

DETERMINANTS OF ECONOMIC GROWTH IN SOUTH - EAST EUROPE: A PANEL DATA APPROACH	ASSIST. Marija TRPKOVA M.Sc. ASSIST. Biljana TASHEVSKA Faculty of Economics, University "Ss Cyril and Methodius", Republic of Macedonia
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Abstract: The objective of this paper is to reveal the main determinants of the economic growth in South-East European countries . <i>Real GDP growth rate</i> represents economic growth in the analysis. We perform a panel data analysis for 7 countries with similar economic surroundings: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Romania and Serbia. The observation period is 1995 – 2007. Empirical results indicate that <i>Consumer price index, Current account/GDP, Exchange rate, General government balance, General government expenditure, Population, Large scale privatization and Price liberalization</i> are some of the main factors on which Southeast European countries policy makers should focus in order to reach significant increase in economic growth.	

Introduction

The ability of the economy to achieve sustainable economic growth, to increase the economy's production possibilities, contributes to the economic development, to the social and technological progress of countries, leading to higher wealth and standard of living. Hence the high importance of research on economic growth. One of the most challenging themes for economists is to explain "how countries become rich", since there are numerous factors that influence growth. Recently, there has been a growing number of literature in this field, but theories and empirical analyses about economic growth consistently diverge.

This paper focuses on the South-East European countries. We try to identify the sources of economic growth in these countries and the factors they should focus on in their pursuit of higher level of economic development and convergence to the EU level.

Economic growth in South-East Europe

Since the collapse of the centrally-planned system, countries in transition have walked a rough road to recovery. Almost instantly, national economies opened to global markets, enforced price liberalization measures, combined with macroeconomic stabilization policies and structural reforms. At the beginning of the 1990s, they experienced a fall in output, accompanied by other deteriorating features, such as high unemployment, emigration, high level of informal economy, deteriorating balance of payments, growing debt, wars, ethnic problems etc. The annual real GDP per capita growth of most transitive economies during the early periods of transition (1990-1993) was virtually negative (Workie, 2005, p.240).¹ The South-East European countries, additionally affected by the wars of Yugoslav secession, recorded notably larger output losses at the beginning of the transition than Central-East European Countries, reaching a negative peak of -20%, and an average decline of 10,90%, but exhibited high growth rates in the mid and late 1990s, as hostilities ended, macroeconomic stabilization took hold and structural reforms advanced.

¹ A major caveat in assessing the depth of the output fall is that it refers to official estimates and thus ignores the shadow economy or informal sector, which has grown very rapidly in the early transition years.

Table 1. Dynamics and level of GDP in SEEC

The speed of recovery differed significantly across countries, particularly in the period 1994-2001, characterised by prolonged recessions, due to differing reform progress and varying impact of the war in the Western Balkans. Since 2000 GDP in transition countries has had a rather mild and steady growth, especially after the accession of some countries in the EU, which now show signs of convergence in economic development to EU-15. Although total output growth was roughly similar in SEEC and CEEC in the period 1995-2007 (72% vs. 68% cumulated growth), their output level is still lagging behind. In 2007, the average GDP p.c. in SEEC was \$5.787, practically less than half the GDP p.c. in CEEC (\$14.735). Since 2002 there were signs of consolidation and stronger growth in SEEC. Growth accelerated in Croatia and Macedonia, while Serbia and Montenegro recovered from the recession linked to slow reforms and the Kosovo war (Borys, Polgar, Zlate 2008, p.10), but they show higher growth rates in the last few years. Croatia is by far the richest country per capita, followed by Romania. Macedonia, together with BIH and Albania are the only three countries which have less than \$5.000 GDP p.c. The data shows that the countries with better starting points, reached higher levels of income, which is in contrast with the general theoretical assumption of convergence. These results suggest that differences in macroeconomic policy and institutional reforms must be taken into account when analysing the convergence of the countries under review (see Borys, Polgar and Zlate 2008).

Main determinants of economic growth

When discussing factors of economic growth, one must be aware of the lack of theoretical and empirical consensus. However, several theories elaborate the role of various determinants: *the neoclassical growth model, or Solow-Swan model*, which analyzes the role of capital and labor in providing growth and emphasizes the importance of investments, *the endogenous growth models*, developed by Romer and Lucas, enriched with augmentations by Barro and Sala-i-Martin, emphasize the importance of human capital and innovation capacity, *Myrdal's cumulative causation theory; New Economic Geography School; Institutional economics; Economic sociology; Political science; Demography.*²

Apart from theoretical developments in the field of economic growth, there are a large number of empirical researches addressing this issue. Factors most commonly recognized as growth enhancing are:

- a. *Human capital* is the main source of growth in several endogenous growth models and in the augmented Solow model (quality of human capital is often measured using proxies related to *education*);
- b. *Economic policies and stable macroeconomic conditions* characterized by low and predictable inflation, sustainable budget deficits, and limited departure of the real exchange rate from its equilibrium level

² More details on growth theories in: Barro and Sala-i-Martin, 2004; Romer, 2005, Petrakos, Arvantidis and Pavieas, 2007.

send important positive signals to private investors (see Havrylyshyn and Wolf, 1999; Campos and Coricelli, 2002; Workie, 2005, Berg et al., 1999);

- c. *Investment* is the most fundamental determinant of economic growth, identified by both neoclassical and endogenous growth models (Workie, 2005);³
- d. *Structural reforms and liberalization* are especially important for countries which tend to become market-oriented (e.g. Havrylyshyn, Wolf 1999; Berg et al. 1999);
- e. *Openness* is assumed to benefit the economy through exploitation of comparative advantage, technology transfer, diffusion of knowledge, increasing scale economies and exposure to competition by sending signals about the overall trade liberalization of the economy and should therefore accelerate economic growth (Workie 2005; Petrakos, Arvanitidis, Pavleas, 2007; Havrylyshyn, Wolf 1999);
- f. *Foreign Direct Investments (FDI)* are affirmed to have a significant positive link with growth (Petrakos, Arvanitidis, Pavleas 2007; Workie 2005), as they foster internationalization of production, increase trade openness, cause favorable “spillover effects” and finance external current account deficits.
- g. *Institutional framework* is usually measured by: government repudiation of contracts, risk of expropriation, corruption indices, property rights, the rule of law and bureaucratic quality, country risk values (Petrakos, Arvanitidis, Pavleas 2007; Havrylyshyn, Izvorski, Rooden 1998).
- h. *Initial income* in most empirical studies in transition countries is found to be positively correlated with GDP growth. Analyses of the beginning of transition include other *initial conditions*: macroeconomic distortions, degree of industrialization, trade dependency, level of urbanization, time under communism, richness of natural resources etc. (Havrylyshyn, Izvorski, Rooden 1998; Mervar 2002);
- i. *Political factors* (political instability, political and civil freedom, and political regimes) play an important role in economic growth;
- j. *Various social-cultural factors, geography and demographic trends* (life expectancy at birth, population growth) have attracted a growing reserach interest (Petrakos, Arvanitidis, Pavleas 2007; Workie 2005).

For the South-East European Countries, factors representing structural reforms, macroeconomic stabilization and liberalization policies and institutional framework, as well as the initial conditions, are regarded as important, taken into account the transformation of their political and economic systems since the beginning of the 1990s. (Mervar, 2002) Fischer, Sahay and Vegh (1996) conclude that growth is positively and significantly influenced by the cumulative liberalization index. It is important to provide conditions for an efficiency-seeking market economy. In order for investments and human capital

³ In the former centrally-planned system, investment in physical capital was relatively high in most of the countries, and declined at the beginning of the transition process. Therefore, in the first period of transition investments do not prove significant for economic growth. (see Mervar 2002).

development to boost the economy, favorable macroeconomic and political environment, as well as institutional and legal framework has to be attained.

Data and methodology

In order to estimate the potential determinants of economic growth econometric model panel data regression with fixed effects is used. The term “fixed effects” is due to the fact that, although the intercept may differ across individuals (the 7 countries), each individual’s intercept is time invariant (Gujarati, 2003, p.642). In panel regression analysis cross-section data is used. The data set includes total of 91 observations, or 7 Southeast European countries⁴: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Romania and Serbia are observed for period of 13 years, thus 13*7=91. The observation period is 1995 – 2007. Augmented Dickey-Fuller unit root test was performed on all variables in order to test for stationarity.

The overall model includes 11 explanatory variables and 1 response variable. The response variable is *Real GDP growth rate (GDP)*, while explanatory variables are *Consumer price index (percentage change) (CP)*, *Current account/GDP (CA)*, *Exchange rate (ER)*, *External debt/GDP (ED)*, *Foreign direct investments (FDI)*, *General government balance (GGB)*, *General government expenditure (GGE)*, *Population (P)*, *Large scale privatization (LSP)*, *Overall infrastructure reform (OIR)* and *Price liberalization (PL)*. Data sources are official statistics published by the EBRD. The equation of panel data regression model with fixed effects is:

$$GDP = \beta_0 + \beta_1 CA_{i,t-1} + \beta_2 \Delta ER_{i,t} + \beta_3 ED_{i,t} + \beta_4 FDI_{i,t-1} + \beta_5 \Delta P_{i,t} + \beta_6 OIR_{i,t} + \beta_7 GGB_{i,t} + \beta_8 CP_{i,t} + \beta_9 PL_{i,t-2} + \beta_{10} LSP_{i,t} + \beta_{11} GGE_{i,t-1} \quad i = 1,2,3, \dots,7; t = 1,2,3, \dots,13 \quad (1)$$

where i - the i^{th} cross sectional unit, or number of countries in our example, t - t^{th} time period, GDP - response variable, GDP growth rate, β_0 - regression constant, β_1 to β_{11} - regression coefficients of the predictor variables. The number of lags is specified in index t .

Empirical results

The results of the panel data regression model with fixed effects are presented in Table 2. Out of 11 predictor variables, 8 variables are statistically significant at 95% level of significance.

Current account/GDP is negatively and statistically significantly associated with *GDP growth rate*. More precisely, if the trade deficit increases by 1% of the GDP, the GDP growth rate will decrease by 0,335 %. The countries under review record a current account deficit almost in all observed years. Higher percentage of current account deficit in GDP shows a stronger negative influence of the weak trade

⁴ Montenegro was not included in the analysis since the data source from EBRD did not provide most of the data as in the other countries. Including Montenegro would cause a number of missing data which would reduce the quality of the regression.

balance of the country on output. This is consistent with previous findings and with the theoretical knowledge that the improvement in the current account is essential to sustaining growth.

Exchange rate is statistically significant variable with inverse effect on the economic growth. If the national currency appreciates by 1 amount of its value, the gross domestic product growth rate will increase by 0,205%. Appreciating exchange rates can be a sign of strengthening of the economy. However, our analysis considers the exchange rates of domestic currencies per dollar. Therefore, a large part of this result is due to the fact that the dollar has not been stable over the years, but has depreciated.

Population has positive and statistically significant impact on the economic growth. The regression reports that if the population of a country increases by one million citizens, the gross domestic product will also increase by 9,598%. The logic behind this is that increase in population leads to increase in the labor force, higher private consumption and investment in human capital, mainly on education and training.

General government balance is used as proxy for macroeconomic policies and has the expected positive and statistically significant effect on the economic growth. This is consistent with previous empirical results, confirming that countries with a more stable economy tend to achieve higher levels of growth. If the government budget surplus increases by 1% of GDP, the output growth rate will increase by 0,325%.

General government expenditure measures the size of the government and surprisingly has positive and statistically significant effect on GDP growth rate, the case also in other empirical studies (e.g. Workie 2005). If government expenditure increases by 1 p.p. of GDP, the output growth rate will increase by 0,246%. This does not go along with the theory that higher government expenditures lead to crowding-out and lower economic growth. After achievement of macroeconomic stabilization, SEEC governments have revised the economic policy goals in order to improve unemployment rates, capital, especially infrastructure investments, and thus higher government consumption had a stimulative effect on output.

Consumer price index (inflation) also captures the macroeconomic stability and has the expected inverse and statistically significant effect on the economic growth. A 1% increase in inflation is expected to decrease the gross domestic product growth rate by 0,019%.

Price liberalization seems to have negative and statistically significant effect on the gross domestic product percentage change in real terms. Empirical findings show that structural reforms and liberalization had a stronger effect on economic performance in the first transition period, while later other factors became more important.

Large scale privatization has positive and statistically significant effect on economic growth, showing that, as the share of the private sector in the economy increases, the GDP growth rate also increases.

Foreign direct investments do not seem to have an effect on the economic growth for significance level of 95%. In many situations increase in the foreign direct investments does not provide increase in the economic growth for the same year, but the effects occur later. Additionally, FDI contribute more to economic growth indirectly through numerous “spillover effects”.

Regarding the assumptions of the regression, the Durbin-Watson statistics is 1,809 which suggest that there is no autocorrelation in the data. The Jarque-Bera test of normality has coefficient 1,785 and p-value of 0,409 which indicates that we can accept the normality assumption. The conclusion is that the overall panel data regression model with fixed effects is good ($R^2 = 0,735$).

Table no. 2 Determinants of the economic growth – panel regression with fixed effects

Conclusion

In this paper we examined the factors behind growth in seven South-East European countries. Since the moment they started recovering from the fall in output at the beginning of the transition, they have performed a relatively steady and high growth. However, many factors have to be considered by the creators of economic policy in order to reach higher growth. The key determinants that were found significant by the performed analysis are: *current account/GDP, exchange rate, population, general government balance, general government expenditure, inflation, large scale privatization, price liberalization*. The results confirm the widely recognized fact that macroeconomic stability and solid economic policies are essential for economic growth in transition countries. They provide the ground for the private sector to influence positively on growth as its share in the economy increases.

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Country	GDP growth (2007)	Average GDP growth (1990-1994)	Average GDP growth (1995-2007)	GDP p.c. (2007)	GDP p.c. (1996)
Albania	6,00	-5,46	6,14	3.383	1.069
BIH	6,80	-29,06	16,23	3.985	818
Croatia	5,60	-8,40	4,49	11.553	4.421
Macedonia	5,10	-6,40	2,30	3.836	2.226
Montenegro	10,30	-12,78	4,44	5.267	na
Romania	6,04	-4,39	3,36	7.636	1.563
Serbia	7,50	-15,14	4,13	5.462	1.773
Bulgaria	6,20	-5,56	2,96	5.177	1.187
Total SEEC	6,69	-10,90	5,51	5.787	1.865

Source: Economic statistics and forecasts of EBRD (www.ebrd.com); authors' calculations.

Variable		Coefficient	Standard error	t-statistic	p-value
C	Constant	11,173	5,842	1,912	C
CA(-1)	Current account/GDP	-0,335	0,103	-3,236	CA(-1)
D(ER,1)	Exchange rate	-0,205	0,053	-3,879	D(ER,1)
ED	External debt/GDP	0,039	0,033	1,171	ED
FDI(-1)	Foreign direct investment, net	-0,001	0,000	-1,744	FDI(-1)
D(P,1)	Population	9,598	1,418	6,770	D(P,1)
OIR	Overall infrastructure reform	0,890	1,435	0,620	OIR
GGB	General government balance	0,325	0,081	4,019	GGB
CP	Consumer prices	-0,019	0,003	-5,736	CP
PL(-2)	Price liberalization	-11,014	1,519	-7,251	PL(-2)
LSP	Large scale privatization	7,687	1,765	4,355	LSP
GGE(-1)	General government expenditure	0,246	0,100	2,454	GGE(-1)

