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EU's Eastern Neighbours: Institutional Harmonisation and Potential Growth Bonus

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Contents

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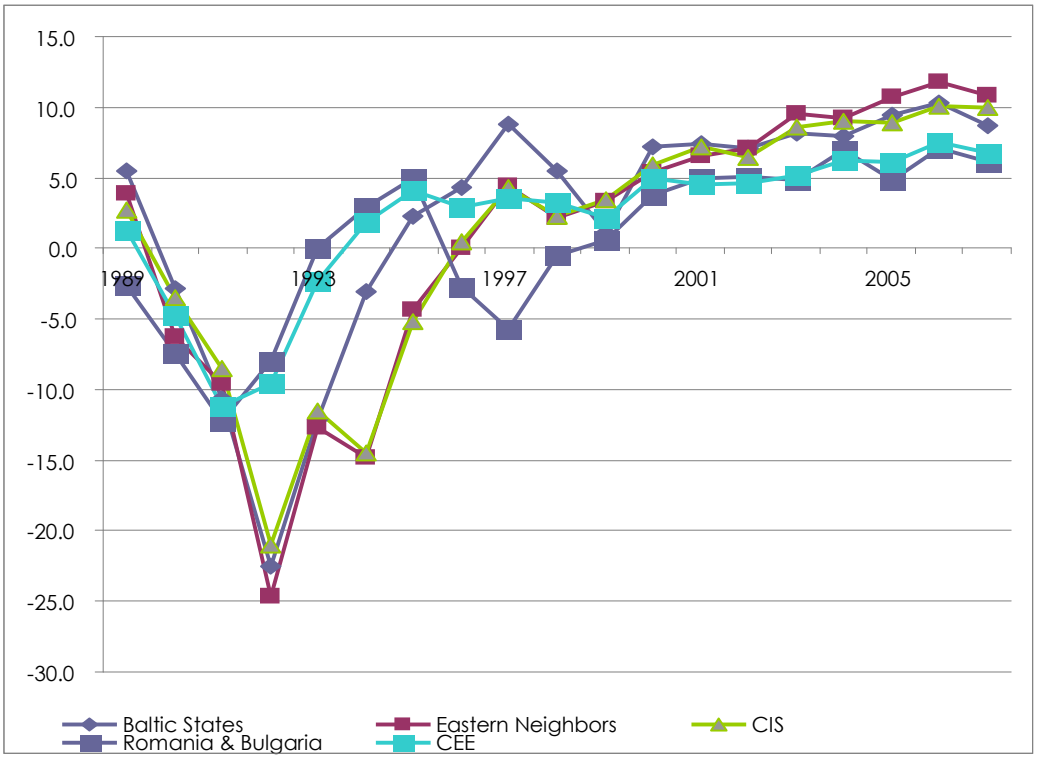
Abstract

This paper provides the quantitative estimate of the potential growth bonus for CIS countries, and in particular EU's Easter Neighbours, that can be a result of deeper institutional harmonisation with the EU. Econometric investigation involving instrumental variable, simultaneous equation and dynamic panel techniques documents the strong positive link between growth performance and reforms, as well as between reforms and European integration. The paper derives the range of possible values of growth bonus from the deepened neighbourhood cooperation between 1 and 3.8 with the median at 1.8 percentage points. The least growth bonus is expected through basic liberalization reforms, while countries with a considerable institutional gap are likely to gain the most.

1. Introduction

The aim of this paper is to provide the quantitative estimate of the potential growth bonus for CIS countries, and in particular EU's Easter Neighbours[1], that can be a result of deeper institutional harmonisation with the EU. This reflects the presumption that despite the fast rates of economic growth of CIS countries in recent years (Figure 1), there are substantial reserves of longer term growth potential that can be freed if structural features of these economies improve as a result of institutional harmonisation.

Figure 1. Comparative growth performance

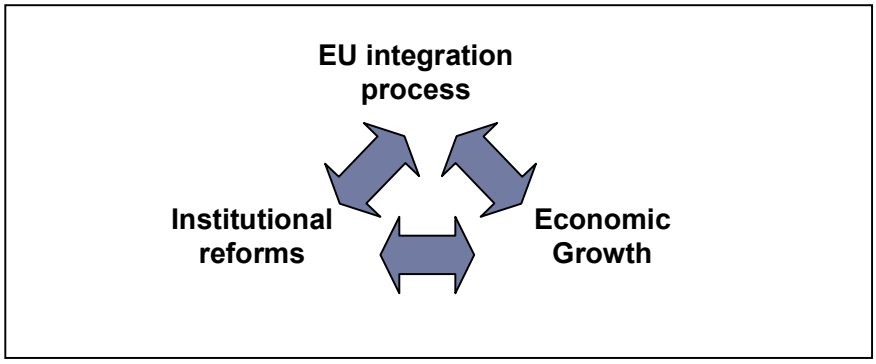


Source: EBRD. Presented groups of countries encompass a) Baltics: Estonia, Latvia, Lithuania b) CEE (Central & Eastern Europe): Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Bulgaria and Romania c) CIS (Commonwealth of Independent States): Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine, Uzbekistan d) Eastern Neighbours: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine plus Russia (although Russia is not formally a ENP country).

[1] For the purpose of this paper, by Eastern Neighbours we will understand countries of the former Soviet Union that are most likely to benefit from institutional harmonisation with the EU, namely: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia and Ukraine.

In order to quantify potential growth bonus, this paper combines results of econometric studies on the impact of institutional reforms on growth with those on the impact of European integration on institutional reforms. It also comments briefly on other channels of impact of the EU integration on growth. The approach can be therefore best summarized by the Figure 2 that illustrates the multi-direction links among process of integration, reforms and growth.

Figure 2. Conceptual approach



This paper reviews existing studies and their results for broad assessment of potential growth bonus. As the existing literature on links between reforms and growth is abundant, the thrust of original econometric work presented in this paper is directed at much less researched link between EU integration and reforms. Existing and new results are combined in the concluding section of this paper. It presents the range of possible quantitative estimates of the growth bonus for Eastern neighbours. However, it also offers a word of caution about the robustness of achieved results due to uncertainty about the actual scope of institutional harmonization under the European Neighbourhood Policy, structural and macroeconomic particularities of neighbouring economies and last but not least the sensitivity of results to exact econometric specifications.

2. Link between institutional reforms and growth

The literature examining the growth experience of transition economies over the last decade is instrumental in understanding through which channels the European integration or deepened neighbourhood cooperation with the EU can stimulate growth. The literature that has been surveyed by Campos and Coricelli (2002) and Mickiewicz (2005) has focused mostly on reform strategies, macroeconomic policies and initial conditions to explain the variation in growth across

transition economies. Importance of initial condition has been showed in several contributions since the early study by Aslund et. al (1996).[2] Virtually all researchers agree that initial conditions do matter, but their influence on growth diminishes with time (Falcetti et al., 2006).

Apart from initial conditions, growth is highly influenced by macroeconomic stabilisation policies. Common approach in the literature is to use inflation rate or the size of general government fiscal balance as measures of stabilisation effort (Falcetti et al., 2006). Since a positive feedback effect exists in the way that growth affects positively stabilisation, one needs to be cautious when interpreting the results. In most studies, the positive relationship between stabilisation and growth is confirmed. For example Mickiewicz (2005) shows that, controlling for endogeneity, any positive output response to inflationary impulses in transition economies is a myth.

Process of transition means implementing free market structures and institutions that would foster them. Since the early time of transition, the quasi-consensus (referred to as Washington Consensus - most famously codified by Williamson, 1990) was formed about the reforms needed to be implemented in order to complete the process of transformation. According to Kornai (1994) these necessary reforms included price liberalisation and trade and foreign exchange liberalisation to enforce the move from the sellers' to buyers' market as well as privatisation, elimination of subsidy programmes and liberalisation of financial markets for the purpose of enforcement of hard budget constraints. Although later on several observers concluded that Washington consensus was not sufficient for successful transition (Kuczynski and Williamson, 2003) which required even deeper institutional changes, empirical studies presented below confirmed that the impact of reforms on growth is strong and robust.

Havrylyshyn (2006) notes the "important similarity or at least consistency" between the process of adoption of acquis with the elements of the Washington consensus in guiding the progress towards market economy. Therefore, the intuition behind the primary link between the deepened neighbourhood cooperation with the EU and economic growth through institutional harmonization is well justified.

[2] Measuring the initial conditions is a complicated task and various measures can serve as a proxy. To measure the effect of initial conditions authors use such variables as GDP per capita at the beginning of transition, pre-transition growth rate, trade dependence on CMEA, degree of over-industrialisation, urbanization rate, natural resources dummy, years spent under central planning, dummy for pre-transition existence as a sovereign state, repressed inflation or black market premium. Another commonly used measure is the distance from the country's capital to Brussels. Common approach in the literature is to create a comprehensive measure of initial conditions. For this purpose principal components analysis is used. In other studies (Mickiewicz, 2005) authors do not include any proxies for initial conditions. Instead, in each equation, full set of fixed country effects is included.

2.1. Modelling approach

The approach to the modelling of growth has been changing over time in search of precise links between the reforms and economic growth. Different econometric specifications helped to understand more accurately the influence of reforms on growth and possible feedback effects from growth to reforms. Despite large diversity of models, recent studies seem to present unambiguous picture of the impact of reforms on growth. However, the exact size of impact remains elusive. The results of the studies are sensitive to definition of reform variables, the choice of specification as well as various sources of omitted variable bias (Babetskii and Campos, 2007).

Following taxonomy presented by Mickiewicz (2005) one can distinguish between two generations of models. In the first type of models attention was focused on long-term effects of reforms. Authors preferring this kind of modelling use GDP growth averaged over a number of years as a dependent variable (Fidrmuc, 2003 Beck and Leaven, 2006, Godoy and Stiglitz, 2006). In this approach temporary effects are neglected and therefore it does not allow for any insights into short term effects of developing institutions. To capture short-term effects, more recent literature uses panel data techniques (Falcetti et al., 2006, De Macedo and Martins, 2006, Havrylyshyn and van Rooden, 2003, Grosse and Trevino, 2005, Neyapti and Dincer, 2005, Eschenbach and Hoekman, 2006, Lawson and Wang 2005, Mickiewicz, 2005, Merlevede, 2003, Koivu and Sutela, 2005). Using panel data one can test more sophisticated hypothesis regarding time dimensions in the relationship between reforms and growth. For example, some studies showed that although long-term impact of reforms on growth is in most cases positive and significant, in some cases immediate impact of reforms is negative.

Endogeneity of reform variable vis-a-vis growth posed an important challenge for researchers. The problem is that there can be a feedback effect of growth to reforms, which is likely to influence significantly estimation results. In a meta-study Babetski and Campos (2007) showed that ignoring the problem of endogeneity of reforms in relation to growth led to severely biased results. Most routinely, the potential problem of endogeneity is addressed by instrumental variables (Fidrmuc, 2003) or less often by more robust but also more complicated dynamic panel techniques (Falcetti et al., 2006). Another popular approach is to study explicitly the possible reversed causality from growth to reforms and include the relevant equation in the multi-equation model that is estimated by three-stage least squares or GMM methods (De Melo et al., 2001).

Despite different methodological approaches, results tend to be consistent and generally confirm the positive impact of reforms on growth.

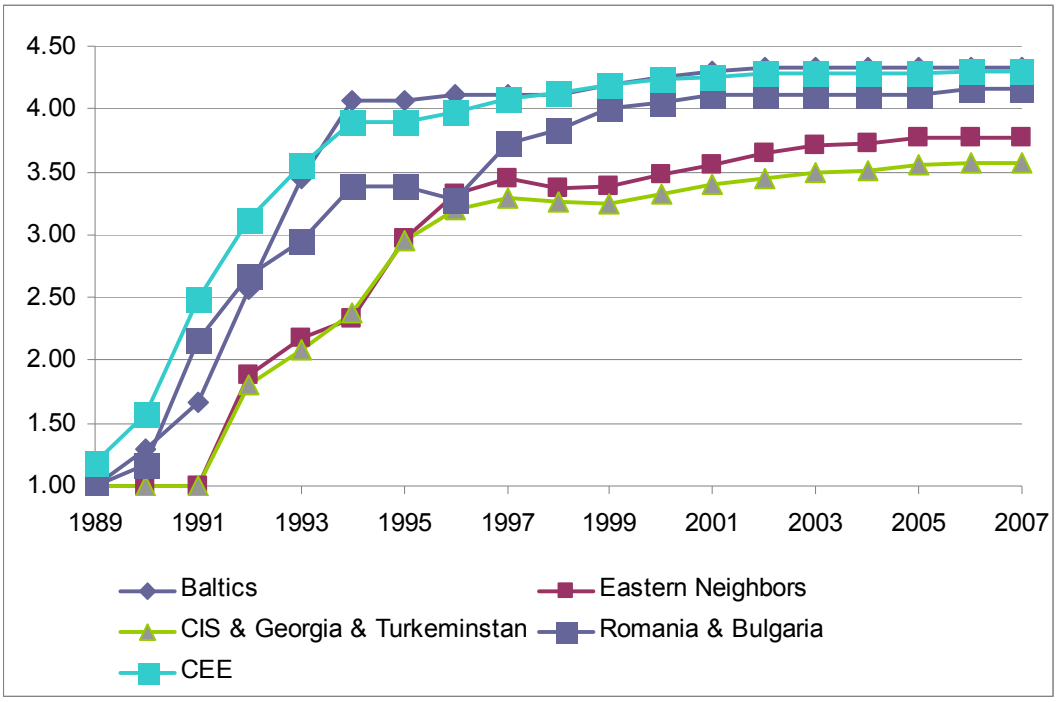
2.2. Measuring institutional reforms

Identifying theoretically sound measures of those institutions that are relevant for growth (Campos and Coricelli, 2002) is another non-trivial challenge. There is not a single set of indicators that is used by all researchers. For example, Fidrmuc (2003) analyzed impact of democratization on growth by constructing variable that was a simple average of political freedom and civil liberties indicators from Freedom House dataset. His choice is somehow arbitrary - not only in terms of choice of the indicators that cover only a small part of changes that took place in transition countries but also in terms of the way of aggregation of the indicators. Another approach is presented by Grosse and Trevino (2005) who find variables corresponding to level of corruption in government, political risk and rule of law relevant for growth. They argue that by creation of fair rules of the game through eradication of corruption, lower political risk and establishing sound rule of law countries are able to attract more foreign direct investments which in turn can be a powerful engine of economic growth. Beck and Laeven (2006) constructed the institutional development variable following the idea by Kaufman, Kraay, and Mastruzzi (2004). Referring to different aspects of reforms they distinguished six dimensions of institutional development: 1) voice and accountability 2) government effectiveness 3) rule of law 4) regulatory quality 5) absence of corruption and 6) political stability.

The data source that is especially popular among researchers is the EBRD Transition Indicators dataset. The reason behind this may be quite long time span, for which the data is available and coverage of various dimensions of the transition process. The reputation for the first-hand expert knowledge of transition economies by EBRD economists is another important factor. Datasets computed by the EBRD contain eight basic reform indicators and five additional indicators for different areas of infrastructure development. The scores vary from 1, referring to the state in planned economy, to 4.33, representing standards of advanced market economies, with 0.33 of the least possible change. Most of researchers compute a simple average of the eight indicators consisting of initial-phase reforms, which include price liberalization, trade and foreign exchange liberalization, and small-scale privatization, and second-phase reforms, which comprise large-scale privatization, governance and enterprise reform, competition policy, banking reform and interest-rate liberalization, and non-bank financial institutions.

EBRD indicators show considerable differences across countries in institutional development. Figure 3 plots average of eight transition indicators for a selected group of countries. It can be clearly seen that after almost twenty years of transition there is still a substantial institutional gap between Central Eastern European countries and their neighbours to the east.

Figure 3. Average of eight EBRD transition indicators



Source: EBRD. For the list of countries in each group see footnote to Figure 1.

Although EBRD Transition Indicators are so commonly used in the current studies one needs to bear in mind some of their limitations (Falcetti et al., 2006). Firstly, in year 2000 the indicators were backdated to include years 1989-1994. Hence, one need to be very cautious including values of the indicators for the first years of transition. Secondly, increase in the value of the indicators by one does not necessarily always mean the same. Most of countries found it easy to improve quality of their institutions from the level of 1 to 2, they find it however difficult to upgrade from 2 to 3, although the difference in scores is the same. Moreover, indicators computed by the EBRD may not always reflect true current state of reforms in a given country. They do not mirror reform commitment and far-reaching reforms are shown in the indicators with a certain lag. Finally, Rzonca and Cizkowicz (2003) advise cautiousness when using EBRD Transition Indicators due to existence of the upper bound of 4.33. Ratings can quite quickly rise at the early stage but in subsequent periods must grow at a lower pace. Another issue concerns

high correlation between indicators from the dataset, which does not allow including them separately into the regression equations due to problem of multicolinearity of the indicators used to measure progress in different areas. In most of the studies authors use simple averages, although it requires the implicit assumption that improvement in one dimension has the same effect as an improvement in another dimension. Some authors use principal component analysis, which unfortunately poses difficulties in interpretations. The choice to isolate influence of only one specific reform indicator brings about the risk of omitted variable bias.

2.3. Recent papers using EBRD transition indicators

The literature presenting impact of reforms on growth in transition countries is rich and abundant. For the purpose of our study we focused on the latest papers that use EBRD datasets to construct reform indicator and that can be therefore easily reproduced for the benefit of growth bonus simulations. Transition Indicators are used in the studies in various configurations: as simple or weighted averages of all basic indicators as in Merlevede (2003) and Falcetti et al. (2006), and as average of specific subset of indicators as in Eschenbach and Hoekman (2005), Mickiewicz (2005) and Koivu and Sutela (2005). We describe these papers in more detail below and use them as the basis of our further investigation.

Falcetti et al. (2006) present econometric evidence on the impact of institutions on growth. Controlling for a variable corresponding to initial conditions of a given country and including other important determinants of growth, like output recovery, oil prices, macroeconomic stability and external growth, into the regression equation authors found that progress in transition in one period translates into higher growth rate in the following period. For the purpose of the study authors construct an average of eight basic EBRD Transition Indicators that serve as a measure of reform. The results are significant and seem to be robust to changes in specification. Innovative in the study is using output recovery variable to explain the phenomenon of extraordinary growth in countries reluctant to implement reforms. Furthermore, initial conditions were proved to have a significant but diminishing impact on growth. The authors tackled also problem of endogeneity of the reform variable. The system of equations used in the study seems to confirm conjecture of other researchers that there might be a strong feedback effect from growth to reforms. Authors indeed show that such a relationship exists and is significant, but the impact on reform indicator is in fact not very big.

Eschenbach and Hoekman (2005) also find that progress in transition can have positive impact on growth. The reform indicator analysed by them is a simple average of subset of indicators

that according to them describe best the investment climate. They made however an important qualifiation, namely the main channel through which reform influence growth is through inflow of foreign direct investment and improvement of domestic investment. Controlling for commonly used determinants of growth they found that reforms in investment climate policies stimulate inflow of FDI, which translates into higher growth. Similarly to the previous study they found evidence of a "virtuous circle" of growth, political and institutional reforms.

Different subset of transition indicators was considered by Mickiewicz (2005). Choosing three out of eight basic indicators (price liberalization, trade and forex system, and small-scale privatisation) and taking account on the fact that transition indicators are bound from above (Rzońca and Ciżkowicz, 2003) his study supports results of the previously presented research of Falcetti et al. (2006). Using a system of equations to alleviate the problem of endogeneity they found a consistent link between political freedom and reforms, positive and significant relationship between reform in one period and growth in the subsequent period.

Once a country decides to embark on a new, twisting path leading it towards market economy, costs of abandoning this way may be significant. Merlevede (2003) drew attention to the reform reversals and examined their impact on growth. Controlling for the level of reform they showed that reform reversals have an overall negative effect on growth. Using weighted average of basic EBRD Transition Indicators as a proxy for reforms they define reform reversal as a drop in this average. In their paper they found that allowing the indicator of reform to decrease results in a significant drop in the cumulative growth effects. Only after 4 to 5 years the no reversal path of growth is reached again. Results of their study are a warning to all policymakers in transition countries who decide do not reform their economies. They showed moreover that a reversal is more harmful at the higher levels of reform.

In another study Koivu and Sutela (2005) focus on financial institutions and try to examine the link between development of the banking sector and real GDP growth. In their model they consider two variables to measure improvement in the financial sector. Using a system of equations they conclude that the interest rate margin is negatively and significantly associated with the economic growth, which highlights the importance of banking sector in transition economies.

Quantitative results from these studies are used in order to estimate the size of potential growth bonus, in case of more energetic reforms resulting from the deepening of neighbourhood cooperation with the EU.

3. The link between European integration and reforms

The evidence of correlation between EU accession and the successful second-stage institutional reform process is rather clear as it is attested by much better scores of countries progressing through the European integration process. It is much more difficult to prove causality. Our preferred explanation is that the EU membership perspective is so attractive politically for the candidate countries that it helps to anchor effectively the entire reform process. Although internal dynamics are essential (Acemoglu 2005), external anchoring can play a benevolent role in overcoming these problems [3]. While unconditional foreign aid often discourages reforms (Sachs, 1994; Casella and Eichengreen, 1996), the role of traditional conditionality is to ensure that countries do not delay necessary changes (IMF, 2001, and Drazen & Isard, 2004). However, forced reforms are often illusory and unsustainable. On the other hand, Roland and Verdier (2003) define external anchoring of reform as a broader commitment vehicle that promotes genuine domestic support for reforms. Piazolo (1999) argues that European integration provided the important credibility boost to the reform agenda. Berglof and Roland (1997) argue that the EU accession process provided external anchoring which proved essential in reducing the risk of reform deadlock and reform reversals. Consequently, the EU accession prospects explain much of the "great divide" observed between the economic performance in Central and Eastern Europe and the Baltics versus CIS countries. Several more recent contributions draw similar conclusions (Wolf, 1999, Mizsei, 2004, Roland, 2005, Dabrowski and Radziwill, 2005). In the terminology proposed by Havrylyshyn (2006), the effect of potential membership provides both the "beacon effect", attracting the country to the "safe haven" of stable, democratic and richer societies, and the "navigation chart effect" of instructions needed to reach this "safe haven". These studies often argue that EU accession was essential for the medium-term progress of

[3] The interplay between two broad factors determining the choice of appropriate social, political and economic institutions: key domestic political actors and interest groups on the one hand , and external policy transfer processes, in particular Europeanization, on the other, is discussed in detail in Cernat (2006). Hellman (1998) focuses on domestic political dimension of the post-communist transition. Kaufmann (2004) claims that "the interplay between the elite's vested interests and the political dynamics within a country, in turn affecting governance and corruption, has been often under-emphasized".

institutional reforms, even if the success of early economic liberalizations was less dependent on the European factor.

However, other observers may argue that the membership perspective emerges as a result of progress in reforms or claim that some unobservable and fundamental factor, like geography, culture and religion can simultaneously drive both processes. These are not mutually exclusive explanations and we suspect a virtuous circle. Better initial conditions of some countries made future EU membership more realistic, which stimulated reforms through an external anchoring mechanism. Reforms, in turn, enabled subsequent stages of the integration process and raised hopes of membership even more. This again stimulated reforms to complete the virtuous circle. Similarly, Havrylyshyn (2006) points out that EU integration has both exogenous and endogenous elements. The exogenous element was probably stronger immediately after the fall of the old regime and the endogenous element gained importance as the fulfilment of the Copenhagen criteria and adoption of acquis influenced the speed of integration.

Box 1: Four hypotheses by Havrylyshyn (2006)

1. A more favourable "offer" of membership in the early 1990s encouraged earlier reforms
2. Strong demand for membership drives early reforms regardless of the signal from the EU
3. Strong progress in reforms induces a more favourable stance by the EU
4. Negative stance of the EU ("use of a "stick") in a country with strong demand for membership, induces acceleration of progress

The virtuous circle was reinforced by trade and investment integration that promoted growth, made reforms more popular and strengthened constituencies for further integration and accession, while obviously, it was itself conditional on the progress of reforms and adopting the acquis. In our view, the incidence of these virtuous circles does not reduce the benefits of European integration prospects; on the contrary, it makes the cost of early exclusion from the process even higher in terms of reforms.

We have some indirect evidence of the existence of causality from integration towards reform. In particular, the exogenous shift in the European integration strategy in Helsinki in 1999 led to the acceleration of reforms in affected countries. The same effect was repeated in the Western Balkan region as a result of launching the Stability Pact for South-Eastern Europe. The open threat of exclusion of Slovakia from the EU and NATO enlargement in the second half of the 1990s clearly triggered the turnaround in political developments in that country. It is also

noteworthy that reformist governments in CIS countries that have emerged as a result of recent democratic revolutions tended to declare EU and NATO membership as their strategic goals (Georgia, Ukraine). This suggests that countries actively seek the external anchoring.

However, we aim at providing some econometric evidence beyond this discursive argument. The lack of previous attempts to quantify the impact of accession process (and its different stages) on second-stage institutional reforms provides a major challenge for quantification of the potential growth bonus of deepened neighbourhood cooperation with the EU. Attempts to econometrically test the impact of the EU accession process on reforms, or more broadly, to verify various determinants of reforms in transition economies, are rare. This is in striking contrast to the rich literature that links the growth in transition countries to the progress in reforms, as surveyed above. De Melo et al. (2001) attempt to explain the progress of economic liberalization by initial conditions and political reforms in econometric terms; however, this study fails to account for the role of the European integration process. In addition, it focuses exclusively on economic liberalization (or first-stage reforms) and neglects the progress of institutional (or second-stage) reforms.

Firdmuc (2003) conducts an econometric analysis of the interaction between democratisation, economic liberalization and economic performance. However, while he comments that "the high speed of democratization reflected not only the desire of these countries' citizens to live in democracy, but also the encouragement or outright pressure from Western governments, international organizations, and especially the European Union, which made democracy an explicit precondition for accession negotiations," he does not explore the impact of accession on democratisation or economic reforms econometrically.

Finally, several contributions studied determinants of reforms in the region, often as part of the joint investigation of growth and reform processes, especially through approaches involving simultaneous equation models (for example Heybey and Murell (1999), Wolf (1999), De Melo et al., 2001, Merlevede, 2003, Mickiewicz, 2005 and Falcetti et al, 2006). Unfortunately, these studies also failed to account for the importance of the European factor in the reform process.

The study that is closest to the spirit of our research is one by Di Tommaso et al (2005) which defines institutional reform as a multidimensional, unobserved variable and estimates its determinants using a MIMIC model (multiple indicator multiple cause model). While the authors distinguish three major factors determining reform (economic, political and cultural) and explicitly include the European integration variable (the signature of a major agreement with the EU), they do not study the impact of European integration in-depth. In particular, they treat equally both

the Association Agreements that were intended to lead to EU membership and the Partnership and Cooperation Agreements that excluded such a possibility[4]. This means that their concept of European integration is much broader than simply the EU accession process and differs from its intuitive meaning. Nevertheless, the authors argue that the early liberalization and engagement in the EU integration process can provide an important stimulus for institutional change.

As the identity problem is not trivial due to a high degree of possible endogeneity, omitted variables and measurement errors, we investigate the impact of European integration on structural reforms using several econometric techniques to provide results that are relatively robust. We start with the estimation of a single equation using ordinary least squares and two stage least squares. In the latter approach, we are instrumenting European integration in order to reduce the problem of endogeneity. Afterwards, we run a series of dynamic panel data estimations in order to best capture times series and persistence dimension of second-stage institutional reforms. Finally, in the concluding section, we estimate a system of simultaneous equations that attempts to capture explicitly interactions between growth, integration and structural reform.

In order to quantify the impact of the EU accession (rather than the more broadly defined 'economic integration'), we need to construct the EU accession measure in a different way from Di Tomasso et al (2007), who does not distinguish between "pre-membership" and "non-membership" agreements. Although non-membership agreements can provide multiple benefits such as financial as well as trade and investment facilitation, they do not offer a membership perspective and therefore cannot be expected to provide similar strong external anchoring as compared to association agreements. Indeed, the most extreme view held by some observers is that non-membership-oriented agreements are "too weak to make a difference on the general direction of policy" (Wolczuk 2004). Havrylyshyn (2006) puts it even more bluntly when he states that "nothing short of a possible future accession, no matter how unclear the timing, has much effect". This argument runs against the very idea of the ENP and we believe it is too extreme. There is no reason to reject ex ante the possibility, that degree of institutional harmonisation can be achieved even without formal membership in the context of deepened cooperation as part of ENP. Nevertheless, it is necessary to distinguish carefully different types of agreements in the econometric study.

The first basic option is to work with two separate dummy variables corresponding to these two types of agreements. It is also possible to work with a full set of dummies representing stages of

[4] PCA agreements are routinely signed with non-European developing countries.

European integration, such as membership application, opening negotiations and accession, and this is our preferred option. However, in some specifications we need to work with a single variable describing synthetically the stage of European integration. We construct such a variable in the following way. Each country gets one point upon signing the Association or Stabilization Agreement, one point upon submitting EU membership application, one point upon opening membership negotiations and one point upon EU accession. These points are summed up so that the total score ranges from zero to four. It should be noted however, that such a synthetic measure of accession is not without problems. Notably, it is constructed using arbitrary assigned scores, with four possible values and later considered as continuous. Moreover, unit increases in the value of this variable between each two subsequent stages of integration do not necessarily have the same impact (as implicitly assumed by the linear specification). Because of these problems, we prefer specification with the complete set of dummies whenever it is possible.

In all specifications we work with the panel of 27 transition countries with EBRD scores recorded for the period between 1990 and 2006[5].

3.1. Single Equation Models

We start our investigation with a set of simple one-equation models that explain the progress of reforms by the accession process and other relevant variables identified in the literature. Columns 1 to 5 of Table 1 present estimation results derived by least squares estimation. Results derived by two-stage least squares are reported in columns 6 and 7. Our specification follows closely Di Tomasso et al.(2007) in taking into account major factors determining reforms: economic, political and cultural. The basic specification takes the following form:

$$Inst(i,t) = \beta_0 + \beta_1 Priv(i,t-1) + \beta_2 Lib(i,t-1) + \beta_3 Stab(i,t-1) + \beta_4 IniCond(i) + \beta_5 Pol(i,t-1) + \beta_6 EU(i,t-1) + u(i,t)$$

where *i* and *t* are country and time period subscripts, respectively, and variables are:

Inst (i,t) - synthetic measure of second-stage institutional reform. It is constructed as the simple average of four EBRD indicators: 1) Governance and Enterprise Restructuring, 2) Competition

[5] The list of countries include: Current EU members (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia), Western Balkans (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro), European CIS (Belarus, Moldova, Russia, Ukraine), Transcaucasus (Armenia, Azerbaijan, Georgia), Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan).

Policy, 3) Banking Reform and Interest Rate Liberalisation and 4) Securities Markets and Non-Bank Financial Institutions;

Priv (i,t-1) – one period lagged EBRD indicator of progress in Small Scale Privatisation;

Lib (i,t-1) – one period lagged synthetic measure of economic liberalization or first-stage reforms. It is constructed as the simple average of two EBRD indicators: 1) Price Liberalisation, 2) Foreign Trade and Exchange Rate Liberalisation;

Stab (i,t) – one period lagged synthetic measure of macroeconomic stability. In the first six specifications we use the measure drawn from di Tommaso et al (2006): a variable taking the value of 1 in the first year in which the budget deficit was below 5% of GDP and inflation below 30%, and increasing it by one unit every year in which this was maintained. In the last specification, a simple measure of lagged fiscal budget balance is used.

IniCond (i) – synthetic measure of initial conditions. In the first specification we use the measure drawn from Kitschelt (2001) that reflects state capabilities, as well as belief systems formed prior to, as well as during, communist rule. This index captures both the pre-communist levels of economic, human and institutional development as well as the character of communist rule that determined the ease of collective action for reforms. The index assigns each country a score from 1 (highly bureaucratic communism – Czech Republic) to 4 (patrimonial colonial Russian periphery – Central Asia and Caucasus). In addition, and in order to provide a less arbitrary measure of initial conditions, in the last specification we use country scores from the first principal component of a factor analysis[6] over a set of initial conditions indicators as reported by Godoy and Stiglitz (2006). These indicators include: years spent under central planning, defence spending as a share of GDP, degree of industrial distortion, trade distortion and black market premium in the late 1980s. A higher value of principal component implies better initial conditions.

Pol (i,t-1) – one period lagged synthetic measure of political liberty. The state of political liberty is calculated using the simple average from two Freedom House indices of 1) political rights and 2) civil liberties.

EU (i,t-1) – denotes a lagged variable or a series of lagged variables that correspond to EU integration as discussed more extensively below.

u(i,t) – an error term.

[6] The principal component analysis is the statistical technique frequently used to reduce the dimensionality of a set of data while maintaining as much data variability as possible (for discussion see Jolliffe, 2000). In order to ensure efficient reduction of a number of variables, principal components are orthogonal linear combinations of the eigenvector of the variance-covariance matrix of the original variables. Among them, the first principal component preserves the most of variability.

Table 1. Determinants of institutional reforms in a single equation specification

	OLS	OLS	OLS	OLS	TSLS	TSLS
	1	**2**	**3**	**4**	**5**	**6**
Constant	1.69	1.55	1.58	1.61	1.66	1.21
Lagged privatization	0.08	0.09	0.09	0.09	0.07	0.19
	3.01	*3.49*	*3.51*	*3.45*	*2.40*	*5.32*
Lagged liberalization	0.07	0.07	0.08	0.10	0.10	-0.01
	2.34	*2.37*	*3.00*	*3.52*	*3.25*	*-0.20*
Lagged stabilization (Index from Di Tomasso et al, 2007)	0.00	-0.01	-0.02	-0.02	-0.02	
	-0.03	*-0.59*	*-1.79*	*-1.72*	*-2.32*	
Lagged stabilization (budget balance)						0.03
						1.23
Initial conditions Kitschelt Index)	-0.24	-0.19	-0.19	-0.21	-0.20	
	-8.59	*-6.38*	*-6.89*	*-7.56*	*-6.22*	
Initial conditions (principal component)						0.03
						2.43
Lagged political liberty	0.08	0.06	0.05	0.04	-0.02	0.07
	5.18	*4.06*	*3.01*	*2.80*	*-0.65*	*0.96*
Dummy - EU agreement (as in Di Tomasso et al, 2007)	0.45					
	11.75					
Lagged dummy- signed PCA agreement		0.36	0.39	0.39	0.53	0.19
		8.21	*9.10*	*9.17*	*7.57*	*1.41*
Dummy – signed association agreement		0.59	0.47			
		12.02	*7.11*			

	OLS	OLS	OLS	OLS	TSLS	TSLS
	1	2	3	4	5	6
Lagged dummy – membership application filed			0.05 *0.66*			
Lagged dummy – negotiations started			0.28 *4.68*			
Lagged dummy – EU membership			0.22 *1.97*			
Lagged synthetic integration indicator				0.26 *13.64*	0.44 *6.39*	0.22 *1.84*
Observations	384	384	384	384	384	384
R-squared	0.87	0.87	0.89	0.88	0.70	0.82
Adjusted R-squared	0.86	0.87	0.88	0.88	0.68	0.81
S.E. of regression	0.26	0.26	0.24	0.25	0.40	0.27
F-statistic	117.4	118.3	116.4	129.4	89.8	43.1
Prob(F-statistic)	0.00	0.00	0.00	0.00	0.00	0.00
first stage r - squared					0.69	0.69

t-statistics reported in italics, Source: own estimation, variables and data as described in the text

The specification shown in column 1 corresponds exactly to the specification from Di Tomasso et al (2007), in particular the European Agreement variable combines both PCA and association agreements. The coefficient next to this variable is significant as in the original paper. Because we believe the nature and reform effects of these two agreements are very different, we estimate the same equation with separate dummy variables for each of these two types of agreements. Results are shown in column 2. As shown, these effects are indeed different; nevertheless, they are both substantial and significant. Characteristically, the reform boost related to signature of the association agreement is larger but not much larger than the one for the PCA. However, column 3 shows that more advanced stages of European integration, such as membership application, negotiations and membership, are linked to further reform bonuses. The total reform gain from full integration is therefore much larger than signing a simple PCA agreement.

These results are informative; however, they potentially suffer from problems of endogeneity. Namely, the error term u(t) is likely to be correlated with EU accession because the progress in

the EU accession process may well be endogenous and dependent on reforms as discussed above. For this reason in the last two specifications we use the two stage least squares (TSLS). However, in order to instrument European integration we have to approximate a set of dummies with a single synthetic variable as discussed above. This variable is then instrumented with the distance of the respected country's capital from Brussels (as in Di Tommaso at al, 2006) and other right hand side exogenous variables. The TSLS estimator shown in column 5 suggests an even larger impact of European integration than the OLS estimator. In order to facilitate comparison, we estimate exactly the same specification using OLS and the results are shown in column 4. Characteristically, results are similar in terms of the significance and signs of coefficients for all other variables when both methods of estimations are used.

Finally the last specification is aimed at minimizing the possibility that our results are driven by misspecifications resulting from highly arbitrary variables originally used in Di Tomasso et al (2007). In particular, we replace the Kitschelt Index by the first principal factor for capturing initial conditions and use a lagged fiscal balance instead of the stability index proposed by Di Tomasso et al (2007). The estimated positive and significant impact of European integration on reforms is preserved, although the size of the coefficient is reduced.

Results also consistently show that previous privatisation progress and price and exchange rate liberalization (lagged one period to avoid the endogeneity problem) promote institutional reforms (although liberalization is insignificant in the last specification). This is consistent with the consensus in theoretical and empirical literature. There is some evidence that macroeconomic stabilisation discourages reform. This somehow surprising result was also detected by Di Tomasso (2007) and it might reflect the role of the crisis in accelerating changes, a role that was argued powerfully by Drazen and Grilli (1993), and Drazen and Easterly (2001). While the adverse initial conditions reflected in the higher value of the Kitschelt index and lower principal component affect reforms negatively, political liberty is positive and significant in OLS estimations but not in the TSLS. Nevertheless, we tend to believe the existence of such a positive impact, given results from other contributions, notably Firdmuc (2003), Falcetti (2006) and Gerry and Mickiewicz (2006) that report that „countries most effectively embracing democracy were most able to build the required consensus around reforms and growth". Similarly, Campos and Horvath (2007) conclude in their empirical study that democratization is „the main determinant of reform". Rodrik (2000) explains that we "can think of democracy as a meta-institution for building good institutions". Perhaps weaker evidence found in our paper is precisely due to the inclusion of the variables measuring the progress of European integration.

3.2. Dynamic panel estimation

Given the issue of institutional persistence and likely structure of correlations, we complement our econometric investigation with the estimation implementing dynamic panel data techniques with a lagged dependent variable included on the right-hand side of the equation. Several papers used similar techniques for explaining international growth performance, such as Islam (2005), Casella and Eichengreen (1996), Dollar and Kraay (2003). This approach was also used to explain growth in transition, notably by Staehr (2005) and Falcetti et al (2006). Although the time span of this study is rather short, this technique is useful for the investigation of reform process as it helps to determine whether the impact of EU integration on reform is retained in the dynamic specification. It also addresses issues of measurement error, endogeneity, and omitted variables (Bond et al 2001), all of which are relevant for our study as discussed above.

Our specification takes the following form:

$$Inst(i,t) = \alpha\, Inst(i,t-1) + \beta_{0,i} + \beta_1 Lib(i,t-1) + \beta_2 Inf(i,t-1) + \beta_3 Fis(i,t-1) + \beta_4 Pol(i,t-1) + \beta_5 EU(i,t-1) + u(i,t)$$

where *i* and *t* are country and time period subscripts, respectively, and variables are:

Inst (i,t) - synthetic measure of second-stage institutional reform. It is constructed as the simple average of four EBRD indicators: 1) Governance and Enterprise Restructuring, 2) Competition Policy, 3) Banking Reform and Interest Rate Liberalisation and 4) Securities Markets and Non-Bank Financial Institutions;

EU (i,t) – Either a complete set of EU integration dummies or a 4-step EU integration progress variable constructed in the following way: each country gets one point upon signing the Association or Stabilization Agreement, one point upon submitting EU membership application, one point upon opening membership negotiations and one point upon EU accession. These points are summed up so that the total score ranges from zero to four. The dummy for a signed PCA agreement is also included as a separate variable.

Lib (i,t-1) – one period lagged synthetic measure of economic liberalization or first-stage reforms. It is constructed as the simple average of three EBRD indicators: 1) Price Liberalisation, 2) Foreign Trade and Exchange Rate Liberalisation and 3) Small Scale Privatisation;

Fis (i,t-1) – lagged fiscal budget balance as a measure of macroeconomic stability

Inf (i, t-1) – lagged inflation rate as a measure of macroeconomic stability

Pol (i,t-1) – lagged synthetic measure of political liberty. The state of political liberty is calculated using the simple average from two Freedom House indices of 1) political rights and 2) civil liberties.

growth (i,t-1) – GDP growth rate lagged by one period

u(i,t)– an error term.

In the first column of Table 2 we report results of a simple OLS estimation with fixed effects which is equivalent to a within group estimation. The coefficient next to lagged institutions is fairly large which indicates a high degree of persistence in institutional reforms. In this specification, the coefficient on lagged EU integration loses significance and is substantially lower than in previous estimations. However, it is well known that a simple, within group estimator is biased when a lagged dependent variable is included on the right-hand side of the equation in a panel framework because of correlation between lagged dependent variable and the error term (Bond, 2002).

Accordingly we use two alternative techniques in order to address this problem. The procedure developed by Arellano and Bond (1991) estimates the equation in first-differences with the dependent variable, lagged by two and more periods, used as an instrument, along with exogenous variables and other instruments (here the distance form Brussels). There is an important difference between results from the Arellano and Bond (1991) procedure and simple within group estimation of our equation. Most importantly, the coefficient on the EU integration process is becoming significant. While the size of the coefficient is lower than in previous estimation, the size of the implied long-term coefficient is close to 0.15, which is not very different from our previous estimates. The level of persistence is lower than under fixed effects, while both liberalization and fiscal position gain statistical significance with expected sign. As it was argued by many authors including De Melo et al (2001) and Di Tomasso et al (2007), early liberalization creates the demand for second stage, more institution-oriented reforms. A better fiscal position provides opportunity for financing the deep institutional changes, including the need to compensate the reform losers.

The results of alternative one-step technique introduced by Arellano and Bover (1995) involves the use of orthogonal deviation, which proves superior when the time dependent variable is persistent and, therefore, lagged dependant variables are weak instruments for the first differences (Bond 2002). The change of the method matters little for the results, although EU

integration seems to be getting more significant at the expense of political freedom variables (results presented in column 3).

In the first three columns, we show results for the specification that uses the synthetic measure of EU integration, which poses a number of problems as discussed above. Therefore, in the specifications shown in columns 4 through 6, we replace this problematic variable with the set of EU related dummies, so that we can measure the impact of each accession step on reforms. This change seems to matter little for most of the obtained coefficients, which suggests that the error due to variable misspecification was fairly small. However, thanks to the inclusion of a full set of dummies, we gain some insights about the relative importance of different stages of the integration process for institutional reforms. Our results suggest that later stages of EU integration, such as opening negotiations and actual membership, tend to be associated with higher levels of structural reforms, but surprisingly earlier stages of integration do not bring such benefits. The signature of the PCA agreement seems to have no effect on reforms.

Table 2. Determinants of institutional reforms in the dynamic panel specification

	OLS fixed effects (within group)	**GMM Arellano-Bond**	**GMM Arellano-Bover**	**OLS fixed effects (within group)**	**GMM Arellano-Bond**	**GMM Arellano-Bover**
	1	**2**	**3**	**4**	**5**	**6**
Lagged second-stage institutional reform	0.81	0.59	0.59	0.80	0.60	0.61
	24.70	*8.61*	*12.59*	*22.05*	*8.53*	*12.81*
Lagged liberalization	0.01	0.08	0.08	0.01	0.08	0.10
	0.46	*1.58*	*2.69*	*0.66*	*1.57*	*2.97*
				0.00	0.00	0.00
Lagged inflation	0.00	0.00	0.00	0.00	0.00	0.00
	3.17	*2.57*	*3.68*	*3.09*	*2.38*	*2.10*
Lagged fiscal balance	0.00	0.01	0.00	0.00	0.01	0.00
	1.40	*2.40*	*2.00*	*1.47*	*2.23*	*1.64*
Lagged political liberty	0.05	0.06	0.03	0.05	0.06	0.03
	4.49	*3.17*	*1.44*	*3.83*	*3.10*	*1.43*
Lagged synthetic integration indicator	0.02	0.06	0.07			

	OLS fixed effects (within group)	GMM Arellano-Bond	GMM Arellano-Bover	OLS fixed effects (within group)	GMM Arellano-Bond	GMM Arellano-Bover
	1	**2**	**3**	**4**	**5**	**6**
	1.28	*2.94*	*3.32*			
Dummy – signed association agreement				0.10	0.04	0.01
				2.20	*0.49*	*0.18*
Lagged dummy – membership application filed				-0.09	-0.01	0.01
				-2.27	*-0.16*	*0.20*
Lagged dummy – negotiations started				0.05	0.12	0.12
				2.13	*3.23*	*3.64*
Lagged dummy – EU membership				0.05	0.08	0.10
				2.39	*2.96*	*3.71*
Lagged dummy-signed PCA agreement				0.00	0.00	-0.07
				-0.14	*0.01*	*-0.71*
Observations	355	329	329.	355	329	329
R-squared	0.95			0.95		
Adjusted R-squared	0.95			0.95		
S.E. of regression	0.14	0.17	0.12	0.14	0.17	0.12
Sum squared resid	6.56	8.98	4.86	6.38	9.04	4.76
Durbin-Watson stat	1.79			1.88		
Mean dependent var	2.24	0.08	-0.23	2.24	0.08	-0.23
S.D. dependent var	0.63	0.14397	0.27	0.63	0.14	0.27
F-statistic	1183.7			722.3		
Prob(F-statistic)	0.00			0.00		
J-statistic		130.92	113.92		121.84	107.01

t-statistics reported in italics, Source: own estimation, variables and data as described above

4. Joint model of integration, reforms and growth

Taking stock, our estimates of the impact of the EU accession on institutional reforms prove quite robust and confirm our priors. The impact of accession on reforms is strong and statistically significant across all specifications. It remains significant when we include a number of control variables and when we address the problem of endogeneity using instrumental variable and panel data techniques. We now complement these results with the analysis that directly links European integration, reforms and growth through the system of equations. The simultaneous equation approach has the advantage of explicitly addressing the issues of the multi-direction linkages among these three processes. Therefore, it can tell us something about the potential virtuous cycle between growth, reform and integration and helps us to avoid the bias in coefficients from the single-equation estimation due to feedback effects. We estimate the system in which the first equation explains the institutional reforms, the second equation sheds some light on factors conditioning the progress of integration with the EU, and the third one describes the growth performance. Because we suspect that the CIS countries were, in fact, excluded ex ante from the EU integration process aimed at the full membership, we introduce to the second equation interactive variables that differentiate the size of the impact on integration between these two broad groups of countries. It should be noted that in this specification, we cannot substitute the problematic 4-step EU integration variable with a full set of dummies; therefore, results should be treated with caution. Specifically, the system of equations takes the following form:

$$Inst(i,t) = \beta_0 + \beta_1 EU(i,t-1) + \beta_2 growth(i,t-1) + \beta_3 IniCond(i) Time(t) + \beta_4 IniCond(i) Time(t)^2 + \beta_5 Time(t) + \beta_6 Time(t)^2 + u(i,t)$$

$$EU(i,t) = \gamma_0 + \gamma_1 Inst(i,t-1) + \gamma_2 growth(i,t-1) + \gamma_3 IniCond(i) Time(t) + \gamma_4 IniCond(i) Time(t)^2 + \gamma_5 Time(t) + \gamma_6 Time(t)^2 + \gamma_7 Inst(i,t-1) DCIS(i) + \gamma_8 growth(i,t-1) DCIS(i) + v(i,t)$$

$$growth(i,t) = \delta_0 + \delta_1 EU(i,t-1) + \delta_2 Inst(i,t-1) + \delta_3 Fis(i,t-1) + \delta_4 Rec(i,t-1) + \delta_5 IniCond(i) Time(t) + \delta_6 IniCond(i) Time(t)^2 + \delta_7 Time(t) + \delta_8 Time(t)^2 + z(i,t)\,\delta$$

where *i* and *t* are country and time period subscripts, respectively, and variables are:

EU (i,t) – 4-step EU integration progress variable constructed in the following way: each country gets one point upon signing the Association or Stabilization Agreement, one point upon submitting EU membership application, one point upon opening membership negotiations and

one point upon EU accession. These points are summed up so that the total score ranges from zero to four.

Inst (i,t) - synthetic measure of institutional reform. It is constructed in the basic specification as the simple average of all eight EBRD indicators: 1) Governance and Enterprise Restructuring, 2) Competition Policy, 3) Banking Reform and Interest Rate Liberalisation and 4) Securities Markets and Non-Bank Financial Institutions, 5) Large scale privatization, 6) Price Liberalisation, 7) Foreign Trade and Exchange Rate Liberalisation and 8) Small Scale Privatisation. It is substituted by other synthetic indicators consisting of sub-sample of these 8 basic EBRD indicators when results shown in Table 4 are being derived.

Growth (i,t) - GDP growth rate

Fis (i,t-1) – lagged fiscal budget balance as a measure of macroeconomic stability

IniCond (i) – synthetic measure of initial conditions calculated as the first principal component analysis based on the sample of initial conditions indicators as presented by Godoy and Stiglitz (2006). These components include: years spent under central planning, defence spending as share of GDP, degree of industrial distortion, trade distortion and black market premium.

Rec (i, t) – current level of GDP as a share of its 1989 level

DCIS(i) – dummy variable denoting CIS countries

Time(t) – time trend

u(i,t), v(i,t), *z(i,t),* – error terms.

We use Three Stage Lease Square (3SLS) procedure to estimate this system. 3SLS is superior to TSLS, which does not take into account the covariances between residuals, and therefore it is not fully efficient. On the contrary, 3SLS is a system method that estimates all of the coefficients of the model, then forms weights and re-estimates the model using the estimated weighting matrix. The list of control variables in both equations includes the initial conditions and non-linear time trends, also interacted in order to capture the possible non-linearities and changes through time. The lagged level of GDP compared to its 1989 value is included to capture a possible effect of the size of transition decline on the size of growth recovery. The list of instruments includes all exogenous variables.

Table 3. Determinants of reforms, integration and growth (Three-Stage-Least-Squares)

Dependent variable	Reform	Integration	Growth
Constant	1.36 ***	1.03	-31.67 **
Trend	0.42 ***	-0.16	7.49 *
Trend Sq.	-0.02 ***	-0.01	-0.42 *
Trend*Initial Conditions	-0.07 ***	-0.12	-1.54
Trend Sq.*Initial Conditions	0.00 ***	0.01 *	0.12
Lagged structural reform		0.87 ***	6.26 ***
Lagged structural reform interacted with CIS dummy		-0.61 *	
Lagged EU integration	0.30 ***		-1.15
Lagged GDP growth	0.01 ***	0.35 **	
Lagged GDP growth interacted with CIS dummy		-0.55 ***	
Fiscal balance			-1.27
Output recovery			-0.11 *
R-squared	0.71	0.76	0.32
Sample: 1991-2006 Observations: 400 (26x16)			

*, **, *** denotes significance at 10%,5% and 1% level, respectively

Our results presented in Table 3 suggest strong positive impact of European integration on structural reforms, notwithstanding strong and significant feedback effect from reforms to integration in the case of non-CIS countries. Growth is strongly and statistically linked to structural reforms, but not to European integration directly. Growth can also positively feed reforms as well as integration process. These results confirm the virtuous circle hypothesis. In other words, growth, integration and reforms can become mutually reinforcing processes. Such a reinforcing process fails to operate for CIS countries, as reforms and growth do not induce integration as indicated by the interactive term between reform progress and CIS membership in the equation explaining integration. In fact, it is not possible to reject the hypothesis that the impact of reforms on EU integration is not statistically different from zero for this group of countries. Obviously these results are not surprising as none of the CIS counties has been on a path towards EU membership[7]. The evidence therefore suggests that, indeed, exclusion from the accession process can have heavy costs in these countries in terms of reform underperformance and therefore growth. There are two mechanisms at work. First, lack of

[7] The fact that the CIS have not been offered any path toward membership does not mean that that broadly defined economic integration with the EU could not have brought some additional reforms and growth bonuses.

integration is harmful to reforms directly as evidenced by results from the first equation. Second, there is a potential indirect effect: countries might reform less as it does not give them any integration bonus (as suggested by the second equation) what causes additional loss in the progress of structural reforms (as evidenced by the first equation).

5. Potential growth bonus: results of simulations

We showed in the previous sections, that the overall robustness of the positive link between growth performance and reforms, as well as between reforms and integration is high. Nevertheless, quantitative results vary greatly dependent on exact specifications. This makes any point estimate of the size of potential growth bonuses in neighbouring countries problematic. However, it still does not preclude taking these results as the indication of the ballpark range of possible growth impact of deepened neighbourhood. This is exactly what we do below.

In order to derive the range of growth bonus estimates, we build on results of published research and complement them with results of our own econometric investigation. Specifically, we take as a starting point five recently published papers, described in some details in the second section of this paper. These papers used the most popular dataset of EBRD Transition Indicators to derive the results about the impact of reforms on growth. We construct exactly the same reform measures. As none of original papers, tried to link reforms to European integration, we estimate the link between each measure and the European integration. This is done in the analytical framework of a system of simultaneous equations described in the previous section. This framework also re-estimates the size of the impact of reform measure on growth. We use these new estimates alongside the original estimates to provide additional test of robustness.

Results for the average of the group of "Eastern Neighbours" (as defined earlier: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, Ukraine) are presented in Table 4. Each row in this table corresponds to the different measure of reform used in the respective paper. Estimates of growth bonuses presented in the first two columns are based on the simplest assumption that deepened neighbourhood can lead to the halving of the institutional gap between a given neighbourhood country and the average of the Central European countries. Using estimated coefficients about the impact of corresponding reform measure on growth, we derive a range of estimates about potential growth bonus that corresponds to such institutional harmonization. Results in the first column are based on the coefficient derived from the original papers. Second

column presents simulations based on the re-estimated impact in our system of simultaneous equations.

Third column presents results derived in a slightly more involved way using our econometric result about the impact of integration on reforms. Unfortunately, the estimated coefficient can show only the impact of different stages of accession process and not that of deepened neighbourhood cooperation. For this reason, also in this approach we are forced to make an arbitrary assumption. Namely, we assume that fully blown neighbourhood cooperation can yield reform cum growth impact equivalent to estimated impact of two steps in the accession process (or half the size of the actual full accession impact).

The derived range of possible values between 1 and 3.8 with the median at 1.8 percentage points seems to be intuitively plausible in evaluating the aggregate gains for the neighbouring region. Not surprisingly, among analyzed indicators, the least growth bonus is expected through basic liberalization reforms, where the gap between Eastern neighbours and Central Europeans is the lowest and the uniqueness of European factor in inducing reforms is the smallest (Dabrowski and Radziwill, 2006). The importance of these results should not be overlooked as consistently with the specification of underlying econometric studies, additional percentage point of growth due to better institutions is predicted to persist. In other words, eliminating half of the institutional gap and sustaining the institutional variable on the same level results in permanent increase in the growth rate.

Table 4. Potential growth bonus from deepened neighbourhood cooperation

EBRD Transition Indicators* ***(used to evaluate the institutional gap)***	**Source**	**Growth bonus from eliminating half of the institutional gap with estimate of reform-output**		**Growth bonus from deepened neighbourhood cooperation with the EU**
		from original paper	**re-estimated**	
Weighted average of all 8 indicators	Merlevede B.(2003)	1.43	1.71	3.01
Simple average of all 8 indicators	Falcetti E., Lysenko T., Sanfey P. (2006)	3.47	2.67	3.76
Simple average of indicators 1-6	Eschenbach F., Hoekman B (2006)	3.42	1.94	3.02
Simple average of indicators 1-5	Koivu T., Sutela P.(2005)	1.77	1.51	2.66
Simple average of indicators 1-3	Mickiewicz (2005)	1.10	1.02	2.00

Source: Own estimation based on following EBRD indicators: 1) price liberalization, 2) trade and foreign exchange liberalization, 3) small-scale privatization, 4) large-scale privatization, 5) competition policy, 6) governance and enterprise reform, 7) banking reform and interest-rate liberalization, 8) non-bank financial institutions. For the list of countries see footnote to Figure 1.

To conclude this investigation, Table 5 and Figure 4 present average GDP growth in years 2000-2005 for seven Eastern Neighbouring countries together with the average estimated growth bonus resulting from institutional deepening. Lowest and highest estimates are also marked. It is clearly seen that the biggest beneficiary of development of institutions would be Belarus (average growth bonus of 4.71 p.p.) whose growth bonus surpasses results for other countries. This results from a considerable institutional gap persisting in this country in comparison to other Central European Countries. In case of other ENP countries the possible long-term growth bonus effects are also substantial. Among them, Armenia and Georgia (average growth bonuses of 1.14 p.p. and 1.19 p.p. respectively) seem to potentially gain the least from the deepened neighbourhood cooperation. This is not surprising, as these countries were the most successful in building the strong consensus for reforms without the direct European anchoring impact. This is evidenced by the highest EBRD transition indicators scores across Eastern Neighbourhood[8].

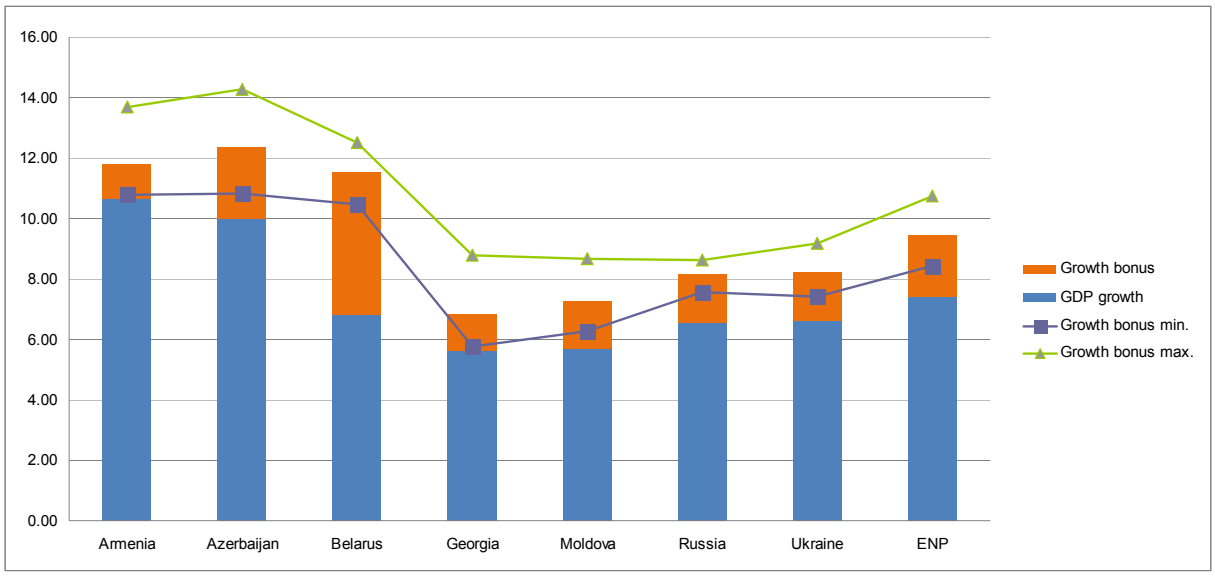
Table 5. Range of potential country growth bonus (% growth in per capita terms)

	Armenia	Azerbaijan	Belarus	Georgia	Moldova	Russia	Ukraine	ENP
Actual average growth 2000-2005	10.65	10.02	6.81	5.62	5.70	6.56	6.61	7.42
Average bonus	1.14	2.34	4.71	1.19	1.57	1.62	1.62	2.03
Min bonus	0.13	0.79	3.68	0.13	0.57	1.02	0.79	1.03
Max. bonus	3.03	4.25	5.71	3.18	2.98	2.06	2.57	3.76

Source: EBRD and own estimations.

[8] These countries are also ranked as best performers according to the 2008 World Bank Doing Business Report.

Figure 4. Range of potential country growth bonus for neighbouring countries



Source: definitions of variables come from Falcetti et al. (2006), Eschenbach and Hoekman (2006), Mickiewicz (2005), Merlevede (2003), Koivu and Sutela (2006). To compute the indicators we used EBRD dataset for years 1989-2007. The institutional gap was measured in 2007. Growth bonus equals the average of possible gains in the growth rate computed on the basis of the six indicators. GDP growth is an average growth computed for every country for years 2000-2005. Growth bonus max./min equals the maximum/minimum possible gain in growth on the basis of the analysed indicators.

6. Concluding remarks

We believe that our results are useful in providing the ballpark figure about the range of potential growth bonus from deepening of the neighbourhood cooperation, and most notably in confirming its overall positive impact on growth in neighbouring countries. Secondly, results also suggest that deepened neighbourhood can be particularly important in terms of growth for countries that lagged in reform process so far.

In interpreting these fundamental results, it needs to be stressed that there are several conceptual, economic and econometric considerations that reduce the robustness of specific results, and preclude the use of any point estimate in the policy debate. Conceptually, it is very difficult to evaluate now the degree of integration and hence of institutional harmonisation that would be achieved under the ENP compared to the EU accession process. Any arbitrary assumption has a crucial role in driving the value of growth bonus estimate. Secondly, economic growth is a complex process and reforms are only one of the elements that influence it. Possible

short-term bottlenecks might reduce the chances of accelerated growth. The long-term growth potential of economies is unknown, and neither is the equilibrium path of growth. It might happen that long-run growth potential can be in several instances already used due to the post-recession output recovery or oil windfall, exceptionally good access to external financing or simply a pick in the business cycle. There is also a strong element of interactions among different kinds of reforms and the underlying fundaments of economy or initial conditions. Some reforms might be more important than others at the given level of development. Some can be implemented less successfully due to organized vested interest groups etc. These considerations are only partially captured by different specifications presented and referred to in this paper. Last but not least, quantitative results tend to be very sensitive to details of econometric specification. Despite various methodologies discussed or presented in this paper, several econometric challenges, notably possible measurement errors and endogeneity biases, remain the challenge, which may reduce the robustness of specific results. These challenges make further research in this area both necessary and promising in terms of policy recommendations.

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