

Population Change and Economic Development in Albania

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Abstract

This paper studies, to what extent have population changes and economic growth have affected each other in Albania. In the last three decades, Albanian economy has been very dependent on population movements. There has been an ongoing debate on the dynamics of economic development and population growth. One theory suggests that fast population growth causes strain on resources that deteriorate the state of the economy. Another theory sees the population growth as an advantage in the long run, rather than a threat. And a third theory suggests that population growth and economic growth do not affect each other. Vector Auto Regression method is used in this paper for data obtained from 1981 to 2013 to estimate the importance of the relationship between the two variables. The data is retrieved from publications of institutions like World Bank and INSTAT. The empirical results state that the relationship between the population and economic growth is existent but weak in Albania.

Keywords: Population change, Economic growth, Emigration, Albania

1. Introduction

Population trends have been a growing concern for many countries especially during the last hundred years. World population has grown continuously and its peak growth rate of 2.2% happened in 1963. World population reached seven billion in 2011 and it is expected to grow another one billion in the next 12 years. This creates a new situation where the demand for resources is the highest. In 1804 world population was one billion, in 1927 it was two billions, in 1999 six billion and 7.2 billion in 2013 and it is expected to reach 9.6 billion by 2050 estimated by a UN report called World Population Prospects published in 2012. Today the world population is 7,348,510,900.

The most drained natural resources from the quick increase in population are: Water, oil, natural gas, phosphorus and coal. One of the main models in this field was developed by Solow. This model shows how technology, capital stock and labor force growth affect total output. According to this model, if the population and consequently the labor force is increasing, capital per worker is difficult to maintain stable and deteriorates the situation of the country, causing an exhaustion of resources.

Economists interpret this situation in two different ways. The first theory agrees with the Solow model and states that fast population growth causes strain on resources that deteriorate the state of the economy. One of the main voices of this perspective is Malthus (1798) *An Essay on the Principle of Population as It Affects the Future Improvement of Society* is a book in which Malthus introduced his theory that constant growth in population will reduce our resources and eventually our food supplies. Malthus predicted that since the reproductive power of population is much bigger than the planet's ability to provide resources, mankind is doomed with poverty.

In the center of the book is the relationship between economy growth and population.

Malthus claimed that the causation is reciprocal. High economic growth causes higher birth rates and life expectancy increasing population. An increase in population reduces economy growth.

Calhoun (1962) comes to the same conclusion that with the paper published in 1962 called "Population Density and Social Pathology". His research is based in the social effect of population. In his experiment with mice he concluded that when the number of capable individuals in a society surpasses the number of roles available in said society, it means social disintegration.

Martin (2009) says that fast population growth exhausts savings per capita, and decreases capital per worker. Resources for productive assets are directed to public expenditures and social infrastructure. Population growth aggravates the

economy by increasing pressure for investment in hospitals and schools. The quality of education falls, which is already a prominent problem in developing countries.

The second theory supported by the Kremerian Model sees the population growth as an advantage rather than a threat. Kremer (1993) says that population growth helps economic growth in the long run. According to Kremer, more people mean more individual creativity that can help technology and innovation.

He argues that history has shown that wellbeing has increased with the increase in world population.

Kremer says that historically, faster growth has happened where the population growth has been higher, technological advance is directly related with high population.

Bloom and Freeman (1988) argue that poverty and inequality in income distribution are the real causes of food problems. He says that income and price regulations would solve the food problems differ with the theory noting that food problem is more of a problem of poverty and inadequate income than a matter of high population growth.

1.1 Population and Economy in Albania

The first recorded census of the population in Albania takes is that of 1928 when the population number was 823,000. In (2003), Madison published *Historical Statistics for the World Economy* that estimated the population of Albania in 1600 to be 200,000 and to increase to 300,000 in 1700. In 1820 the population reached 437000 inhabitants. In 1990 Albania had a population of 3,300,000 and in 2001 the population was 3,023,000. From 1912 that was a declaration of independence of the country, to 1944 that population growth was 0.7% per year. During that period of time Albania had one of the highest growth rates in the region and one of the lowest death rates. For the next 50 years, the communist governments pursued a population increase privacy that increased the population growth to 2.5%. This increase in population and the high life expectancy increased the overall population of Albania to the maximum of almost 3.3 million in 1990. After this year the population declined constantly by 0.3% each year. In 2015 the population of Albania is 2,89 million inhabitants

Large political, economic, institutional, infrastructural changes have taken place in Albania since the conversion of the system to democracy. For the past two decades, the economic growth of the country has been impressive, better than that of all Southeastern European countries, resulting in an increase in productivity and increased trade. GDP growth was 5.4% per year approximately between 2000 and 2010. Albania upgraded from "lower-middle" to "upper-middle" income status in 2010 with a GNI per capita of US\$3,960, twenty times greater than its per capita income in 1992. Albanian GDP fell to an exceptionally low point in 1991 reaching negative 29%. This fall is attributed to the transition from a centralized communist economy to an open market economy. Another sharp decline of - 10% can be seen during the 1997 civil rebellion over the pyramid schemes. Before the economical crisis of 2008 Albania had a fast growing economy with an average growth rate of 6% and fast improvement in poverty levels. After the crisis, growth levels decreased constantly from 7% in 2008 to 3.5% and 3.7% in 2009 and 2008, 2% in 2011, approximately 1.5 % in 2012 and 2013 and increasing slightly to 2.1% in 2014.

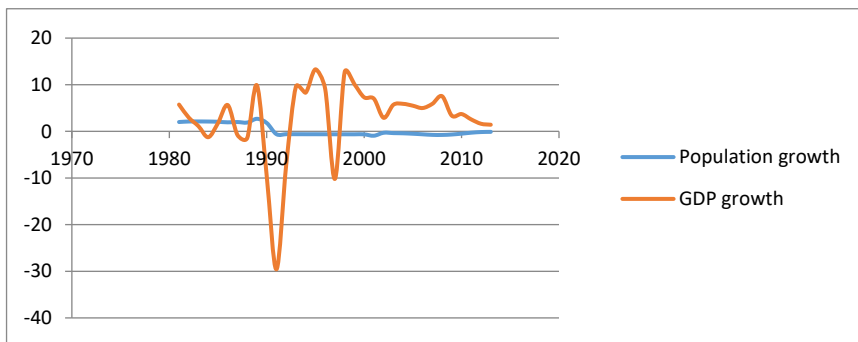


Figure 1.1 Trends in GDP growth and population growth over the period 1981-2013, Source: The World Bank

1.2 Statement of the problem

Population movements have always been a serious problem for Albania. During the communist regime it was the absolute lack of movement and population expansion policies pursued by the dictatorial regime that increased considerably the population of Albania. This situation put a huge strain on the countries resources and was one of the reasons the country experienced severe poverty and hunger. After the fall of the regime, hundreds and thousands of Albanians left the country for a chance of a better life, away from the ruined economy of Albania that produced almost nothing at the time. During this time the population of Albania fell significantly. The paper examines the effect of these changes in Albanian population on the economy of the country.

The economic theory is not decided about this problem, findings from some papers find a relationship between population and economic growth, but others don't.

This paper answers the following research questions:

What relationship do economic growth and population number have in Albania?

How significant is the relation between economic growth and population number?

Is the relation significant in the long run?

Does economic growth affect population or vice versa?

1.3 Research objectives

To find the relationship between the economic growth and population number unemployment in Albania.

To determine the significance of the relation between economic growth and population number.

To find whether the relation is significant in the short run?

To determine whether is economic growth that affects the population or population affects economic growth.

2. Literature review

Malthus (1798) believed that the world's population has the tendency to increase much faster than the planets food supply. He argues that whereas population grows geometrically, the production power only grows at an arithmetical rate.

Martin (2009) argues that rapid population growth exhausts savings per capita, and decreases capital per worker. Resources for productive assets are directed to public expenditures and social infrastructure. Population growth aggravates the economy by increasing pressure for investment in hospitals and schools. The quality of education falls, which is already a prominent problem in developing countries

Kremer (1993) believes human scientific progress is proportionate to the increase in population. Advancement in technology increases per capita income of the population. Kremer believes that history has shown that welfare has increased with the increase in world population.

Meier (1995) said that more people may mean a country can produce and consume more goods and services, leading to economic growth. But this can only occur when employment opportunities grow at least as fast as the labor force and when people have access to the necessary education and training.

Simon (1992) published a book with selected essays and articles written over a period of 20 years that analyze the relationship of different aspects of economic development and population. The analysis is concentrates mainly in low developing countries. The various studies demonstrate that the positive effect increased population in the long run outweighs the costs in the short run. The reasoning behind this conclusion is that an increase in consumers increases the total income and the demand for goods and services. This situation increases the price for natural resources. The pressure

for resources encourages innovative solutions to the problem and lowering prices and leaving the overall situation of the economy better than it started.

Coale and Hoover (1958) argued that population growth creates problems in the short run that include poverty, famine and unemployment. Yet, they also state that in the long run, it leads to new developments through advancement in technology that leave countries better off than if the problems never occurred.

Galor and Veil (1999) argue that the economic development has passed through three different regimes. The Malthusian, Post-Malthusian and the Modern Growth Regime. During the Malthusian Regime the number of population grows rapidly but the technological progress is much slower. The Post-Malthusian Regime has a faster growth in technological progress. During the Modern Growth Regime both technology and income per capita increase constantly increasing output and the means to buy it.

Wong and Furuwoka (2005) found no conclusive evidence of causality between economic development and population changes. Overall, the relationship between population changes and economic development is not clear-cut. Changes in population could have either a beneficial or a harmful impact on the situation of the economy in a country.

3. Emigration Effects

After the isolation period ended with the collapse of the communist regime, thousands of people left the poorest country in Europe. The International Organization for Migration in 2008 reported that almost 27.5 % of the labor force had fled the country in 2005, the majority to Greece and Italy.

Remittances are the largest foreign exchange inflow source of Albania. Around 68.6% of emigrants bring remittances in Albania. World Bank reported in 2006 that they make up 14.9 % of the GDP. The biggest channel of remittances is informal, 77.4% and 22.6% formal.

Centre for Economic and Social Studies reported that almost 50% of professors and researchers of the country emigrated from Albania from 1991 to 2005. The majority of them emigrated to US, Canada and Italy. Approximately 2000 -4000 students leave Albania to go to foreign universities in Europe and US.

The government started a program in September 2006 that was called The Brain Gain Program. The program intends to create incentives for emigrated intellectuals to contribute to the development of Albania in science and economy.

4. Model and Data Specification

In this paper we have taken GDP growth and population in Albania from year 1984 to 2013. So we have a sample of 29 years. These data have been retrieved from World Bank website. One of the main problems for data collection in Albania is the reliability of the data but also the small sample because data registration in Albania has started relatively late. Albania has a very limited range of data and the estimation of these two variables during the dictatorial period is not reliable. After testing the normality of distribution of the data, we do not reject the normality of the population for both variables.

4.1 Stationarity test

It is important to know whether the time series variable data for the research is stationary or not. If the data is not stationary the regression results might be spurious. In cases when non stationary time series data is used for analyzing the relationship of the variables, the mean and variable of the estimates will not be constant. In order to prevent that we perform unit root tests on the variables.

4.2 Johansen Co-integration

Johansen Co-integration test is used to see whether the variables can be co-integrated in the long run.

4.3 Vector Error Correction Model

The vector autoregressive model portrays the relationship between our two variables. After we have performed unit root test to determine the stationary of data, and the variables have resulted to be non stationary, ADF with lag 2 is used to make them stationary. The vector error correction model is a used in cases when the variables are stationary in their differences.

4.4 Granger causality test

In statistics granger causality is the concept that causality is based on prediction. This concept introduced by Granger in 1969 to see if a time series can be used to predict another. It examines the causal relationship between population growth and economic development in our case.

5. Empirical Results

5.1 Unit root test

In our case the variables show the presence of unit roots. ADF t-statistics is bigger than critical value so we can not reject null hypothesis (Null Hypothesis: variable has a unit root). This means the variables are non stationary. So we perform the Augmented Dickey - Fuller unit root test to make the variables stationary at levels with a lag of 2. We say that the data is stationary when the value of p after the second difference in our case, approaches 0.

	GDP growth	Population growth	
Constant	t-Statistic =-0.195344	t-Statistic =-1.875299	Constant
	critical value at 5% = -2.971853	critical value at 5% =-2.967767	
Constant and trend	t-Statistic =-4.944040	t-Statistic =-4.692221	Constant and trend
	critical value at 5% =-3.603202	critical value at 5% = -3.580623	

5.2 Johansen Co-integration

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.486958	25.42275	15.49471	0.0012
At most 1 *	0.213811	6.735633	3.841466	0.0094

We can see that both null hypothesis are rejected since probability is lower than 0.05 . Trace test indicates 2 cointegrating equations at the 0.05 level

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.486958	18.68712	14.26460	0.0094
At most 1 *	0.213811	6.735633	3.841466	0.0094

In this case we can see that both null hypothesis are rejected again since probability is lower than 0.05 . Max-Eigenvalue test indicates 2 cointegrating equations at the 0.05 level

5.3 Vector Error Correction Model

The regression output shows us that p is smaller than 0.05 so the VECM model is significant. In order to check for the VECM we first need to check the stationary of the residual series. From ADF unit root test on the residual we see that $p < 0.05$. So the VECM is stochastic. Since the RESID01(-2) p value is smaller than 0.05 the VECM is significant. In this case R squared is smaller than Durbin-Watson stat that means that our model is significant and stochastic.

R-squared	0.500229		P value
Durbin-Watson stat	2.082964	RESID01(-2)	0

5.4 Granger causality test

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGPOP does not Granger Cause LOGGDP	29	7.29524	0.0033
LOGGDP does not Granger Cause LOGPOP		4.95834	0.0158

Since we know that the critical value is 5%, we cannot accept neither of the Null Hypothesis. Both are smaller than 5%. In this case the causality is bidirectional. That means that population and economic growth have reciprocal effect on each other.

6. Conclusion

Population in Albania after years of increasing has experienced constant decrease after the fall of the communist regime. This decrease in population is attributed mainly to the mass emigration of the population. The movement patterns are another important factor for the country. Population decreases have been consistent mainly in already small and economically weak cities like Kukes and Diber.

The economic development of Albania has been slow and unstable for many reasons, including population. The result of the empirical analysis indicates the existence of a bidirectional relationship between economic development and population changes. That means that population affects economic development but economic development also effects population. There are many other factors that have a stronger impact in economic development of the country. The model says that the relation is existent but not very strong.