An Empirical Study on Import, Export and Economic Growth in Albania

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Abstract

Imports and Exports have an important role in the Economic Growth of a country. This paper discusses the relationship between export, import and Gross Domestic Product (GDP) in Albania by using annual data for the period between 1984 and 2012. Different empirical researches and macro econometric models indicates that there is an equilibrium relationship between exports, imports and GDP in the long term. The main goal is to find if imports and exports affect the GDP growth in Albania? The relationship between this variables is shown by using Econometric Views statistical package and the source of data used is World Bank.

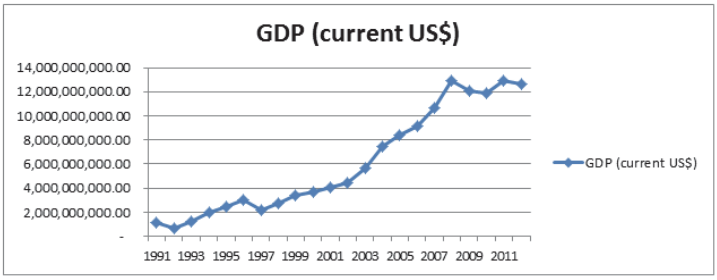
Keywords: *Import, Export, GDP, Econometric Views, World Bank, Albania*

1. Introduction

The relationship between import, export (also known as international trade) and economic growth has been a very popular subject showing interest of policy makers and academics. The reason is simple. The main goal of almost every nation is to increase GDP and improve the quality of life for their citizens. In Albania, which is a developing country international trade (import, export) is an important factor that effects GDP or economic growth

Albania is a small economy located in Balkan. After fall of communist regime in 1990 Albania became a small open economy. The GDP of Albania increased year by year starting from 1991 till 2008 excluding year 1997. After 2008 GDP of Albania had slightly movements, decreasing and increasing.

Figure 1. GDP of Albania (1991-2012)



Source: World Bank

In general, the international trade is considered an important factor for the economic growth especially for a small open economy like Albanian economy. By having a quick look on the trade performance over the last decade and the relationship of trade performance with the county's overall development we can highlight two specific contributions of trade.

First, through import trade peoples in Albania fulfilled their basic needs. In 1990 Albania changed from a closed economy to an open economy. So people were mostly focused on imported goods and services because Albania could

not fulfill their needs.

Second, although far from desired levels , trade has played and is playing a significant role in the re-allocation of productive resources . Structural changes in the economy , expressed in the increased share of services and their diversity , increasing the weight of the construction , transport , etc. as well as the introduction of new technologies in some sectors of the economy are the expression of this role. Important institutional changes of recent years such as Albania 's membership in the World Trade Organization (WTO) and the signing of a series of bilateral agreements of free trade with region countries , accompanied these with a significant reduction in trade barriers .

The number of studies done to measure economic growth through exports and imports in Albania is very limited. This paper is an attempt to make an empirical examination of the hypothesis export-led growth. It also examines long-run impact of exports, imports on GDP growth in case of Albania.

2. Literature Review

Different studies and researches were done by academics and policy makers for economic growth, import and export. A variety of studies shows different results about the relationship of this three variables. Export led hypothesis is a widely known hypothesis and accepted by different academics (Feder 1982; Kruege 1990).

Atrkar Roshan Sedigheh (2008) made a study about export expansion and economic growth in Iran after the revolution period. The results of this study confirms the relationship between these variables in Iran after the revolution period.

A study done by Ahmet Ugur (2008), shows the relationship between imports and economic growth in Turkey.

Velnampy. T, Achchuthan (2013); Based on the overall study, in the Sri Lankan context, the export and import have the significant positive relationship, and also, both export and import have the significant impact on the economic growth. Further, the export and import have been associated by 98 percent, which denotes that, there is a strong positive association between export and import.

Another study done by Murat Çetinkaya and Savas Erdogan (2010) tested the relationship of two figures, import-export by using VAR Analysis. According to the study it was determined that there was causality relationship between these variables, the variable import influenced GDP, and GDP influenced the variable export. Between export and import, two way Causality relationships released mutually. In the same way, the results of causality overlap with variance decomposition test.

Mehdi Taghavi, Masoumeh Goudarzi, Elham Masoudi, Hadi gashti (2012) studied the Iran economy from 1962-2011. VAR Analysis was applied between the variables of annual economic growth, import, and export. When regarding to these results, it is implied that the export increases as the country grows and the import indicates a decrease economic growth. When regarding to the data used in the study, they indicate a difference proportionally, it is seen that the increases or decreases in the import, export, and GDP always occur in the same period. This case indicates that the relationships between three variables are very strict.

Barbara Pistoresi and Alberto Rinaldi (2011), the nexus between trade and economic growth in Italy has been widely debated by historiography. The outcome suggests that three variables, GDP, import, export commove in the long run but the direction of causality varies across time.

However, there are also other studies that do not support the relationship between these variables. There is no causal relation between exports and economic growth, namely exports and economic growth are both the result of the development process and technological change (Yaghmaian, 1994; Dritsakis, 2005).

Kogid, Mulok, Ching, Lily, Ghazali and Loganathan (2011) analyzed the relationship between the economic growth and the import in Malaysia from 1970 to 2007. Results show that there is no co integration exists between economic growth and import, but there exists bilateral causality between economic growth and import. Results also show that import could indirectly contribute to economic growth, and economic growth could also directly contribute to import. These findings may be vital for future economic growth policy.

Ali F. Darrat (1987) made a study about export-led hypothesis of Ronald Findlay (1984) and Anne Kruege (1985); This hypothesis states that higher exports accelerate the economic growth process. The empirical results reported by Ali F. Darrat (1987) shows that the economic growth of Hong Kong, Korea, Singapore and Taiwan are not affected by exports. Based on the Granger causality test, no causal effect were shown from exports to economic growth in any of the four countries.

Francisco (2000) investigated the Granger-causality between exports, imports, and economic growth in Portugal over the period 1865 - 1998. Findings revealed that, more interestingly, there is no kind of significant causality between import- export growth. Further, researcher concluded that the growth of output for the Portuguese economy during that

period revealed a shape associated with a small dual economy in which the intra-industry transactions were very limited.

As stated above there are different arguments about the relationship and effect of Export and Import on Economic growth. The relationship of these three variables differs from country to country. Also the arguments are controversial. Based on these arguments we can generate different hypothesis about the relationship of these variables.

3. Data and Methodology

This section includes the empirical analysis of the relation of Gross Domestic Product with Import and Export . To inspect the relation between GDP with Import and Export a time series regression model is conducted once with no lag and later with one lag included. Data included in the regression are the annual changes in percentage of GDP, Import and Export.

4. The Relation of Gross Domestic Product with Import and Export

The two model conducted are:

$$GDP_t = C_t + \beta_0 EX_t + \beta_1 IMP_t + u_t$$

$$GDP_t = C_t + \beta_0 EX_t + \beta_1 IMP_t + \beta_2 EX_{t-1} + \beta_3 IMP_{t-1} + u_t$$

Where:

- GDP_t in both model is the dependent variable.
- GDP_t represent Gross Domestic Product annual changes in percentage at time t.
- EX_t and EX_{t-1} represent Export annual changes in percentage respectively at time t and t-1.
- IMP_t and IMP_{t-1} represent Import annual changes in percentage respectively at time t and t-1.
- C_t represent the intercept which GDP_t equal if all the independent variables equals zero.
- β_0, β_1, β_2 and β_3 are the slopes of their respective variable.
- u_t represents the estimated error.

The Eview program the results for the no lag model are shown in table 1 and for the one lag model in table 2. Accordingly, the estimated models are.

$$GDP_t = -0.012 + 0.521EX_t - 0.106IMP_t + 0.222EX_{t-1} + 0.03IMP_{t-1}$$

$$GDP_t = 0.035 + 0.589EX_t - 0.277IMP_t$$

Table 1

Dependent Variable: GDP
Method: Least Squares
Date: 06/16/14 Time: 22:13
Sample: 1985 2012
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX	0.588980	0.079780	7.382567	0.0000
IMP	-0.227415	0.124190	-1.831186	0.0790
C	0.034920	0.031340	1.114231	0.2758

R-squared	0.691013	Mean dependent var	0.098206
Adjusted R-squared	0.666294	S.D. dependent var	0.247052
S.E. of regression	0.142715	Akaike info criterion	-0.954971
Sum squared resid	0.509192	Schwarz criterion	-0.812235
Log likelihood	16.36960	Hannan-Quinn criter.	-0.911335
F-statistic	27.95481	Durbin-Watson stat	2.034327
Prob(F-statistic)	0.000000		

According to the results EX is statistically significant at significance level 0.05% (p-value <0.05) in predicting the model. Also an annual increase by 1 percent in exports will increase GDP by 0.58 percent. Moreover, the imports data are not

statistically significant in predicting the model at the significance level at 0.05% however they significant at significance level 1% (p-value=0.07). The results indicate that 1 percent annual increase in imports will decrease GDP by 0.23 percent. According to the p-value of F-statistics which equal 0.00, it can be concluded that Exports and Imports data jointly are statistically significant in predicting the model

Table 2

Dependent Variable: GDP
Method: Least Squares
Date: 06/16/14 Time: 22:18
Sample (adjusted): 1986 2012
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX	0.520971	0.088267	5.902214	0.0000
IMP	-0.106079	0.121758	-0.871231	0.3930
EX(-1)	0.222313	0.070233	3.165354	0.0045
IMP(-1)	0.030464	0.136255	0.223579	0.8251
C	-0.011810	0.033497	-0.352565	0.7278

R-squared	0.795319	Mean dependent var	0.101052
Adjusted R-squared	0.758104	S.D. dependent var	0.251291
S.E. of regression	0.123592	Akaike info criterion	-1.178086
Sum squared resid	0.336050	Schwarz criterion	-0.938116
Log likelihood	20.90416	Hannan-Quinn criter.	-1.106730
F-statistic	21.37109	Durbin-Watson stat	2.022456
Prob(F-statistic)	0.000000		

According to the results 1 percent increase in export will increase both the current GDP and GDP of the next coming year by respectively 0.52 and 0.22 percent. While an increase in imports will decrease the current GDP by 0.10 percent and increase the GDP of the next coming year by 0.03 percent. Moreover, only the current and previous annual % change of exports are separately statistically significant in predicting the model. All other variables are separately statistically insignificant in predicting the model. However, all the variables are jointly statistically significant in predicting the model.

5. Unit Root Tests

Furthermore, the Augmented Dickey-Fuller and Phillips-Perron Test are conducted in order to check the series have a unit root. Table 5-9 show the test statistics respectively for GDP, EX and IMP. Accordingly, all the p-value of the test, are less than 0.05 indicating that the null hypothesis of the ADF Test, which is that the tested series has a unit root, can be rejected. Thus, it can be concluded that GDP, Export and Import series are non-stationary.

According to table 6-8, which show the result of PP test for respectively GDP, EX and IMP indicate that the series do not have a unit root and are non-stationary because the p-value is less than 0.05 and thus, the null hypothesis which predict a unit root for each test series can be rejected.

Table 3: ADF Test GDP (level)

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.737283	0.0092
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Table 4: ADF Test EXPORTS (level)

Null Hypothesis: EX has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.374356	0.0020
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Table 5: ADF Test IMPORTS (level)

Null Hypothesis: IMP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.746192	0.0001
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Table 6: PP Test GDP (level)

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.524272	0.0150
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Table 7: PP Test EXPORTS (level)

Null Hypothesis: EX has a unit root
Exogenous: Constant
Bandwidth: 8 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.322073	0.0022
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Table 8: PP Test IMPORTS (level)

Null Hypothesis: IMP has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.894665	0.0000
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

6. Conclusion

Based on the study done, the import and export have an significant relationship with GDP. Exports have a significant impact on the economic growth. The study shows that an annual increase by 1 percent in Exports will increase GDP by 0.58 percent. Regarding the import, it has a negative impact on economic growth. The results indicate that 1 percent annual increase in Imports will decrease GDP by 0.23 percent. According to the p-value of F-statistics which equal 0.00, it can be concluded that Exports and Imports data jointly are statistically significant in predicting the model.

According to the results 1 percent increase in export will increase both the current GDP and GDP of the next coming year by respectively 0.52 and 0.22 percent. While an increase in imports will decrease the current GDP by 0.10 percent and increase the GDP of the next coming year by 0.03 percent.

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Appendix

ADF Test GDP (level)

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.737283	0.0092
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 06/16/14 Time: 22:08
Sample (adjusted): 1986 2012
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.719733	0.192582	-3.737283	0.0010

C	0.072259	0.051320	1.407989	0.1714

R-squared	0.358436	Mean dependent var	-0.001682
Adjusted R-squared	0.332774	S.D. dependent var	0.301230
S.E. of regression	0.246056	Akaike info criterion	0.104675
Sum squared resid	1.513593	Schwarz criterion	0.200662
Log likelihood	0.586893	Hannan-Quinn criter.	0.133217
F-statistic	13.96728	Durbin-Watson stat	1.785551
Prob(F-statistic)	0.000970		

ADF Test Exports (level)

Null Hypothesis: EX has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.374356	0.0020
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EX)
Method: Least Squares
Date: 06/16/14 Time: 22:10
Sample (adjusted): 1986 2012
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX(-1)	-0.870203	0.198933	-4.374356	0.0002
C	0.143191	0.081004	1.767704	0.0893

R-squared	0.433556	Mean dependent var	-0.001801
Adjusted R-squared	0.410898	S.D. dependent var	0.500381
S.E. of regression	0.384057	Akaike info criterion	0.995137
Sum squared resid	3.687501	Schwarz criterion	1.091125
Log likelihood	-11.43436	Hannan-Quinn criter.	1.023680
F-statistic	19.13499	Durbin-Watson stat	1.897335
Prob(F-statistic)	0.000189		

ADF Test Imports (level)

Null Hypothesis: IMP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.746192	0.0001
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.
Augmented Dickey-Fuller Test Equation
Dependent Variable: D(IMP)
Method: Least Squares
Date: 06/16/14 Time: 22:10
Sample (adjusted): 1986 2012
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMP(-1)	-1.157045	0.201359	-5.746192	0.0000
C	0.156594	0.054908	2.851914	0.0086

R-squared	0.569105	Mean dependent var	-0.004633
Adjusted R-squared	0.551869	S.D. dependent var	0.366357
S.E. of regression	0.245249	Akaike info criterion	0.098103
Sum squared resid	1.503678	Schwarz criterion	0.194091
Log likelihood	0.675613	Hannan-Quinn criter.	0.126645
F-statistic	33.01872	Durbin-Watson stat	2.020477
Prob(F-statistic)	0.000005		

PP Test GDP (level)

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.524272	0.0150
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.056059
HAC corrected variance (Bartlett kernel)	0.031685

Phillips-Perron Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 06/16/14 Time: 22:09
Sample (adjusted): 1986 2012
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.719733	0.192582	-3.737283	0.0010
C	0.072259	0.051320	1.407989	0.1714

R-squared	0.358436		-0.001682
Adjusted R-squared	0.332774		0.301230
S.E. of regression	0.246056		0.104675
Sum squared resid	1.513593		0.200662
Log likelihood	0.586893		0.133217
F-statistic	13.96728		1.785551
Prob(F-statistic)	0.000970		

PP Test Exports (level)

Null Hypothesis: EX has a unit root
Exogenous: Constant
Bandwidth: 8 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.322073	0.0022
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.136574
HAC corrected variance (Bartlett kernel)	0.077872

Phillips-Perron Test Equation
Dependent Variable: D(EX)
Method: Least Squares
Date: 06/16/14 Time: 22:11
Sample (adjusted): 1986 2012
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX(-1)	-0.870203	0.198933	-4.374356	0.0002
C	0.143191	0.081004	1.767704	0.0893

R-squared	0.433556	Mean dependent var	-0.001801
Adjusted R-squared	0.410898	S.D. dependent var	0.500381

S.E. of regression	0.384057	Akaike info criterion	0.995137
Sum squared resid	3.687501	Schwarz criterion	1.091125
Log likelihood	-11.43436	Hannan-Quinn criter.	1.023680
F-statistic	19.13499	Durbin-Watson stat	1.897335
Prob(F-statistic)	0.000189		

PP Test Imports (level)

Null Hypothesis: IMP has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.894665	0.0000
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.055692
HAC corrected variance (Bartlett kernel)	0.040893

Phillips-Perron Test Equation
Dependent Variable: D(IMP)
Method: Least Squares
Date: 06/16/14 Time: 22:11
Sample (adjusted): 1986 2012
Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMP(-1)	-1.157045	0.201359	-5.746192	0.0000
C	0.156594	0.054908	2.851914	0.0086

R-squared	0.569105	Mean dependent var	-0.004633
Adjusted R-squared	0.551869	S.D. dependent var	0.366357
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Sum squared resid	1.503678	Schwarz criterion	0.194091
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