

If the H0 hypothesis is rejected, then the alternative hypothesis will be accepted, meaning that not all parameters are 0.

In standard multiple regression, all independent variables are simultaneously entered into the model. The estimate of R and R2 determine the strength of the association between the independent variables and the dependent variables. The Fisher test is used to determine whether or not this association determined by selection can be generalized to the entire population.

The t-test is used to assess the individual relationship between each independent variable and the dependent variable. Beta coefficient analysis is used to find out the relationship between the dependent variable and the independent variables and whether or not this relationship exists.

The standard error of the estimate is used to determine the confidence level.

A Shapiro-Wilk test is the test to check the normality of the data. The null hypothesis for Shapiro -Wilk test is that your data is normal, and if the p-value of the test if less than 0.05, then you reject the null hypothesis at 5% significance and conclude that your data is non-normal. The variance inflation factor (VIF) identifies correlation between independent variables and the strength of that correlation.

A value of 1 indicates that there is no correlation between this independent variable and any others. VIFs between 1 and 5 suggest that there is a moderate correlation, but it is not severe enough to warrant corrective measures. VIFs greater than 5 represent critical levels of multicollinearity where the coefficients are poorly estimated, and the p-values are questionable.

RESEARCH RESULTS AND CONCLUSIONS

The purpose of this paper was to study the effect of imports, exports, final consumption of the population, final consumption of the public administration and gross formation of fixed capital on the economic growth of Albania. The data were secondary and their source was INSTAT. The data period in the study is 2000-2020.

Value of R Square = 0.896 means that 89.6 % of our model is explained by the variables used.

After testing the data, it is noticed that all the variables with the exception of service imports have a P-value < 0.05. As we mentioned above, the linear regression p value for each independent variable tests the null hypothesis that the variable has no correlation with the dependent variable.

The variables used were tested for multicollinearity and the VIF value is between1-5. The exception is the import of services with VIF = 5.2

To test the data for normality, we use the Shapiro-Wilk test. P-value of the test for all variables used is > 0.05, so they are normal.

The impact of the gross formation of fixed capital is positive and significant. The increase by one unit of the gross formation of fixed capital will bring economic growth by 0.162 units. The impact of the population's final consumption is positive and significant. The increase by 1 unit of the population's final consumption will bring a positive impact on the

Table 2. Result of the Multiple Regressions Model.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.946[a]	.896	.851	1.0219

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	125.723	6	20.954	20.065	<.001[b]
	Residual	14.620	14	1.044		
	Total	140.343	20			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.848	.379		2.237	.042	.035	1.662		
	Final Consumption of the Population	.381	.070	.559	5.411	<.001	.230	.533	.696	1.436
	Final Consumption of Public Administration	.221	.081	.334	2.737	.016	.048	.395	.500	1.998
	Gross Formation of Fixed Capital	.162	.045	.673	3.633	.003	.066	.257	.217	4.606
	Imports of goods	-.135	.062	-.420	-2.187	.046	-.268	-.003	.202	4.954
	Imports of services	-.015	.012	-.254	-1.291	.218	-.041	.010	.192	5.213
	Exports of goods and services	.134	.033	.669	4.132	.001	.065	.204	.284	3.526

a. Dependent Variable: Real annual GDP growth

economic growth by 0.381 units. The impact of the final consumption of the public administration is positive and significant. The increase by 1 unit of the final consumption of the public administration will bring a positive impact on the economic growth by 0.221 units. The impact of exports of goods and services is important and significant. An increase of 1 unit of exports of goods and services will bring a positive impact on economic growth by 0.134 units. The impact of goods imports is negative and significant. An increase of 1 unit of goods imports will have a negative impact on economic growth by 0.135 units.

The impact of service imports is negative but not significant. The results of our study are almost in line with the reviewed literature of previous studies.

The equation of our model is:

$$Y = 0.848 + 0.162GFFC + 0.381FCP + 0.221FCPA + 0.134EXPGS-0.135IMPG$$

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflict of interest.

APENDIX

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Final Consumption of the Population	.174	21	.098	.946	21	.284
Final Consumption of Public Administration	.161	21	.163	.919	21	.083
Gross Formation of Fixed Capital	.258	21	.018	.797	21	.063
Exports of goods and services	.168	21	.127	.931	21	.144
Imports of goods	.141	21	.200	.920	21	.089
Imports of services	.326	21	.120	.518	21	.072
Real annual GDP growth	.112	21	.200	.951	21	.354

a. Lilliefors Significance Correction

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
				(Constant)	Final Consumption of the Population	Final Consumption of Public Administration	Gross Formation of Fixed Capital	Imports of goods	Imports of services	Exports of goods and services
1	1	4.200	1.000	.01	.01	.00	.01	.01	.01	.01
	2	1.667	1.587	.04	.01	.12	.01	.00	.02	.00
	3	.388	3.289	.16	.21	.29	.06	.05	.00	.00
	4	.306	3.702	.32	.10	.00	.14	.03	.02	.18
	5	.230	4.275	.27	.57	.00	.06	.00	.00	.28
	6	.138	5.524	.10	.02	.56	.07	.18	.67	.01
	7	.071	7.681	.11	.07	.03	.66	.73	.28	.53

a. Dependent Variable: Real annual GDP growth

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Final Consumption of the Population	21	-5.410	12.780	3.58696	4.198061
Final Consumption of Public Administration	21	-9.980	9.700	1.42391	4.476290

Gross Formation of Fixed Capital	21	-8.470	42.630	6.85391	12.523784
Exports of goods and services	21	-27.860	73.100	12.55261	18.964922
Imports of goods	21	-6.400	24.120	6.61348	8.476912
Imports of services	21	-45.160	194.090	13.39130	42.065949
Real annual GDP growth	21	-3.5	8.3	3.871	2.6490
Valid N (listwise)	21				

REFERENCES

Alimi,N. (2016).Volatility and growth in developing countries: An asymmetric effect. *The Journal of Economic Asymmetries*,14,179-188.https://doi.org/10.1016/j.jeca.2016.08. 001

Bakari,S. and Mabrouks, M. (2017) Impact of Exports and Imports on Economic Growth: New Evidence from Panama. *Journal of Smart Economic Growth*, 1, 67-79

Banuso, Fadiya Bemidele & Odior, Ernest Simeon. (2012), "Macroeconomic Volatility and Government Consumption Expenditure Implication for Public Welfare A Dynamic Macroeconometric Stochastic Model*" International Journal of Economic Finance*, Vol. 4, No. 2.140 -151.

Boamah, John and Adongo, Felix Atanga and Essieku, Richmond and Lewis Jr., John Amo,(2018) Financial Depth, Gross Fixed Capital Formation and Economic Growth: Empirical Analysis of 18 Asian Economies. *International Journal of Scientific and Education Research* Vol. 2, No. 04; 2018, http://dx.doi.org/10.2139/ssrn.3424688

Business Management, 15(1), 1-12

Davis,T.R. (1991).Information technology and white-collar productivity. *The Executive*, 5(1): 55-67

Dritsakis, N. (2005) Exports and Economic Growth: An Empirical Investigation of EU, USA and Japan Using Causality Tests.Department of Applied Informatics, University of Macedonia, *Economics and Social Sciences*.

Fannoun Z.and Hassouneh I. (2019).The causal relationship between exports, imports and economic growth in Palestine. *Journal of Reviews on Global Economics*, vol. 8, pp. 258-268.

Guntukula, R. (2018). Exports, Imports and Economic Growth in India: Evidence from Coin-tegration and Causality Analysis. *University of Hyderabad, India*, 2(615), 221–230

Khaled R.M.Elbeydi and Vladimír Gazda, (2010).The Relationship between Export and Economic Growth in Libya Arab Jamahiriya. *Theoretical and Applied Economics*, Volume XVII (2010), No. 1(542), pp. 69-76

Kogid,M., Mulok, D., Ching, K. S., Lily, J., Ghazali, M. F., & Loganathan, N. (2011).Does Import Affect Economic Growth in Malaysia. Empirical Economics Letters, 10(3), 297–307

Michael Frenke, Benedikt Walter and Lilli Zimmermann. Public Debt Reduction Efforts in South-East Asia – Which Strategy Works? 1. [Ref]: vol.19.2021. Available at: https://refpress.org/ref-vol19-a19/

Miyan, Md.Sazib,and Biplob, Md.Nurul .Kabir. (2019). Revisiting exports, imports and economic growth nexus: empirical evidence from Bangladesh (1981- 2017).*Modern Economy*, vol. 10, pp. 523-536.

Mogoe S.and Mongale I. P. (2014). The impact of international trade on economic growth in South Africa: an econometrics analysis. *Mediterranean Journal of Social Sciences*, vol. 5, no. 14, pp. 60-66.

Mohsen, A.S. (2015), Effects of exports and imports on the economic growth of Syria. Euro-Asian *Journal of Economics and Finance*, 3(4), 253-261.

Morozumi, A, & Veiga, F.J. (2016). Public spending and growth: The role of government accountability. *European Economic Review*, 89, 148-171. https://doi.org/10.1016/j.euroecorev.2016.07.001

Mose N, Kibet L, Kiprop S (2019). The Effect of County Government Expenditure on Gross County Product in Kenya: A Panel Data Analysis. *African Journal of Business Management* 13(13):428-437

Nasfi Fkili Wahiba and Nacer Ahlem. Relationship between Public Expenditure, Economic Growth and Poverty. [Ref]: vol.20.2022. Available at: https://refpress.org/ref-vol20-a58/

Overseas Development Institute. (2016).What are the links between power, economic growth and job creation. *Development Impact Evaluation*, 1-30

Qazi Muhammad Adnan Hye (2012). Exports, imports and economic growth in China: an ARDL analysis.*Journal of Chinese Economic and Foreign Trade Studies* Vol. 5 No. 1, 2012. Pp 42 - 55.

Ramos, F.F.R. (2001). Exports, Imports and Economic Growth in Portugal: Evidence from Causality and Cointegration Analysis. *Economic Modelling* 18:613-23

Saaed, A.J. and Hossain, M.A. (2015) Impact of Exports and Imports on Economic Growth: Evidence from Tunisia.*Journal of Emerging Trends in Economics and Management Sciences*, 6, 13-21.

Saaed, A.J. and Hossain,M.A. (2015). The Causality Relationship between Exports, Imports and Economic Growth in Jordan: 1977-2012. *EPRA International Journal of Economic and Business Review*, 3, 11-21.

Sayari,Naz & Sari, Ramazan & Hammoudeh, Shawkat, 2018. "The impact of value added components of GDP and FDI on economic freedom in Europe," *Economic Systems, Elsevier*, vol. 42(2), pages 282-294.

Solanki,S., Inumula, K. M., & Chitnis, A. (2020). Sectoral contribution to economic development in India:A timeseries co-integration analysis. *The Journal of Asian Finance, Economics, and Business, 7*(9), 191–200.https://doi.org/ 10.13106 / jafeb. 2020. vol 7 . no 9.191

Summers,R, Heston, A. (1991). A new set of international comparisons of real product and price levels estimates for 130 countries, *Quarterly Journal of Economics*, 106: 327-368

Taghavi,M., Goudarzi, M., Masoudi, E., & Gashti, H. P. (2012). Study on the Impact of Export and Import on Economic Growth in Iran. *Journal of Basic and Applied Scientific Re-search*, 2(12), 12787–12794

Tobin,J.(1965).Money and economic growth. Econometrica: *Journal of the Econometric Society*, 671-684

Ucan O. Akyildiz A. and Maimaitimansuer M. (2016).The Relationship between export and economic growth in Turkey. *European Scientific Journal*, pp. 61-70

Vardari L. (2015). Relationship between import-exports and economic growth: the Kosovo case study. *REFORMA*; vol. 2, pp. 262-269

Velnampy T. and Achchuthan S. (2013). Export, import and economic growth: Evidence from Sri Lanka. *Journal of Economics and Sustainable Development*. Vol.4, No. 9, 2013

Williams, Michael A. & Baek, Grace & Li, Yiyang & Park, Leslie Y. & Zhao, Wei, 2017. "Global evidence on the distribution of GDP growth rates," *Physica A: Statistical Mechanics and its Applications, Elsevier*, vol. 468(C), pages 750-758.

Yossinomita. Tax Policy in Limiting the Consumption of Luxury Goods. [Ref]: vol.20.2022. Available at: https://refpress.org/ref-vol20-a19/

Received: Nov 26, 2022 Revised: Nov 29, 2022 Accepted: Dec 30, 2022