

AISSEC
XVII Scientific Conference

**Growth and Development Patterns:
The Role of Institutions in a Comparative Perspective**

Transition Economies: A Peculiar Pattern of Growth

Bozidar Cerovic
Aleksandra Nojkovic
Faculty of Economics – University of Belgrade
Kamenicka 6, 11000 Belgrade, Serbia
e-mail: cerovi@ekof.bg.ac.rs

*University of Perugia
Perugia (Italy), Thursday 25 – Saturday 27 June 2009*

Bozidar Cerovic
Aleksandra Nojkovic

Transition Economies: A Peculiar Pattern of Growth

Abstract

Authors examine the present state of art in conducting reforms among transition economies and briefly discuss the issue of the endogeneity of the transition process. Relying upon these findings they investigate what role the speed and/or progress in reforms play in enhancing economic growth and output level of a transition economy. It is shown that initial, inherited conditions determine both – growth and transition progress. Transition progress alone had some influence on growth in the first phase of transition but further on becomes insignificant. However, the impact of initial GDP level is evident during entire period of transition provoking a peculiar outcome: more developed economies perform better. Analysing growth under transition in the longer run authors examine how transition economies behave in comparison with the standard long term models of growth. It was shown that after 18 years of transition reforms the economies in question still structurally differ from market economies. Consequently, the long run growth models cannot explain growth in transition countries as they do in market economies although some modest changes can be remarked. Finally, authors conclude that the observed peculiarities prevent transition economies to catch up more developed countries.

Bozidar Cerovic
Aleksandra Nojkovic*

Transition Economies: A Peculiar Pattern of Growth

Introduction

The principal objective of this paper is to examine and re-question the relationship between transition progress and performance of transition economies. We shall try to show why transition process is not yet approaching its end and to explore how this process may and/or did affect growth and the level of output within the countries that have passed various steps in transition reforms. The issue is not just a scholastic one since it is firmly connected with the basic aim of transition process that was once designed and recommended as the best and the most productive way in overcoming stagnation within former socialist countries and in their catching up with developed market economies.

We shall firstly examine the present state of art in conducting reforms and briefly discuss the issue of the endogeneity of the transition process, which will enable us to more consistently determine forces of growth and development under transition. Secondly, we shall investigate what role the speed and/or progress in reforms play concerning economic growth and output level of a country in transition. Finally, we shall examine how transition economies behave in comparison with the standard long term models of growth and what consequences these results might have on the catching up process.

The speed and the length of transition: Where we have come?

In this section we shall partly reproduce some of our previously obtained results (Cerovic & Nojkovic, 2008, 2009) in order to make our point more understandable to the reader. We have re-calculated well-known EBRD assessments/indicators for transition progress so that we can follow advancement in reform implementation in various countries on a percentage point scale. Namely, the range of the EBRD indicators goes from 1 for no change to 4+ (or 4.33) for 'as if' a developed market economy. Thus, the path that has to be passed by a transition economy in terms of a sum of all the nine indicators¹ range actually from 9 to 38.97 (4.33 x 9, or 39). In other words, a country on its transition route has to earn some 29.97 (or 30) points as measured in compliance with the EBRD

* Faculty of Economics – Belgrade University; the paper is a part of a broader project supported by the Ministry for Science of the Republic of Serbia.

¹ The nine EBRD indicators are: small scale privatisation, large scale privatisation, enterprise reform (governance and restructuring), price liberalisation, trade and foreign exchange system, competition policy, banking reform and interest rate liberalisation, securities markets and non-bank financial institutions and infrastructure reform.

methodology². Starting from this fact and according to the EBRD assessments for all transition countries in 2007 (EBRD 2007) we have defined a measure that shows how far transition economies are from the aimed market model or what is their position on the transition path in terms of percentage points provided 0% represents their initial position (no reforms) and 100% depicts a fully developed market economy³. The relative progress of the countries would not be that transparent if the EBRD indicators were directly used: they present a more beautiful picture about reform success due to the fact that the EBRD indicators donate nine points before any change was taken. The percentage points obtained together with the sum of the EBRD indicators are presented in the Table 1:

Table 1.

Transition Progress in %
(authors' calculation based on the EBRD indicators, 2007)

Country	EBRD	Progress (%)	Country	EBRD	Progress (%)
Albania	26.66	58.92	Macedonia, FYR	28.32	64.46
Armenia	27.99	63.36	Moldova	26.66	58.93
Azerbaijan	23.67	48.95	Mongolia	26.99	60.03
Belarus	16.66	25.56	Montenegro	25.01	53.42
Bosnia and Herzegovina	24.34	51.18	Poland	33.99	83.38
Bulgaria	31.34	74.54	Romania	30.67	72.31
Croatia	31.66	75.61	Russia	27.33	61.16
Czech Republic	34.32	84.48	Serbia	24.67	52.29
Estonia	35.33	87.85	Slovak Republic	33.66	82.28
Georgia	27.66	62.26	Slovenia	30.33	71.17
Hungary	35.33	87.85	Tajikistan	21.33	41.14
Kazakhstan	27.01	60.09	Turkmenistan	11.67	8.91
Kyrgyz Republic	26.33	57.82	Ukraine	27.00	60.06
Latvia	32.66	78.95	Uzbekistan	19.35	34.53
Lithuania	33.32	81.15			

Source: EBRD 2008

It can easily be concluded that only eight countries (28% from 29 observed), according to the EBRD methodology, have accomplished reforms by 75% (or more) of the intended developed market economy structure. Among them only two countries are close to the 90% threshold (Estonia and Hungary) and one of them has just overstepped the 75% line (Croatia). Further on, 13 countries enter the range 55%-75% in accomplishing reforms, ten of which are in the range 55%-65%. Below 55% there are eight countries⁴.

² This new and convincing way of reasoning we took from Nuti (2008). It should be mentioned that percentages in calculating transition progress have been used previously by Gabrisch and Hoelscher (2006, see: p. 9) but it seems that they did not subtract initial nine points from their calculations.

³ The calculus is very simple: we divide the sum of the EBRD indicators (minus nine) for each country with 29.97 multiplying the result by 100 to get percentage points.

⁴ The relative progress of the countries is not that transparent if we calculate it directly from the EBRD indicators since the EBRD indicators present a more beautiful picture on reform success: an example of a country with, say, 20 EBRD points, seems to show that this country have passed already a half of its way to a market economy; in reality it has left behind just a bit more than a third of that route (this difference is due to the fact that the EBRD indicators donate nine points before any change was taken).

Our main concern is how the presented figures portray the present outcome of transition process after nearly two decades since recommended transition policies have been claimed. At the beginning of transition it was likely to look at the time horizon for achieving a full reform as a close one ('jump over a chasm in one leap') including some apparently cautious forecasts that transition reforms could take approximately not more than ten years.⁵ After 18 years (what a leap!) it appears that transition process is much more demanding, that it depends on many various and not yet fully recognised factors and definitely is not merely a matter of strong or weak willingness among policy makers in transition countries, which was seen at the beginning as the most powerful foundation for speeding up reforms.

Obviously, the initial expectations about the speed of reforms have not been confirmed; it is more plausible that some other forces – neglected at the beginning of transition – play an important role. This brings us to the issue of endogeneity of transition progress and to the role of initial conditions, inherited level of development and of institutional capacity in conducting reforms.

Thinking about endogenous character of transition progress we basically refer to a set of inherited initial conditions within a country. Among these conditions the two groups dominate: (a) level of development in terms of the *GDP per capita* together with macroeconomic conditions, or rather distortions and (b) the inherited level of institution capacity including experience in governance of a market oriented economy or at least in some deeper reforms within the preceding economic system. Since the data are usually lacking it is relatively difficult to fully assess initial conditions although some attempts have been made⁶.

Having this in mind, we have examined the impact of the following variables on transition progress (TPROG, in terms of percentage points as explained above): (i) value (in US\$) of the *GDP per capita* in 1989 expressed by purchasing power parity (GDP1989), (ii) dummy variable stating whether a country had deeper market oriented reforms during communism or not (MREF), (iii) number of years of communist rule in an economy (INST1), (iv) black market premium in exchange rate compared with the official one in 1990, that is on the eve of transition (INST5), which is used as a proxy for various macroeconomic distortions.⁷

In the paper we refer to (Cerovic & Nojkovic, 2008), we have tested a set of regression equations in order to estimate how long and how much initial conditions influence

⁵ Fischer and Gelb (1991); one may also recall Dornbusch's allegoric 'seven days' (1991).

⁶ In seminal papers of de Melo *et al.* (1996, 1997) on the relationship between initial conditions, reforms and performance we found a set of indicators regarding initial conditions and among them those for macroeconomic inherited surroundings and even for some institutional variables. Further on, there were attempts in collecting additional data (e.g. Campos (1999), Moers (1999), Fischer and Sahay (2004), Roland (2007)).

⁷ In a chronic lack of data for transition economies we used for variables (i), (iii) and (iv) the results published in de Melo *et al.* (1997) and for variable (ii) we put a dummy stating that former Yugoslav countries, Hungary and Poland had some experience with market oriented reforms (represented by the value 1 and 0 for the others).

reforms. We tested several models for the years 1998, 2001, 2004 and 2007⁸. In all the models the results obtained were similar. Here we shall reproduce the results for the 2004 and 2007 only⁹. These results for 23 transition economies (we cannot find all necessary data for the others) are presented in Table 2.

Table 2.

Independent variable: TPROG (2004, 2007)

Variable	TPROG 2004			TPROG 2007		
	Equ. 1	Equ.2	Equ. 3	Equ. 1	Equ. 2	Equ. 3
Constant	42.6856 [5.5538]*	93.6131 [7.9790]*	56.2956 [7.7535]*	46.3134 [7.9727]*	98.5921 [8.0612]*	59.546 [7.8042]*
GDP1989	0.0034 [2.4286]**	0.0028 [3.1111]*	0.0034 [2.8333]*	0.0032 [2.2857]**	0.0026 [2.6000]*	0.0033 [2.5385]**
MREF	11.8103 [2.1398]**			11.1888 [1.9708]***		
INST1		-0.8068 [-4.3824]*			-0.8298 [-4.3286]*	
INST5			-0.0973 [-3.1694]*			-0.0948 [-2.9169]*
R ² (%)	32	65.5	46.4	28.4	64.2	42.1
Adj. R ² (%)	25.2	62.1	41	21.2	60.6	36.3
DW statistics	1.92	1.77	1.76	1.93	1.85	1.81
N	23	23	23	23	23	23

Note: t-statistics for coefficient estimates in parentheses; * denotes statistically significant at 1% level; ** denotes statistically significant at 5% level; *** denotes statistically significant at 10% level.

The most impressive result in the table presented is that initial conditions, permanently and significantly influence transition progress over the entire analysed period. Moreover, the explanatory power of the models in terms of adjusted R² does not diminish over time necessarily¹⁰. For instance, equation 2 with the initial GDP and INST1, suggests that the impact of initial conditions increases over time until the period beyond 2004. This is not surprising: some of the countries that were longer under a planned economy like the countries from the former USSR did not have any remarkable experience with market economy neither under communist rule nor in the preceding history (excluding Baltic countries to some extent).

These results lead to a conclusion that the hypothesis on the impact of initial conditions on transition progress of a country is correct and that the influence of economic and

⁸ We have estimated a set of additional equations for the same period that includes some other variables describing various initial conditions as publicised in both papers of de Melo *et al.* In doing so we have discovered that many of them influence transition progress for a long period. However, we use the models from Table 2 since the variables used in those equations better represent something of the institutional heritage than the others.

⁹ Other results have been presented in our paper already quoted (Cerovic & Nojkovic, 2008)

¹⁰ This is contrary to the findings of de Melo *et al.* 1996, 1997 who claimed that proper policies and the willingness of policymakers to swiftly implement them can overpass some deficiency in starting positions of transition countries

institutional heritage lasts much longer than it was predicted at the beginning of transition.

Transition and growth

Now, we come to our principal question: what relationship between transition and growth might be expected? The architects of transition process have presented a set of measures and policies stating that if these policies were carried out accurately they should lead economies in transition into a system of effective performance in a relatively short period. Recalling these statements we point out the two seminal analytical papers on the issue by de Melo *et al.* (1996, 1997), which were to confirm that countries undergoing faster reforms should perform better in terms of their GDP *per capita* level. These papers together with some other findings (Sachs, 1996; Havrylyshin & Rooden, 1998) seemed to provide important arguments in favour of the idea that the speed of transition matters: the reforms should be implemented as fast as possible and this, in turn, would be awarded by higher growth rates and faster recovery from transition recession.

However, further studies showed that the issue of velocity in carrying out reforms is not that straightforward. A number of authors including some who have agreed with de Melo¹¹ and others who have expressed some doubts about her conclusions¹² found that the speed of transition and the quality of new institutions could not be separated from the inherited conditions. Moreover, the speed of reforms, transition progress as well as performance of a transition economy appeared to be largely dependent on initial conditions of a country in question and the capability in institution building. In a previous section we have shown why we find this idea correct and how initial conditions affect the pace of transition process over a relatively long period that is, until present days.

Obviously, this has got to influence any further study. If the speed of reforms depends on inherited conditions and is endogenous there is less possibilities for policy makers to choose the speed of reforms on their own. Moreover, if the speed of reforms matters regarding growth and is determined to a considerable extent by initial conditions then the growth itself should depend on initial conditions.

In order to analyse these problems we firstly estimate an already conventional model for transition economies that takes GDP level achieved as being dependant on initial conditions and reform progress. We put GDP per capita (GDPpc) for the years 1998, 2001, 2004 and 2007 to be dependent variable whereas independent variables are: (a) GDP *per capita* from 1989 (GDP1989), (b) transition progress (TPROG) measured by percentage points (as in Table 1) squared (squared in order to capture *U* shaped transition growth), (c) a dummy– whether a country had deeper market oriented reforms or not (MREF, as explained in footnote 7) and (d) average rate of inflation from 1994 (INF average) to avoid the first and unstable years of transition process. Taking a set of 25 transition economies we have obtained the following results (Table 3):

¹¹ Like: Krueger and Ciolko (1998), Heybey and Murrell (1999) etc.

¹² Like: Popov (2000), Stiglitz (2001), Ellerman (2003); an author of this paper also took part v. Cerovic (2000).

Table 3.

Dependent variable: GDP per capita in different years

	GDP pc 1998	GDP pc 2001	GDP pc 2004	GDP pc 2007
constant	-1861.506 (-2.73)**	-2231.794 (-2.84)*	-3850.433 (-2.84)*	-5580.674 (-3.14)*
GDP1989	0.489 (3.66)*	0.527 (3.31)*	1.048 (3.26)*	1.754 (4.23)*
MREF	1859.159 (2.94)*	2059.752 (2.56)**	3439.307 (2.14)**	3214.653 (1.73)***
TPROG*TPROG	0.384 (2.38)**	0.405 (2.94)*	0.507 (2.02)***	0.736 (2.42)**
INF average	-0.466 (-3.23)*	-0.833 (-3.42)*	-2.195 (-3.21)*	-4.948 (-3.94)*
R-squared	0.82	0.84	0.82	0.85
Adjusted R-squared	0.79	0.81	0.79	0.82
Durbin-Watson statistics	2.22	2.35	2.27	2.32
N	25	25	25	25

Note: t-statistics for coefficient estimates in parentheses; * denotes statistically significant at 1% level; ** denotes statistically significant at 5% level; *** denotes statistically significant at 10% level.

What information we can derive from the analysis presented? First, there is a peculiar evidence: GDP1989 that is, the initial income of a country has a positive sign suggesting that more developed countries performed better in terms of their GDP level. This relationship is statistically significant at a high level. The finding is in sharp contrast with accustomed growth models which suggest the poorer countries should grow faster and in doing so can catch up developed economies. This peculiarity has already been remarked (see: Campos, 2001 and we shall discuss this issue in more detail within the next section of our paper).

We can also remark that lower inflation and/or stable macroeconomic environment supports growth, which is not surprising. It is not surprising either that the countries that have undergone certain reforms while being under the framework of a “socialist economy” have been more successful regarding their GDP per capita levels. Finally, the variable that stays for transition progress is also related to performance as measured by the GDP per capita although its significance varies over time. This finding is the second intriguing point: we have already remarked how initial conditions affect transition progress – more developed transition economies have higher potential for faster reforms. But, if faster reforms push up performance and if more developed transition economies perform better under transition we can establish a proposition that only these, more developed economies can successfully pass transition process or at least at lower costs in terms of growth losses.

In this respect we may recall another interesting result. When attempting to estimate somewhat different specification where instead of the variable MREF we used a variable that brings up number of years that an economy had spent under previous

(socialist/communist) economic system (INST1)¹³ we have found some important specificities. The effect of INST1 on GDP per capita level is (expectedly) negative and significant, while the variable TPROG*TPROG appear to be positive with GDP per capita level, but insignificant! This is due to the multicollinearity problem since we have included in the model two variables (TPROG*TPROG and INST1) which are quite strongly correlated¹⁴. In other words, relationship that connects explanatory variables is stronger than relationship between TPROG*TPROG and GDP per capita level. However, we draw attention to this econometric aspect since it brings us again to initial conditions that dominate in explaining both – GDP level and transition progress.

If we want to precise what information concerning growth has come out from the results obtained in Table 3 we shall conclude that we have only been learned that countries with higher initial GDP-s per capita will have higher GDP-s per capita during and/or after transition process, as well. On the other hand we know that transition economies (due to restructuring or disorganisation and/or other reasons) have to pass a specific type of recession, called transition recession, which makes their GDP curve to acquire a *U* shaped form. Form above models we cannot directly get an evidence about this effect and its length.

For that reason, we direct our analysis towards GDP indices during transition – not just GDP per capita values – in order to see how much they correspond to transition progress of each country. This might explain to what extent transition progress could possibly add to faster overcoming of the foreseen recession. It is also important to identify how much initial GDP per capita correlates with transition progress itself or how much an initial level of development alone can help in speeding up transition reforms within a country. In Table 4 we present correlation coefficients for the first pair – GDP indices (base year is the starting transition year – 1989) in selected time points (1998, 2001, 2004 and 2007):

Table 4.

Correlation between GDP indices (1989=100) and TPROG in different years

	1998	2001	2004	2007
Correlation	0.50	0.28	0.20	-0.11
Probability	(0.01)	(0.18)	(0.33)	(0.61)

We found that only in (or until) the year 1998 there was certain and sufficiently significant (10%) positive correlation between transition progress and achieved GDP among 25 analysed transition economies. However, in later years this relationship became insignificant and was disappearing. Moreover, in the last year of our analysis (2007) an unexpected result emerged – transition progress remained insignificant when related to faster recovery from transition recession, but if it had influenced growth this would have had an adverse effect: the sign of the coefficient is negative!

¹³ This variable was firstly employed by de Melo *et al.* (1996).

¹⁴ For example, sample correlation coefficient between this two variables for 2007 data is $r = -0.77$, while the coefficient of determination from the auxiliary regression of TPROG*TPROG on all other explanatory variables in the equation is also substantially high, $R^2 = 0.73$. For that reason, it is clear that problem of multicollinearity appears and is serious in this model.

However, this peculiar result from the standpoint of those who promoted speedy reforms as a course to faster and more efficient growth is not that surprising. Some countries, as explained above, did not have sufficient capacity for recommended reforms and their fast implementation. This is also evident from Table 5 where we present correlation coefficients between initial GDP per capita values and transition progress:

Table 5.

Correlation between GDP 1989 and TPROG in different years

	1998	2001	2004	2007
Correlation	0.48	0.47	0.50	0.48
Probability	(0.015)	(0.017)	(0.011)	(0.016)

Contrary to the previous table here we find pretty firm and significant correlation between the two variables with almost equal value of the coefficients across the entire period. These results, in somewhat simpler manner than before, highlight the impact that initial level of development has on transition advancement of an economy¹⁵.

Again, the two conclusions are very much opposing the initial ideas. According to de Melo *et al.* (1996, 1997) as well as some other contributions (Sachs, 1996 and Fischer *et al.* 1996), the speed of reforms should improve performance and growth while the impact of initial conditions had to diminish over time. According to our results we see that this is not true and moreover, the effects are quite different. Although transition progress can add something to growth in the first years of transition, further on its impact becomes irrelevant whereas initial and inherited conditions constrain reforms as well as the level of output – both directly and indirectly (as it came out from the results and analysis of Table 3)!

The growth effects of transition progress in the first phase of transition, which we have identified in 1998, could be understood in another and in our view, more appropriate way. The fact that more developed countries with better potentials for reforms were advancing faster in terms of GDP could be better explained by a simple truth that in these economies all other factors of economic growth were better: higher income might induce higher savings, human capital of better quality could add to growth, institutional environment and general attitude toward the new system was positive, easing reforms and in turn, attracting investors to come while investments could be more effective than in other transition economies. Looking backwards it seems this has exactly happened, particularly in Central Europe: Poland, Slovenia, Slovakia, Hungary and Czech Republic are among those initially more developed countries, whose transition recession was shorter and performance better and they had some market experience either through their own reforms or because have spent less time under central planning regime¹⁶.

¹⁵ This impact is not hard to explain – the higher the income, the better is human and sometimes social capital, the necessary institutions can be better and faster established or improved, the logic of the new system can be understood on a broader scale etc. and the reforms can be implemented in a smoother way and at lower costs.

¹⁶ Even those countries have passed a longer and deeper recession than the one predicted by transition policy advisors (see: Tridico, 2006, pp. 15-16).

Finally, we may conclude that transition process provokes an unexpected and peculiar pattern of growth: although proposed as a policy for enhancing efficiency and better performance it has supported primarily more developed countries when compared with less developed transition economies. However, even those countries suffered from transition recession. After some twenty years since transition has started it seems to be a proper time for analysing what structural changes have occurred and whether the losses in growth at the beginning were gainful in the long run. In discussing this issue we shall analyse how the long run growth models perform within transition economies.

Growth peculiarities in the long run

Summarising our previous results we have concluded that in the first period of transition there appears a certain relationship between transition progress and growth: transition progress seems to stimulate growth but is itself an endogenous variable that depends on initial conditions including the achieved level of GDP in the pre-transition period. Moreover, it was shown that the initial GDP level dominates in this relationship which means that initial GDP is more correlated with transition progress than transition progress can be seen as a specific factor of growth.

This can additionally explain why transition economies exhibit peculiar behaviour when confronted with traditional long run growth models: the more developed economies perform better and grow faster. As mentioned above this peculiar outcome (together with some other that will be commented below) has been presented by Campos (2001) but only for the first decade of transition. Since we have demonstrated that transition process is still ongoing and is not approaching its end in majority of the countries – at least not in the way it was designed – it is important to analyse whether transition economies show observed peculiarities in current phase that is, at the end of the second decade of transition.

Following Campos, we have explored two specifications: the one presented by Barro (1991) and the one put by Levin and Renelt (1992). The Barro model suggests that real GDP growth is a function of initial level of per capita income, the level of human capital (measured by gross primary and secondary school enrolment rate) and the share of government consumption in GDP. In this specification initial income and government consumption are expected to have negative effect on growth while human capital should have a positive impact. The Levin and Renelt specification suggests that initial level of per capita income, rate of population growth, the level of human capital and share of investments in GDP are key determinants of growth of an economy. Specifically, investments and human capital are expected to be positively related to growth, while initial income and population growth are expected to be negatively related to growth.

When Campos (2001) used Barro and Levine-Renelt models to examine growth pattern in 24 transition economies covering the period from 1989 to 1998 he got several surprising results. Among the variables that have been identified as the long-run determinants of growth, only few were statistically significant in the sample of transition

economies. The signs for initial income per capita, population growth, government consumption and secondary education were opposite to what one should expect and not statistically significant. It was only the coefficient on basic education that showed an expected positive sign and was statistically significant. The coefficient on investments became statistically significant at the 10% level only when baseline model was augmented by including CIS dummy variable for the countries from the former USSR, which had a negative sign – as expected – and was statistically significant. Compared with the result obtained by traditional growth accounting, it is found that Levine-Renelt and Barro approach performs poorly in transition context. According to Campos (2001), econometric and data problems seem much less severe than the structural difference remaining after almost a decade of transition.

Concerned by these findings we have re-estimated the two specifications, using cross-sectional data of 25 transition economies and covering the whole period of transition – from 1989 to 2007, as well as the second transition decade – from 1999 to 2007. In Table 6 we report estimation results obtained together with the results obtained by Campos (2001) both for transition and non-transition economies¹⁷.

Table 6

**Barro and Levine-Renelt specifications – estimation results:
Dependent variable: average annual GDP growth rate**

	Barro specification			
	Transition 1999-2007	Transition 1990-2007	(Campos, 2001) Transition 1990 - 1998	(Campos, 2001) Nontransition 1990 - 1998
Constant	17.2312* (1.408)	6.22* (1.986)	-47.09* (11.850)	-0.185 (1.128)
Initial income per capita	0.0001 (0.000)	0.00008 (0.000)	0.0001 (0.0005)	-0.0005 (0.0009)
Basic education	-0.0785*** (0.042)	-0.07959 (0.06997)	0.448* (0.110)	0.009 (0.013)
Secondary education	0.0249 (0.042)	0.0442 (0.067)	-0.018 (0.064)	0.0277*** (0.0147)
Government consumption	-0.172* (0.051)	-0.026 (0.051)	0.172 (0.148)	-0.0403 (0.035)
CIS dummy	1.368 (1.199)	-1.150 (1.102)	-2.854*** (1.489)	
Adjusted R-squared	0.505	0.089	0.545	0.087
N	25	25	25	115

¹⁷ In the table below we specify data definitions and sources used in estimating models.

Variables	Definition	Period	Sources
Dependent variable	GDP growth, annual, %	1990-2007; 1999-2007	EBRD (various years)
Initial income per capita	GDP per capita, current dollars	1989; 1998	EBRD
Basic education	Gross primary school enrolment, %	1990-2005; 2000-2006	UNICEF, UNESCO, WDI
Secondary education	Gross secondary school enrolment, %	1990-2005; 2000-2006	UNICEF, UNESCO, WDI
Population growth	Population annual growth rates, %	2000-2006	UNICEF, WDI
Investment	Investment/GDP, %	1990-2007; 1999-2007	EBRD (various years)
Government expenditure	Expenditure/GDP, %	1990-2007; 1999-2007	EBRD (various years)

	Levine and Renelt specification			
	Transition 1999-2007	Transition 1990-2007	(Campos, 2001) Transition 1990 - 1998	(Campos, 2001) Nontransition 1990 - 1998
Constant	-3.62 (8.400)	-1.53 (3.484)	-7.02** (3.150)	1.32 (1.03)
Initial income per capita	-0.001** (0.000)	0.00005 (0.000)	0.0005 (0.000)	-0.0016 (0.007)
Secondary education	0.015 (0.091)	-0.0087 (0.013)	-0.007 (0.074)	0.003 (0.012)
Population growth	0.451 (0.676)	0.5792 (0.600)	1.570 (1.160)	-1.09** (0.264)
Investment	0.374* (0.099)	0.1651 (0.099)	0.163* (0.092)	0.102** -0.023
CIS dummy	2.021** (0.723)	-1.1699 (0.792)	-5.54** (1.640)	
Adjusted R-squared	0.430	0.133	0.441	0.309
N	25	25	24	115

Robust standard errors are given in parentheses; * denotes statistically significant at 1% level, ** denotes statistically significant at 5% level, *** denotes statistically significant at 10% level.

The two re-estimated specifications confirm the results of Campos (2001) even when observed period has been extended to the entire transition era of almost twenty years¹⁸. Barro and Levine-Renelt coefficients are all insignificant. There are only few minor changes in sign which are sometimes in accordance with the expected ones (secondary education and government consumption in Barro's model).

However, in the second period 1999-2007, according to our calculations presented in Table 6 there are some new evidence. These changes are fewer in Barro specification and our results could be summarised as follows:

- The lack of statistically significant coefficients is still evident;
- The signs of initial income per capita and basic education are opposite to what we should expect (although primary education remains significant) while the CIS dummy became insignificant and has obtained a negative sign;
- Secondary education does have an expected, positive sign but remains statistically insignificant;
- Government consumption has an expected, negative sign and became significant in comparison with the preceding decade.

In estimating Levine-Renelt specification we may remark somewhat more expected adjustments. Basically, our findings indicate the following:

¹⁸ There is another interesting result for both specifications: although the explanatory power of the models (adjusted R²) is relatively high for the two periods when observed separately, for the entire period it becomes weak and almost negligible. This indicates that the two phases of transition have been substantially different and gives us a new task for further research.

- Initial income per capita has an expected negative sign and is statistically significant (contrary to the preceding period);
- Investments have an expected sign and became more significant in comparison with the preceding decade;
- Secondary education remains statistically insignificant but with an expected sign;
- The sign for population growth coefficient remains opposite to what we should expect and is not significant¹⁹;
- The CIS dummy remains significant, but – surprisingly – with a positive sign (meaning that CIS countries experienced larger output increase than the ones in Central European economies in the second decade of transition despite their lower assessments for transition progress).

We may conclude that transition economies still remain structurally different from other market economies at comparable levels of *per capita* income after almost two decade of transition. This gives new evidence regarding the transition path that every transition economy has to pass which appears much longer than predicted and this is in accordance with the data presented in our Table 1. On the other hand we may conclude that over time and in comparison with the results obtained for non-transition countries, the Barro and Levin-Renelt approach in particular start to perform slightly better in later years of transition process or perhaps, in the years when transition economies have managed somehow to adjust to the new economic environment and new economic settings (whatever its contents could be).

Conclusions

We have shown that transition process is still an ongoing process in a vast majority of transition economies and is far from its projected end. This is in sharp contrast with predictions and expectations at the beginning of the process. It was explained that this prolonged process is caused by endogenous character of transition progress and its dependence on initial and inherited conditions of a country. The presented results show that the influence of economic and institutional heritage lasts much longer than it was envisaged at the beginning of transition and in the first transition advancement analyses.

¹⁹ This strange result probably is connected with the general climate of a transition economy: if there is some growth and better performance the standard of living is better and population growth is higher. However, in many transition economies population growth was stopped due to deterioration of living conditions and even a high mortality rate was sometimes related to certain transition policies like mass privatisation (see: Stuckler *et al.* 2009)

We have shown that in the first years of transition the progress achieved in reforming the economic structure of a country could play a certain role regarding country's performance. This is not necessarily an impact of reforms only since more favourable initial conditions positively affect both reforms and performance – the latter *via* known factors of growth. Nevertheless, in the longer run this effect fades out and currently there is no significant relationship between performance and transition progress (even if it could influence growth it would make an unfavourable impact expressed by a negative sign of correlation coefficient between the two series).

Analysing the two long term growth models we have shown that in a first phase of transition we may get very peculiar results: generally, the more developed countries perform better which in turn, block poorer countries in catching up developed economies. In a later phase of transition that is, in the second decade of reform implementation the models do not exhibit some of the peculiarities observed during an earlier transition phase.

This peculiar sequence of events could be a new argument that forced and quick transition – above all in the countries that do not have necessary prerequisites for fast reforms concerning their initial conditions – may harm growth abilities of these countries. Since poorer initial conditions do not support fast and radical change toward a model of a developed market economy it follows that some countries could perform better under less aggressive institutional adjustments and with persistent but slower institution building. Otherwise they could face big losses in terms of growth and a substantial delay in catching up process.

References

- Barro, R. (1991) "Economic Growth in a Cross Section of Countries", *Quarterly Journal of Economics*, Vol. 106, no. 2 (May), pp. 407-443
- Campos, N. F. (1999) "Context is Everything: Measuring Institutional Change in Transition Economies", *World Bank Working Paper*, No. 2269
- Campos, N. F. (2001) "Will the Future Be Better Tomorrow? The Growth Prospects of Transition Economies Revisited" *Journal of Comparative Economics*, Vol. 29, pp. 663-676.
- Cerović, B. (2000) "Privrede u tranziciji: desetogodišnje iskustvo privatizacije", in: *Vlasnička transformacija preduzeća i banaka: jugoslovenska i međunarodna iskustva i perspektive*, NDEJ, Beograd, str. 9-35
- Cerović, B. i Nojković, A. (2008) "Measuring Transition Progress: Endogeneity and Initial Conditions", u: Memaj, F. and Kächelein, H (eds.), *Economic and Social Challenges and Problems*, Vol. 1, Fakulteti i ekonomise, Tiranë, 2008, pp. 113-128
- Cerović, B. i Nojković, A. (2009) "Transition, Transition Progress and Growth", 8th International Conference, *Challenges of Europe: Financial Crisis and Climate Change*, University of Split, Faculty of Economics, *mimeo*
- de Melo, M. Denizer, C. and Gelb, A. (1996) "From Plan to Market: Patterns of Transition" *Policy Research Working Paper* no. 1564, The World Bank, Policy Research Department
- de Melo, M. Denizer, C. Gelb, A. Tenev, S. (1997) "Circumstance and Choice: The Role of Initial Conditions and Policies in Transition Economies." *Policy Research Working Paper* no. 1866, The World Bank, Policy Research Department

- Dornbusch, R. (1991) "Strategies and Priorities in Reform", in: Marer, P. and Zecchini, S. (eds.), *The Transition to a Market Economy*, OECD, Paris, pp. 169-183
- EBRD (2007) *Transition Report*, London, EBRD
- EBRD (2008) <http://www.ebrd.com/country/sector/econo/stats/index.htm>
- EBRD (2008a) *Transition Report*, London, EBRD
- Eesti Pank (2008), Bank of Estonia, Autumn Forecast, web page:
http://www.eestipank.info/pub/en/dokumendid/publikatsioonid/seeriad/ylevaade/2008_02_3_208.pdf
- Ellerman, D. (2003) "On the Russian Privatization Debate", *Challenge – The Magazine of economic Affairs*, May-June, pp. 6-28
- Fischer, S. and Gelb, A. (1991) "The Process of Socialist Economic Transformation", *The Journal of Economic Perspectives*, Vol. 5, No. 4, pp. 91-105
- Fischer, S. Sahay, R. and Vegh, C.A. (1996) "Stabilization and Growth in Transition Economies: The Early Experience", *The Journal of Economic Perspectives*, Vol. 10, No. 2 (Spring), pp. 45-66
- Fischer, S. and Sahay, R. (2004) "Transition Economies: The Role of Institutions and Initial Conditions", IMF, *Festschrift in Honor of Guillermo A. Calvo*, April, 15-16, 2004, mimeo
- Gabrisch, H. and Hölscher, J. (2006) *The Success and Failures of Economic Transition – The European Perspective*, Palgrave Macmillan, Basingstoke – New York
- Havrylyshyn, O. and van Rooden, R. (1998) "Recovery and Growth in Transition Economies 1990-97: A Stylized Regression Analysis", *IMF Working Paper*, WP/98/141
- Heybey, B. and Murrell, P. (1999) "The Relationship between Economic Growth and the Speed of Liberalization During Transition", *Journal of Policy Reform*, Vol. 3, No. 2, pp. 121-137
- Krueger, G. and Ciolko, M. (1998) "A Note on Initial Conditions and Liberalization during Transition", *Journal of Comparative Economics*, Vol. 26, 4, December, pp. 718-734.
- Levine, R. and Renelt D. (1992) "A Sensitivity Analysis of Cross-Country Growth Regressions", *American Economic Review*, Vol. 82, September, pp. 942-963.
- Moers, L. A. M. (1999) "How Important are Institutions for Growth in Transition Economies", *Tinbergen Institute Discussion Papers*, No. 99-004/2
- Nuti, D. M. (2008) "Alternative targets, paths and speed in post-socialist transition", EACES Conference, Moscow, mimeo
- Popov, V. (2000) "Shock Therapy versus Gradualism: The End of the Debate (Explaining the Magnitude of Transformational Recession)", *Comparative Economic Studies*, 42, 1, pp. 1-57
- Roland, G. (2007) Keynote address "Civil Society and Institutional Change: The Great Transition" at the seventh international conference *Enterprise in Transition*, Bol, Croatia, May 2007.
- Sachs, J. D. (1996) "The Transition at Mid Decade", *American Economic Review, Papers & Proceedings* 86, 2 May, pp. 128 –133
- Stiglitz J. E. (2001) "Quis custodiet ipsos custodes? Corporate Governance Failures in the Transition", in J. E. Stiglitz and P-A. Muet (eds.) *Governance, Equity and Global Markets: The Annual Bank Conference on Development Economics – Europe*, New York, Oxford University Press, pp. 22-54
- Stuckler, D. King, L. McKee, M. (2009) "Mass privatisation and the post-communist mortality crisis: a cross-national analysis", *The Lancet*, Vol. 373, Issue 9661, pp. 399 - 407, 31 Jan.
[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)60005-2/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60005-2/fulltext)
- Tridico, P. (2006) Institutional Change and Human Development in Transition Economies, *WP no. 59*, Università degli Studi, Roma Tre