

# **DOES SAVING REALLY MATTER FOR GROWTH IN TRANSITION COUNTRIES? THE CASE OF A SMALL OPEN ECONOMY: ALBANIAN APPLICATION.**

Ermelinda Tarelli\* and Gungor Turan\*\*

## **Abstract**

This paper is aiming to analyze the linkage between savings and the economic growth in transition countries. Savings are composed of household savings, corporate savings and government savings. The aggregate of these savings make up the Gross National Savings, which contribute to the capital accumulation which is one of the sources of economic growth according to the Solow Model. The effect of this component can not be studied independent of other factors that determine economic growth, which are labor force and TPF. First, it is necessary to describe some of the characteristics of transition countries, focusing in Albanian case. Then the saving trend will be studied. The study will reveal us how these three factors contribute to the economic growth in different stages of transition in Albania. The data for the savings and economic growth will be taken from official sources, such as the statistics of INSTAT, the BoA and Economywatch.com taking into account a period of time from 2000 to 2011. This paper uses the linear regression analysis to analyze the relationship between economic growth and savings.

**Key words:** Economic growth, Solow model, Albania

## **INTRODUCTION**

The factors that affect economic growth in a country, according to the Neoclassic model of economic growth -known also as the Solow model, are capital accumulation (savings), labor and total factor productivity. The role these factors play in the economic growth differs from country to country depending on the stage of their development. The aim of this paper is to analyze the effect of one of the factors of Solow model, which is capital accumulation, how it influences in the economic growth in transition countries focused mainly in Albanian case.

But fist it is important to have a clear picture of this model (Mankiw, 2009). According to this model the components of economic growth are capital accumulation (in which savings are included), labor force and Total Factor Productivity (TFP). Capital accumulation is about the quantity of the capital and not the quality of how it is used. The same can be said about labor

---

\*MSc student.

Address: Rr. Sh. Deshnica, pall. 124/1, apt. 6 B. Tirane.

Tel: 00355 69 51 41 580

E-mail: linda\_tarelli@hotmail.com

\*\*Prof.Dr. Faculty of Economics and Administrative Sciences at Epoka University, Tirane/Albania. He has completed his Ph.D, in Economics and actually is the Head of the Department of Economics at Epoka University  
Phone: +355 4 232 086

force, which refers only to the quantity of the labor force not to the productivity and the efficiency of this labor force. The quality of these two components is included to TFP.

The Solow Growth Model is designed to show how growth in the capital stock, growth in the labor force, and advanced in technology interact in an economy, and how they affect a nation's total output of goods and services. The Production function is

$$Y = F(K, L \times E)$$

This takes into account the capital  $K$ , the number of workers  $L$  and the efficiency of each worker,  $E$ . The increases in  $E$  (efficiency) are analogous to increases in  $L$  (number of workers). In other words, a single worker (if twice as productive) can be thought of as two workers.  $L \times E$  doubles and the economy benefits from the increased production of goods and services.

Technological progress causes  $E$  to grow at the rate  $g$ , and  $L$  grows at rate  $n$  so the number of workers  $L \times E$  is growing at rate  $n + g$ . Now, the change in the capital stock per worker is:

$$\Delta k = i - (\delta + n + g)k, \text{ where } i \text{ is equal to } sf(k).$$

Where  $\Delta k$  is the change in the capital stock between one year and the next

$i$  - Investment per worker

$\delta$  - The depreciation rate

$n$  - The number of workers

$g$  - The rate of labor-augmenting technological progress

$sf(k)$  - The investment per worker as a function of the capital stock per worker

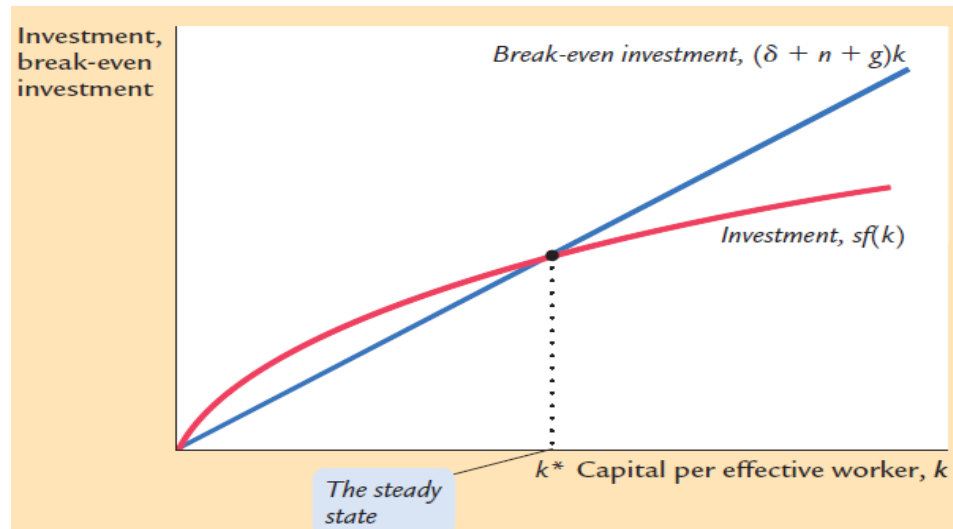
The Golden Rule level of capital is defined as the steady state that maximizes consumption per effective worker. So, the steady-state consumption per effective worker is:  $c^* = f(k^*) - (\delta + n + g)k^*$

Steady-state consumption is maximized if  $MPK = \delta + n + g$

rearranging,  $MPK - \delta = n + g$

That is, at the Golden Rule level of capital, the net marginal product of capital,  $MPK - \delta$ , equals the rate of growth of total output,  $n + g$ . Because actual economies experience both population growth and technological progress, we must use this criterion to evaluate whether they have more or less capital than they would at the Golden Rule steady state.

Figure 1



Source: Mankiw, p. 224

The Solow model shows that sustained growth in income per worker must come from technological progress. The Solow model, however, takes technological progress as exogenous, and therefore does not explain it.

Further studies on the Solow Model have shown that the efficiency of the use of the basic inputs used in a production function is not contributed only to technology, but also to other factors such as macroeconomic stability, policy implemented by the state, well-functioning of institutions.

Comparative studies of transition economies have shown that both the initial decline in production and the speed of recovery are importantly influenced both by policy choices and by initial conditions (Denizer & Wolf, 1998)

Firstly, it is important to focus on some of the characteristics of transition. Transition implies (Havrylyshyn & Wolf, 2012):

- liberalizing economic activity, prices, and market operations, along with reallocating resources to their most efficient use;
- developing indirect, market-oriented instruments for macroeconomic stabilization;

- achieving effective enterprise management and economic efficiency, usually through privatization;
- imposing hard budget constraints, which provides incentives to improve efficiency; and
- establishing an institutional and legal framework to secure property rights, the rule of law, and transparent market-entry regulations.

The change from centralized planning economy to open trade economy has been accompanied with some distinctive consequences such as the output fall, capital shrinkage, labor movement, trade reoriented, structure change, institutions collapse, transitions costs (Campos & Coricelli, 2002).

The output fell due to the closure and destruction of the state owned industries in the first years of communism collapse. In addition the formation of private sector needs time to be set up. Capital also shrank due to the destruction of former existing industries, due to the lack of former “forced saving” (the inability of households to obtain desired consumption goods). Voluntary savings during the transition, carried out by households and private enterprises in a market economy, would tend to be lower than forced centralized savings under planning. In the first years of transition the Foreign Direct Investment (FDI) were very low due to the instability, but the aid from the World Bank (WB) and International Monetary Fund (IMF) to build the institutions were considerate (Denizer & Wolf, 1998). Labor movement refers to the changes that happened in labor market status, sectors and occupations. Taking in consideration the unemployment rate, Albania underwent significant changes, from a country with none unemployment to a country with a high rate of unemployment in the first years of transition. It is important to underline that despite not having unemployment, the allocation of the workforce was not very efficient during communism. As a result the labor did not contribute to the maximum for the growth of GDP. The turn to open market economy brought trade reorientation which has three main dimensions trade volume, trade patterns and openness. In the first years of transition Albania had a sharp trade deficit balance compared to the previous years because the export was zero while the imports started to rise rapidly. Also the pattern of foreign trade changed from importing products of heavy industry to importing of light industry to meet the people’s everyday needs. The degree of openness was increasing after the collapse of communism. The socialist economy had a structure of output that favored industry and repressed services, as the latter were considered, in Marxist terminology, “unproductive”. The structure of output changes in the share of agriculture declined, while that of services increased. The fall of communism created an enormous institutional vacuum which affected negatively to every aspect of society, especially to the economy. This institutional vacuum kept the private foreign investors away from Albania. The first years of transition were accompanied with economic and social costs such as the high unemployment, the increase of income inequality, the decline of school enrolment rates and the rise of mortality rates (Campos & Coricelli, 2002).

This overview of the first years of transition will help in the better understanding of the starting point of Albania after communism and to analyze better the factors that affect the economic growth.

## **LITERATURE REVIEW**

This paper is based on the work of many scholars that have given their contributions on the study of the economic growth and savings in transitions countries by using econometrics methods.

Growth in transition: What we know, what we don't and what we should is a working paper carried out by Nauro F. Campos and Fabrizio Coricelli (2002). This essay surveys macroeconomic issues that marked the transition from centrally planned to market economy in Central and Eastern European. This paper arrived to the conclusion that transition is the simultaneous change in economic structures and institutions and the final outcome crucially depends upon the coherence between economic reform in terms of liberalization of goods and factor markets, macroeconomic policies and institutional development.

Aggregate savings in the transition is a paper, part of a World Bank research project entitled "Saving across the World" carried out by Cevdet Denizer and Holger C. Wolf (1998). They arrived at the conclusion that the transition economies of eastern Europe almost uniformly experienced a severe decline in savings rates from levels above thirty percent of GDP to levels around ten percent early in the transition, before slightly rebounding in more recent years. One possible explanation for the high starting savings rates is the presence of forced savings, resulting from an inability to implement desired purchases due to the combination of fixed prices and excess demand.

Albania: Country profile and recent economic developments is a summary of Anton Schautzer's country profile of the Republic of Albania, which is available on request in German only. This paper provides an overview of the transition process and recent economic developments in Albania. The Albanian economy has embarked on a dynamic catching-up process.

Determinants of economic growth in Albania is a paper found in the Economic Bulletin by Vasilika Kota (2009). The aim of that study is to analyze the sources of economic growth in Albania after transition. Determining the fundamental sources of economic growth is important in order to evaluate the role they have played in the past and what is the possible perspective of their development in the future.

The statistical data are taken from the website [economywatch.com](http://economywatch.com). The Economic Statistics and Indicators Database are classified by countries. This statistics are calculated based on the data taken from the national statistical institutions.

To save or to consume: Linking Growth Theory with the Keynesian Model is an article written by Yun-kwong Kwok (2007). The article is based in the neoclassical growth theory which claims that higher saving rate gives rise to higher output per capita. However, in the Keynesian model, higher saving rate causes lower consumption, which may lead to a recession. Students may ask, “Should we save or should we consume?” The author builds a bridge between the neoclassical growth theory and the Keynesian model. He links the Solow diagram and the IS-LM curves and depicts the short-run to long-run transition of the economy after changes in saving and other macroeconomic policies.

The driving forces behind China’s growth an article by Maria Jesus Herrerias and Vicente Orts (2011). That paper has arrived to the conclusions that as long as the growth rate of TFP is measuring the increase in efficiency with which all factors of production are used (that is, improvements in technological progress or efficiency gains), our results imply, first, that it has not been exogenous, but has been affected by economic variables that are potentially influenced by economic policy measures (capital accumulation, improvement of per capita human capital, innovation activities and openness); second, that the growth rate of output per worker is only partially explained by capital accumulation (capital deepening); and, third, that capital accumulation (investment effort) also has a positive effect on the rate of growth of technological progress or efficiency with which the productive factors are used.

Sources of Vietnam’s economic growth by Phan Minh Ngoc (2008) is an article which first estimates Cobb-Douglas production functions for Vietnam’s economy using annual data in 1975–2003. Then, the article measures the contribution of capital formation, labor, and technological progress to the growth of the economy, the effects of major internal and external shocks on output, the impact of economic reforms (doi moi) since the end of 1986, the rates of returns to capital and labor. Two major findings are: (1) technological progress was statistically absent in the growth of the Vietnamese economy throughout the study period; (2) the most important source of economic growth is capital accumulation.

## DATA AND METHOLOGY

Table 1.

Years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Saving % (GDP)	25.77	25.53	20.75	20.43	22.35	22.83	23.57	19.06	17.12	15.06	15.05	15.39	16.59

Source: Economywatch.com

Table 2.

Years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
GDP Growth	7.3	7.94	4.23	5.77	5.71	5.76	5.43	5.9	7.66	3.3	3.5	3.4	3.6

Source: Economywatch.com

## LINEAR REGRESSION ANALYSIS

This paper studies how the saving (independent variable, IV) affects the GDP growth (dependent variable, DV). The linear regression analysis is used in order to determine how well a model fits given data. Two are the variable used in this analysis, the GDP growth rates (which is the dependent variable) and saving rates (which is the independent variable). The SPSS program is used for the linear regression analysis.

R (the linear correlation coefficient which measures the strength and direction of the linear relationship between variables) is 0.707, nearly to 1 which means that we have a positive strong relationship between the GDP (DV) and the saving (IV).

$R^2$  (Coefficient of determination which measures the proportion of variability in a data set that is accounted for by a statistical model)  $R^2$  is 0.50 which means that 50% of the criterion variable are accounted for by the model used.

Adjusted R square (the amount of shrinkage if this is applied to another sample, in other words the amount of predictive loss) is 0.455, which means that the linkage between the two variables is moderate. The adjusted R square is considered the most accurate among these three components.

Partial correlation ( how much of the DVs variance is explained by this IV alone after all the other IVs have been partialled out or statistically controlled for. If we square  $0.707= 0.4998= 49,98\%$  which means that 49,98% of the variance in the DV is explained by saving, IV.

Collinearity statistics is composed of two components tolerance and VIF. If tolerance is less than 0.1 then there is multicollinearity. According to the studies data the tolerance is 1 which means that there is no multicollinearity. If the VIF is more than 10 then there is multicollinearity, in this

case the VIF is 1 which means that there is no multicollinearity. This makes perfect sense

### Model Summary<sup>b</sup>

because in the model used there is only one predictor.

Raw equation: GDP growth (DV) =  $-0.612 + 0.298X$

Standardized equation: GDP growth =  $0.707X$

The raw equation does not accurately give the right equation in order to show the linkage between GDP and savings, for this reason the standardized equation is used.

### Correlations

		GDP	Saving
Pearson Correlation	GDP	1.000	.707
	Saving	.707	1.000
Sig. (1-tailed)	GDP	.	.003
	Saving	.003	.
N	GDP	13	13
	Saving	13	13



Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.707 <sup>a</sup>	.500	.455	1.21256	.500	11.018	1	11	.007

a. Predictors: (Constant), Saving

b. Dependent Variable: GDP

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.200	1	16.200	11.018	.007 <sup>b</sup>
	Residual	16.173	11	1.470		
	Total	32.374	12			

a. Dependent Variable: GDP

b. Predictors: (Constant), Saving

### Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics		
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF	
1	(Constant)	-.612	1.826		-.335	.744	-4.631	3.407					
1	Saving	.298	.090	.707	3.319	.007	.101	.496	.707	.707	.707	1.000	1.000

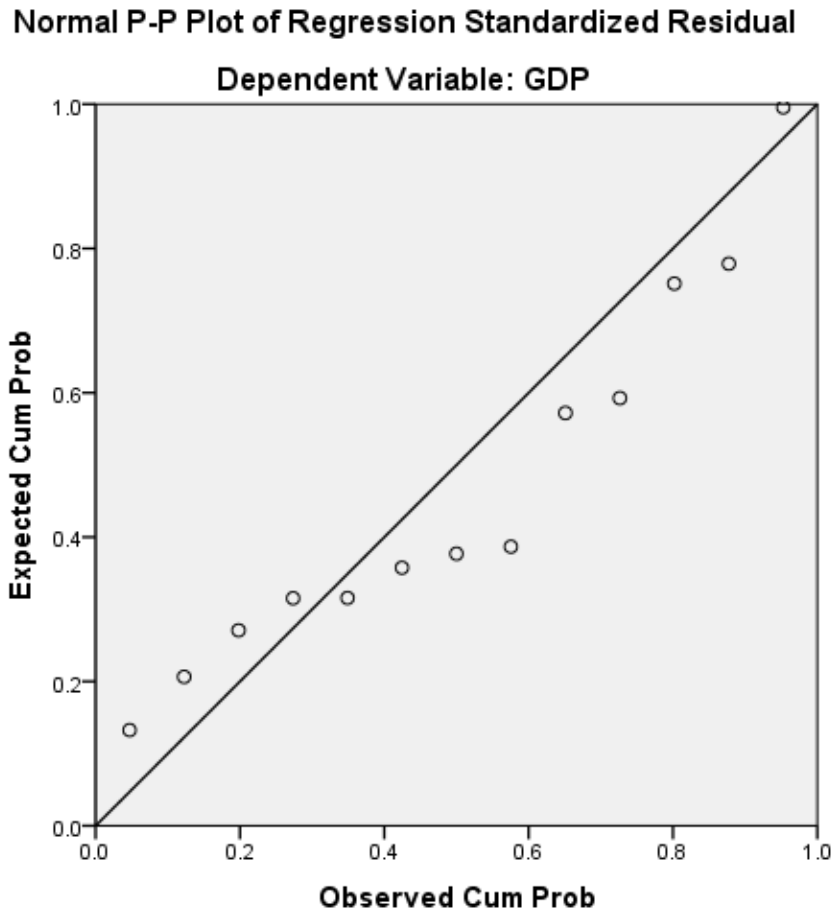
a. Dependent Variable: GDP

### Coefficient Correlations<sup>a</sup>

Model			Saving
1	Correlations	Saving	1.000
1	Covariances	Saving	.008

a. Dependent Variable: GDP

## Charts



The P-P plot shows a positive correlation. Points are relatively clustered along a line with a positive slope, this shows that there is a moderate linkage between the two variables.

### **SAVING TREND IN ALBANIA**

Savings are composed of household savings, corporate savings and government savings (Collins, 1991). The aggregate of these savings make up the Gross National Savings, which contribute to the capital accumulation which is one of the sources of economic growth according to the Solow Model. Saving is important for several reasons, if it is seen from a person perspective saving is important to cover unexpected expenses, depending on the stage of life where the person is he/she can save for retirement, for the education of his/her children, for buying a house or making other expensive investment. If it is seen from a macroeconomic perspective, saving is one of the factors that play an important role for the growth of economy.

Before transition the savings were relatively high in Albania, for example in 1989 the savings were 40.4 % of GDP. This was due to “forced savings” or “disequilibrium” which reflects the

inability of households to obtain desired consumption goods (Denizer & Wolf, 1998). Disequilibrium savings can however only exist if consumers have no access to any venue where price movements can equate demand and supply, thus the inability to purchase goods at official prices in official stores is necessary but not sufficient to establish forced savings, for the latter, it must also be the case that consumers do not have access to black markets.

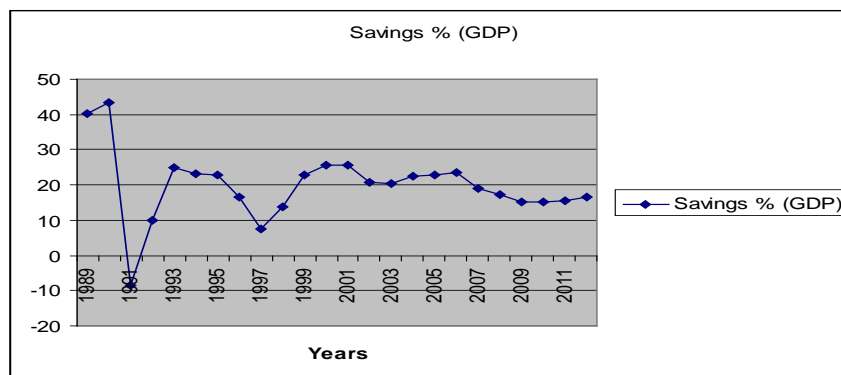
In the first year of transition the savings had a sharp decrease. This was mainly due to three factors. Firstly the fall of centralized economy eliminated forced savings and secondly inflation brought the reduction of the real value of the savings. Thirdly the destruction of all the industries that existed during communism brought the decrease of capital. These were reflected in a saving of -8.523 % of GDP in 1991. After that Albania had a considerable increase in the savings (1992-1993). This was due to the increase of the income that came from the small businesses and the construction sector that started to flourish at that time. In addition the new system was accompanied with the feeling of uncertainty in people. Uncertainty about the future always stimulates savings. In 1997 Albania witnessed another sharp decrease in the savings. The fall of pyramid schemes, in which most Albanians had invested all their savings, caused the collapse of economy and a civil war. These two phenomenons caused the shutting down of many businesses, the massive robbery and the decrease of human capital because of the murder of many people during the war. After the happenings of 1997, the savings started to increase with some little fluctuation. From 2008 the global economic crisis has also affected the savings of Albanians.

Table 1.

Years	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Saving (GDP) %	40.416	43.553	-8.523	10.009	24.835	23.183	22.81	16.56	7.395	13.607	22.809	25.772
Years	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Saving (GDP) %	25.532	20.753	20.431	22.354	22.829	23.566	19.06	17.121	15.06	15.048	15.392	16.594

Source: Economywatch.com

Graphic 1



## CONCLUSIONS

The role of saving to the economic growth could not be determined without studying the overall factors that influence growth in a transition country. So the Solow Model was used to study the role of each component to the economic growth in a transition country such as Albania. One of the components of Solow Model is Capital accumulation where savings are included.

The linear regression analysis used in these paper shows that there is a moderate linkage between the GDP growth which is the DV and saving as an IV. These linkage changes slightly according to the coefficient used, but the most accurate coefficient which is Adjusted  $R^2$  shows that the linkage between the two variables is 0.455.

So the saving component has played an important role only after when the Albanian economy has undergone fundamental changes such as the changes that occurred after the collapse of communism and after the collapse of economy in 1997. After these events the accumulation of capital through savings was important because during these periods the capital has been destroyed. After the capital accumulation has reached a certain point, the main source of economic growth becomes the TPF.

## REFERENCES

- Campos, N. F., & Coricelli, F. (February 2002). Growth in transition: What we know, what we don't, and what we should, William Davidson Working Paper Number 470.
- Collins, S. M. (1991) Saving behavior in ten developing countries, *National Saving and Economic Performance*, University of Chicago Press, 349-376.
- Denizer, C., & Wolf, H. C. (1998). Aggregate savings in the transition, World Bank research, Georgetown University, Washington, DC.
- Herrerias, M. J., & Orts, V. (2011). The driving forces behind China's growth, *Economics of Transition*, volume 19(1), Universitat Jaume I, Spain, 79-124.
- Kota, V. (2009) Determinants of Economic growth in Albania, *Economic Bulletin*, volume 12 number 4, Bank of Albania 106-115.
- Kwok, Y. (2007). To save or to consume: Linking growth theory with the Keynesian model, Heldref Publications, Deakin University, Australia 109-123.
- Mankiw, N. G. (2010). *Macroeconomics*, Seventh Edition, Harvard University, 221-254.

Ngoc, P. M. (2008). Sources of Vietnam's economic growth, *Progress in Development Studies* 8, Sumitomo Mitsui Banking Corporation, Singapore Branch, Singapore, 209-229.

Schautzer, A. (2005). Albania: Country profile and recent economic developments, Oesterreichische Nationalbank, 107-126.