

Determinants of growth in times of crisis: empirical evidence from Albania

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Abstract

The aim of this study is to examine the main factors that influence the economic growth of Albania. Taking GDP as a proxy of economic growth, we analyze the main determinants of this indicator for the period of early crisis to the post crisis. The data are given a time series interpretation with annual frequency, starting observation year 1991 and ending observation 2010. We use log of GDP as a dependent variable and remittances, foreign direct investments, trade openness and inflation as explanatory variables. Furthermore, we include two dummy variables in the regression: $Crisis_{t-1}$ and $NoCrisis_{t-1}$ in order to examine whether remittances matter more during the last global financial crisis.

By running the OLS regression, the results show that trade openness, price stability and remittances influence significantly GDP. Moreover the effect of remittances in GDP is found to be higher in times of crisis.

Keywords: GDP, crisis, remittances

1 Introduction

The last financial crisis has negatively affected the economic development in many countries worldwide. Despite the challenging regional environment, the Albanian economy has experienced positive growth but at a slow pace. Albania has been affected by the crisis mainly as a consequence of decreased remittances, trade and higher risk premiums. From this point of view, it is of special interest to explore the main determinants of Albania's growth for the last 20 years which includes also the period of crisis. In this study, our purpose is to find the significance of different variables on the GDP of Albania and also examine whether any variable has greater importance during the crisis.

The paper is going to be structured in the following way: introduction is presented at the beginning. The second part provides a short overview of Albania's economic environment for the last years. The third part introduces the hypothesis to be tested, while the fourth part is about the data description. The fifth part reports the regression analysis. The last part summarizes the main conclusions of the paper.

2 Albania's economic environment

Albania's economy overcame the negative impacts of the recent financial crisis rather well. It enjoyed a high annual growth rate over the last 10 years and a low inflation rate. Beside the slowdown experienced in the end of 2009 and beginning of 2010 due to the decrease in the volume of exports and domestic demand, the Albania's economy jumped again to positive growth rates. This recovery was achieved as a result of the increase in Albanian exports. The macroeconomic indicators such as exports and foreign demand have substantially recovered during the year 2000.

The below graph presents an overview on the way GDP growth rate has evolved from year 1999 to 2010. It can be observed that has remained quite stable during the year 2007 and 2008 but has decreased significantly in the beginning of year 2008 up to the beginning of 2009. This recession is attributed mainly to the negative impacts of the crisis related mainly with the decrease in trade, FDI and remittances. However, the GDP growth has recovered in the beginning of 2009. In the first quarter of 2009, the real growth rate was 3.5 %.

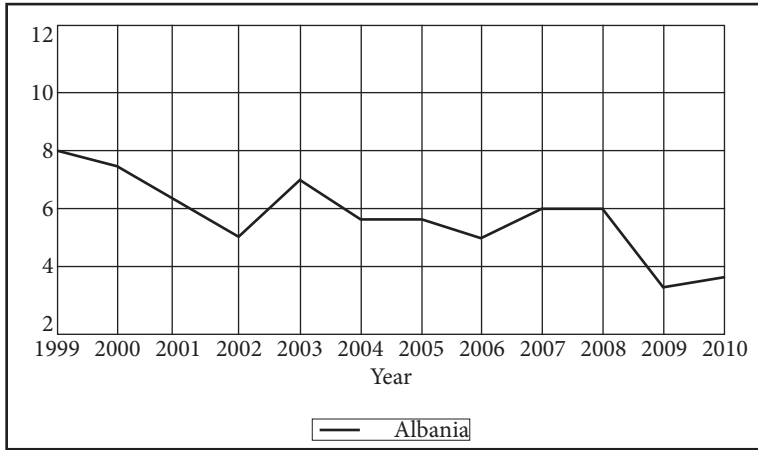


FIGURE 3.1 — GDP real growth rate. Source: *Indexmundi.com*

3 Hypotheses

Taking into account the recent economic developments in Albania and based on our economic intuition we propose the following relationships between indicators that we would like to test through this paper:

1. There is a negative correlation between inflation and GDP.
2. Remittances matter more during financial crisis.

4 Data description

The data used in this study is obtained from the World Development Indicators (WDI) & Global Development Finance. The analysis is focused on the key factors that determine the economic growth of Albania for the period from 1991 to 2010. Our dependent variable is gross domestic product (GDP) which is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. The independent variables included in the model are:

1. **Foreign Direct Investment (FDI)** refers to the net inflows (from balance of payments), and includes equity capital, reinvested earnings, and other capital associated with inter-company transactions between affiliated enterprises but excludes capital flows for exceptional financing, (e.g., debt-for-equity swaps).
2. **Openness to trade** is captured by the sum of exports and imports of goods and services. Exports represent the value of all goods and other market

services provided to the rest of the world and imports refer to the value of all goods and other market services received from the rest of the world. This is a standard proxy widely used in previous literature.

3. **Inflation** is measured by the annual growth rate of the GDP implicit deflator and shows the rate of price change in the economy as a whole. Price stability is used as an indicator of a stable macroeconomic environment.
4. **Remittances** are classified as current private transfers from migrant workers resident in the host country for more than a year, irrespective of their immigration status, to recipients in their country of origin.

Additionally, we include in the regression two dummy variables: *Crisis* and *Nocrisis* in order to determine whether the factors that influence economic growth become more important during the financial crisis. The underlying hypothesis is that some components of GDP decrease during the crisis and might influence significantly the economic growth of a country. The crisis dummy variable takes value one in the years 2005, 2006, 2007, 2008, 2009, 2010 and zero otherwise. To the contrary, the no crisis dummy variable takes the value of zero in the years 2005, 2006, 2007, 2008, 2009, 2010 and one otherwise. According to this, any variable taken in the study can be decomposed into two parts: For example Remittances can be expressed as the sum of *Crisis** Remittances and *Nocrisis** Remittances (since *Crisis* + *Nocrisis* = 1). In this aspect, we will test on the equality of the parameters in order to determine whether the effect of any variable is greater during crisis.

5 Regression analysis

In this study we will estimate what influences the economic growth of Albania. We will consider four important explanatory variables (FDI, trade openness, inflation and remittances) that are considered to explain the GDP, used as a proxy of the economic growth. Since the period that is being analyzed covers the global financial crisis period, it is of special interest to examine whether the influence of any the explanatory variable has intensified during the crisis. According to this, the variable of remittances is decomposed in two parts, one referring to remittances before the crisis and the other referring to remittances after the crisis period.

To assess this empirically we specify the following regression equation using log form for some of the variables:

$$\ln_GDP_B = \beta_0 + \beta_1 * Inflation + \beta_2 * \ln_FDI + \beta_3 * (Crisis * Remittances) + \beta_4 * (Nocrisis * Remittances) + \beta_5 * \ln_Trade + \square$$

- \ln_GDP – Dependent Variable
- β_0 – Value of GDP when all variables are 0 meaning the country has no FDI, no trade, no remittances and also the inflation is zero.
- β_1 – Parameter of inflation

- β_2 - Parameter of foreign direct investments
- β_3 - Parameter of remittances during crisis
- β_4 - Parameter of remittances during non-crisis period
- β_5 - Parameter of trade openness

TABLE 3.1 — Model 1: OLS, using observations 1991-2010 ($T = 20$). Dependent variable: l_GDP .

	Coefficient	Std. Error	t-ratio	p-value	
const	11.4571	1.98108	5.7833	0.00005	***
Inflation	-0.0027151	0.000681194	-3.9858	0.00135	***
l_FDI	-0.0890657	0.0856768	-1.0396	0.31617	
Crisis*Remittances	0.474019	0.110839	4.2766	0.00077	***
Nocrisis*Remittances	0.465832	0.110211	4.2267	0.00085	***
l_Trade	0.0229729	0.00640476	3.5868	0.00298	***
Mean dependent var	22.11655	S.D. dependent var		0.852351	
Sum squared resid	0.210326	S.E. of regression		0.122570	
R-squared	0.984763	Adjusted R-squared		0.979321	

*** Significant with 99% confidence level

** Significant with 95% confidence level

* Significant with 90% confidence level

Using observations from 1991 to 2010, we obtain the following regression line by Ordinary Least Squares (OLS) method:

$$l_GDP = 11.4571 - 0.0027151 * Inflation - 0.0890657 * l_FDI + 0.474019 * (Crisis * Remittances) + 0.465832 * (Nocrisis * Remittances) + 0.0229729 * l_Trade + \square$$

According to the above results, it can be pointed out that inflation, remittances and trade influence more significantly the GDP of Albania. This is expressed by their respective p values leading to the conclusion that parameters β_1 , β_3 , β_4 and β_5 are different from zero with more than 99% confidence. Additionally, the constant appears to have the same significance. On the other hand, the FDI coefficient is not a significant determinant of GDP. The economic interpretation of the inverse relationship between FDI and GDP is that despite the decrease in FDI inflows, Albania's GDP continued to increase due to the influence of other factors such as trade, inflation etc. It can be observed that the inflation is inversely related with GDP. This can be explained with the fact that the lower levels of this variable imply commitment and credibility of the government and better climate for investment and economic growth. This finding proves right hypothesis 1 that inflation and GDP are negatively related.

Trade in Albania appears to foster GDP growth. The positive relation between trade and GDP implies that the more Albania's economy is linked to the rest of the world through a liberalized trade, the higher will be its economic growth. An increase of trade by 1% increases GDP by 0.02%.

Coming now to the effect of remittances on GDP, the results show that the estimated parameter is greater during the crisis period (0.47 compared to 0.46). In order to determine whether the coefficients are significantly different from each other we run the test on the equality of parameters. The test rejects the null hypothesis that the parameters are equal ($\beta_3 = \beta_4$). This implies that the influence of remittances is higher during the crisis. This suggests that not only remittances increase the GDP of Albania, but their effect is even more important during the recent financial crisis, reflecting consistency with hypothesis 2.

The adjusted R-squared is very high, implying that about 98.5% of the variation in Albania's GDP is explained by the above model.

6 Conclusion

The aim of this study is to examine the main factors that influence the economic growth of Albania. The last financial crisis has negatively affected the economic development in many countries worldwide. Despite the challenging regional environment, the Albanian economy has experienced positive growth but at a slow pace. In this context, the paper analyses the main determinants of GDP for the period of early crisis to the post crisis, using GDP as a dependent variable and foreign direct investments, trade openness, inflation and remittances during the crisis and no crisis period as explanatory variables. The findings show that Albania's economic growth is highly influenced by inflation, trade and remittances. Analysing the obtained results, we cannot reject Hypothesis 1 which stipulates that inflation is negatively related with Albania's GDP. The second hypothesis is proved right as the empirical model showed that remittances increase the GDP of Albania and they mattered more during the recent financial crisis.

7 References

- Baltagi, B.H.(2002):”*Econometrics*” 3rd Edition.
- Banka e Shqipërisë (2010): “*Raporti vjetor*”.
- Banka e Shqipërisë (2011): “*Politika të stabilitetit monetar dhe financiar – leksione nga kriza*”.
- Fullani, A. (2011): “*Politikat ekonomike në EJL: Hartimi, ecuria dhe sfidat*”.
- Kota, V. (2011): “*Persistenca e inflacionit në Shqipëri*”.

World Bank (2011): “*Albania partnership program snapshot*”.

Internet source: <http://databank.worldbank.org/ddp/home.do>.

Internet source: http://www.indexmundi.com/albania/gdp_real_growth_rate.html.

