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# Heterogeneity of Growth in the West Balkans and Emerging Europe: A Dynamic Panel Data Model Approach

**Summary**: This paper explores the heterogeneity of growth in the Western Balkan and Emerging European economies. For that purpose, growth determinants are estimated in the period 1997-2009 by dynamic panel data models. The chosen period provides a comparison for the model results with those estimated for the period up to 2007 in order to analyze changes caused by the global instability. According to the main findings of the paper, macroeconomic stabilisation and structural reforms still matter in determining economic growth, but foreign direct investments and economic integrations seem to have the most important role in stimulating growth in the observed countries. Moreover, significant positive effects of foreign direct investments and economic integrations produce differences in growth paths between Emerging European and Western Balkan economies. Sharp decrease of foreign inflows in 2008 determined contractions of growth rates firstly in Emerging European economies with subsequent spill-over on the Western Balkan economies during 2009. Consequently, in the period of global instability, differences between two groups of economies become even more obvious.

**Key words:** Growth, Emerging European economies, Western Balkan economies, Dynamic panel data model.

**JEL:** C33, O47, P51.

With the European Union (EU) enlargement process, the analysis of different economic growth patterns across countries involved in the process becomes an important issue. After the sharp decline in output in the starting years of the abandonment of the centrally planned system, many transition countries have made significant advances in growth. Particularly, new EU members[1] had higher economic performance than other transition economies, and consequently, the highest standard of living due to comprehensive reforms. Within transition economies, a specific group consists of the Western Balkan countries which are also on the road to EU membership. The growth of Emerging European economies could be important for the Western Balkan economies in recognizing their future growth path. Namely, if the growth in the Western Balkan economies is influenced by the same determinants as in the Emerging European countries, then similar future for the Western Balkan countries could

[1] In the following, the term Emerging Europe will be used interchangeably with the term new EU members.

be expected in the process of EU accession. Hence, the motivation for this paper is to investigate whether the growth in the Western Balkan economies is a replication of the growth experienced by the Emerging European countries within the EU enlargement process, or if that process fundamentally differs between the two groups of economies. Moreover, an interesting issue refers to the identification of the crucial causes of possible differences in growth performance between the Emerging European and the Western Balkan countries. A particular issue is to test whether the financial, trade and economic integrations contribute to differences in growth dynamics across countries.

With the intention to explain the complexity of economic growth, determinants are classified into several groups: initial conditions, macroeconomic stability variables and structural reforms (appeared as important from the earlier literature), and financial, trade and economic integrations (from the recent literature). For that purpose, a panel data methodological framework is used, allowing the investigation not only of the effects of different determinants of growth across two groups of economies, but also the changes of these effects over time. A balanced panel data sample of ten Emerging European and five Western Balkan economies is considered over the period 1997-2007 to analyze a relatively homogenous period, a stabilisation phase of the transition process, but before economic crisis. In order to explore changes in crucial relationships between identified determinants and growth influenced by global crisis, the observed period is broadened to include available data for the years of crisis. This enables us to compare of the results obtained for the period 1997-2007 to those from the extended sample from 1997-2009. In estimating the growth models, the dynamic panel data specification and the System generalized method of moments (System GMM) are used.

The results show that the key pillars of growth differences in the Emerging European and the Western Balkan economies are financial and economic integrations. Namely, significant changes in magnitude of growth effects in the two groups of economies attribute to foreign direct investments. After joining the EU, foreign financial inflows and their contribution to the fast growth are significantly higher in Emerging European economies than in the Western Balkan economies. Therefore, the main condition for faster growth in Emerging European economies is financial integration, which is highly linked with the level of economic integrations. During the period of global instability, however, the negative effects of financial integrations are visible: due to the decline in foreign direct investments inflows, the growth path contracted.

The contribution of this paper stems from the above mentioned motivation and from the empirical results. The paper includes Western Balkan economies which are rarely analyzed in the literature, and brings together two strands of the growth literature: the first, about initial conditions, macroeconomic policies and reforms, and the second about financial, trade and economic integrations.

The paper proceeds as follows. After the introduction, Section 1 elaborates on the empirical literature on growth determinants in transition economies. Section 2 discusses the methodological issues and the empirical model. The estimation results of growth determinants for Emerging European and the Western Balkan economies

are given in Section 3, with the focus on financial, trade, and economic integrations, as well as on the influence of global instability. Section 4 contains the main conclusions of the paper.

## 1. A Survey of Empirical Literature

A number of empirical papers tried to explain wide variations in growth patterns across the Central and Eastern European countries during the period of transition. To this end, various theoretical models are used. The diversity of theoretical views provided a considerable empirical literature attempting to estimate the relative importance of different factors in explaining growth (for instance, Martha De Melo, Cevdet Denizer, and Alan Gleb 1996; Stanley Fischer, Ratna Sahay, and Carlos A. Verg 1998; Nauro F. Campos 2001; De Melo et al. 2001). There is consensus within the literature related to the three groups of factors essential for explanation of growth patterns: country's starting points, macroeconomic stabilisation indicators and the level of structural reforms. Recent literature broadens the set of factors which could contribute growth to those linked with EU prospects. Namely, economic integrations through trade and financial integration are considered as important growth drivers (Matthieu Bussiere and Marcel Fratzscher 2007; Uwe Bower and Alessandro Turrini 2009; Christian Friedrich, Isabel Schnabel, and Jeromin Zettelmeyer 2010; Ayhan M. Kose and Eswar S. Prasad 2010). As the focus is on the Emerging European economies and the Western Balkan economies, the following literature survey is related to those determinants which could explain the complexity of growth in the two groups of economies.

Among the first papers dealing with the *role of initial conditions* in determining economic growth of transition economies was an empirical study of De Melo et al. (2001). Differences in economic performance across transition countries are explained by joint effects of both initial conditions and economic policy. The notion that short-run negative effect of initial conditions on growth fades out over time supports the idea of growth convergence; this does not depend on how they are measured. A similar conclusion on time varying effects of initial conditions can be found in Andrew Berg et al. (1999) emphasising that structural reforms explain differences in growth performance more than initial conditions and macroeconomic variables.

Berg's result is in line with the conclusions from Andrea Bassanini and Stefano Scarpetta (2001) work, mainly that the differences in growth across countries and over time can largely be explained by institutional settings. Fisher and Sahay (2000) point out that *structural reforms* (particularly privatisation) and stabilisation policies are crucial in contributing to growth and conclude that faster reforms influence higher growth rates and faster recovery. This conclusion is close to some earlier findings on common patterns for countries at similar stages of structural reform, no matter how substantially they differ in initial conditions (for instance De Melo, Denizer, and Gelb 1996). On the other hand, Oleh Havrlyshin, Ivailo Izvorski, and Ron Van Rooden (1998) showed that a negative impact of structural reforms may appear in the initial transition phase, but once the early decline is overcome, the progress in reforms has a positive effect on growth performance. In other words, the cumulative effect of reforms leads to recovery and positive economic growth rates.

Most studies find the combination of different reform policies as more influential on growth than any single type of reform. This could indicate that "the overall reform package is what matters for growth" (Karsten Staehr 2005). Elisabetta Falcetti, Tatiana Lisenko, and Peter Sanfey (2005) found important feedback loops from growth to reform, indicating that growth encourages further reforms. When the endogenous nature of the structural reform variable is accounted for, its high positive impact on growth seems to be less robust than previously stated. Moreover, if reforms are treated as endogenous variables, a nonlinear relationship between reforms and growth may also be expected (Bruno Merlevede 2003). Staehr (2005) finds complementarities between reform elements and shows that speed of reforms *per se* is of little importance for the growth dynamic, but that swift reform policies are crucial for higher growth over a longer period of time. Finally, Ian Babetskii and Nauro Campos (2007) analysed 43 econometric studies and found out that approximately one third of studies estimated a positive and significant influence of reforms on growth, one third a negative and significant influence, and that the final third highlighted an insignificant relationship. Those differences are caused by different measurements of reform and to the influence of institutions and initial conditions.

When initial conditions and structure quality are both low, the ability to make use of growth advantages is limited (Susan Schadler et al. 2006). Then, *macroeconomic stability* takes the most important role in achieving sustainable growth. In the studies where only *inflation* is used as a proxy of macroeconomic stability, its growth effect is significant indicating faster growth along with lower level of inflation (Havrylishih, Izvorski, and Van Rooden 1998). When both inflation and *fiscal balance* are included in the model, results appears to be mixed. For instance, in Berg et al. (1999), the authors expect fiscal balance to have a growth effect, controlling for inflation, indicating the difficulties in separating the effects of inflation and fiscal deficit on growth. This problem is explained by the possible simultaneous determination of macroeconomic variables and growth: when fiscal balance is treated as endogenous variable, its effect on growth becomes positive and significant. In addition to these growth determinants, the size of government (measured by the share of *government expenditure* in GDP) could also have impact on growth, as higher long-run growth rates goes in line with lower government spending. Its impact may, however, also depend on the type of government consumption and distortion associated with its financing (Fisher, Sahay, and Verg 1998). The size of government may influence economic performance positively through enterprises and institutions allowing markets to work. More precisely, properly directed government spending on reforms (for instance, the building of market-based institutions or improvements in the quality of government administration) could have positive effects on economic growth.

Apart from growth drivers identified in earlier literature and often analysed in the period of transition (initial conditions, structure reforms and macroeconomic stability), more recent literature emphasises the impact of financial (foreign direct investments), trade (openness) and economic integrations (Friedrich, Schnabel, and Zettelmeyer 2010). Namely, to foster growth, the most important condition is the EU membership prospect, which triggers large foreign inflows and a higher degree of trade openness (Bower and Turrini 2009).

Although the transition process is related to the reallocation of the existing resources, the period after transition assumes foreign inflows. Some empirical studies recognized the importance of *foreign direct investment (FDI)* as the most important financial source in determining growth. FDI should have several positive effects on the host country economy, such as technology transfer, managerial skills, and know-how. The empirical literature, however, has not always been able to establish a positive and significant relationship between FDI and growth, as theory predicts. For instance, some of studies do not confirm its significant effects (Katerina Lyroudi, John Papanastasiou, and Athanasios Vamvakidis 2004), although FDI have been substantial in the recovery phase, particularly in advanced transition countries (Pietro Garibaldi et al. 2001). Others conclude that due to a high correlation between FDI and structural reforms, the same factors stimulate growth and also attract FDI (Havrylyshin, Izvorski, and Van Rooden 1998). Namely, only when structural reforms are not accounted for in the model, significant positive effects of FDI on economic growth can be found. Campos and Yuko Kinoshita (2002) find significant positive effects on the economic growth of transition economies, while Eduardo Borensztein, Jose de Gregorio, and Jong-Wha Lee (1998) confirm that FDI can boost economic growth by increasing technological progress in host country, but also may have negative growth effects in those countries with low level of human capital. Moreover, Agim Kukeli, Chuen-Mei Fan, and Liang-Shing Fan (2006) demonstrate that the model of transformation of transition countries affects the effectiveness of FDI in promoting growth: "shock therapy" is followed by higher impacts of FDI on growth. Finally, Friedrich, Schnabel, and Zettelmeyer (2010) confirm the assumption of neoclassical growth theory that FDI allow countries to growth faster.

*Openness* to trade is also a factor which is expected to have a significant positive impact on growth. Again, the empirical literature provides different results with respect to time-varying relationships between openness and growth based on different samples of countries. For instance, Bussiere and Fratzscher (2007) based on sample of 45 industrialized and emerging countries point out that trade integration could produce faster growth only in the medium and the long term. Also, Dan Ben-David and Ayal Kimhi (2000) show that increasing trade openness on the part of new EU members translates into an increasing rate of growth convergence. Finally, recent literature confirms that open economies indeed experienced faster growth (Sebastian Edwards 1997; Lill Andersen and Ronald Babula 2008).

Apart from all the mentioned growth determinants, various studies explore the effects of *economic integration* on economic growth, combining growth models with integration process. With the idea to estimate the extra increase of growth from EU accession, authors compared old and new members of the EU (Fritz Breuss 2001), or new members with countries left outside of the EU. It seems there is no common agreement in empirical literature, however, on the significance and direction, or even the existence of these effects on economic growth. Harald Badinger (2005) does not find evidence of significant effects of economic integration on long term growth effects, but does indicate considerable effects on the output level. The opposite result refers to the positive effects of European integrations on economic growth of member countries (Magnus Henrekson, Johan Torstensson, and Rasha Torstensson 1997).

Similarly, Schadler et al. (2006) points out that the use of possible benefits from European integrations is the key for new member economies growth prospects. Urmas Varblane and Priit Vahter (2005) undertook a comparative analysis of conditional convergence between new and old EU member countries and found more rapid convergence of new EU members.

Although many of the aforementioned papers explore growth drivers of transition economies, the analyses are mostly related to the period of recession after the abandonment of communist regimes, or to the period of the boom years of 2000s. Rarely covered is the more recent period beyond the *global economic crisis*. Few studies focus on the economic performance during the global instability, especially in the sample of Emerging European economies. The results indicate that these countries have suffered more from the crisis and have also recovered slower in comparison to developed economies. Moreover, within the group of Emerging European economies, the extent of output declines varies widely among countries (Erik Berglof et al. 2010). Ruben Atoyan (2010) explained it through the effects of financial integrations: due to the sudden stop of financial flows and the sharp contraction of domestic demand, real GDP growth drastically decreased. Even more, the crisis could attack future growth dynamics, thus causing the medium-term growth rates to fall below those in the pre-crisis period (Zsolt Darvas 2010).

Within the earlier empirical literature on growth determinants, there is a consensus that stabilization policy and overall reforms are one of the most important drivers of growth, while the influence of initial conditions declines over time. Recent literature, however, is more focused on the importance of financial, trade and institutional integration. Therefore, along with macroeconomic stability and reforms, special attention is dedicated to the financial, trade and economic integrations in explaining the growth differences among the Emerging European and the Western Balkan economies.

## 2. Methodology and Empirical Model

Parallel to the empirical research of growth models, the econometric issue of the correct way of specifying and estimating growth was also examined in the literature. A variety of econometric approaches have been used to illustrate the nature of a complex process such as economic growth in order to explain why some countries grow faster than others. While earlier papers were focused on cross-section methodology (Robert J. Barro 1991), most recent studies are based on a panel data econometric approach. The growing theoretical literature on panel data methodology, as well as, the data availability across countries and time, made them very popular in the empirical analyses of the growth. Panel data analysis brings a number of benefits: the investigation of different effects on economic growth across countries and over time, the ability to control for a country's heterogeneity, allowing for the identification of individual and time effects, more variability, more degrees of freedom and efficiency, and less collinearity among explanatory variables (Badi H. Baltagi 2008; Laslo Matyas and Patrik Sevestre 2008). Different panel data specifications and methods are used in the literature depending on the observed sample, cross section and time dimensions, as well as econometric problems: from pooled OLS method or

fixed effects model controlling for country specific effects (for instance, Fischer, Sahay, and Vegh 1998; Berg et al. 1999), to various instrumental variable methods, such as 2SLS, 3SLS, G2SLS methods (for instance, Falcetti, Martin Raiser, and Sanfey 2002; Merlevede and Koen Schoors 2004; Radmila Dragutinović Mitrović and Olgica Ivančev 2010).

The issue of finding suitable instrumental variables for endogenous regressors in the growth model is also emphasised in most of the aforementioned papers. In order to solve that problem, more recent studies have been focusing on the dynamic panel data form as more convenient in the estimation of the growth model, thus addressing not only the econometric issues of endogeneity, but of omitted variables and error measurements, as well (Francesco Caselli, Gerardo Esquivel, and Fernando Lefort 1996; Ross Levine, Norman Loayza, and Thorsten Beck 2000; Stephen Bond, Anke Hoeffler, and Jonathan Temple 2001; David Dollar and Aart Kraay 2003; Badinger 2005). The majority of these papers deal with the Solow growth model and the analysis of convergence based on samples of developed or developing (non-transition) countries. However, few papers used the dynamic panel data form in estimating growth model of CEE transition economies (Staehr 2005; Falcetti, Lysenko, and Sanfey 2006). To estimate the dynamic panel data growth model, several GMM methods are used in the literature: first-differenced generalized method of moments (FD-GMM), Arellano-Bond GMM method, or system GMM (Arellano-Bover or Blundell-Bond).

In the previously mentioned empirical literature, unobserved heterogeneity across countries is controlled by allowing for individual effects, i.e. different intercepts in the model, but there also may be heterogeneity in the slope coefficients. Hence, further possible methodology improvement refers to the use of Pooled Mean Group (PMG) estimators (Kevin Lee, Hashem M. Pesaran, and Rod Smith 1998) for heterogenous panels which allow not only different intercepts but different slope coefficients as well. This could be an adequate method for large number of countries ($N$) and time periods ($T$) or for large $T$ and small $N$. Unfortunately, when a longer time series is not available ($T$ is small), unrestricted heterogeneity in both intercepts and slope coefficients for all countries is not possible (Bond, Hoeffler, and Temple 2001). For the same reason, this paper does not use the PMG method for heterogeneous panels, but does employ the dynamic panel data model allowing for individual effects. Following one of the main objectives of the paper, to investigate growth heterogeneity between Emerging European and the Western Balkan economies, we test it by including interactions of relevant growth determinants and dummy variables for the two groups of countries, thus allowing some ("restricted") heterogeneity in slope coefficients. The dynamic panel data model is used here to account for the endogeneity of lagged dependent variable and for the potential endogeneity of some other explanatory variables[2], such as omitted variables and error measurement.

[2] While strict exogeneity rules out any feedback from the disturbance term shock at time $t$ to a regressor at time $s > t$, regressor $X_{it}$ is endogenous in the sense that: $E(X_{it}u_{is}) \neq 0$ for $i$=1, 2, …, $N$ and $s \leq t$, which allows both contemporaneous correlation between the current shock $u_{it}$ and $X_{it}$, and feedbacks from past shocks $u_{i,t-s}$ on the current value of $X_{it}$ (Bond, Hoeffler, and Temple 2001).

The sample used in the empirical analysis contains the data on 15 European countries (10 emerging countries: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia, and 5 Western Balkan countries: Albania, Bosnia and Herzegovina, Croatia, Macedonia and Serbia) observed in the periods 1997-2007 and 1997-2009. All estimated equations have dynamic panel data form due to the presence of the lagged dependent variable on the right-hand side. Therefore, the general form of the empirical growth equation can be written as follows:

$$\Delta \ln y_{it} = (\alpha - 1) \ln y_{i,t-1} + \beta X_{it} + \gamma Z_i + \mu_i + u_{it} \quad (1)$$

or

$$\ln y_{it} = \alpha \ln y_{i,t-1} + \beta X_{it} + \gamma Z_i + \mu_i + u_{it} \quad (2)$$
$$i=1,\ldots,N;\ t=1,\ldots,T$$

where $y_{it}$ is the real gross domestic product (GDP) of country $i$ in year $t$, $\Delta \ln y_{it} = \ln y_{it} - \ln y_{i,t-1}$ is the first difference of logarithm GDP representing the growth rate, $y_{i,t-1}$ is a lagged value of GDP, i.e. lagged dependent (endogenous) variable which allows for a dynamic structure of the model. $X_{it}$ contains growth determinants which vary over $i$ and $t$, while $Z_i$ is related to time invariant variables. This general specification contains individual (unobservable country-specific) effects $\mu_i$, along with the independently identically distributed stochastic disturbance term $u_{it}$, ($u_{it} \sim IID(0;\sigma_u^2)$).

If the model (1) or (2) is estimated by standard panel data techniques (pooled *OLS*, within group estimator, or random effects generalised least squares (*REGLS* method), then the estimator of $\alpha$ will be biased (Stephen Nickell 1981). The fact that dependent variable $y_{it}$ is a function of $\mu_i$ immediately implies that $y_{i,t-1}$ is also correlated with $\mu_i$. Additionally, the lagged dependent variable $y_{i,t-1}$ as a right-hand regressor is correlated with the error term $u_{it}$, so that standard panel data techniques produce biased and inconsistent estimators. In order to avoid this problem, some of above mentioned GMM estimators should be applied. The system GMM is chosen for this paper since it reduces finite sample bias and improves the precision of estimates comparing to the other dynamic panel data estimators (Baltagi 2008). The validity of the system GMM is confirmed in small samples, i.e. when the number of individuals is small as in case of empirical growth studies (for instance, Marcelo Soto 2009). Namely, a small sample does not seem to have important effects on the properties of the system GMM estimator: it shows the best features in terms of the lowest small sample bias and highest precision.

The system GMM combines the set of the first-differenced equations where lagged levels of dependent variable are instruments, with additional set of level equations with lagged first-differences of the same variable as instruments (Richard Blundell and Steve Bond 1998). More precisely, the following set of instruments for lagged dependent variable (endogenous regressor) has to be defined by the system GMM: lagged first-differences $\Delta \ln(y_{i,t-1})$ for level equations in addition to lagged values of endogenous variable dated *t-2* ($\ln y_{i,t-2}$) and earlier for the first-differenced equations. Beside instruments for the lagged dependent variable, the instruments for other predetermined and / or endogenous regressors in the model can also be specified. Ultimately, this paper uses the one-step estimation procedure proposed by Blundell and Bond, which provides more reliable results.

The consistency of the system GMM hinges on the question whether the lagged values of the explanatory variables are valid instruments and whether the disturbance term, $u_{it}$, is serially correlated (Bond, Hoeffler, and Temple 2001). The validity of used instruments is checked by the Sargan test for over-identifying restrictions. Rejecting the null hypothesis implies that the set of instruments is not valid and reconsideration of the instruments or the model is necessary. When disturbances, $u_{it}$, are independently identically distributed, then the first-differenced disturbances are first-order correlated. The presence of serial correlation for the disturbances of the first-differenced equation at an order higher than one, however, means that used moment conditions are not valid. In order to test it, the Arellano-Bond test is used (Baltagi 2008).

Since the dynamic panel data model requires stationary variables, this property is tested by using the following panel unit root tests: Levin, Lin and Chu (LLC), Im, Peasaran and Shin (IPS), and Fisher-type tests using ADF and PP tests. These are the first generation tests assuming the independence of cross-section units. Several Monte Carlo simulations show they perform well in small samples with fixed T (Jorg Breitung 2000; So Kuyung Im, Hasem M. Pesaran, and Yongeheol Shin 2003). Among these tests, the finite sample performance of the IPS test is reasonably satisfactory and generally better than that of the LLC test (in case of large enough lag order in ADF regressions, and in case of models without and with serially correlated errors). Also, Fischer type tests perform similarly or slightly better than the IPS statistic with respect to size and power.

Following the main results established by the majority of the empirical literature, our set of potential growth determinants, $X_{it}$, contain variables representing macroeconomic stabilisation, the extent of structural reforms, foreign direct investments (*FDI*) and trade openness, while $Z_i$ refers to the initial conditions variable (description of the data and their sources are given in Table A1 in the Appendix). In order to capture different inherited initial conditions across countries, different measures of initial conditions are used in previous empirical studies (for instance, the level of development (GDP per capita in pre-transition year), the nature and extent of macroeconomic distortions, and the level of institutional development). In this paper, beside an initial level of real GDP per capita in 1989, its interaction with time trend is also included in the model to test diminishing effects of initial conditions over time (Falcetti, Lisenko, and Sanfey 2005).

The effects of macroeconomic stabilisation are captured by following economic variables: fiscal balance as a percentage of GDP (*FB*), inflation rate (*Inf*) and government size (*Gov*). Since macroeconomic variables, such as fiscal balance, might also depend on output or growth, their endogenous nature is analysed in this paper. The effect of the size of government is covered by the share of government expenditures in GDP, expecting that lower government spending could result in higher long-run growth rates.

In order to create the reform variable (*Ref*), a set of EBRD transition indicators is used. Due to the problem of multicollinearity among single EBRD transition indicators, a combination of different reform policies is preferred than any single aspect of reform (Staehr 2005). Some papers use the sum or the average of all transition indicators, while others use the principal component analysis in creating the aggregate reform variable (Havrlyshin, Izvorski, and Van Rooden 1998; Staehr 2005). It is shown, however, that results based on principal components variables do not quite differ from the others. In defining the aggregate reform variable in this paper the sum of reform indicators is used.

Following results from the empirical literature, reforms should not have an immediate effect on growth, but should exhibit positive effects with a lag. That is why this paper investigates the possible relationship between the reform level in one period and growth in the following period, allowing for other growth determinants, such as macroeconomic stabilisation in the model. The approach of several papers in the literature was to include both current and lagged reform as explanatory variables. However, reform indicators are highly autocorrelated so that including both current and lagged levels variables can lead to spurious inference (Andrej Rzonca and Piotr Cizkowicz 2003; Falcetti, Lysenko, and Sanfey 2006). Additionally, since the importance of the feedback effect from growth to reform level is also emphasised in the recent studies, its potential endogeneity is tested in the paper.

Of particular interest for this paper is to investigate the role of financial and trade integration in determining the growth in Emerging European and the Western Balkan economies. Therefore, FDI and trade openness variables are also considered as potentially important explanatory factors. The FDI inflows per capita are accounted for in the FDI variable (*FDIpc* variable is in log form to decrease heterogeneity, i.e. to avoid high inflows some years and very low other years), whereas the share of total volume of trade in GDP (*Open*) is used as the basic measure of trade *openness* of the economy. As already mentioned in the literature overview, the logic behind of using these factors is obvious. When there is higher proportion of FDI and trade volume in GDP the growth rate is expected to be higher. Also, open economies with more possibilities for transfer technology are likely to have higher growth rates. FDI is an important determinant of growth, but the opposite direction of the relationship could also be true. Namely, FDI could be influenced by economic growth (Merlevede and Schoors 2004), so that flows may be potentially endogenous to the growth. Since it could be imagined that FDI has a longer gestation period (to build firms, to establish production, etc.), it could be more reasonable not to estimate the immediate effect of FDI on growth, but its lagged effect.

# 3. Estimation Results

## 3.1 The Basic Determinants of the Growth in the Western Balkan and Emerging European Economies

Here, we present main estimation results on potential differences in growth dynamics and in the growth determinants across 15 European countries observed in the periods 1997-2007 and 1997-2009. The year 1997 is chosen to be the starting point for the following reasons. At the beginning of the transition process, average growth rates in the Western Balkan and Emerging European economies were negative due to the abandonment of the centrally planned system (Figure 1). Due to war circumstances and the disintegration of Yugoslavia, new Western Balkan economies, i.e. former Yugoslav republics, suffered from sharper output decline in 1992. The recovery of former Yugoslav republics is registered by the end of the war in Bosnia and Herzegovina, with the peak of economic growth in 1996 (after Dayton Agreement is signed). With the intention to analyze a more homogenous time period in both groups of economies, which is the stabilisation period within the Western Balkans region, as well as, the stabilisation phase of the whole transition process, the period from 1997 is observed.

Moreover, for Western Balkan economies which are focus of the paper, there is no available data for the year 1989 for all variables used in the model. Quality of data in the war period is rather poor for all former Yugoslav economies. Therefore, lack of important data and poor quality of data before 1997, additionally influenced to the choice of time period.

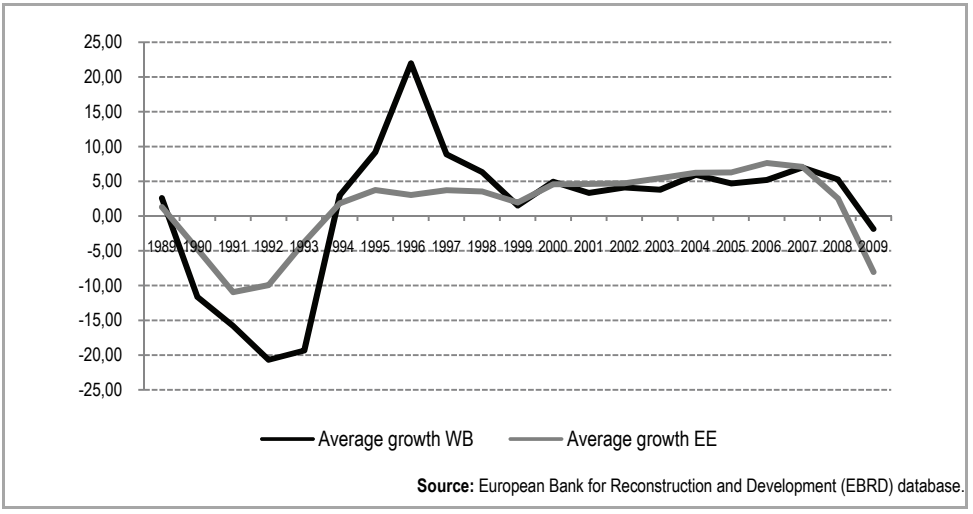


**Figure 1** Average Growth in Emerging European and Western Balkan Economies in 1989-2009

Although with different intensity, Emerging European and Western Balkan economies seem to have rapid and sustainable growth in the period from 1997 (the growth dynamic in the Western Balkan and Emerging European economies is given in Figure A1 in the Appendix). The significance of these differences between the two groups of countries is explored on the basis of the estimated growth model.

The initial estimated growth model contains the following basic determinants: initial conditions, variables reflecting macroeconomic stability and structural reforms variable. To test whether different effects of these variables exist between the Emerging European economies and the Western Balkan economies, we included the interaction terms between the growth determinants and dummy variable *EE* which takes a value 1 if a country belongs to the Emerging European economies and 0 otherwise.

All growth equations are estimated in the form of the dynamic panel data model with small sample adjustment, namely, the system GMM estimator with robust estimates is used (1). The system GMM technique used for the estimation of dynamic panel data model, however, requires the stationary property of all variables. Therefore, the panel unit roots tests are applied to all variables in the initial model. All tests support the hypothesis of a unit root in the real GDP variable. Additionally, all tests confirm the hypothesis of zero order integration in first differences, so that instead of lagged level of GDP ($\ln y_{it}$) we use the first differences ($\Delta \ln y_{i,t-1}$), thus representing a lagged growth rate. Furthermore, other variables in the initial model turn out to be stationary (the test results are given in the Table A2 and Table A3 in Appendix). Hence, the initial dynamic panel data model, containing on the right-hand lagged growth rate (*Growth_1*), is estimated with results presented in Table 1[3].

**Table 1** The Role of Macroeconomic Stability and Reforms Dependent Variable: *Growth Rate of Real GDP*

| Variables: | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| *Growth-1* | 0.212** (.041) | 0.163** (.049) | 0.194**(.038) | 0.160* (.056) | 0.203** (.032) |
| *Inf* | -0.026* (.084) | -0.022 (.148) | -0.018 (.122) | -0.020 (.143) | -0.014 (.299) |
| *FB* | 0.292**(.041) | 0.341 * (.080) | 0.242 * (.072) | 0.276 ** (.048) | 0.310**(.036) |
| *Ref-1* | 0.270 *** (.000) | 0.240 *** (.000) | 0.279 ***(.000) | 0.274*** (.000) | 0.273*** (.000) |
| *FB*EE* | | 0.071 (.735) | -0.073 (.803) | | |
| *Inf*EE* | | -0.006 (.896) | | 0.001 (.561) | |
| *Ref-1*EE* | | 0.052 (.517) | | | -0.003 (.922) |
| Wald (chi2) statistics | 364.64 (.000) | 365.83 (.000) | 478.21 (.000) | 378.46 (.000) | 413.76 (.000) |
| Arellano-bond AR(2) test | 0.533 (.594) | 1.241 (.214) | 0.909 (.363) | 0.525 (.599) | 0.449 (.653) |
| Sargan test | 104.056 (.535) | 140.869 (.511) | 142.937 (.439) | 102.708 (.572) | 117.690 (.568) |

**Note:** ***statistical significance at the 1% level, **significance at the 5% level, *significance at the 10% level (in parenthesis are *p* values). System GMM with robust standard errors is applied. Instruments used for level equations are lagged first differences of growth rate, fiscal balance and reforms. Instruments for the first-differenced equations are lagged values of growth rate, fiscal balance and reforms dated *t-2* and earlier.

**Source:** Authors' calculations.

[3] The results of panel unit root tests are obtained in EViews 7.0, while the estimation of all equations is done in Stata/SE 11.0. To make statistical inference more robust and valid in all growth equations, we used small sample adjustment, i.e. system GMM estimator with robust estimates.

All equations contain the lagged growth rate as an endogenous regressor, as well as fiscal balance and reforms as potentially endogenous variables. These variables are instrumented by: (1) their lagged values dated *t*-2 and all further lags, for the first-differenced equations, and (2) their lagged first differences, for the level equations. The Sargan test of over-indentifying restrictions does not reject the null hypothesis indicating that the chosen set of instrumental variables is valid. Also, the values of the Arellano Bond test statistics for the second order autocorrelation in all specifications show that there is no evidence of model misspecification. As mentioned earlier, to measure growth effects of initial conditions, as well as their diminishing effects over time, we included the initial level of real GDP per capita in 1989 and its interaction with time trend. The variables turned out to be insignificant in all specifications, however, and therefore are dropped from the analysis. The result coincides with the majority of earlier findings that variables related to macroeconomic stability and reforms prevail in explaining growth. For the same reason, the variable *GOV* is not included in the final model specifications.

The lagged growth rate coefficient is expectedly positive and significant, likely reflecting the contribution of omitted variables in the equation. It also may be interpreted as a result of a rather slow growth adjustment to changes in the right-hand side variables.

Looking at the basic specification of growth determinants (Column (1), Table 1), both macroeconomic stability and reforms seem to be important in explaining growth. The effects of two macroeconomic variables, *FB* and *Inf* are significant and have expected sign. More precisely, when fiscal balance is treated as an endogenous variable its effect on growth is positive and significant. Moreover, this result is robust to all estimated specifications, again confirming that macroeconomic stability is an important condition not only for the economic recovery of observed countries, but also for achieving and maintaining sustainable growth.

As expected, the overall lagged effect of reforms on growth is positive and statistically significant, which is in line with previous empirical results. Namely, an increase in reforms is associated with an increase in growth in the following period, confirming their important role in determining the growth performance. The Sargan test confirms that the feedback effect from growth on reforms could also be taken into account. This implies that reforms in one period boost the growth in the following period year, but that growth could also give an incentive for further reforms.

Apart from the identification of the growth determinants, another main focus of the paper is to estimate different influence of growth drivers in the Emerging European and Western Balkan economies. This is done by including interaction terms, allowing for changes in slope coefficients. Regarding the macroeconomic variables and reforms effects on growth, the difference between the Emerging European economies and the rest of observed countries seems to be insignificant (Column (2), Table 1).

Estimated results from this part identifies both macroeconomic stability represented by fiscal balance and reforms as important growth determinants in observed sample, with insignificant differences in their effects on growth patterns between the Emerging European and Western Balkan economies. Recent literature, however, is

more focused on possible new growth drivers which could be related to the integration process, in sense of financial, trade and institutional integrations (for instance, Friedrich, Schnabel, and Zettelmeyer 2010). Therefore, we also investigate whether integrations could explain the growth differences and finally, whether those relationships are changed in the period of global instability. Special attention is dedicated to the following questions:

1) Does financial integration through foreign direct investments play a key role in determining growth in Emerging European and Western Balkan economies?
2) Does trade integration through trade openness contribute to different extent of growth in two groups of economies?
3) Does economic integration bring significant benefits to the countries involved in the EU enlargement process?
4) Do Emerging European and Western Balkan economies experience different degree of output decrease during global instability, and which variables are generators of these changes?

### 3.2 Financial Integrations: The Role of Foreign Direct Investments

Foreign direct investments are one of the most important instruments for development. FDI promotes economic performance through transfer of technology from advanced economies, but they are also used for financing balance of payments and domestic enterprises. FDI undoubtedly has an influence on the level of GDP, while its effects on long-term growth might have been only through technological progress. In order to attract FDI, countries need to have certain propitious conditions for investment generation, namely, to have a stabile political system and stable legislation, developed infrastructure, as well as to achieve macroeconomic stability. Consequently, 68.32% of world FDI is directed toward developed economies, 29.27% toward developing economies, and only 2.39% toward the Emerging European and the Western Balkan economies in the period 1997-2007.

Despite the fact that a small share of the world FDI is directed to Emerging European and Western Balkan economies, FDI inflows still seem to be one of the most important generators of their growth performance. Additionally, each economy becomes more attractive for investors after achieving a more favourable status in the EU enlargement process. The significant increase of FDI inflows in the Western Balkan economies during the 2000's compared to the 1990's is likely to occur due to the improvement of their status in the enlargement process. More precisely, after the Dayton Agreement was signed in 1997, the first foreign direct investments occurred in the former Yugoslavian economies (Figure A2), meaning that the European perspective became certain for those countries. The Western Balkan economies, however, lag behind Emerging European economies in attracting FDI.

Within the group of Western Balkan economies, Croatia is the leading country in terms of total FDI inflows. Hungary and the Czech Republic are the leaders within the group of Emerging European economies. Regarding FDI per capita inflows, two extremes in the sample of Emerging European countries are Hungary and Slovenia.

Although these economies attract FDI, they also invest in other economies, and therefore have significant FDI outflows, and often net negative FDI. Hence, Hungary and Slovenia benefit not only through FDI inflows, but also FDI outflows, meaning that the net FDI determine their growth.

The role of FDI in determining Emerging European and the Western Balkan economies growth is investigated by dynamic panel specifications, with the estimation results given in the Table 2.

**Table 2** The Effects of Foreign Direct Investments on Growth Dependent Variable: *Growth Rate of Real GDP*

| **Variables:** | **(1)** | **(2)** |
|---|---|---|
| $Growth_{-1}$ | 0.196 ** (.050) | 0.219* (.072) |
| *Inf* | -0.018 (.208) | -0.019 (.207) |
| *FB* | 0.228 ** (.041) | 0.251** (.050) |
| $Ref_{-1}$ | 0.260*** (.000) | 0.255*** (.000) |
| $gFDIpc_{-1}$ | 0.407** (.051) | 0.808 * (.055) |
| $gFDIpc_{-1}$*EE | | -0.815 (.351) |
| Wald (chi2) statistics | 369.99 (.000) | 397.68 (.000) |
| Arellano-bond AR(2) test | 0.400 (.689) | 0.248 (.804) |
| Sargan test | 135.919 (.510) | 137.925 (.462) |

**Note:** ***statistical significance at the 1% level, **significance at the 5% level, *significance at the 10% level (in parenthesis are p values). System GMM with robust standard errors is applied. Instruments used for level equations are lagged first differences of growth rate, fiscal balance, reforms and FDI. Instruments for the first-differenced equations are lagged values of growth rate, fiscal balance, reforms and FDI dated *t-2* and earlier.

**Source:** Authors' calculations.

As can be noted from the Table 2, the estimated model contains the *FDIpc* growth rate (*gFDIpc*) as a determinant of economic growth. All panel unit root tests indicate a nonstationary logarithm of the original variable *FDIpc*, but a stationary first difference. Therefore, the stationary representation of foreign direct investments, that is foreign direct investments per capita growth, *gFDIpc*, is used (the results of stationary testing are given in the Table A3 in Appendix).

As mentioned in the previous section, FDI could also be determined by growth, and therefore the feedback from growth to FDI inflows is taken into account in all specifications. All specifications pass the Sargan test for over-identifying restrictions, indicating the validity of used instruments.

The first specification estimates the lagged effect of FDI growth per capita ($gFDIpc_{-1}$) along with reforms and macroeconomic variables. All variables have the same sign as in the previous specifications, while variable *Inf* remains insignificant. The effects of fiscal balance and reform variables are robust to the inclusion of other determinants such as *gFDIpc*. Moreover, their significant growth effects in all specifications in Table 2 highlight the important link of macroeconomic stabilisation and reforms with growth. Estimated results show that FDI is the significant driver of the growth in the observed economies (Column (1), Table 2). Additional testing indi-

cates that the difference between the two groups of countries is not significant with respect to FDI effects on growth (Column (2), Table 2).

### 3.3 Trade Integrations: The Role of Trade Openness

The diminishing of trade barriers and openness to trade play an important role in boosting growth. Therefore, the EU accession process rapidly brings about benefits in terms of trade integration due to the abolition of import tariffs and the more efficient use of resources. An expanding of trade, through improvements in competition policy and specialisation, has become a priority for the current ascending Western Balkan economies that are traditionally less opened in comparison to Emerging EU economies. In the observed period, index of openness is only 63.71% in the Western Balkan economies. This is due to Albanian low exports and its openness index below 40%, which decreases the average level of openness for the Western Balkan economies. The average level of openness for Emerging European economies is 92.89%, even though the two largest economies in the sample - Poland with only 56.05%, and Romania with 60.76% - considerably decrease the average openness index in Emerging European economies.

The effect of trade openness on the growth pattern is also estimated by dynamic panel data specification and the results are presented in Table 3.

**Table 3** Trade Openness and Growth Dependent Variable*: Growth Rate of Real GDP*

| **Variables:** | **(1)** | **(2)** |
|---|---|---|
| *Growth*$_{-1}$ | 0.178** (.039) | 0.189** (.037) |
| *Inf* | -0.024* (.094) | -0.029 * (.083) |
| *FB* | 0.184 * (.095) | 0.187 (.112) |
| *Ref*$_{-1}$ | 0.173 * (.059) | 0.171 * (.087) |
| *gFDIpc*$_{-1}$ | 0.512** (.047) | 0.507** (.038) |
| *Open* | 0.018 * (.084) | 0.024 * (.101) |
| *Open*EE* | | -0.008 (.612) |
| Wald (chi2) statistics | 381.92 (.000) | 382.00 (.000) |
| Arellano-bond AR(2) test | 0.246 (.806) | 0.194 (.846) |
| Sargan test | 167.024 (.207) | 157.258 (.306) |

**Note:** ***statistical significance at the 1% level, **significance at the 5% level, *significance at the 10% level (in parenthesis are *p* values). System GMM with robust standard errors is applied. Instruments used for level equations are lagged first differences of growth rate, fiscal balance, reforms and FDI. Instruments for the first-differenced equations are lagged values of growth rate, fiscal balance, reforms and FDI dated *t-2* and earlier.

**Source:** Authors' calculations.

In the estimation of trade integration effects on growth, variables *Inf*, *FB, Ref*$_{-1}$, and *gFDIpc*$_{-1}$ remain significant determinants of growth. The results show that trade integration also appears as an important instrument to stimulate growth[4]. This

[4] Variable *Open* is in its original form, since it seems to be stationary variable (results of panel unit root tests in the Table 3 in Appendix).

result coincides with the expectation that it promotes growth through a number of channels (comparative advantages, economy of scale, etc.). The effects of openness, however, are significant only at the 10% significance level in both estimated specifications. It could be interpreted by the fact that some of these effects are already captured by the reform variable, since more opened countries have already fulfilled a criterion of reform evaluation and have attained a more favourable status in the international trade relationships. Moreover, its different influence on growth in the two groups of economies could not be found (Column (2), Table 3).

## 3.4 Economic Integrations: The Role of EU Membership

Economic integrations are closely related to the financial and trade integrations. Improvements in the EU accession process always imply a higher degree of country openness, which is the assumption for foreign savings inflow, especially, when the country becomes a member of the EU. To test the changes in the determinants effects on growth in the period of EU membership, the specifications contain additional interactions between the growth determinant variables and the dummy variable *EU* which takes value 1 for the period when a country became EU member, and 0 otherwise (Table 4).

**Table 4** EU Membership and Growth Dependent Variable: *Growth Rate of Real GDP*

| Variables | (1a) | (1b) | (2a) | (2b) | (2c) |
|---|---|---|---|---|---|
| *Growth*$_{-1}$ | 0.160** (.048) | 0.163** (.042) | 0.160** (.049) | 0.167 ** (.039) | 0.179** (.050) |
| *Inf* | -0.013 (.358) | -0.011 (.410) | -0.019* (.075) | -0.021* (.078) | -0.017 (.135) |
| *FB* | 0.228* (.084) | 0.248* (.078) | 0.173 (.141) | 0.198* (.100) | 0.198* (.098) |
| *Ref*$_{-1}$ | 0.252*** (.000) | 0.253*** (.000) | 0.203** (.044) | 0.205* (.073) | 0.243 ** (.035) |
| *gFDIpc*$_{-1}$ | | | 0.507* (.100) | 0.656*(.061) | 0.346** (.049) |
| *Open* | | | 0.006 (.776) | 0.023 (.340) | |
| *EU* | 1.199** (.035) | 2.215** (.051) | 1.163* (.089) | 4.552 * (.081) | 1.102* (.097) |
| *Inf*EU* | | -0.258 (.199) | | | |
| *FB*EU* | | 0.229 (.170) | | | |
| *Ref*$_{-1}$*EU* | | 0.015 (.971) | | | |
| *gFDIpc*$_{-1}$*EU* | | | | -0.394 (.661) | |
| *gFDIpc*$_{-1}$*EU1* | | | | | 0.191* (.080) |
| *Open*EU* | | | | -0.036 (0.161) | |
| Wald (chi2) statistics | 564.52 (.000) | 668.94 (.000) | 648.17 (.000) | 630.20 (.000) | 613.69 (.000) |
| Arellano-bond AR(2) test | 0.639 (.522) | 0.744 (.4567) | 0.226 (.821) | 0.169 (.866) | 0.350 (.726) |
| Sargan test | 119.258 (.628) | 115.261 (.654) | 163.336 (.251) | 161.953 (.355) | 139.679 (.492) |

**Note:** ***statistical significance at the 1% level, **significance at the 5% level, *significance at the 10% level (in parenthesis are *p* values). System GMM with robust standard errors is applied. Instruments used for level equations are lagged first differences of growth rate, fiscal balance, reforms and FDI. Instruments for the first-differenced equations are lagged values of growth rate, fiscal balance, reforms and FDI dated *t-2* and earlier.

**Source:** Authors' calculations.

According to the estimated results, significant changes in economic growth of the Emerging European economies compared to the Western Balkan economies occur after becoming an EU member. Namely, the results presented in Column (1a), Table 4, show that economies obtain significantly higher growth rates after becoming EU members. Along with a different path before and after EU membership, however, there are no significant changes in the magnitude of macroeconomic and reform variables growth effects (Column (1b), Table 4).

In the presence of the *EU* variable, the *Open* variable turns out to be insignificant, because positive effects of trade integrations are (most likely) already captured by economic integrations (Column (2a), Table 4). Contrary to this, $gFDIpc_{-1}$ variable remains significant, confirming that financial integration remains the most important driver of growth. The question remains as to whether financial and trade integrations in interaction with economic integration bring additional positive effects on economic growth. The results presented in the Column (2b), Table 4, indicate neither significant positive effects of financial and economic integration interaction ($gFDIpc_{-1}$*EU)*, nor effects of the interaction of trade and economic integration (*Open*EU)*. In case of the *FDIpc* variable, the reason for this could be the extreme values of FDI per capita growth inflows in the sample of Emerging European economies (Slovenia and Hungary). Consequently, due to specific FDI flows in Slovenia and Hungary (explained in the part 4.2), these economies are not captured by the interaction term in order to explore the influence of FDI in other EU members (Column (2c), Table 4). With a new interaction term without these two countries ($gFDIpc_{-1}$*EU1*), the additional positive effect of *gFDIpc* inflows in Emerging European economies after joining the EU becomes significant. This finding suggests that there is a significant difference between Emerging European and Western Balkan economies regarding FDI effects on growth, in sense that FDI inflows cause significantly faster growth when the former group of countries becomes EU member states. Namely, financial integration seems to have more intensive positive effects on growth dynamic, after becoming an EU member. Financial integration through FDI brings significant benefits due to the elimination of currency risk by adopting the euro. Therefore, FDI in interaction with EU membership could be considered a factor which produces differences in Emerging European in comparison to Western Balkan economies.

## 3.5 The Effects of Global Instability on Growth

Before the crisis, Emerging European and Western Balkan economies seemed to achieve rapid and sustainable growth. Global instability hit almost all Emerging European and Western Balkan economies in 2009, however, when economic activity contracted rapidly. From Figure 1, which represents the dynamic of growth for groups of economies, it is clear that the Baltic economies were hit even before, in 2008, because of their reliance on international financial markets. To investigate whether the global instability itself has significant impact on growth path, we estimated the growth model including 2008 and 2009. In addition, we tested whether the global crisis in the last period had any influence on changes in the magnitude of the determinant effects of growth.

**Table 5** The Effects of Global Instability Dependent Variable: *Growth Rate of Real GDP*

| Regressor: | (1) | (2) | (3) |
|---|---|---|---|
| *Growth*$_{-1}$ | 0.359** (.046) | 0.288** (.051) | 0.291** (.043) |
| *Inf* | -0.008 (.571) | -0.016 (.218) | -0.020* (.098) |
| *FB* | 0.336** (.048) | 0.230* (.057) | 0.221** (.050) |
| *Ref*$_{-1}$ | 0.093 (.478) | 0.071 (.347) | 0.044 (.411) |
| *gFDIpc*$_{-1}$ | 0.524* (.091) | 0.474* (.099) | 0.539** (.045) |
| *Open*** | 0.029 (.166) | 0.031* (.101) | 0.036* (.077) |
| *EU*** | -1.005* (.092) | 0.442 (.435) | 0.452 (.422) |
| *D_2008*** | -1.875** (.050) | 1.691 (.174) | 1.440 (.180) |
| *D_2009*** | -9.442*** (.000) | -5.586*** (.000) | -5.638*** (.000) |
| *EE*D_2008*** | | -6.094*** (.002) | -4.834*** (.009) |
| *EE*D_2009* | | -7.488*** (.001) | -7.562*** (.000) |
| *gFDIpc*$_{-1}$*D_2008* | | | -0.671** (.044 |
| *gFDIpc*$_{-1}$*D_2009* | | | -0.506** (.050 |
| Wald(chi2) statistics ** | 605.30 (.000) | 646.2 (.000) | 770.27 (.000) |
| Arellano-bond AR(2) test | 0.902 (.367) | 0.724 (.469) | 0.724 (.469) |
| Sargan test | 199.572 (.133) | 176.073 (.265) | 169.801 (.310) |

**Note:** ***statistical significance at the 1% level, **significance at the 5% level, *significance at the 10% level (in parenthesis are *p* values). System GMM with robust standard errors is applied. Instruments used for level equations are lagged first differences of growth rate, fiscal balance, reforms and FDI. Instruments for the first-differenced equations are lagged values of growth rate, fiscal balance, reforms and FDI dated *t-2* and earlier.

**Source:** Authors' calculations.

According to our findings, the inclusion of data for the last two years in the basic model broaden with the trade, economic and financial integration variables, which causes changes in the magnitude of growth effects of observed determinants. However, when time dummies for these two years are included, the results of observed determinants become similar to those obtained for the period 1997-2007, since the dummies seem to capture the effects of crisis (Column (1), Table 5). Regression coefficients of both time dummies are negative and significant at 1%, indicating the obvious negative effect of global instability on growth path. Furthermore, interactions of time dummies and dummies for the Emerging European economies allow for testing of crisis effects in these groups of countries. The crisis in the Emerging European economies has additional, negative and significant effects on growth in Emerging European economies in both years compared to the Western Balkan economies. This is measured by the regression coefficients of dummies *EE*D_2008* and *EE*D_2009* in the model (Column (2), Table 5). Namely, the dummy variable for the year 2008 becomes insignificant when interaction between variables *EE* and *D_2008* is introduced in the model, meaning that only Emerging European economies suffered from negative effects of crisis in 2008. While Western Balkan economies experienced decline of output only in the year 2009, Emerging European economies suffered from negative effects of crisis earlier and more intensively.

The next equation (Column (3), Table 5) provides answers about growth path in 2008 and 2009 in Emerging European economies, and in 2009 in Western Balkan economies. It is investigated by changes in the magnitude of determinant effects on growth in the last two years. The results show that there are significant changes in the slope coefficients of the *gFDIpc* variable in both years. The decline of *gFDIpc* in 2008 and 2009 could explain why some economies experienced a decrease in growth in 2008. Since the results show that only Emerging European economies suffered from the effects of global instability in 2008, and that *gFDIpc* has negative growth effects in the same year, this could imply that FDI is a generator of these changes. This result is not surprising: foreign investors react fast in order to protect themselves from the negative consequences of the crisis. Contraction of FDI inflows in highly integrated financial markets caused changes in the growth path of Emerging European economies. Those effects spilled-over onto the Western Balkan economies during 2009. The result is in line with some recent findings about the negative effects of financial integrations during the crisis. Namely, Emerging European economies suffered earlier and more intensively from negative effects of crisis and from financial integrations during the crisis (such as the credit boom and over-indebtedness).

## 4. Conclusions

Although Emerging European and Western Balkan economies were in the same sample of the economies that abandoned the central planned system and undertook comprehensive political, institutional and social reform, the difference in growth rates appears to be significant in the period after joining the EU. Identification of drivers in growth differences is core of the analyses in this paper.

The dynamic panel data models of growth determinants is applied to a sample of ten Emerging European and five Western Balkan economies over the period 1997-2007, in order to find out which factors determine growth differences in the two groups of economies. The findings indicate that macroeconomic stability and structural reforms are still important in explaining growth path, and their growth effects in the two groups of countries do not differ significantly.

Due to heterogeneity of growth, an additional issue is whether the integration process, such as financial, trade and economic integrations, could explain differences in growth rates. According to our findings, FDI and trade openness also appear as dominant determinants in both groups of countries, but do not cause differences in growth patterns between them. Regarding the question of economic integration, it seems that EU membership brings significant benefits to the countries involved compared to the Western Balkan economies. More precisely, significant changes after becoming an EU member occur as positive effects of financial integrations appear to have an additional positive effect on growth dynamics. Namely, the main generator of growth in Emerging European economies is FDI, which causes faster growth after becoming an EU member than in the Western Balkan economies. Different effects of FDI on growth in the Western Balkan economies are likely to be related to the existence of financial risks, an obstacle for higher FDI inflows.

The final issue addressed in the paper is why Emerging European and Western Balkan economies experienced different degrees of output decrease during the global

instability in 2008 and 2009. Therefore, in order to explore whether estimated relationships between growth determinants and growth are weaken during the crisis, the focused sample is broaden to the period 1997-2009. Economic growth decreased in Emerging European economies in 2008 and 2009, while in Western Balkan economies growth decrease is observed only in 2009. It seems that the effects of some growth determinants are significantly changed during the period of global instability. Particularly, financial integrations seem to have impact on growth decrease both in 2008 and 2009. Therefore, contraction in FDI inflows appeared to cause the change in growth path highly financial integrated market (Emerging European economies) first and these effects spilled-over to the Western Balkan economies during 2009.

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# Appendix

**Table A1** List of Variables

| Variable | Description | Measure | Source |
|---|---|---|---|
| *Inf* | Prices, annual average | Percentage change | EBRD |
| *D_2008* | Dummy variable for the year 2008 | 1 – year 2008, 0 – else | |
| *D_2009* | Dummy variable for the year 2008 | 1 – year 2009, 0 – else | |
| *EE* | Dummy variable for Emerging European economies | 1 – Emerging European economy, 0 – otherwise | |
| *FDIpc* | Foreign direct investments inflows *per capita* | in US dollars | UNCTAD |
| *gFDIpc* | Growth of foreign direct investments inflows *per capita* | Percentage change | UNCTAD |
| *FB* | Share of fiscal balance in GDP | In percentage | EBRD |
| *GDP* | Real GDP | In US dollars | EBRD |
| *Growth* | Growth of GDP | Percentage change | EBRD |
| *Gov* | Share of government expenditure in GDP | In percentage | EBRD |
| *Open* | Openness as the share of total trade (exports and imports) in GDP | In percentage | EBRD |
| *Ref* | Sum of all transition indicators | Mark from 1 to 4.33 for each transition indicator | EBRD |
| *EU* | Dummy variable for becoming EU member | 1 – the period from the year when country become EU member, 0 - otherwise | EU Commission |
| *WB* | Dummy variable for the Western Balkan economies | 1 – Western Balkan economy, 0 – otherwise | |

**Source:** The authors.

**Table A2** Panel Unit Root Testing (*GDP; Open; FB)*

| **Panel unit root testing; 1997-2007** | **GDP** | | | | **Open** | | **FB** | |
|---|---|---|---|---|---|---|---|---|
| | **lnGDP** | | **ΔlnGDP (Growth)** | | | | | |
| Ho: I(1); $H_1$: I(0) 1997-2007; $\tau^t$ statistics | Statistic | Prob. | Statistic | Prob. | Statistic | Prob. | Statistic | Prob. |
| LLC | -3.7025 | .0001 | -5.4691 | .0000 | -6.3163 | .0000 | -19.519 | .0000 |
| IPS | -0.3402 | .3668 | -1.5279 | .0633 | -0.7326 | .2319 | -3.1862 | .0007 |
| ADF Fisher | 24.8427 | .4143 | 62.689 | .0004 | 46.738 | .0264 | 71.212 | .0000 |
| PP Fisher | 16.7633 | .8586 | 116.11 | .0000 | 62.401 | .0005 | 69.750 | .0001 |

**Note:** ADF test and Schwarz Information Criterion (SIC) for optimal lag length is used.

**Source:** Authors' calculations.

**Table A3** Panel Unit Root Testing (*Inf; FDIpc)*

| **Panel unit root testing** | | | FDIpc | | | |
|---|---|---|---|---|---|---|
| Ho: I(1); $H_1$: I(0) | Inf | | lnFDIpc | | ΔlnFDIpc | |
| 1997-2007; τ statistics | Statistic | Prob. | Statistic | Prob. | Statistic | Prob. |
| **LLC** | 5.96249 | 1.0000 | 2.29295 | .9891 | -4.04953 | .0000 |
| **IPS** | -5.79931 | .0000 | 3.21664 | .9994 | -2.52307 | .0058 |
| **ADF Fisher** | 65.9757 | .0002 | 11.1043 | .9993 | 56.9225 | .0021 |
| **PP Fisher** | 125.078 | .0000 | 22.8585 | .8210 | 155.728 | .0000 |

**Note:** ADF test and Schwarz Information Criterion (SIC) for optimal lag length is used.

**Source:** Authors' calculations.

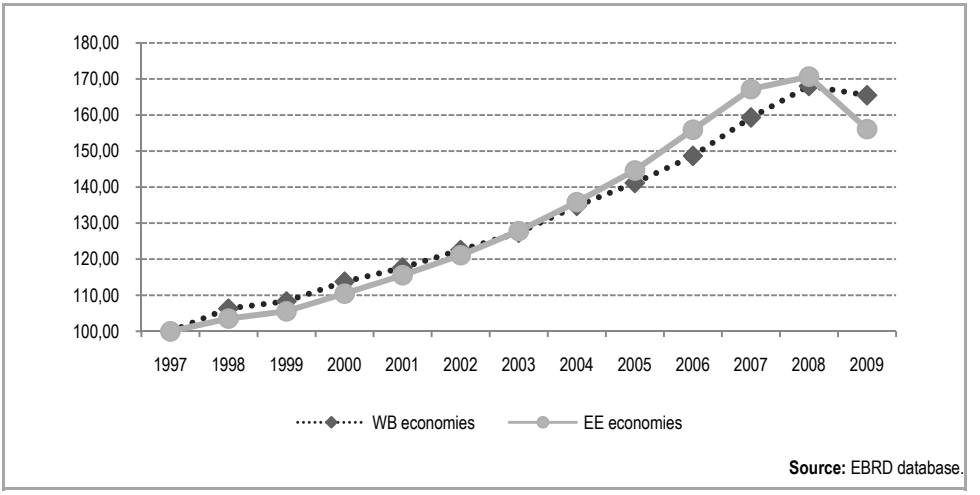


**Figure A1** Average Growth in Emerging European and Western Balkan Economies in the Period 1997-2009 (*GDP* Indices 1997=100)

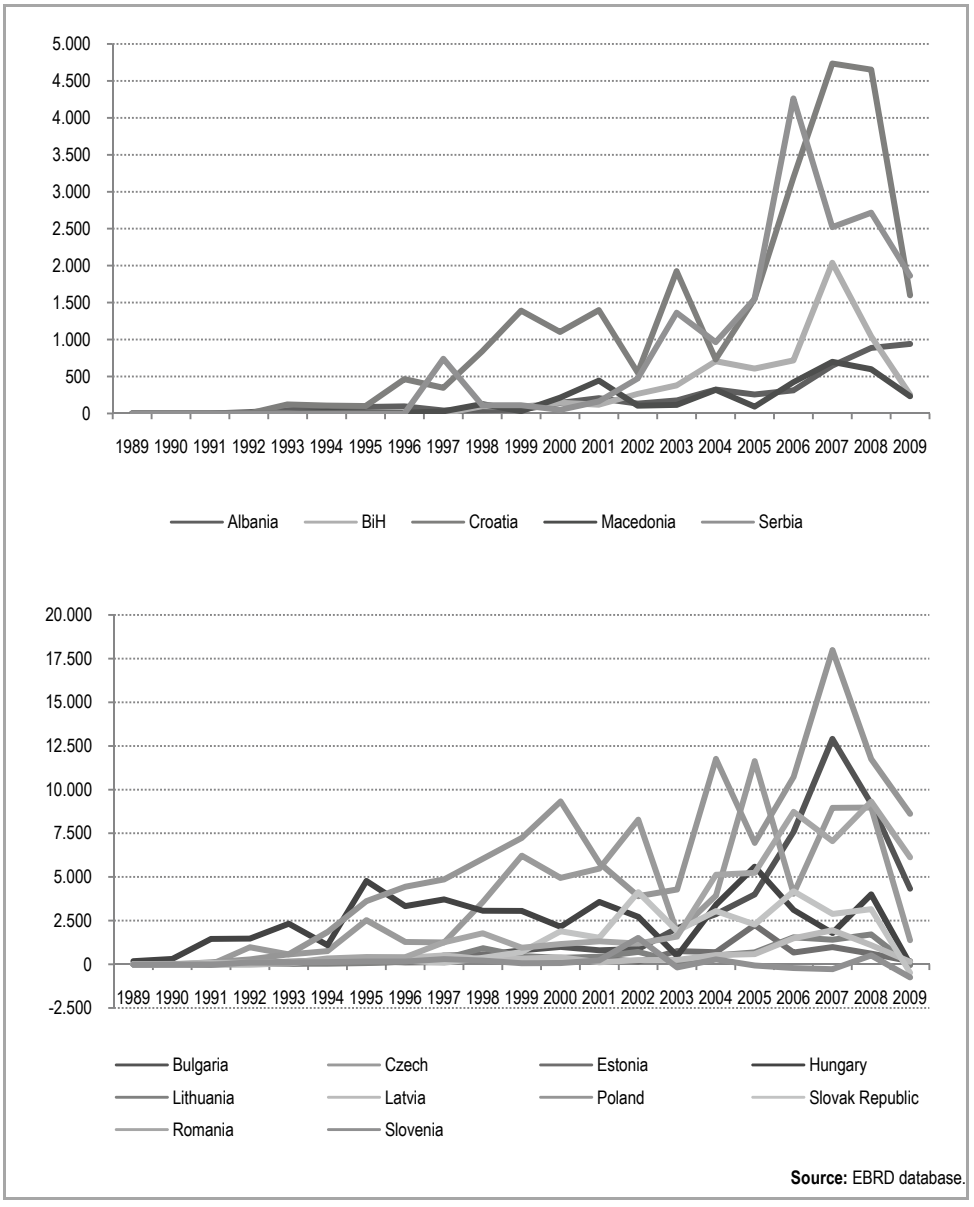


**Figure A2** FDI Inflow in Emerging European and Western Balkan Economies, 1989-2009 (in Millions of US Dollars)

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