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Growth, Initial Conditions, Law and Speed of Privatization in Transition Countries: 11 Years Later

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4.1 Introduction

The end of the communist era brought much optimism over the growth possibilities of the economies that are now referred to as the transition countries. An inefficient system, rife with distortions and without incentives, was to be replaced by the market. Privatization, liberalization, and decentralization would bring unprecedented prosperity. To be sure, there were some worries about a short transition recession. But the only real issue was how best to secure the transition.

Two schools of thought developed, one advocating shock therapy[2] and the other supporting gradual change. The former contended that the faster these countries achieved an economic structure similar to market economies the better off the population would be, and that the best way of doing so was to liberalize and privatize as quickly as possible. This school tended either not to emphasize the importance of institutions, including the legal and financial infrastructure, or to argue that the best way to achieve the requisite institutions was to privatize quickly in order to create a political and economic demand for these institutions.[3] The gradualists worried that without the institutional infrastructure, which could only be gradually created, privatization might lead to asset stripping rather than wealth creation. They also were concerned that not only would the dynamics of the economy be undermined, but rapid privatization might lead to large concentrations of wealth, and those with wealth might use their wealth to advance political institutions and policies which would maintain their wealth and monopoly. Today, the record of those economies that pursued shock therapy has been at best mixed; several countries have shown a dismal growth performance (see Table 4A1 in Appendix 4A).

The most successful transition economies by far have been China and Vietnam,[4] both of which pursued gradualist policies. There are, however,

some major problems in interpreting these experiences. First, each of the countries in transition differs from the others in initial conditions. Some[5] argue, for instance, that China and Vietnam have an advantage because they are *less* developed. But the least developed countries have, in general, not done well over the past 20 years; it is not obvious why compounding one difficult problem, development, with another, transition, should make life easier. Moreover, the countries of the FSU that were the least developed, like Kyrgyz Republic, did not fare particularly well. By the same token, some have argued that countries, like China, that were more agrarian should have had an easier time in transition, simply because that sector is less complex than the industry (Blanchard, 1997). But some of the countries, like Moldova, that were most agrarian were among those that performed the poorest, and the agrarian sector in Russia and in other countries has not performed particularly stellar.

At the same time, others have argued that in some respects, China's transition was not gradual. The transition from the communal agricultural system to the individual responsibility system was, in fact, done remarkably rapidly. But the gradualists nonetheless claim China as a case on their side: even this change was not forced all of a sudden from the top; there was an experiment, first in one province, then in others; the repeated successes led to the demand for this reform by successive provinces. Moreover, in contrast to the countries that followed the shock therapy model, land was not privatized; the farmers were given only long-term use rights. Finally, other reforms were introduced only gradually. But the debate about whether transition in China was or was not gradual serves to highlight the multidimensional nature of these transition strategies that are hard to summarize in a single descriptor such as 'shock therapy' or 'gradualism'.[6]

Economic theory provided less guidance on this subject than one might have hoped. Economic theories are better at analyzing equilibrium than they are at analyzing change, and especially changes of the magnitudes involved in the transition. And there were relatively few historical experiences that seemed similar enough to provide much guidance. In light of this, it is remarkable how strongly the shock therapists argued for their views.

Still, economic theory did have some things to say about the transition, and what it said did not provide much support for the advocates of shock therapy. It was remarkable how they were able to ignore these lessons: incentives matter, but if there are wrong incentives in place, individuals will be motivated to strip assets rather than create wealth. Without good corporate governance laws, for instance, those who had control of assets had an incentive to divert those assets to their own benefit. Capital market liberalization enhanced the ease with which these individuals could move their assets abroad – taking advantage of the security of property rights outside the country at the same time they took advantage of the absence of a good legal framework at home to amass fortunes. The illegitimacy of the privatization

process meant that their property rights were inherently insecure at home (unless the oligarchs who seized this wealth could somehow short circuit democratic processes that might naturally question these asset claims), and the subsequent events under Putin confirmed such worries. The oligarchs thus had an incentive to take as much of their money out of the country as they could; and as they all did this, the economy weakened, reinforcing both the judgment that, say, Russia was not a good place in which to invest one's money, and weakening further the security of those property rights. The claims of those who said it made little difference how the state's assets were privatized – it only mattered that they be privatized quickly, if Russia was to make a quick and successful transition – increasingly lacked credibility: how, ordinary Russians asked, could an oligarch's investment in a British football club help Russia's development?[7]

In the end, the advocates of shock therapy often seemed to bolster a simplistic theoretical argument – markets are the most efficient economic system, and therefore, the more rapidly one establishes a market economy the better off one will be[8] – with an empirical claim: those countries that privatized and liberalized most rapidly did better.

In the mid-1990s, cross-sectional studies attempted to sort out the relative importance of policies[9] and initial conditions[10] in determining the success in transition. There are many aspects of economic policy that might, in principle, affect success – not only privatization and liberalization, but also, for instance, inflation and macro-stability. Moreover, different aspects of initial conditions – institutional initial conditions and economic institutions' conditions – might affect success differently. Many of the studies concluded that policies, in particular, fast liberalization and privatization, combined with macro-stability were the key to success.

But as in Aesop's fable, the tortoise may have overtaken the hare. These studies were conducted at an early stage in the transition. Countries like Poland and Slovenia that pursued gradualist policies appear far more successful than those under shock therapy. In some cases, they may have even advanced further in privatization or liberalization. With the additional data of five years – doubling the span of time of the earlier studies – we can at last begin to ask the question: 'does speed help?' Of two countries, both by 2001 having privatized most of their enterprises, did the country that did so rapidly outperform the country that did so more gradually? The results confirm casual impressions: shock therapy was not conducive to success.

In answering this question, as well as identifying the relative role of initial conditions, policies, and institutions, we should be clear: cross-section analysis can at best be only suggestive. We do not have a full set of data that would enable us, for instance, to quantify precisely all of the relevant initial conditions, which would include not only the level of per capita income (a measure of development), and the economic structure (for example the fraction of the economy in agriculture or the fraction of output in commodities which are easily marketed internationally), but also the implicit tax or

subsidy leveled on the country as a whole by Russia (for example whether the prices they received for their sales were below international prices, or the prices they paid for, say, oil were below international prices), or the degree of dependence on Russia (determining the extent to which the country's decline was related to the decline in the Russian economy).

Moreover, with so many variables, and only a limited number of countries, it is not easy to sort out the relative role played by each factor. Making matters worse, there is a high level of multicollinearity, and there are multiple interpretations of the coefficients on particular variables. Those countries that were nearer Western Europe might not only have greater access to Western European markets, but also be more influenced by Western European ideas. The countries of Western Europe had a geographical advantage *and* a difference in history. Furthermore, the prospect of accession to the EU provided some spur for faster institutional change. Policies and institutions may both be endogenous.[11] Most of the earlier studies not only ignored the problem of endogeneity and paid insufficient attention to multicollinearity but they also lumped institutional and economic initial conditions together in a single index. In this paper, we not only look at what insights the past half-decade can provide on the transition, but also try to deal explicitly with each of these other problems. Most importantly, with the additional data we can begin to sort out the effect of the *level* of 'reform' (the extent of liberalization) from the *speed* of reform. Of two countries that, say, by 2001 had achieved comparable levels of liberalization, did the countries that rush to liberalize do better? On the whole, does the evidence support shock therapy or gradualism?[12]

This paper is organized as follows. The next section covers the literature review. Section 4.3 describes the data and methodology used in this paper. Section 4.4 describes the results using both Ordinary Least Squares (OLS) and Two-Stage Least Square (TSLS) regressions. Section 4.5 presents our conclusions.

4.2 Literature review[13]

Our paper relates to the cross-country empirical literature on growth in transition countries, trying to sort out the roles of:

a) Policies, more specifically, liberalization and privatization, and the speed with which they were implemented (including using instrumental variables to correct for endogeneity of policy indexes);
b) Initial conditions, and especially the 'burden' left by the Communist era;
c) Institutions and, more specifically, legal institutions.

Most of the studies described below related to the first years of transition. A scatter diagram of performance during these years and subsequent periods

shows that performance during the first period was not a good indicator of good performance during the second. This means that we need to be extremely cautious in interpreting these earlier studies, no matter how well conducted they were. There are many reasons, in particular, to be suspicious about relying on studies based on performance in the first few years of transition. Growth strategies might, for instance, have been neither economically nor politically sustainable. Some countries borrowed heavily, and invested their money poorly; the borrowings could have supported a consumption binge,[14] or at least prevented an even greater fall in consumption; but such strategies were clearly not sustainable.[15] Increases in inequality and poverty associated with some of the reform strategies made those strategies politically unsustainable within a democratic context. The longer time series now available at least give us a somewhat better perspective on long-term performance; and it is, of course, this long-term performance in which we are interested.

4.2.1 Liberalization policies

De Melo *et al.* (1996) first identified the positive relationship between indexes of liberalization and economic growth for (26) countries in transition. They calculated annual indexes of liberalization. They employed a cumulative measure: the Cumulative Index of Liberalization (CLI).[16] Though one might have wanted separate indices for, for example, trade liberalization and privatization, the variables were sufficiently correlated that it made sense to use an aggregate index. Controlling for initial income per capita and a dummy for regional tensions, they found that the liberalization index has a positive significant effect on 1989–94 average growth.

Subsequently, Selowsky and Martin (1997) used indexes from De Melo *et al.* (1996) for a panel data of 25 transition economies. They attempted to adjust growth rates for under-reporting and to control for 'war' using a war dummy. They also obtained results similar to De Melo *et al.* (1996). Sachs (1996) provided a similar regression analysis for 1989–95 average growth without controlling for any other variables and obtained a similar positive relationship.[17]

Fischer, Sahay and Vegh (1996a, 1996b) performed Generalized Least Square on a pooled panel data of 25 transition countries for 1992–94 growth rates and De Melo *et al.* (1996) liberalization indexes, controlling for country effects. In the first paper they included as controlling variables inflation, fiscal deficit as percentage of GDP and official external aid as percentage of GDP. In their second paper they only controlled for fiscal deficit and a dummy for fixed/flexible exchange rate. In both cases, they found a positive relationship between growth and liberalization policies.

The papers described so far were widely viewed as supporting the hypothesis that the faster the rate of liberalization, the faster the growth. But further work suggested that these results were not robust. Aslund, Boone and

Johnson (1996) also used CLI for explaining cross-sectional 1989–95 cumulative growth rate of 24 transition countries. In addition, they included a dummy for ruble zone and war-torn countries. When these variables were added to the regression, the effect of CLI vanished. As Fidrmuc (2001) pointed out, these variables could be interpreted as capturing the distinctive negative legacy of the communist regime. In this sense, FSU countries received a worse legacy than Eastern European countries. This issue of legacy draws attention to a different and competitive explanation for explaining the cross-sectional growth of transition countries, that is, initial conditions related to the 'burden' left by the communist era.

4.2.2 Role of initial conditions and instrumental variables

De Melo *et al.* (1997) provided the first comprehensive analysis of the effect of initial conditions on growth in 28 transition countries. Moreover, they introduced the principal components methodology to this literature. Just as earlier studies had been forced by limitations on data points and problems of multicollinearity to resort to an index of liberalization, so too with initial conditions. They included in their estimation the first two principal components of 11 initial conditions.[18] Based on a panel data growth regression, they concluded that both liberalization policies and initial conditions are important to explaining growth. However, in their cross-sectional regression the liberalization index had a negative but insignificant coefficient.

Popov (2000) too found that after controlling for initial conditions, the liberalization index becomes insignificant. This author ran several regressions using 1990–96 growth rates and 1990–98 growth rates for a cross section of 28 transition countries. In his regressions he included an aggregate measure of distortions,[19] a FSU dummy,[20] a War dummy, 1987 Purchasing Power Parity (PPP) GDP per capita as a percentage of the US level and log of average inflation. He found that the CLI is insignificant for both cases of growth rates. In the second step he replaced the FSU dummy with the fall of government revenues as a percentage of GDP and shadow economy as a percentage of GDP in 1994, finding again that CLI was insignificant. Finally, and more important for our paper, he included a measure of rule of law, which is marginally significant.

Krueger and Ciolko (1998) found results similar to that of De Melo *et al.* (1997). This paper was among the first to recognize that the speed of liberalization should be viewed as an endogenous variable, affected, for instance, by many of the same initial conditions that might affect growth directly. They used an instrumental variables approach to output growth from 1989–95 for 18 transition countries. The instruments used are share of export in 1989 Gross National Product (GNP) and 1988 GNP per capita. These authors ran first a regression of CLI on the instrument and obtained a predicted CLI. In the second regression (growth regression) the coefficient on predicted CLI was negative but not very significant.[21]

Heybey and Murrell (1999) dealt with several potentially significant methodological issues existing in the cross-country empirical literature on growth in transition countries besides the endogeneity of the speed of reform:

1) The failure to include some key initial conditions causes an omitted variable bias;
2) The use of cumulative liberalization indexes (or annual indexes) does not allow distinguishing between the effect of the *level* of the policy variable and the *speed* with which it was implemented;
3) Different countries began their transition in different years.

They performed a three-stage least square (THSLS) on growth rate for 26 transition countries. Among their results were: (1) initial conditions are significant but (2) the coefficient of speed of liberalization and the coefficient of policy level are insignificant; while (3) results adjusting for differences in starting dates are very similar to those using the same starting point.

4.2.3 Role of institutions

Until recently, differences in the strength of legal institutions as a possible explanation for dissimilar growth performance was largely ignored in the empirical literature on transition countries, probably because of a lack of data for the first half of the decade. Since 1997 several organizations started to collect data. In addition, Campos (1999) provides an index for institutional variables from 1989 to 1997[22] which we make use of in this paper.

Brunetti *et al.* (1997) were the first to estimate OLS regressions using legal and political institutional variables as explanatory variables. These variables were obtained from a survey that quantified *perceptions* of companies in different countries around the world.[23] They considered only variables pertaining to 20 transition countries and ran regressions using 1990–95 per capita growth rates for those countries as dependent variables.[24] They found that in a cross-section analysis, these institutional measures affect growth positively. In addition, they used instrumental variables for correcting some endogeneity problems of these institutional variables and showed that their results stand.

Moers (1999) and Grogan and Moers (2001) ran four cross-sectional growth regressions for 25 transition countries in 1990–95 using four institutional measures[25] and two controlling variables (inflation and war dummy). They found that in all cases these measures are positively associated with growth but are not very significant. In addition, they checked for endogeneity of the institutional measures and they found similar results to the OLS results.

Havrylyshyn and Rooden (2000) ran the same panel data as De Melo *et al.* (1997) but only for 25 transition countries. They employed the same measures of initial conditions and liberalization indexes, but they included lagged values of the latter measure. Moreover, they included the inflation

rate and, more importantly, institutional variables. These consisted of the first principal component of nine institutional variables from diverse sources. In addition, they split them into legal and political variables. They found a significant positive relation between growth and liberalization indexes and between growth and the principal components of institutional variables; the latter relationship is especially strong for legal variables.

Stiglitz (2001) provides another attempt to include an institutional variable in explaining cross-sectional growth among transition countries. He ran an OLS regression on 1990–98 growth rates of 25 countries. The explanatory variables are 1997 EBRD indices of privatization of large and small-scale enterprises (policy measure), 1997 EBRD index of governance and enterprise restructuring (institutional measure), and a variable that measures the interaction of the two former variables. He found that the privatization index is insignificant, but the index of governance and enterprise restructuring and the interaction variable are highly significant.[26]

4.2.4 Summary

The main conclusions coming out of this review of the literature are: (a) the earlier studies, which failed to deal adequately with institutional and initial conditions and a range of statistical problems, were not robust; in particular, the finding that the speed of liberalization has a significantly positive effect on growth was not supported robustly by the data; and (b) there are plausible grounds for arguing that institutional variables and initial conditions did have a significant effect on performance.

The main contribution of this paper is to re-examine these questions within a somewhat longer time series. With this longer time series, we can begin to ask, in a meaningful way, did those countries that privatized rapidly do better? Of two countries, say, that began with the same initial conditions, and ended up with the same degree of privatization (liberalization), did the country that got there more quickly do better? Or worse? Of course, as we ask that question, we must simultaneously control for initial conditions, institutions, and other policy variables.

4.3 Data description

In this section we describe the variables used in our empirical analysis. The tables in Appendix 4A show the complete data exploited in this paper. We employ as a dependent variable the total growth rate for 1990 through 2001 for 23 transition countries.[27] Because the variability among countries' growth rates is relatively high,[28] there is some hope of identifying critical determinants of growth in spite of the relatively small size of the sample. Still, the small number of countries and the large number of possible explanatory variables suggests that the task of cleanly defining the relative importance of different variables may not be easy.

We measure the strength of legal institutions employing data from a survey conducted by the World Bank and EBRD. They surveyed more than 4000 firms in 23 transition countries on several areas such as business environment, corruption and legal system. Specifically, we consider positive answers related to the strength of the legal system and enforcement of property rights (see Table 4.1: Panel 1).[29] The expected sign of this variable in the growth regressions is positive.

The effect of policy on growth is quantified by two different variables. In order to measure the effect of policy speed we use the absolute difference between 1991 and 2000 EBRD small-scale and large-scale privatization indexes (see Table 4.1: Panel 1). The effect of policy level is captured by the 2000 level of the same index.

Table 4.1 Data description

Variable	Definition	Source
Panel 1: Regressions Data		
Growth	Logarithm of the ratio of 2001 GDP and 1989 GDP	United Nations Economic Commission for Europe Common Database
Enf	Proportion of firms in the countries of the sample that agree in 1997 to the following question: To what degree do you agree that the legal system will uphold contract and property rights?	Business Environment and Enterprise Performance Survey. World Bank and the European Bank for Reconstruction and Development (EBRD).
Dp00p91	One-tenth of the difference between the 2000 average of the indexes of small-scale and large-scale privatization and the 1991 average of the same indexes.	EBRD
Privi00	2000 average of indexes of small-scale and large-scale privatization.	EBRD
PC1inst	First principal component of the institutional initial conditions.	Based on variables obtained from Campos (1999).
Panel 2: Institutional Initial Conditions		
Transacc8991	Indicator from 0 to 10 that measures both transparency of policy-making and accountability of the executive.	Campos (1999)
Rulelaw8991	Indicator from 0 to 10 that measures both quality of law enforcement and 'substance' of law itself.	Campos (1999)
Buroqual8991	Indicator from 0 to 10 that measures the quality of local bureaucracy.	Campos (1999)
Civsoc8991	Indicator from 0 to 10 that measures civil liberties, political rights and influence of civic organizations.	Campos (1999)

Table 4.1 (Continued)

Variable	Definition	Source
Panel 3: Instruments		
Years	Years under communist rule.	De Melo *et al.* (1997)
Blkpr	1990 per cent difference between black market exchange rate and official exchange rate.	De Melo *et al.* (1997)
Def	Late 1980s defense expenditure as percentage of GDP.	Popov (2000)
Indst	Late 1980s sum of the absolute value of deviations of the share in GDP of each three sectors (agriculture, industry, services) from the 'normal' level. 'Normal' was defined as the average for the group of market economies with comparable PPP GDP per capita. These values are 1990.	Popov (2000)
Trdist	Late 1980s sum of the three trade distortion measures calculated by Popov (2000). These are the following: trade openness, which is the 'normal' share of external trade in GDP (defined in a similar way as before) minus the actual share; external trade within FSU as share of GDP; and external trade with socialist countries as share of GDP. These values are 1990.	Popov (2000)

Note: For East European countries we used the 1989 score, and for FSU republics we used the 1991 score.

As Heybey and Murrell (1999) so forcefully explained, it is important to discriminate the effect of policy *level* from policy change on growth. Much of the empirical literature has incorrectly used empirical results suggesting a positive effect of the level of privatization to argue for fast privatization. The two schools of thought on transition differ strongly on their prior beliefs about the coefficient of the *speed* of privatization. The shock therapists believe that, 10 years out, the countries that privatized most quickly would be ahead of the game – their growth rates would be higher. The gradualists argue that the coefficient on the speed variable should be negative.

The initial conditions are gauged by a set of institutional variables, using principal component analysis.[30] This analysis provides two important pieces of information that give some intuition as to what exactly the components are measuring. They are the degree of correlation among components and the original variables, as represented by an eigenvector

decomposition of the covariance matrix of standardized variables (that is, a variable x that has been normalized dividing by its standard deviation), and the percentage of variance explained by i^{th} principal component. The latter measure is computed by dividing the eigenvalue associated to the corresponding principal component by the total sum of the eigenvalues. Intuitively, the first output tells us about the nature of the component and possible interpretations of it, that is, which variables have influenced it the most. The second output gives a sense of the importance of the component in terms of the overall variability of the original system of variables.

Initial conditions are calculated using the 1989 observation of institutional variables for East European countries and the 1991 observation for FSU countries from Campos (1999).[31] Table 4.1: Panel 2 explains the nature of these data. We employed the 1991 observation for the former Soviet Union republics because the actual transition started approximately that year. In the case of East European countries the transition began after the Berlin Wall fell in 1989.

Table 4.2 shows that the first principal component is strongly correlated with each of the institutional variables. In addition, this component explains a good portion of the variability of the original variables. In consequence, this component can be thought of as a measure of the initial institutional strength and, thus, its expected sign in the growth regressions is positive (the higher the score in these indexes the better the institutions and the faster expected growth).

Finally, Table 4.1: Panel 3 shows the detail of the instruments for the policy variables used in the TSLS regressions. These instruments are selected based on the two traditional econometric criteria used for choosing instrumental variables.

First, our instruments are clearly correlated with our measures of policy. They reflect the amount of distortions left by the communist policies: the greater these distortions, the greater the extent of policy reform. (This relationship is confirmed in the statistical analysis.)

For instance, the variable that captures years under communist rule reflects the fact that East European countries were communist for a much shorter

Table 4.2 Principal component analysis

Principal Component of the Institutional Initial Conditions			
	Correlations	**Percentage of variance explained**	
	1PC		
Transacc8991	0.8021	1PC	0.4908
Rulelaw8991	0.8844	2PC	0.2874
Buroqual8991	0.6398	3PC	0.1206
Civsoc8991	0.3117	4PC	0.1013

span than FSU countries, except for the Baltic countries and Moldova. The black market foreign exchange premium reflects the fact that, generally speaking, East European official rates were closer to market exchange rates. Defense spending, industrial structure and trade distortions are also lower on average for East European countries than for FSU republics.

Moreover, our instruments also reflect an important variability within our sample. For example, in the case of industrial structure and trade distortions, former Yugoslav countries were much less distorted than other East European countries. The other important criterion for selecting instruments is that these instruments may be correlated with the other explanatory variables, but, like the dependent variable, the instruments are orthogonal to the errors of the growth regressions. To be sure, we ran the test of overidentifying restrictions and we found that they are effectively uncorrelated with the errors of the growth regressions.[32]

4.4 Econometric analysis

4.4.1 Ordinary least square regressions

We first estimated OLS regressions using the variables described in the Section 4.3. The R square is reasonably high considering the size of the sample.

The first regression is a simple regression with our institutional variable, the property rights enforcement variable described before (see Table 4.3). The coefficient has the expected sign (positive) and is highly significant. The adjusted R square is also fairly high, above 40. Note that this is consistent with the gradualist view, which highlighted the importance of the institutional infrastructure.

In the second regression we only include the variables that measure policy level and policy speed. The adjusted R square is also high. The coefficient for

Table 4.3 OLS regressions (Dependent variable is the 1990–2001 GDP growth rate)

Variable	Regression 1		Regression 2		Regression 3		Regression 4	
	Beta	Tstat	Beta	Tstat	Beta	Tstat	Beta	Tstat
Constant	−0.91	−5.57	−0.78	−2.15	−1.00	−3.20	−1.33	−3.42
Enf	1.44	4.23			1.10	3.04	1.14	3.22
Dp00p91			−4.34	−3.06	−2.72	−2.08	−3.00	−2.32
Privi00			0.42	2.96	0.24	1.81	0.27	2.07
PC1inst							0.03	1.37
R-Squared (%)		46.0		35.1		56.4		60.5
Adj R-Squared (%)		43.5		28.6		49.5		51.7
N		23		23		23		23

policy speed (Dp00p91) is significant and negative. The coefficient of level of policy (Privi00) is positive and significant.[33]

In the third regression we put together the two sets of variables. The privatization speed preserves its significant negative effect. The privatization level maintains its sign but decreases its significance to only 10 per cent. The property rights enforcement still has a positive and significant effect on cross-sectional growth. In addition, the adjusted R square has a noticeable increase, from 35 per cent to 56 per cent.[34]

In the fourth and final regression we add the principal component that captures the institutional initial conditions. It has the expected sign but it is not significant. Other authors[35] have found that these variables are very significant in explaining growth among transition countries. One possible interpretation is that initial conditions have decreased its importance since the beginning of the transition.

In summary, the most important result of our study, based on a longer period of analysis than earlier studies and including variables capturing institutional variables, initial conditions, and measures of both policy level and change is *that privatization speed has a negative effect on growth.* The study, one of the first that explicitly attempts to assess the role of speed, lends cautious support to gradualism versus shock therapy. A second result, consistent with earlier literature, is that property rights enforcement has a positive and very significant effect. A third result provides mild support for earlier findings on the level of privatization: the coefficient is positive but only marginally significant.

Finally, unlike earlier studies, initial conditions seem to have little effect on growth after 10 years of transition.[36] In the next section, we will see whether these 'new' facts are able to stand the check for endogeneity.

4.4.2 Two-Stage least square regressions

In this section we perform a simultaneous equation approach. Both policy measures (speed and level) may themselves depend on economic growth.[37] For instance, in successful countries it may be possible to build political support for reforms such as privatization and, thus, faster growing countries may be able to privatize more and faster. One of the major sources of opposition to privatization is a worry about lay-offs, and normally, faster growth is associated with faster growth of employment – and therefore less worries about lay-offs.

Table 4.4 provides the OLS and TSLS regressions. In the first regression we only include the property rights enforcement and policy variables. In the second regression we add the institutional initial conditions variable.

The most noticeable difference between the OLS and TSLS estimation is that the coefficient of the variable that measures level of privatization becomes less significant (in the first regression, it is insignificant though it is still positive; in the second, it is significant only at the 10 per cent level). The

Table 4.4 TSLS regressions (Dependent variable is the 1990–2001 GDP growth rate)

	OLS		TSLS		OLS		TSLS	
	Beta	Tstat	Beta	Tstat	Beta	Tstat	Beta	Tstat
Constant	−1.00	−3.20	−0.95	−2.30	−1.33	−3.42	−1.33	−2.79
Enf	1.10	3.04	1.07	2.87	1.14	3.22	1.13	3.12
Dp00p91	−2.72	−2.08	−3.12	−2.05	−3.00	−2.32	−3.10	−2.09
Privi00	0.24	1.81	0.25	1.64	0.27	2.07	0.28	1.82
PC1inst					0.03	1.37	0.03	1.38
R-Squared (%)		56.4		56.1		60.5		60.5
Adj R-Squared (%)		49.5		49.2		51.7		51.7
N		23		23		23		23

Note: Instruments: Years, Bikpr, Indst, Def and Trdist.

sign and significance of the coefficient on the property rights enforcement and speed variables is unchanged. In addition the R-squares are practically the same. The results obtained from the previous section are still valid.[38]

One might ask: how is it that the level of privatization does not matter, but the speed does? One could understand the opposite result – that the level matters but the speed does not – as saying that it just does not matter how you get there, what matters is where you get. One could understand the result of a positive effect on the level and a negative effect on speed as supporting the gradualist argument for privatization. This result is consistent with the view that rapid privatizations had a very disruptive effect on the economy; they were associated with asset stripping (tunneling) and huge increases in inequality, which undermined subsequent and more meaningful reform efforts. In some cases, countries that did not privatize worked to strengthen public institutions (good management of government-run enterprises, public pension funds, and so on). The statistical analyses suggest that (controlling for other variables) the countries that ended up with a lower level of privatization did just as well as countries that ended up with a higher level of privatization.

Hoff and Stiglitz (2004a, 2004b, 2005) argue that the institutional infrastructure itself should be viewed as endogenous, and a fuller analysis would clearly seek to explain why different countries differed in the quality of their institutions.

On the other hand, failure to take account of the endogeneity of institutions may not result in a significant bias in the estimated parameters. This is partly because the speed of adjustment of institutions is relatively slow, because while institutional development is endogenous, it is not likely to be highly dependent on growth itself. Hoff and Stiglitz argue that tight monetary policy may contribute negatively to institutional development; and tight monetary policy also might contribute negatively to growth,

so institutional development might be picking up the effects of an omitted variable (tight monetary policy). But as we noted, when we introduced macro-economic variables explicitly into the analysis (proxied by inflation), it appeared to have an insignificant effect.

4.5 Conclusions

At the beginning of the 1990s the Eastern European and FSU countries started a massive process of political and economic reform. The hope was that they would achieve living standards similar to developed countries.

Two strategies were offered. One argued that the process of liberalization and privatization should be done as quickly as possible.[39] The advocates of this position believed that the faster a transition country became a market economy, in particular, the faster it privatized, the quicker this country would be able to avail itself of the growth opportunities that the market provided.[40]

Others proposed a more gradual process of reform. The sale of government assets needed to be done slower and the economy had to be liberalized more gradually. This school argued that there are large costs associated with very rapid adjustments, and that there were large risks associated with, for instance, privatization before certain institutional changes (the creation of a legal infrastructure, including corporate governance laws, and of a financial infrastructure, including an effective and well regulated banking system) have been put into place.

In the mid-1990s a growing empirical literature started to develop in support of the 'faster' position. This literature claimed that the evidence supported the view that the faster transition countries liberalize and privatize the more they would grow. This important conclusion was attacked in several directions, in terms of model specification and econometrics. First, the above assertion disregarded the role of initial conditions. Second, important questions were raised about the exogeneity of these policies. Third, institutional differences could also be important in explaining the uneven performance of transition countries. Fourth, this literature did not distinguish between the level of reform and *speed*, and thus did not really address the question at issue.[41]

The conclusion that the more rapid the transition the better played an important advocacy role – it supported the position advocated by the IMF and (at the time) the World Bank; much of this research was conducted by these institutions and/or supported by them. The most important critique was that there simply were insufficient data to come to a strong conclusion. These institutions should have, accordingly, been less confident and more cautious in the advice they gave.

In this paper we extend the period of analysis and at the same time consider all these concerns in our estimations. The clearest and most important result is that privatization speed has a negative effect on growth, reinforcing the growing anecdotal support for the gradualists and against

shock therapy. On the other hand, perhaps the most striking (though perhaps not surprising) result is the importance of our measure of institutional strength. This result is similar to what other authors have found. Third, we found that initial conditions have an insignificant effect on cross-sectional growth. One possible explanation for the insignificance of initial conditions (which previous studies have emphasized) is that we are using a longer period of analysis.

While we believe our paper has made some advances over earlier literature in untangling the various factors affecting success in transition, much remains to be done.

First, it is important to disentangle the effect of privatization itself from related policy decisions that also influence long-term growth. For instance, the method chosen to privatize state-owned enterprises is an important policy decision that actually differed greatly across transition countries. Each country used some distinctive combination of three privatization methods: direct sale (sometimes to foreigners), mass privatization programs (often through vouchers) and management–employee buy-outs. These choices certainly affected the ownership structure, corporate governance and restructuring process of the privatized companies.[42] The impact of privatization (including the speed of privatization) almost surely depended on the form of privatization.[43]

Regulatory and competition policies are other important policies that help to determine how privatization would affect country growth performance.[44] A country that simultaneously privatized and established a regulatory framework that promotes competition may boost its growth potential compared to a country that only privatizes and leaves unchanged the old business environment or allows the emergence of unregulated monopolies. As Stiglitz (2000) emphasized, the legal framework affecting corporate governance too can be an important determinant of the success of privatization. Policies that affect the development of the financial sector can also be critical, not only in determining overall growth (for example, as a result of the creation of new enterprises), but also in the success of privatization. Without access to finance, those who obtain the privatized assets are more likely to engage in asset stripping.[45]

Macro and monetary policies and conditions too play a role, since they can affect the terms at which finance is made available. Factors external to each of the countries play an important role in determining their growth. As we have already noted, Russia's weakness contributed to the weakness of its trading partners. But oil and commodity prices have played an important role in Russia's performance. Weak oil prices in 1997–98 almost surely contributed to the crisis of 1998; and strong oil prices after 2003 almost surely contributed to its recovery.

Moreover, even the legal structure could be viewed as endogenous, as Hoff and Stiglitz (2004a, 2004, 2005) point out. Policies that affected the desirability of asset stripping versus wealth creation (macro-policies, liberalization

policies, such as those relating to capital outflows, and financial policies) affect the likelihood of the development of the 'rule of law', of institutional variables that are critical for success in growth.

One challenge is to find good proxies for many of these potentially important variables (for example privatization method, ownership structure, corporate governance, and quality of regulation and competition policies). Given the relatively limited number of countries, the high collinearity among many of the important variables and the complex interdependencies among them, cross-section empirical studies may never be able to resolve fully some of the critical controversies. Would it, for instance, have been possible that fast privatization would have had less adverse effects had alternative privatization methods been employed, if monetary policy had been less tight, or if greater efforts had been made to create domestic financial institutions providing credit to the newly privatized companies? To what extent should we blame some of these policies for the failure of appropriate legal institutions to develop?

This paper has at least helped to resolve one controversy: there is no evidence that, controlling for other relevant variables, fast privatization contributed to medium-term growth (that is, over a 10-year period). On the contrary, the weight of evidence – both the cross-section study reported here as well as more detailed anecdotal evidence concerning the successful countries – appears to support the worries of the critics of shock therapy: fast privatization adversely affected decadal growth.

Studies such as this will need to be repeated as the transition continues. It is possible that 10 years from now, we may say that all of this was a tempest in a teapot: the speed of privatization may have made a difference in the short or medium-term, but in the long run, as countries become more deeply rooted into the market economy, how they got there will not matter much, just as our study suggests the effects of initial conditions are taking on less importance than earlier. On the other hand, it is possible that history matters, and the countries that undertook rapid privatizations, which resulted in large inequalities in wealth ownership and which undermined confidence in markets and resulted in widespread perceptions of a lack of legitimacy of property rights, may fare less well[46] even in the long run. We each can conjecture, but only time will provide the answer.

Given the overconfidence exhibited by the early advocates of shock therapy, a confidence not warranted by economic theory and not justified by the empirical studies to which they often referred, we should, perhaps, end on a note of caution. Given the paucity of 'experiments', the small number of countries, and the large set of potential explanatory variables, it is unlikely that even a much longer time series will fully resolve the controversies. A more textured analysis of what happened – case studies, detailed analyses of firms, industries, and sectors in different countries, a careful look at the impact on how resources were mobilized

and deployed – supported by theoretical analyses of why individuals, firms, and governments behaved in the way that they did, will need to supplement these statistical studies. The comparisons between the successes of China and Vietnam, and the failures especially in so many countries of the FSU, are also informative. We believe that at the end of the day, the conclusion that will emerge may be a simple one: that incentives matter; that one of the reasons why shock therapy in the way that it was done in much of the FSU and the other countries in transition (other than China and Vietnam) failed is that so often it did not get incentives right; that without good laws on corporate governance, and in the absence of financial institutions and macro-economic policies that make resources available at reasonable terms for wealth creation, incentives are in place for asset stripping rather than wealth creation; and that these natural incentives played themselves out in country after country.[47] Political institutions themselves are endogenous, and in many of the countries, shock therapy created conditions that were adverse to the creation of institutions that would themselves in the long run be conducive to wealth creation. The costs of shock therapy may, in this sense, be far greater than its critics realized at the time: it was not only that the economies did not perform as well as might have been hoped or expected, but, in some cases at least, the institutional legacy – as well as the legacy of inequality – has imposed long-term costs to society that are hard to calculate. History matters, and the consequences of shock therapy may be as long lived as the effects of the Communist regime itself.

Mario Nuti is the master of this kind of careful and thoughtful work in comparative economic systems that would have warned against the risks of shock therapy and that would have enhanced the prospects of a successful transition. Such analyses contribute to our understanding of economic processes and structures. They are as essential for deriving good policies now as they were then, at the beginning of the transition. It is a pleasure to present this paper in his honor.

Appendix 4A: Data

Table 4A 1 Regressions data

Countries	Growth	Enf	Dp00p91	Privi00	PC1inst
Albania	0.0908	0.358	0.15	3.0	10.6
Armenia	−0.3524	0.512	0.215	3.15	9.6
Azerbaijan	−0.5604	0.449	0.15	2.5	11.5
Belarus	−0.1098	0.413	0.05	1.5	7.5
Bulgaria	−0.2446	0.512	0.27	3.7	9.1
Croatia	−0.1720	0.627	0.165	3.65	9.4
Czech Republic	0.0218	0.401	0.215	4.15	8.6

Table 4A 1 (Continued)

Estonia	−0.1076	0.614	0.315	4.15	9.2
Georgia	−1.0996	0.305	0.265	3.65	5.3
Hungary	0.0797	0.772	0.265	4.15	5.6
Kazakhstan	−0.2510	0.32	0.25	3.5	11.7
Kyrgyz Republic	−0.3079	0.295	0.25	3.5	11.3
Latvia	−0.3696	0.354	0.265	3.65	10.4
Lithuania	−0.3581	0.333	0.265	3.65	8.9
Macedonia	−0.2459	0.485	0.15	3.5	8.1
Moldova	−1.0217	0.181	0.215	3.15	6.6
Poland	0.2476	0.617	0.13	3.8	6.2
Romania	−0.1803	0.432	0.2	3.35	7.4
Russia	−0.3960	0.208	0.265	3.65	4.8
Slovak Republic	0.0602	0.558	0.215	4.15	5.1
Slovenia	0.1284	0.634	0.18	3.8	5.1
Ukraine	−0.7897	0.254	0.2	3.0	5.4
Uzbekistan	0.0198	0.744	0.185	2.85	5.4

Note: For definitions and sources see Table 4.1 in the text.

Table 4A 2 Institutional initial conditions

Countries	Transacc8991	Rulelaw8991	Buroqual8991	Civsoc8991
Albania	8.00	7.00	3.33	0.00
Armenia	7.70	7.00	1.67	0.00
Azerbaijan	7.50	7.00	5.00	1.67
Belarus	5.00	7.00	0.83	0.00
Bulgaria	6.50	6.67	2.50	0.00
Croatia	6.00	6.00	3.33	3.33
Czech Republic	7.50	4.00	3.33	0.00
Estonia	8.00	3.00	5.00	0.00
Georgia	4.50	3.00	1.67	0.00
Hungary	6.50	2.00	0.83	0.00
Kazakhstan	7.70	8.33	2.50	5.00
Kyrgyz Republic	7.70	8.33	1.67	5.00
Latvia	7.70	6.70	1.67	5.00
Lithuania	7.00	6.70	0.83	1.67
Macedonia	6.75	5.00	0.83	3.33
Moldova	5.00	4.17	1.67	1.67
Poland	5.00	4.17	0.83	1.67
Romania	8.00	3.00	0.83	1.67
Russia	5.25	2.00	0.83	0.00
Slovak Republic	5.25	2.00	0.83	1.67
Slovenia	5.25	2.00	0.83	1.67
Ukraine	5.25	2.00	0.83	3.33
Uzbekistan	5.25	2.00	0.83	3.33

Note: For definitions and sources see Table 4.1 in the text.

Table 4A 3 Instruments

Countries	Years under central planning	Defense spending (percentage of GDP)	Industrial structure distortion	Trade distortions	Black market premium
Albania	47	5.3	12.3	27.3	43.4
Armenia	71	14.6	23.3	42.8	182.8
Azerbaijan	70	4.3	23.3	25.2	182.8
Belarus	72	11.2	28.3	24.2	182.8
Bulgaria	43	14.1	27.3	13.0	92.1
Croatia	46	3.7	12.3	19.5	2.7
Czech Republic	42	8.2	19.2	8.5	18.5
Estonia	51	1.9	21.3	52.8	182.8
Georgia	70	4.1	6.1	33.2	182.8
Hungary	42	7.2	7.3	2.6	4.67
Kazakhstan	71	5.2	20.3	28.8	182.8
Kyrgyz Republic	71	8.9	19.4	33.0	182.8
Latvia	51	9.5	21.3	41.4	182.8
Lithuania	51	7.5	23.9	42	182.8
Macedonia	47	3.7	12.3	7.5	2.7
Moldova	51	4.4	26.3	42.2	182.8
Poland	41	8.1	22.3	20.8	27.7
Romania	42	4.5	30.3	16.1	72.8
Russia	74	15.3	14.9	17.8	182.8
Slovak Republic	42	8.2	19.2	36.3	18.5
Slovenia	46	3.7	4.2	17.3	2.7
Ukraine	74	14.8	22.3	29.7	182.8
Uzbekistan	71	5.6	21.4	28.7	182.8

Note: For definitions and sources see Table 4.1 in the text.

Appendix 4B: Three-Stage Least Squares Estimates

The results of THSLS estimations for our model are the following

Table 4B 1 THSLS regressions

Panel 1: Dependent variable is Gr

	Constant	Enf	Dp00p91	Privi00	PC1inst
Beta	−1.3291	1.0959	−3.1961	0.2920	0.0307
Tstat	−3.86	3.50	−2.80	2.52	1.49
R-Squared	0.6044				
Adj R-Squared	0.5164				

Table 4B 1 (Continued)

Panel 2: Dependent variable is Dp00p91

	Constant	Gr	Privi00	Years	Blkpr	Def	Indst	Trdist
Beta	−0.1255	−0.0069	0.1004	−0.0012	0.0008	0.0004	−0.0008	−0.0010
Tstat	−2.20	−0.46	13.97	−1.64	5.32	0.39	−0.96	−2.20
R-Squared	0.8985							
Adj R-Squared	0.8511							

Panel 3: Dependent variable is Privi00

	Constant	Gr	Dp00p91	Years	Blkpr	Def	Indst	Trdist
Beta	1.3183	0.0713	9.8275	0.0108	−0.0079	−0.0038	0.0073	0.0103
Tstat	2.65	0.49	13.97	1.45	−4.62	−0.33	0.84	2.20
R-Squared	0.8985							
Adj R-Squared	0.8511							

Panel 4: Correlation Matrix of Errors of the Above Regressions

	Gr-reg	Dp00p91-reg	Privi00-reg
Gr-reg	1		
Dp00p91-reg	0.0726	1	
Privi00-reg	−0.0776	−0.8897	1

Notes

1. This paper was presented at the 2004 American Economics Association meetings at San Diego and at the conference 'Comparative Transitions: A Critical Review' at London Business School (11–12 June 2004). We would like to thank Karla Hoff, Charles Himmelberg, Rajeev Dehejia and participants from both conferences for helpful comments, and Giselle Guzman for her research assistance. However, any error remaining is our responsibility. The views expressed in this paper are ours and do not reflect those of the Central Bank of Chile.
2. Shock therapy referred both to policies attempting to rapidly bring down the hyperinflation that afflicted many of the countries (especially after they engaged in 'shock' liberalization) and to the policies attempting to change rapidly the structure of the economy through privatization and liberalization. In this paper, we focus on the latter. Poland, for instance, engaged in shock therapy to bring inflation under control (though it did not bring inflation down to single-digit levels rapidly) but employed a gradualist strategy for privatization. In our taxonomy, Poland is a gradualist.
3. This was sometimes referred to as the political Coase theorem. There was neither theory nor historical experience to support this perspective; as Hoff and Stiglitz (2004a, 2004b, 2005) argue elsewhere, there are strong reasons why an illegitimate privatization might impede the creation of the rule of law. The evidence (included that cited in Hoff and Stiglitz, 2005) supports that conclusion.

4. Interestingly, the World Bank (1996) and most of the other studies of the economies in transition do not include China and Vietnam, even though they represent more than 75 per cent of the people making the transition. The obvious suggestion is that the results would have been markedly different were these to have been included (in an appropriately weighted way) in the statistical analyses. To make our results comparable to the earlier studies, we too exclude China and Vietnam.
5. See, for instance, Sachs and Woo (1997).
6. Poland provides another example: while it engaged in 'shock' macro-therapy, its privatization process, and other institutional reforms, were more gradual.
7. Corruption in the privatization process – in which some of the advocates of rapid privatization were themselves not only implicated but convicted – also contributed to the loss of credibility.
8. This simplistic argument elides some of the critical questions, for example concerning what are the most relevant aspects of a market economy. China emphasized competition, as opposed to property rights; in many of the transition economies, more emphasis was placed on assigning control rights (in the absence of good laws on corporate governance and clear restrictions on permissible actions of sub-national actors, these control rights were not tantamount to a clear assignment of property rights), rather than competition.
9. See for example De Melo *et al.* (1996), Sachs (1996) and Fischer *et al.* (1996b). We talk more about these papers and others when we review this literature in Section 4.2.
10. See, for instance, De Melo *et al.* (1997) and Krueger and Ciolko (1998). More generally, economic historians like North (1990) have also emphasized the importance of institutions.
11. Krueger and Ciolko (1998) and Heybey and Murrell (1999) also explore the issue of endogeneity. Fidrmuc (2001) performed an instrumental variable analysis in order to consider the possibility of endogeneity and also included an institutional variable (a democracy index). However, his methodology had important pitfalls. See more on this in Section 4.2.
12. As it turns out, when one controls appropriately for the level and speed of liberalization and institutional variables, some of the other econometric problems turn out to be less significant than seemed to be the case earlier.
13. This literature has been reviewed in several other papers. See, by example, Campos and Coricelli (2002) and World Bank (2001, 16–20). Therefore, it is not our intention to go over the whole literature again. Instead we plan to review the papers that, based on our judgment, have been more influential in shaping or mis-shaping the perceptions on the lessons that can be obtained from the cross-country empirical studies on growth in transition countries. We also do not touch the country-specific studies (see for example Berkowitz and DeJong, 2003).
14. As happened in Argentina and many other countries in Latin America in the early 1990s.
15. In that sense, Russia's performance – as dismal as it was – was higher during the first years of transition than the sustainable levels, that is, a true estimate of Russia's performance during this shock therapy era would have been even more pessimistic.
16. This index is a weighted average of liberalization in three areas: internal markets, external markets and private-sector entry.
17. Sachs (1996) employed liberalization indexes calculated by the European Bank for Reconstruction and Development (EBRD). These indexes are an extended version of De Melo *et al.*, (1996) indexes. The EBRD expanded these indexes in both policy areas and years covered. Sachs (1996), Sachs and Woo (1997), Fidrmuc (2001) and others have used the EBRD extended version of these indexes. We employ these indexes in this paper and discuss them further in Section 4.3.
18. They are the following: (1) Location (measured using a dummy and not distance from somewhere, usually some city in Western Europe; see Fidrmuc, 2001); (2) Previous economic growth rates; (3) Categorical variable for differentiating states that were independent or not before 1989; (4) Richness of natural resources (dummy); (5) Over-industrialization; (6) Urbanization; (7) 1989 PPP income per capita; (8) Repressed inflation; (9) Trade dependence among communist area; (10) Black market exchange rate premium (11) Number of years under Communism. These variables capture mostly economic, structural and, indirectly, institutional conditions but are not direct measures of institutional variables. In our estimation we employ variables that gauge direct initial institutional weaknesses. In addition, we use the last two variables as instruments in our TSLS estimations. In addition, they performed a simultaneous equation approach but they asserted that there is no difference with the OLS approach, so they stayed with OLS.
19. We use more disaggregated measures of distortions in our empirical analysis as instruments in our TSLS estimation; see Section 4.3.
20. Such a variable may be important for several reasons. The countries of the FSU may have performed poorly partly because Russia performed poorly; most of the countries of the region were highly dependent on Russia, not least as a market for their goods. Just as a slowdown in the US economy leads to a slowdown in economies which export to the US, such as Mexico, so too would one expect a marked decline in Russia to adversely affect these countries. Their performance thus could have more to do with Russia's decline than with any policies that they instituted. The FSU dummy could be capturing this effect. Because the FSU countries also liberalized less, earlier studies (which had not used an FSU dummy) which suggested that liberalization had a significant effect were essentially picking up a spurious correlation.
21. In addition, they employed as controls a tension dummy and FSU dummy in the growth regression; see Regression 5 in Table 4.2. While this paper was the first attempt in the literature to make CLI endogenous, it has one problem. The estimators of the coefficients in the second equation are potentially inconsistent (Wooldridge, 2002, Chapter 5). The omission is that in the first regression of this two-step procedure it is necessary to include all the (exogenous) variables and not only the instruments. In our work we included all the other (exogenous) variables in the estimation of the first equation. (As we shall see, it turns out that the problem of endogeneity does not appear to be as important as we originally thought; we had worried that, for instance, countries that were closer to Brussels liberalized faster, because of the prospect of joining the EU. And these countries were more successful. But it was not liberalization itself which drove the success, but the proximity to Western Europe, with all of the advantages that it brought.) Besides, consistency of estimates may not be an important problem when (as here) there is a small sample.
22. We use in our estimation the data on these indexes as a measure of initial institutional conditions.
23. Perception variables play an important role in much of this literature. They have to be used with caution. It is possible, for instance, that when the economy is performing poorly, individuals would *perceive* institutional failures as more serious than when the economy is performing well, even though more objective measures show little difference.

24. Their control variables are 1992 GNP per capita, trade openness (sum of export and import over GDP), secondary enrollment rate in the initial year, average rate of government consumption, and average rate of inflation. (They use these variables one a time. They do not try to explore the idea that these variables might measure different kinds of initial conditions.)
25. These variables are obtained from *The Wall Street Journal Europe's Central European Economic Review, Nation in Transit 1997* and *Euromoney*.
26. There is a related literature that tried to measure the empirical influence of social culture institutions on cross-sectional growth among transition countries; see Raiser *et al.* (2001) and Katchanovski (2000).
27. These countries are Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, Ukraine and Uzbekistan.
28. The simple mean growth rate is 26 per cent and the standard deviation was 34 per cent.
29. For details on this survey see the website of the World Bank: http://info.worldbank.org/governance/beeps.
30. The principal component analysis is a statistical method used frequently for reducing the dimensionality of a given data set of correlated variables while maintaining as much of the variables' variability as possible. This efficient reduction of the number of variables is achieved by obtaining orthogonal linear combinations of the original variables – the so-called principal components. The first principal component preserves most of the variability existing in the original variables, the second component preserves the second most variability existing in the original variables, and so on. Each component is a linear combination of the eigenvector of the variance–covariance matrix of the original variables. For a discussion of the principal component analysis, see for example Flury (1988) and Jolliffe (2000). In addition, see Fuentes and Godoy (2005) for a more abridged but more economic discussion of principal component analysis. In order to obtain these components we normally need to use the variance–covariance matrix of the original variables. However, this procedure is sensitive to the units in which the original variables are measured. In order to avoid this problem we calculate the components using the correlation matrix of the original variables. This method allows us to obtain principal components that are independent of the unit of measure of the original variables. See Jolliffe (2000, Chapter 2) for an extensive discussion of the advantages and disadvantages of either method. Fuentes and Godoy (2005) also provide a brief discussion of these issues.
31. This author was very kind in providing these data.
32. One referee of an earlier version of this paper pointed out that this is not a powerful test. It is clearly conceivable that some of these instruments might have a direct effect on growth (and not just an effect through their effect on the policy variable). For instance, even apart from policy, in the process of moving to a market economy, black market premia might be reduced, and this reduction would have an effect on growth (as a result of eliminating a distortion in the economy). We shall discuss later the possible bias that this imparts to the estimates.
33. These results differ from Heybey and Murrell (1999), who found that speed has a positive sign but was insignificant and that their measure of policy level was not significant. There are several possible reasons for the differences. This difference in sign can be attributed to the fact that their measure of growth is shorter (only the first four years of transition), that they do not control for institutional variables and that they used De Melo *et al.* (1996) liberalization measures.

34. It is possible to argue that since (1) we are controlling for the end point and (2) the countries with a higher level of privatization index in 1991 were mostly East European countries and these countries had a high rate of growth, it is not surprising that the coefficient of speed is negative. In order to address this concern we ran two additional regressions: first, we only included speed of privatization. Second, we added to the third regression in Table 4.3 the level of privatization in 1991, and we replaced the final level of privatization with the level in 1995. This last variable is a compromise between being a good proxy for final level privatization (the correlation is 76.67 per cent) and avoiding the problem of collinearity (including the variables that measure level of privatization closer in time to 2000 makes all coefficients insignificant because of collinearity). The results are the following:

Additional regressions (Dependent variable is the 1990–2001 GDP growth rate)

	Constant	Dp00p91
Beta	0.06	−1.49
Tstat	(0.21)	(−1.22)
R-Squared	0.0664	
Adj R-Squared	0.0220	

	Constant	Enf	Dp00p91	Privi91	Privi95
Beta	−0.925	1.073	−2.177	0.005	0.214
Tstat	(−3.17)	(3.21)	(−1.73)	(0.03)	(2.04)
R-Squared	0.6458				
Adj R-Squared	0.5671				

In the first regression the coefficient of speed is still negative. This shows that the variable that measures speed of privatization has a negative sign *without controlling for the end point*. It is not just a statistical artifice. In the second regression the coefficient of the initial level of privatization is insignificant and the other variables essentially maintain their signs and significance. The results suggest: (a) of two countries that made the same change in the degree of liberalization, there was a *slight* advantage in growth to the country that did relatively more of the change initially; but (b) of countries with the same degree of privatization in 1991, those who had adjusted more slowly did better. In the subsequent analysis we do not include the level of privatization in 1991. (These results are consistent with the view that, the longer the time period since the beginning of the transition, the less important are at least some of the initial conditions.) We attempted other ways of identifying the role of speed, for example looking effectively at the fraction of the change that occurred in the first 5 years. The results are consistent with those reported here: the countries that privatized faster did more poorly.
35. De Melo *et al.* (1997), Krueger and Ciolko (1998) and Havrylyshyn and Rooden (2000).
36. An additional important variable that we include in our analysis as a proxy of macroeconomic stability is inflation (see Popov, 2000, for another paper using a similar variable). Specifically, we use the logarithm of accumulated change

in Consumer Price Index between 1990 and 1994. We exclude later years to minimize the obvious possibility of endogeneity of this variable. The results are the following:

Additional regressions with inflation as independent variable (Dependent variable is the 1990–2001 GDP growth rate)

	Constant	Inf9094
Beta	−0.14	−0.02
Tstat	(−0.95)	(−0.92)
R-Squared	0.0391	
Adj R-Squared	−0.0067	

	Constant	Enf	Dp00p91	Privi00	PCIinst	Inf9094
Beta	−1.24	1.11	−2.90	0.28	0.02	−0.01
Tstat	(−2.66)	2.99	(−2.14)	2.05	0.73	(−0.38)
R-Squared	0.6084					
Adj R-Squared	0.4933					

Because the coefficient on the inflation variable is insignificant, we excluded it from the regression analysis reported in the text. (The result implies that those countries that were more successful in quickly bringing down inflation in the early years of the transition fared no better over the long run than those that did not.)

37. Heybey and Murrell (1999) mentioned another problem. There is a chance that there are extra variables omitted in the estimation that drive both speed and level of privatization. For example, distance to Brussels is an interesting possible omitted variable. Countries closer to Brussels might be reforming faster and growing faster because they have a better chance to become members of the European Union (EU; this accession to the EU indeed happened for some of the countries included in our sample). In order to test for the presence of this problem, it is necessary to perform THSLS estimations. These estimations are shown in Appendix 4B. Based on these results, we find no evidence of this source of endogeneity. In both policy speed and policy level regressions the coefficient of growth is insignificant (see Panel 2 and 3 of Table 4B1 in Appendix 4B). In addition, the THSLS estimators of the growth regression are extremely similar to the OLS and TSLS counterparts (compare Table 4B1 Panel 1 with Tables 4.3 and 4.4 in the text). Moreover, the correlation among the errors of the Growth regressions and Dp00p91 and Privi00 regressions (policy variables) are very low (see Table 4B1: Panel 4 in Appendix B). A strong correlation among the errors is a symptom of an omitted third variable problem. (The correlation among the errors of Dp00p91 and Privi00 regressions is high because of the way these variables are constructed.) Our results seem to differ from those of Heybey and Murrell (1999). They found that correlation among the errors was high and the coefficient of the growth variable is significant in the policy variable regression. As we explained before, this difference can be attributed to a shorter sample, to their no control for institutional variables and to their use of De Melo *et al.* (1996) liberalization measures.
38. As we noted earlier, some of the instruments may themselves have a direct effect on growth. If it were true, it would imply that we are capturing in the policy variable some of the 'direct' effect of the instrument, so that the policy variable is biased. For instance, if years under communist rule leads to more growth (the longer the country was under Communist rule, the more its growth was depressed, so the greater the growth potential in the movement away from Communism) and more reform (for the same reason), then the coefficient on change in the degree of privatization (speed) will have a positive bias. Thus, our analysis underestimates the adverse effects of speed.

39. There were, of course, also political arguments (on both sides); advocates of shock therapy worried that unless privatization was done quickly, there might be backsliding. Critics argued that, because quick privatization was more likely to be done poorly, quick privatization would lead to an undermining of support for reform. In the elections in Russia in the early years of this decade, the reform parties were resoundingly defeated, partly because of the almost universal feeling that privatization was done poorly. The countries that have subsequently elected governments that appear most closely aligned with the old Communist parties have been shock therapy countries; while some of the non-reforming countries have retained authoritarian regimes, none of the gradualist countries have had a reversion. These experiences lend support to the gradualist critique.
40. Shock-therapy would also undermine the domestic opposition to reform. Because of entrenched interests, slow privatization was likely (in this perspective) to lead to (close to) no privatization.
41. In our opinion, Heybey and Murrell (1999) are the only ones that so far have measured policy speed correctly.
42. Another complicated issue in the transition countries' privatizations was the participation of private investment funds; see Cadogan Financial (2003) and Castater (2002).
43. For details on privatization methods see Castater (2002) and his references. In addition, Castater (2002) provides some preliminary results on the effect on growth rate of the different privatization methods. Stiglitz (2001) provided a review of the corporate governance and restructuring issues in transition countries. Dutz and Vagliasindi (2000) related corporate governance and restructuring with privatization methods.
44. See Vickers and Yarrow (1995).
45. But the development of the financial sector may itself be endogenous to privatization (both the extent of privatization and its form). For instance, if privatized companies' securities are traded publicly, they can be the backbone for a more sophisticated financial market. Thus, privatization can influence growth not only through expected efficiency gains within private companies but also through other channels. Another indirect channel through which privatization may affect growth is that privatization may possibly release physical and human assets that can be employed in *de novo* companies; see Earle and Estrin (1997) and Havrylyshyn and McGettigan (1999). In many economies in transition, however, there is extensive disguised unemployment, both for skilled and unskilled labor. The absence of opportunity is evidenced by massive emigration. Thus, in these countries, there is little reason to believe that this channel plays an important role. A more complete analysis would look too at *what* was privatized. A standard argument for privatization is that it improves the efficiency of resource allocation. In Czech Republic, banks were not privatized, implying that the government could continue to play an important role in determining who got access to resources.
46. Accounting, of course, for other differences, such as natural resource wealth.
47. Shock therapy failed because in the rush to privatize and liberalize, typically they did not get incentives right. It takes time to design institutions right and to create appropriate legal structures. But there is another argument for gradualism: it takes time to change, to adapt, and to learn.

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