TFP AND ENDOGENOUS GROWTH IN SOUTH EAST EUROPEAN COUNTRIES WITH SPECIAL FOCUS ON ALBANIA

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Abstract

The main objective of this paper is to determine the forces that have driven the economic growth in Albania relative to Southeast and Central European countries from the beginning of transition period year 1993 until 2008, before the global crises was spread in developing countries. We are based in Growth –Accounting approach in order to specify the role of total factor productivity (TPF) as growth enhancing factor in different phases of their economic development and an econometric analyze of major growth factors based on endogenous growth theory. The main findings of this paper are: (1) TFP and capital accumulation has been playing an important role for all countries under survey, the impact of labor as growth enhancing factor has been limited (2) macroeconomic stability, trade openness, and investment in infrastructure matters to growth. Therefore we support the idea that Albania government should give priority of scare government resources towards these sectors.

Keywords: Productivity, economic growth, panel data analyze

JEL Classifications: O4, O47, O57

1. Introduction

The focus of all policy makers in developing countries are effective policies that aim to attain sustained growth, improving living standards and eliminate poverty and disease. This paper is focused on the role of government policies for sustaining economic growth in Albania. The motivation behind this is the fact that both set of variables, credible macroeconomic stabilization and range of reforms are needed to sustain long term growth. Related to necessary reforms Albania has made considerable progress, we have a liberalized trade regime, we are member of WTO organization since 2000, and have signed many bilateral free trade agreements with neighbor countries[1], regarding to competition policies, in Albania is open the competition office, and since year 2002 have introduced the system of deposit insurance necessary for financial sector development.

Albania has had an impressive GDP growth rate over the transition period, before financial crisis the growth rate for time period 2002 -2007 has been sustain at

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[1] In December 2006, Albania together with neighbor countries substitute bilateral free trade agreement with a single agreement of free trade, and signed an extension of free trade agreement with Central European Countries which will bring a further trade liberalization

6 percent level, which is comparable with growth rate reported by our neighbor countries. In the last year Bosnia and Herzegovina, and Montenegro, have reported respectively 6 percent and 5.9 percent annual real GDP growth rate. The domestic inflation rate has been in the same line with that reported in Montenegro at about 2.8 percent, but high relative to 2.3 percent in Bosnia and Herzegovina[2]. According to official sources the domestic growth rate of 6 percent is sustainable and is expected a small increase in the near future[3] but the impressive growth rate that Albania has reported in the beginning of transition period around 13 percent is considered unreachable in midterm. The limit integration of Albania into global financial market make possible the small impact of financial crisis during 2008-2009 in Albania economy, the recession on Albanian trading partners has lead to a fall in exports. The economic activity of European Union was deteriorated by the last quarter of 2008. The economic growth declined from 0.7 to -0.8 percent in the third quarter to -1.2 percent in the fourth quarter of 2008, this caused a slowdown in Albania economic growth from about 7 percent to 3.3 percent in 2009. Decrease in remittances, was another channel through which the global crisis affected Albania economy, remittances have fallen dramatically with about 16 percent during global crises.

This impressive growth rate was supported by increase in total factor productivity, that since year 2000 have had a considerable decline[4]. This paper will be focused on determining the role that government expenditure has played in sustain growth rate in Albania. After making a selective literature review, will briefly be analyzed Albania reality with growth enhancing factor relative to other transition economies, followed by econometric estimation and summary and conclusion.

2. Growth accounting

Growth accounting approach is used in this work in order to determine the extent in which the improvement in technology contributes to the GDP increase. According to this methodology, the growth rate of technology is measured indirectly as the growth rate that cannot account for observable inputs, capital and labor. The basic of growth accounting is represented by Solow (1957).

The basic assumption is that output is produced according to Cobb –Douglas production function, with constant returns of scale, in the function of the form:

$$Y_t = A_t K_t^\alpha L_t^{1-\alpha}$$

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[2] The dates are taken from 2007 transition report published by EBRD. About 6 percent growth rate is achieved in countries with different exchange rate regime. In Albania is applied managed float regime, in Bosnia and Herzegovina Currency board pegged to euro and in Montenegro Unilateral Euroization to euro.

[3] See Macroeconomic and Fiscal framework for the period 2009 -2011, published by Ministry of Finance. In these report based on the improvement and increasing in industrial production, a gut performance in business sector, an increase in exported goods and FDI, the country is expected to sustain the present growth rate of 6 percent and is given an estimated forecast of about 7 percent for 2010.

[4] IMF Albania selected issue 2006. According to this report total factor productivity growth seem to have stabilized in recent years at the low levels in Albania. One reason for this stagnation determined in the report was less advancement in structural reforms in the Country.

A_t is the technology level, Y_t is the total GDP, K_t is the capital stock and L_t is the number of worker employed in the economy. From the above equation the change in TFP in logarithms term could be calculated as

$$g_a = g_y - \alpha g_k - (1 - \alpha)g_l$$

Another assumption made in order to evaluate TFP impact on growth, is that the elasticity's of output with respect to capital and labor are respectively 0.3 and 0.7[5].

In this work is analyzed the performance of Albania economy relative to other developing countries. For the time period under survey, year 1993 -2007, are used the GDP date reported by Penn World Tables that made possible making comparison between counties.

The ILO database is used for measurement the total number of worker employed in the economy in the given year. For capital measurement is used the perpetual – inventory method, which considers that the capital stock available in a given period, is equal with capital from previous period plus investment during the given period minus depreciation. The standard formula for the capital stock accumulation is:

$$K_t = K_{t-1}(1 - \delta) + I_t$$

In order to evaluate the level of capital stock we have also assumed the constant rate of depreciation at about 3 percent, and the initial capital output ratio relative to GDP 3 percent.

The results abstained are shown in the following table:

Table 1: Growth Accounting Results for Transition Economies (in percent annual average 1993 -2007)

	Real GDP Growth	Investment/GDP	Contribution of Growth (percentage points)		
			Capital	Labor	TFP
Albania					
1993-1995	0.28	16.3	0.18	0.01	0.09
1996-1999	0.07	16.5	0.01	0.13	0.19
2000-2003	0.08	25.1	0.04	-0.03	0.07
2004-2007	0.06	24.4	0.02	0.01	0.03
Bulgaria					
1993-1995	-0.02	13.5	0.03	0.00	-0.04
1996-1999	-0.02	13.2	0.03	0.03	-0.06
2000-2003	0.07	20.1	0.04	0.01	0.02
2004-2007	0.06	26.9	0.02	0.01	0.03

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[5] Theoretically the social marginal product of capital and labor are computed based on factor prices. In the absence of the information for factor prices it is assumed that the sum elasticity of output related to labor and capital is constant and equal to 1. The similar assumption was made by Loukianova and Unigovskaja (2004), in their empirical work related to recent growth in low income and CIS countries,

Croatia					
1993-1995	0.02	17.6	0.01	0.00	0.01
1996-1999	0.05	24.1	0.03	0.00	0.02
2000-2003	0.06	26.1	0.04	-0.01	0.03
2004-2007	0.05	31.8	0.01	0.01	0.03
Check Republic					
1993-1995	0.05	29.5	0.05	0.02	-0.02
1996-1999	0.04	29.8	0.01	-0.01	0.04
2000-2003	0.06	28.5	0.02	0.01	0.03
2004-2007	0.06	26.8	0.02	0.01	0.03
Hungary					
1993-1995	0.04	18.8	0.05	-0.02	0.01
1996-1999	0.04	22.8	0.04	0.00	0.00
2000-2003	0.07	22.7	0.01	0.00	0.06
2004-2007	0.04	22.2	0.02	0.01	0.01
Latvia					
1993-1995	-0.05	14.3	0.04	0.01	-0.10
1996-1999	0.05	20.9	0.06	0.01	-0.02
2000-2003	0.08	26.5	0.05	0.01	0.02
2004-2007	0.09	36.0	0.04	0.01	0.04
Macedonia					
1993-1995	0.03	11.2	0.04	0.02	-0.03
1996-1999	0.04	12.7	0.01	0.01	0.02
2000-2003	0.04	17.4	0.01	0.00	0.03
2004-2007	0.04	19.7	0.03	0.01	0.00
Poland					
1993-1995	0.08	17.2	0.04	0.01	0.03
1996-1999	0.06	22.9	0.04	0.00	0.02
2000-2003	0.04	20.7	-0.01	-0.02	0.05
2004-2007	0.06	20.2	0.03	0.01	0.02
Romania					
1993-1995	0.06	26.0	-0.01	-0.01	0.08
1996-1999	0.01	20.1	-0.02	0.02	0.04
2000-2003	0.07	21.4	0.02	0.00	0.05
2004-2007	0.07	22.9	0.03	0.01	0.03
Slovakia					
1993-1995	0.04	23.5	0.01	0.00	0.03
1996-1999	0.05	32.7	0.02	0.00	0.03
2000-2003	0.06	27.3	0.01	0.01	0.04
2004-2007	0.07	28.3	0.04	0.01	0.02
Slovenia					
1993-1995	0.08	20.9	0.06	0.01	0.01
1996-1999	0.06	24.8	0.03	0.00	0.03
2000-2003	0.06	25.5	0.02	0.00	0.04
2004-2007	0.05	27.9	0.03	0.01	0.01

Before interpreting the evaluated data it is important to stress that measurement of TFP should considered with some reserves, not only because of the set of assumption made for constructing growth approach, but also from technical problems such as the impossibility to account for the efficiency with which the inputs are used, hidden employment, as well as measurement problems.

From the above reported data the contribution of TFP in Albania after year 2000 has decreased significantly relative to the period before 1999, although the impact of TFP is still important for growth sustainability. Very important role for Albania growth performance has been played by capital accumulation. If we compare the real GDP decomposition in Albania with other developing counties reported in above table, could be noticed that for all the counties under survey, strong growth of GDP has been driven by TFP. The contribution of capital accumulation has also been important growth enhancing factor for about all the countries, especially after year 2000. The impact of labor has been limited in about all countries under survey.

3. Econometric analyses of major growth factors

In this part we are focused on analyzing the role of government policies on growth for countries under survey. The early years of transition are not included in the model in order to avoid the distortion that came from the early reform such as price liberalization in these countries.

3.1 The literature review

The Solow growth model (1956), shows that persistent long term growth must come from technological progress, but doesn't explain where technological progress come from. By treating exogenous growth determinants, this model leaves no room for government policy to affect long term growth rate. Late 1980 early 1990 some authors like (Lucas 1988), (Barro 1990), developed endogenous growth theory model that changed the view of the role of government in growth theory. Bad government policies accumulate less capital and fail to use the capital they have as efficiently as they might. In the framework of this theory (Cortright 2001), states that policy makers need to pay careful attentions to all the factors that provide incentives for knowledge creation (R&D, the education system, macroeconomic expectation, and openness to trade).

Macroeconomic literature especially Keynesian school suggested that government spending accelerate economic growth. It is broadly accepted that physical infrastructure and a limited set of public goods are necessary for economic development. However as government move beyond these core functions economic growth is adversely affected[6]. World Bank report (2006), stresses that not only the government size but also expenditure

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[6] Garrett and Rhine (2006), explain the negative impact of government in growth related to three main points. Increase in government sector will first lead to high taxes, second the returns will be diminished as government undertakes activities which are not well suited, third reliance on the market and on the presence of economic freedom that facilitate the process of discovering new production methods will be decreased

composition matters for economic growth, especially in counties when the government is week. Some authors like (Falcetti, Lysenko, Sanfey 2005) have incorporated the overall fiscal balance variable in standard growth model and have found empirical support for positive impact of fiscal surpluses in enhancing economic growth. Other authors have done a disaggregated analyze of government expenditure on growth, in order to measure the impact and direction of different expenditures categories in growth. (Douglas and Williams 2007); (Bose, Haque and Osborn 2003) have strongly support the modern growth theory, that states that education is an important key variable to economic prosperity, and recommend allocation of scare government resources towards education sector. Wang and Otto (2005) have analyzed the relationship between growth and nine major areas of government expenditure. They found that different expenditure have different impact on growth. Highways were related to growth positively, expenditure on environment, housing, administration and insurance trust had a negative impact. They didn't found evidence that the education expenditure was statistically important to growth, but expenses in education were positively related to growth. (Pang and Michael 2007), (Zareva 2002), (Falcetti, Raiser, Sanfey 2000) have found evidence that political stability, government effectiveness, public spending on education, quality of labor force, control of corruption and property right are important determinant of growth. (Mensbrugghe 2007), have found empirical support for positive impact on growth of government expenditure in infrastructure and education together with other variables like FDI and trade openness. Empirical support for positive impact of FDI in growth is found by (Neuhaus 2005)[7].

For developing countries in standard growth models are often incorporated variables that measure the macroeconomic stability of a country (inflation rate and trade openness) and variables that measure the level of financial development. Related to inflation the empirical work have supported the negative relationship between inflation and growth, see (Bruno and Easterly 1996), (Faria, Carneiro 2001), (Amber and Cardia 2002). The negative relationship is supported by theoretical perspective, because inflation undermines the confidence of domestic and foreign investors, and worsens long run macroeconomic performance of the county. The level of financial development is found to be positively related with economic growth[8]. In countries with underdeveloped financial system remittances have found to be beneficial to economic growth see (Quillin, Segni, Sirtaine and Skannels 2007).

In this work consistent with similar studies that are mention above, the role of government sector in economic growth is not studied separately but together with important growth determinant factors.

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[7] Alfaro (2003), Carkovic and Levine (2002), have found that FDI directed in manufacture sector have resulted growth enhancing, but FDI directed in primary sector empirically had a negative impact in growth. Alfra and Charlton (2007), supports the fact that FDI effect differs by sectors and their effect in growth increases when it is account for the quality of FDI

[8] Papaioannou (2007), have found that financial development foster aggregate growth mainly by lowering the cost of capital in developing countries and emerging economies.

3.2 Model specification

For econometric work are used annual data for the period, year 1994 –2007, for nine transition economies. In econometric analyze are considered two set of variables. In the first set of variables are included the variables that are related to overall macroeconomic condition of a country, such as CPI, trade openness, a variable that measure development of financial system, represented by credit to private sector. In the second set of variables are included fiscal variables represented by total government expenditure rate relative to GDP, and the EBRD infrastructure index. We have used the average annual GDP growth rate as the dependent variable.

The regression form for a country i is as follows:
$$GDP_{growth\ i} = \alpha_i + \beta_{1,i}CPI + \beta_{2,i}TRADE + \beta_{3,i}CREDIT + \beta_{4,i}INVEST + \beta_{5,i}BUDGET\ EXP + \beta_{6,i}EBRD\ Infrastructure\ index$$

CPI is average annual inflation, TRADE is the ratio of export plus import relative to GDP, CREDIT is total credit to private sector relative to GDP, INVEST is total investment to GDP ratio. In the short run is expected positive impact on growth of total budget expenditure relative to GDP.

On the bases of analysis for nine transition economies, the main results can be summarized as follows:

▪ The impact of total government expenditure ratio relative to GDP is positive for the countries under survey, which is consistent with economic theory related to short time relationship between these variables. This variable is not statistically significant. One possible explanation for this is that fiscal consolidation in developing countries is basically based on reduction of government expenditure. For example Albania fiscal adjustments that have started since September 1992, is basically focused on expenditure cuts. Measure on the revenue side was introduction of VAT late 1997, after 1999 the adjustment occurred through cut on public expenditure[9]. The EBRD infrastructure index is positive related to growth and statistically significant. This result is consistent with the work of (Mensbrugghe 2007) that determines the role of infrastructure key growth enhancing factor.

▪ The impact of inflation, which is used to measure the impact of stabilization macroeconomic policy on growth is negative and statistically significant

▪ Financial development measured by ratio credit to private sector relative to GDP has a positive impact, but is not statistically significant. Other empirical studies, such as (Honohan 2003), (Kan and Pentecost 2000), and (Rioja and Valey 2002) in countries with low level of financial development have found an uncertain positive relationship between financial development and growth, but positive relationship was uncontestable for countries with intermediate and high level of financial development. For developing countries with borrowing difficulties a substitute for financial development is fund to be private remittances see (Guiliano and Arranz 2005), therefore are determined growth enhancing variable.

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[9] See the publication of Ministry of Finance of Albania

▪ Investment, and trade openness relative to GDP have a positive significant impact on growth

Table 2: Regression Results: Dependent variable real GDP growth (fixed effect estimation)

Sample for nine countries

Method: GLS (Cross Section Weights)

	Coefficient	*Std. Error*	*t-Statistic*	*Prob.*
BD expenditures	0.011	0.566	0.207	0.836
CPI	-0.073	0.035	-2.095	0.039
CREDIT	0.020	0.040	0.497	0.620
EBRD Infrastructure index	2.507	0.722	3.475	0.000
INVEST	0.126	0.053	2.377	0.020
TRADE	0.046	0.021	2.200	0.031
Country fixed effect coefficients				
Albania	0.69			
Bulgaria	-2.00			
Croatia	-3.69			
Czech Republic	-2.55			
Hungary	-4.82			
Poland	-3.98			
Romania	-1.12			
Slovakia	-1.51			
Slovenia	-3.01			
R –Squared	0.83	Mean dependent var		5.615998
Adjusted R-squared	0.79	S.D. dependent var		2.369696
S.E. of regression	1.08	Sum squared resid		66.45800
F-statistic	56.99	Durbin-Watson stat		1.559132
Prob(F-statistic)	0.00			
Number of observation 72				

4. Summary and Conclusion

In this paper are analyzed the main forces that have driven the economic growth in Albania relative to some Southeast and Central European countries, from the beginning of transition period year 1993 until 2007. The Growth –Accounting approach has specified the role of total factor productivity (TPF) and capital accumulation important for growth performance, in different phases of their economic development, the impact of labor as growth enhancing factor has been limited.

The demand decomposition analyze have specified consumption the main driver of output recovery. Investment has played an important role, especially after the year 1999. Foreign trade performance has also played an important role in growth.

The econometric analyze of major growth factors has concluded that macroeconomic stability of a country, trade openness, and investment in infrastructure matters to growth.

5. Literature

Alfaro, A., 2003, "Foreign Direct Investment and Growth: Does the Sector Matter?"

http://www.Grips.ac.jp

Alfara, L. and A. Charlton, 2007, "Growth and the Quality of Foreign Direct Investment:

Is all FDI Equal?" London School of Economics **www.hbs.edu/research**

Akinlo, A. E., 2006, "Macroeconomic Factors and Total Productivity in Sub – Saharan African Countries," International Research Journal of Finance and Economics

Barro, R. J.,1990, "Education as a Determinant of Economic Growth," Journal of Finance and Economics

Barro, R. J. and X. Sala-i-Martin, 2004, "Economic Growth Second Edition," pp 433 -450

Bose, N., M. E. Haque and D. R. Osborn, 2003, "Public Expenditure and Economic Growth: A Disaggregated Analysis for Developing Counties," Centre for Growth and Business Cycle Research

Bradford, J. and D. Long, 1996, "Cross –Country Variations in National Economic Growth Rates: The Role of Technology," Berkeley National Bureau of Economic Research

Bruno, M. and W. Easterly, 1996, "Inflation and Growth: In Search of a Stable Relationship,"   Federal   Reserve   Bank   of   St.   Luis **http://www.research.stluisfed.org/publication**

Carkovic, M. and R. Levine, 2002, "Does Foreign Direct Investment Accelerate Economic Growth?" **http://www.petersoninstitute.org/publication**

Cheng, B. S. and T. W. Lai, 1997, „Government Expenditure and Economic Growth in South Korea: A VAR Approach," Journal of Economic Development, Vol. 22, Number 1

Cortright, J., 2001, "New Growth Theory, Technology and Learning," Reviews of Economic Development Literature and Practice, No 4

Dollar, D. and A. Kraay, 2002, "Institution, Trade and Growth," World Bank Publication

Douglas, S. and O. Williams, 2007, "The Impact of Government Expenditure on Economic Growth in the OECS: A Disaggregated Approach," World Bank Draft

Honohan, P., 2003, "Financial Development, Growth and Poverty: How Close are the Links?" **http://www-wds.worldbank.org**

Guiliano, P. and M Ruiz –Arranz, 2005, "Remittances, Financial Development and Growth," IMF Working Paper Series, No 234

Falcetti, E., M. Raiser and P. Sanfey, 2000, "Defying the Odds: Initial Conditions, Reforms and Growth in the First Decade of Transition," European Bank for Reconstruction and Development Working Paper Series No 55

Falcetti, E., T. Lysenko, and P. Sanfey, 2005, "Reforms and Growth in Transition: Re-Examining the Evidence," European Bank for Reconstruction and Development Working Paper, No. 90

Faria, J. R. and F. G Carneiro, 2002, "Does High Inflation Affects Growth in the Long and Short Run?" Journal of Applied Economics, Vol. IV No. 1, 89 -105

Fiscal and Macroeconomic Framework for period 2009 -2011, 2008, Finance Ministry of Albania

IMF 2006, Albania Selected Issue

Iradian., G., 2007, "Rapid Growth in Transition Economies: Growth – Accounting Approach," IMF Working Paper, No 164

Loizides, J. and G. Vamvoukas, 2005, "Government Expenditure and Economic Growth: Evidence from Trivariate Causality Testing," Journal of Applied Economics, Vol. VIII, No. 1, 125 -153

Loukoianova, E. and A. Unigovskaya, 2004, "Analysis of Recent Growth in Low –Income CIS Countries," IMF Working Paper Series, No 152

Mançellari, A. and S. Xhepa, 2004, "Trade and Economic Development," ACIT Working Paper Series

Mensbrugghe, D., 2007, "Global Growth for Next 25 Years," World Bank Publication

Moubayed, A., 2006, "Albania Public Expenditure and Institutional Review: Restructuring Public Expenditure to Sustain Growth," World Bank Publication

Neuhaus, M., 2005, "Opening Economies Succeed: More Trade Boosts Growth," Deutsche Bank Research **http://www.dbresearch.com/publication**

Rioja, F. and N. Valey, 2002, "Does one Size Fit all? A Reexamination of the Finance and Growth Relationship," International Studies Program, Georgia State University

Pang, L. A. and C. M. Michael, 2007, "Can Performance of Indigenous Factors Influence Growth and Globalization?," MPRA Paper No 2083

Papaioannou, E., 2007, "Finance and Growth: A Macroeconomic Assessment of the Evidence from a European Angle," ECB Working Paper No 707

Proietti, T. and A. Musso, 2007, "Growth Accounting for the Euro Area: A structural Approach," ECB Working Paper No 804

Quillin, B., C. Segni, and S. Sirtaine, 2007, "Remittances in the CIS Countries: A Study Of Selected Corridors," **http://siteresources.worldbank.org**

Schnabel, G., 2007, "Exchange Rate Volatility and Growth in Small Open Economies at The EMU Periphery," ECB Working Paper No 773

Senhadji, A., 2000, "Sources of Economic Growth: An Extensive Growth Accounting Exercise," IMF Staff Working Paper Vol. 47 No 1

Sercovich, F., 1998, "Policy Blanch Marking in Developing Countries and the Economies in Transition: Principle and Practice," United Nations Industrial Development Organization

Staehr, K., 2003, "Reforms and Economic Growth in Transition Economies: Complementary,Consequence and Speed," Bank of Finland, Institute for Economies in Transition, BOFIT Working Paper, No 1

Straub, R. and I. Tchakorov, 2007, "Assessing the Impact of a Change in the Composition of Public Spending: A DSGE Approach," ECB Working Paper Series No 795

Wang, L. and O. A Davis, 2005, "The Composition of State and Local Government Expenditures and Economic Growth," **http://www.pubchoicesoc.org/papers**

Zareva, I., 2002, "The Economy and the Labor Market –Key Factors of Influence on Living and Working Conditions: The Case of South –East European Countries,"

Ziphel, J., 2000, "Determinants of Economic Growth," Contemporary Economics