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Institutions Matter in Transition, but so do Policies

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Institutions Matter in Transition, but so do Policies

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Abstract

This paper analyzes the importance of developing market-enhancing institutions for restoring economic growth in transition economies during 1991–98. The paper's main finding is that the development of an institutional framework has indeed a significant positive impact on growth, but that progress in achieving macroeconomic stabilization and implementing broad-based economic reforms remain the key determinants of growth in transition economies.

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When I was growing up in Peru, I was told that the farms I visited belonged to farming communities and not to the individual farmers. Yet as I walked from field to field, a different dog would bark. The dogs were ignorant of the prevailing law; all they knew was which land their masters controlled. In the next 150 years those nations whose laws recognize what the dogs already know will be the ones who enjoy the benefits of a modern market economy. -- Hernando de Soto

I. Introduction: Recent Analysis on Growth in Transition

1. At the first Dubrovnik Conference on Transition in 1995, de Melo, Denizer and Gelb (1997a) presented a paper analyzing patterns of transition, including growth, to that date. Their econometric analysis of growth provided a clear new direction for subsequent efforts to explain recovery and growth in transition, by showing that while inflation stabilization was a necessary condition, as emphasized by Fisher, Sahay and Vegh (1996), an equally important condition was progress on economic liberalization. In later work, de Melo, Denizer, Gelb and Tenev (1997b) added a detailed analysis of the role of initial conditions. Broadly similar results are obtained in Fischer, Sahay and Vegh (1996). The now much larger literature on recovery in transition[2] tries to explain growth differences in terms of three main categories of explanatory factors: (i) macroeconomic variables, such as the level of inflation and the size of the budget deficit; (ii) variables describing progress made with structural reforms, in particular liberalization and privatization; and (iii) variables characterizing initial conditions, such as the degree of macroeconomic and structural distortions at the beginning of transition, or wars and internal conflict.

2. Subsequent studies such as Wolf (1997), Havrylyshyn, Izvorski and van Rooden (1998), and Berg, Borensztein, Sahay and Zettelmeyer (1999) have combined these three categories and extended the period of study to determine their relative importance in explaining both the U-shaped time profile of output as well as the cross-country differences in growth performance. These more recent studies broadly confirm the earlier conclusions about the need for stabilization and the crucial importance of economic liberalization, but also reach new conclusions on the importance of initial conditions and on the time-lag effects. Thus, while de Melo et al. showed a strong effect of initial conditions, both Berg et al. and Havrylyshyn et al. conclude that the effect has declined over time. The latter further demonstrate that any negative effect of initial conditions (such as a high degree of industrialization) can be easily compensated by a bit more progress on reforms.[3] These later

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[2] This literature is reviewed in Havrylyshyn et al. (1999).

[3] The magnitude of this tradeoff is illustrated in Havrylyshyn, Izvorski, van Rooden (1998). Adverse initial conditions reduce growth by a substantial amount compared to the sample of 25 countries: -1.4 percentage points for Ukraine, and -0.8 percentage points for Russia. This disadvantage is, however, easily offset by a little more structural reform; RI would need to rise from 0.50 to 0.64 in Ukraine, or Russia from 0.70 to 0.74.

studies also show that negative effects on output of early and rapid liberalization are more than compensated by lagged positive effects.[4]

3. But this growing body of econometric analysis has not yet gone very far to include a fourth category of factors which are increasingly cited in other writings on transition—and growth in general—namely development of institutions which enhance the market environment. There is, on the one hand, a large literature on the importance of institutions, and there exists, on the other hand, a large number of synthetic indicators of the business-friendly environment: political or business risk; degree of corruption, effectiveness of governance; economic freedom; effectiveness of the legal system and protection of property rights, political freedom, etc.. The main objectives of our paper are to compile available institutional indicators for transition economies, and do a first simple econometric test of how much explanatory value is added by such institutional indicators in regressions of growth in transition economies. We do not pretend here to build a comprehensive theory of transition nor even a theory of growth in transition which incorporates institutional development. Our aim is simpler; given the growing consensus that market friendly institutions do matter, and that many cardinal measures of the degree of development of such institutions exist, we ask: is the statistical analysis of growth improved by including these variables?

4. Section II of the paper reviews selectively the use of such indicators in growth regressions for non-transition countries. Section III describes and then assesses ten data series of institutional development we collected which cover a large number of transition countries. Section IV presents the results of econometric analysis of growth in twenty-five transition countries in the period 1991–1998, adding to a conventional formulation the different institutional variables described here. Finally, Section V summarizes our findings and suggests further directions for research.

II. Institutional Conditions as Determinants of Growth

5. It has become commonplace, if not almost universal to worry about the institutional framework of the rule of law and property rights protection as a "missing ingredient" to ensure economic growth and prosperity (see De Soto (1993)). The *locus classicus* describing the way in which institutional development contributes to effective markets is the work of North (1990, 1993), while Murrell (1992, 1996) discusses the problem of sequencing liberalization and institutional development in the process of transition. In this section, we review briefly the studies which have incorporated institutional variables in econometric analysis of growth.

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[4] Berg et al. capture this through a long lag structures specification; Havrylyshyn et al. show in addition that by separating the period into that of "destruction" (1990–1993) and "creation" (1994 onwards), one sees more clearly the long term strongly positive effects of liberalization on growth, and that for the creation or growth period, the role of initial conditions, while still statistically significant, is much diminished in explanatory power.

A. Early Empirical Work in the New Growth Theory

6. In their pioneering empirical work of new growth theory, Barro and Sala-i-Martin (1994) include with good statistical results, a variable measuring political instability. Their results show that an increase of political instability by one standard deviation from the mean in a sample of 97 countries, lowers the growth by a substantial amount, 0.4 percentage points per year. Political instability is also the metric used in Easterly and Levine (1998) for African countries, and they find a statistically significant impact on growth. So too do Calamitsis et al. (1999) who use, however, a broader institutional measure, political freedom in addition to a war dummy (which may capture the political stability effects). Easterly and Levine go further, however, showing that the main source of political instability in this sample of countries is the degree of ethnic fragmentation. They also expand into other institutional areas, at least tentatively, by demonstrating that high ethnic fragmentation explains not just political instability but also other direct determinants of growth such as low schooling, and poor infrastructure. That the latter are a reflection of poor governance (i.e., low institutional development) is strongly affirmed by many studies which use some metric of the degree of corruption to explain ineffective government. Thus, Tanzi and Davoodi (1997) show how corruption results in low expenditures on health and education (where bribery opportunities are limited), and large but poorly executed public investment projects (where bribery opportunities are legion). An excellent summary of how well corruption indices explain statistically various performance measures such as growth or investment ratios, is found in Mauro (1997) and Wei (1998). While corruption indices are not a direct measure of institutional development, they are surely an excellent overall proxy, hence these results are strongly supportive of the broader hypothesis that institutional development matters.

B. Categories of Institutional Factors

7. But political instability is surely too narrow a definition of institutional development, and corruption too all encompassing and more of a result of institutional conditions than a measure of those conditions. While it is good to keep the concept of institutions relatively simple, it may be useful to elaborate it a bit. We propose two distinct categories of market-friendly institutions that are separately measurable in principle, and having possibly separate effects on performance:

- *Legal framework for economic activity,* which may include establishing legislation for free economic activity, bankruptcy, contract law—and most important enforcing such legislation even-handedly and transparently; the last is what "rule of law" and "security of property rights" really mean.

- *Political and civic freedom*, which includes democratic process, freedom of assembly and speech, equal treatment by political and judicial bodies, etc.

8. *Economic liberalization*—which may include elimination of price distortions, opening markets to competition, deregulation, unifying exchange regimes, privatization, allowing private activity—could be regarded as a third distinct category of market institutions. However, we think that structural reforms such as price and trade and exchange liberalization as well as privatization, are of a different nature than the development of

market-enhancing institutions. The former captures mostly measures that can be introduced within a short time frame. Institutional reforms on the other hand, by their very nature, take much longer to develop. Therefore, we treat structural reforms in our analysis as elements of what we call "good policies," in order to be able to distinguish their effect on economic conditions from the impact of institutions *per se.*

9. Some of the indicators we describe in Section III (and then use in Section IV) fall neatly into one of the three subcategories above, but many are in effect proxies or a measure of the overall climate resulting from good institutions. Such indices consist of averaging the above three into an overall index of "freedom," or "risk," or "transparency," or "corruption." While several of these proxies work well in statistical analysis—as this section describes below—there is an argument for trying to use a metric that comes closer to the above three concepts of institutional development. First, a direct measure of the degree institutional development is surely better to have than a "result" measure such as corruption or risk. Secondly, and consistent with the institutional approach , the effect on performance of these three is not a simple one, but involves a rather more complex model where the pace of development of each could be different, where the three interact in both a substitution and complementary fashion, and one in which threshold effects may exist. Even if one does not try to build a clear-cut model of this sort—and we do not pretend to do so here—it is surely useful to have the different categories of institutional development measured separately, whenever possible.

C. Examples of Studies Using a Variety of Institutional Measures

10. We are not aware of any study of growth which includes all categories of institutional measure to estimate statistically their joint and separate effects. However, quite a few (generally) more recent efforts go well beyond the Barro and Sala-i-Martin use of political instability or corruption indices as in Mauro, Tanzi, and others.

11. Among the earlier ones are Keefer and Knack (1995), who use several different measures of effective governance from the privately compiled (and sold for profit since 1982) International Country Risk Guide (ICRG). Similarly, Olson, Sarna and Swamy (1997) explain growth in 68 countries over the period 1960–87 by conventional neo-classical and new growth theory variables, then explain the productivity growth residuals from this using several measures of effective governance: the risk of expropriation, risk of contract repudiation, quality of bureaucracy, level of government corruption, and rule of law. The overall results are reasonably strong and significant, with R^2 for the latter equation of about 0.50. A study by Poirson (1998) uses the same approach we will present in Section IV, which is to add to the conventional variables several measures of "economic security."[5] These are taken from the ICRG and are similar to those used by Olson et al., but also include the degree

[5] An interesting theoretical model of the security factor is presented in McGuire (1998), which shows that more resources for security forces are good for growth, but there is a trade-off because rent-seeking incentives lead staff of these forces towards corruption which, of course, is not good for growth.

of civil liberty from Freedom House publications. These institutional variables again generally show the right signs and high statistical significance, although the explanatory power for growth equations in panel data are surprisingly low (about 0.30) compared to those for investments (about 0.78). Pfefferman and Kisunko (1999) use recent World Bank survey data of what managers see as obstacles to doing business in different countries. Their results do not isolate the obstacles according to our three categories, and have much lower R^2 values, but do clearly demonstrate that the level of private investment is greater where the predictability of the judiciary is highest and regulations for starting new operations are simple. Kaufmann, Kraay and Zoido-Lobatón (1999a) construct a number of governance indicators and find evidence of a strong relationship from better governance to better development outcomes, including per capita GDP.

12. For transition countries, de Melo, et al. (1997a) also analyzed how the degree of political freedom is correlated with their liberalization index, showing a very high correlation, and arguing that greater political freedom in some degree "explains" differences in the amount of economic liberalization, which in turn is a powerful explanatory factor in growth equations. This approach—which we argue in Section V deserves further experimentation—is also found in Wolf (1997). Though he did not rely on any of the available institutional measures, he did posit the issue in a similar way: first, what are the underlying factors (or initial conditions such as distance to market economies, years of communism, Lutheran/Catholic/Orthodox influence) which explain the amount of "correct" policy effort in transition countries; and secondly, what is the effect of the resulting good policies on growth.

13. If one takes the definition of economic liberalization as one component of institutional development, then, of course, it has to be noted that most of the transition growth analyses described in Section I also include this institutional variable and find it has a very strong impact on growth. In Section IV, we explore this, estimating the "statistical value-added" of economic liberalization on variables in growth equations and the additional and separate effect of the legal and political factors.

III. INDICES OF INSTITUTIONAL DEVELOPMENT

14. Many different agencies, both public and private, produce rankings or ratings of countries on some metric of institutional development. Some are general indicators of business risk (e.g., the International Country Risk Guide, ICRG), or country competitiveness (e.g., The World Competitiveness report), or degree of corruption (e.g., Transparency International). Others provide further detail of institutional development by categories approaching those noted in Section II, such as political freedom or democracy, economic freedom or openness, legal framework effectiveness or property rights protection. The most comprehensive and easily accessible indicators are compiled annually by the Heritage Foundation (U.S.A.) for 148 countries since 1995, by Freedom House (U.S.A.) in their Annual *Survey of Freedom* published for 191 countries starting in 1978, and for transition countries in particular in their *Nations in Transit* publication covering 25 countries since 1995. Comprehensive indicators for transition countries can also be found in the EBRD's *Transition Report* for 25 countries since 1994. A detailed set of institutional conditions was compiled in Brunetti, Kisunko, and Weder (1997) for The World Development Report

(1997).[6] In this section, we focus on nine indicators from five sources which provide a wide coverage of transition countries: Heritage Foundation, Freedom House, EBRD, World Bank, and Euromoney.

15. The "Index of Economic Freedom" is published by the Heritage Foundation and the Wall Street Journal, starting with data for 1994, although coverage for the full set of transition countries is only available as of 1997. There is an overall index which is based on the evaluation by outside experts of 10 specific institutional factors or areas that are considered to be relevant for economic freedom. These are: trade, taxation, government intervention, monetary policy, foreign investment, banking, wages and prices, property rights, regulation, and black market (see Holmes, et al. (various years) for further details on the assessment). It is very thorough and looks reasonable, but still fundamentally subjective. In this paper we used the overall index (HERgen) as well as the average of the subindices for property rights, which captures the protection of private property and the enforcement of contracts by the legal system, and government regulation, which reflects the clarity and consistency with which regulations are applied, the overall burden imposed by regulation and the presence of corruption (HERleg).

16. The "Nations in Transit" reports from Freedom House provides a second source of institutional indicators, in addition to Freedom House's annual Survey of Freedom. Both are again based on expert outside opinion. We used the measures on democratic (FRdem) and economic freedom (FRec) of the former, which are based on subindicators for political process, civil society, independent media, rule of law, governance and public administration, privatization and the economy. We also used the average of the subindices for rule of law and governance and public administration (FRleg). Of the annual Survey of Freedom data, we used the average of the indices for political and civil rights (FRpol) of which the contents are almost but not entirely identical to the democratic freedom indicator.

17. A third source we used are the EBRD's transition indicators. These are based also on an evaluation by outside experts. In particular, we used the EBRD's legal reform index, measuring the de jure extensiveness and the de facto effectiveness of the legal systems of countries (EBRDleg). This indicator has been compiled since 1995.

18. A fourth source of data was the survey conducted in 1998 by the World Bank on the institutional environment in a large number of countries for its World Development Report. The survey was divided into five sections: (i) government predictability regarding laws and policies; (ii) property rights; (iii) the quality of government-business relationship; (iv) bureaucratic red-tape; and (v) efficiency of the government in providing services. The survey reflects the situation in 1997 as perceived by a sample of firms located in these countries. We used the average of the responses to those questions that best captured institutional factors (WB).

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[6] Appendix B of the World Development Report (1997) provides a brief overview for some but not all of these data sets.

19. Finally, we used the country risk ratings published by "Euromoney," which go back to 1992 and which are based on the assessments of country-risk experts. We only used the political risk element of this rating (EUR). Although slightly different in nature, we found that the ranking of countries stemming from this indicator is fairly similar to the ones based on the other indicators.

20. As these measures are typically based on the judgement of outside experts, they have the clear drawback of being subjective, and contain a serious risk of reverse causation—that performance perceptions bias the ratings given by experts. Countries with good economic performance may be more likely to receive favorable ratings, hence the indicator is as much an "effect" of performance as a "cause." However, the picture that emerges from correlation analysis of these measures of the institutional and political environment, shown in Table 1 is one of surprisingly consistent rankings, which one might not expect despite the bias noted. Kaufmann, Kraay and Zoido-Lobatón (1999b) also find a high degree of correlation for a much larger set of governance indicators. Thus, there is a broad agreement among observers on the ranking of countries' level of institutional development. Mauro (1997) also argued that one would not expect such subjectively-compiled measures to give consistent results, therefore, the fact that they do (for corruption in his case) gives comfort as to their reliability.

21. But the rankings may be *too* similar. As shown in Table 1 (and Figure 1), the correlation of each of the institutional indicators with an indicator for economic reforms (EBRDri) is also very high. While broadly speaking, economic liberties and reforms are likely to be correlated with the degree of political and civil liberties, one should surely expect many instances where economic liberalization outpaces the degree of democratization; China may be a case in point. Conversely a country may not be very liberal economically, yet possess abundant political or civil liberties: India may be an example. Furthermore, country-specific ratings derived from these approaches should be tested against "informed" opinion to see whether they "make sense"—whether a duck is a duck in the old American congressional test.[7] There are some but not many anomalies; all the economic indices generally tend to rank Russia and Croatia at about the same level, which may be too high for the former and/or too low for the latter. It is further interesting to note that the overall EBRD rating of Russia fell from an average of 0.72 (our scaling) in 1997 to 0.61 in 1998, after the August crisis. On balance, however, we would agree with Mauro (1997) and Kaufmann et al. (1999a) that the surprisingly high consistency outweighs the few anomalies, and gives one reason to feel comfortable with these measures.

22. Of the nine indicators we have compiled, that of the World Bank appears to be somewhat of an outlier. For all the others, pairwise, correlations are generally 0.80 or higher (with only a few exceptions lower than 0.80 but no less than 0.72). The World Bank indicator has a correlation of only 0.63 vis-à-vis the average of the nine, and pairwise correlations with the others in the range of 0.46–0.67. Also, as can be seen in Figure 2, which orders countries according to the average index using all indicators, the World Bank indicator shows a distinctly flatter curve across countries, that is, it gives generally lower ratings to countries

[7] If it looks like a duck, walks like a duck, sounds like a duck, it must be a duck.

Table 1: Correlation Matrices of Institutional and Political Indicators

*	Average	HERgen	HERleg	FRleg	FRec	FRdem	EUR	EBRDleg	FRpol	EBRDri
Average	1									
HERgen	0.93	1								
HERleg	0.89	0.91	1							
FRleg	0.99	0.90	0.87	1						
FRec	0.97	0.88	0.86	0.97	1					
FRdem	0.98	0.90	0.87	0.99	0.96	1				
EUR	0.87	0.77	0.78	0.83	0.79	0.82	1			
EBRDleg	0.88	0.82	0.70	0.83	0.82	0.80	0.79	1		
FRpol	0.94	0.88	0.78	0.95	0.92	0.97	0.73	0.78	1	
EBRDgen	0.92	0.81	0.72	0.88	0.93	0.87	0.77	0.85	0.86	1

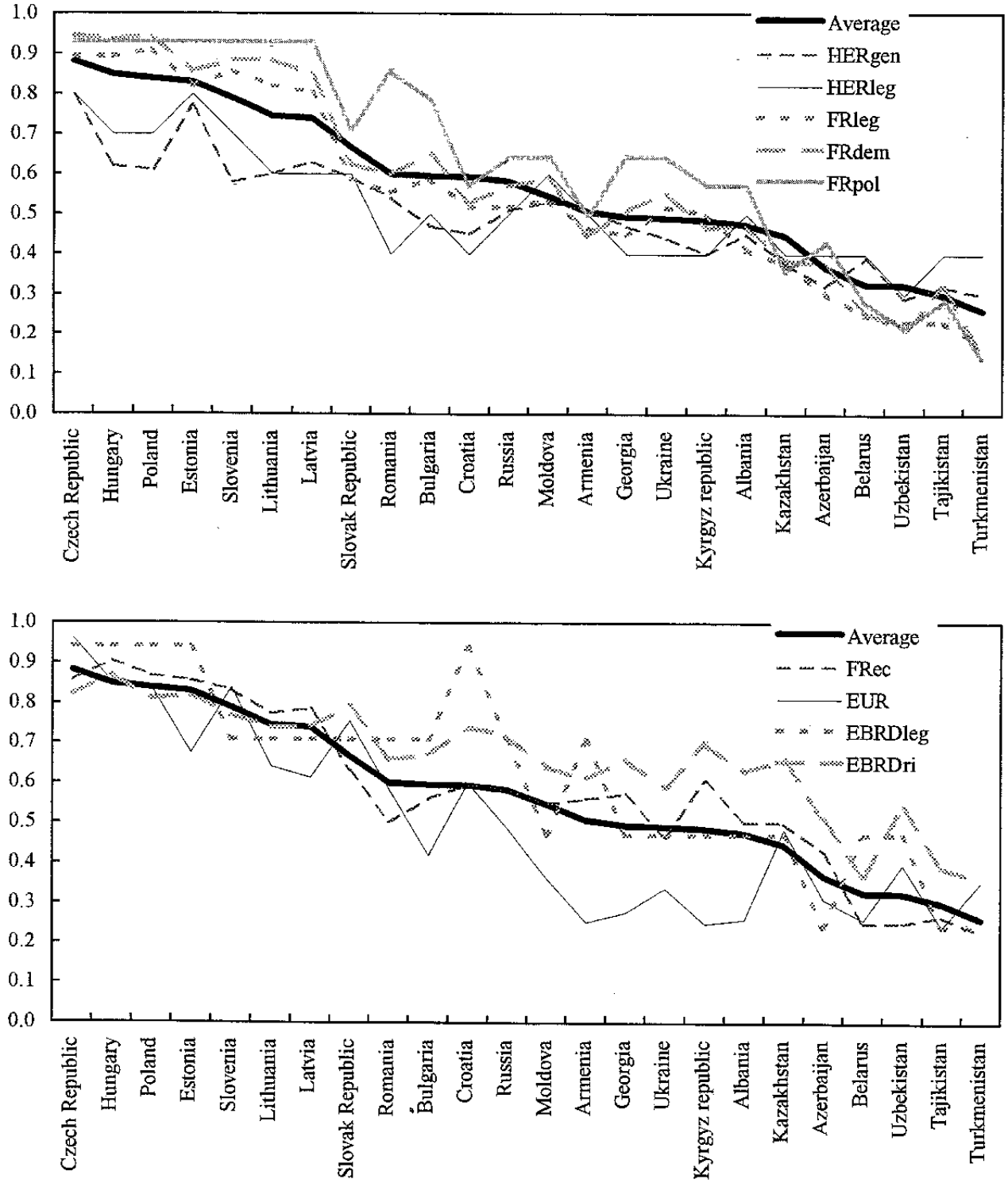
*All 25 transition countries, excluding FYR Macedonia.

*	Average	HERgen	HERleg	FRleg	FRec	FRdem	EUR	EBRDleg	FRpol	EBRDri	WorldBank
Average	1										
HERgen	0.93	1									
HERleg	0.94	0.96	1								
FRleg	0.98	0.89	0.89	1							
FRec	0.97	0.88	0.88	0.96	1						
FRdem	0.98	0.89	0.89	0.99	0.95	1					
EUR	0.88	0.78	0.82	0.83	0.79	0.83	1				
EBRDleg	0.91	0.86	0.86	0.87	0.83	0.84	0.83	1			
FRpol	0.94	0.87	0.85	0.96	0.93	0.98	0.72	0.78	1		
EBRDgen	0.91	0.79	0.79	0.87	0.92	0.86	0.80	0.80	0.84	1	
WorldBank	0.63	0.63	0.62	0.57	0.67	0.56	0.46	0.57	0.52	0.61	1

*All 25 transition countries, excluding Croatia, FYR Macedonia, Romania, Slovenia, Tajikistan, and Turkmenistan.

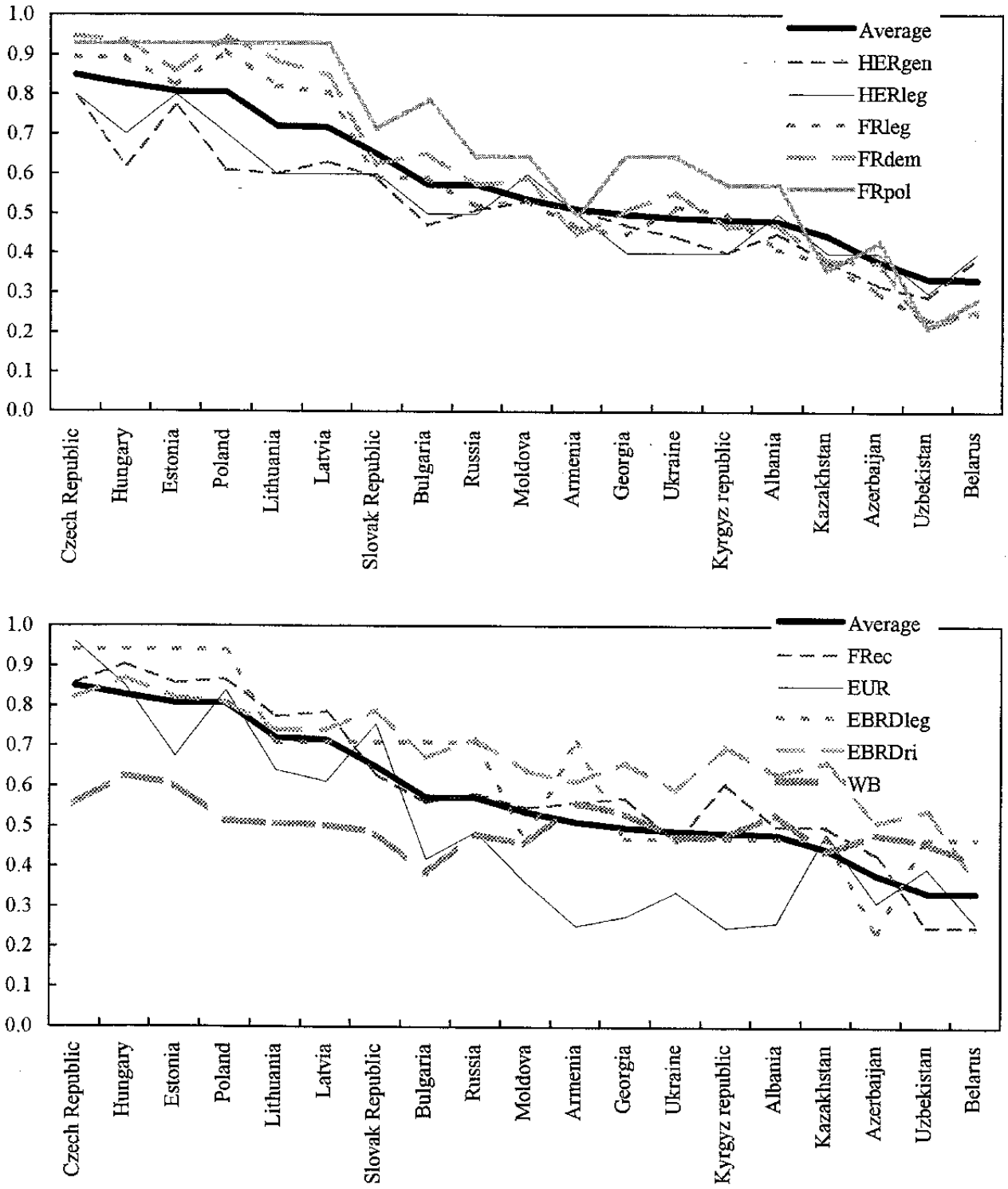
Sources: Heritage Foundation, Freedom House, Euromoney, EBRD, Worldbank.

Figure 1. Institutional, Political and Economic Reform Indicators



Sources: Heritage Foundation, Freedom House, Euromoney, EBRD.
Note: rescaled 1997 values.

Figure 2. Institutional, Political and Economic Reform Indicators



Sources: Heritage Foundation, Freedom House, Euromoney, EBRD, Worldbank.
Note: rescaled 1997 values.

shown to be more advanced by the other indicators, and slightly higher for countries considered less advanced by other surveys. For this reason, and also because its country coverage is more limited (19 countries), we have not used it in any of our regression analysis in Section IV.

IV. Institutional Indicators in Growth Regressions

23. To determine the relative importance of the institutional environment compared to the factors described in section I in explaining variations among countries' performance, we have conducted a simplified econometric analysis of economic growth in transition countries. At the start, it is useful to remember that data deficiencies remain a serious problem. Hence, all conclusions should be interpreted with caution. In addition, not all data were available for all transition countries and for all years. This applies in particular to data on the institutional environment, many of which were only available for recent years.

24. Our starting point is the basic equation that we used in our previous study (Havrylyshyn, Izvorski, van Rooden, 1998) This has the growth rate of real gross domestic product (GR) as the dependent variable. As independent variables we used variables in the three categories that represent those factors believed to be important in explaining economic performance as described in Section I. Thus, we included the contemporaneous rate of inflation (INFL) to represent macroeconomic stabilization policies; the contemporaneous and lagged values of the structural reform index (RI) to represent the level of structural reforms achieved and their possible initial negative impact; and two "clusters" of initial conditions capturing respectively macroeconomic distortions (IC1), and the level of socialist development and its associated distortions (IC2). Thus, our basic equations is:

$$(1)\quad GR_{i,t} = a_1 INFL_{i,t} + b_1 RI_{i,t} + b_2 RI_{i,t-1} + b_3 RI_{i,t-2} + c_1 IC1_{i,t} + c_2 IC2_{i,t}$$

25. As before, data on growth and inflation are official data provided by the authorities and IMF staff estimates, while data for the reform index were taken from de Melo et al. (1997a) for the years 1990–93, and updated for the years 1994–98 by linking it to the transition indicators in the EBRD's Transition reports.[8] The two series representing initial conditions were taken from de Melo et al. (1997b), who used principal component analysis to construct these clusters based on a large data set of variables describing the macroeconomic and structural situation at the outset of transition, including pre-transition levels of per capita income and growth, the degree of urbanization, natural resource endowment, repressed inflation, the level of industrialization, proximity to market economies, trade dependency, time under communism, black market premia, and whether a country was an independent

[8] RI is based on the EBRD transition indicators for price liberalization, trade and exchange regime, small-scale and large-scale privatization, governance and restructuring, and banking reform and interest liberalization. These have been published since 1994. For earlier years, we used the indices from de Melo et al. (1997a), which were based on their and other country specialists' opinion on a country's pace of reforms and its ranking relative to other transition countries.

state prior to transition. Our data coverage is 1991–1998 for 25 transitions economies in Central and Eastern Europe and in the Baltics, Russia and the other countries of the former Soviet Union. This gives a potential dataset of 200 observations. However, not all series were available for all these countries and years, hence the actual dataset ranges from 168 to 192 observations. The results for the panel regressions are shown in Table 2.[9]

26. The results of this basic equation reproduce our earlier findings that macroeconomic policies and structural reforms are the two most important factors in explaining output developments in transition economies. Comparing equations (1) and (2) in Table 2 suggests that these two factors combined account for almost ninety percent of the variation explained by our basic equation. Moreover, structural reforms are the most important factor, as equation (3) indicates that 70 percent of the variation explained by equation (1) can be attributed to this factor. Initial conditions do matter, but their impact appears to be less important and their negative effect can be relatively easily overcome by stepping up progress in structural reforms.

27. Next, we added variables that represent the level of development of market institutions to our basic equation or substituted them for the structural reform index (RI). In principle, we believe it is more correct to add these variables instead of substituting them for the structural reform index, as already noted in Section II where we suggested that the development of market-enhancing institutions is of a different nature than the reforms captured by the reform index. Further, since the reform index was found to be an important factor in explaining economic performance in transition economies, excluding this variable would increase the risk of misspecification. Finally, as a more practical matter, replacing the reform index by an average of economic and institutional indices posed a problem in the context of our panel regressions, as most of the other indices were only available for the most recent years.

28. We recognize that there is a counterargument against using RI separately from the legal and political indicators. To some extent, the EBRD transition indicators can be considered as a result of good institutional development rather than a core measure of institutions themselves. Thus, one might specify the growth equation by excluding RI and including other institutional indicators. In fact, when this is done, Table 2 (equations (5), (7)), it is clear that variables such as FRpol and EUR, which are available for a longer period, do not have by themselves anything like the explanatory power of RI; only EUR is statistically significant, though in both cases the explanatory power falls dramatically to 0.21 and 0.38 respectively from values in the range of 0.60 to 0.70 using RI. This confirms our belief that RI is an essential part of the growth explanation. A better way of dealing with the issue of what is a policy result vs. what is an institutional factor, would be to follow the approach tentatively experimented with in Wolf (1997) as described in Section II, that is to explain RI

[9] Our earlier study included some other variables not reported on here; government expenditure was negative and significant, perhaps capturing the degree of government intervention; investment ratios were never significant and often of the wrong sign. Wolf (1997) also reaches the latter conclusion.

Table 2: Basic Regression Results

	Dependent variable: GR						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
INFL	-0.35	-0.40	-0.55	-0.35	-0.54	-0.35	-0.99
	(-5.16)	(6.12)	(-7.78)	(-5.14)	(-7.74)	(5.16)	(-10.59)
RI	-32.79	-41.10		-32.41		-33.37	
	(-6.91)	(-7.53)		(-6.95)		(-6.86)	
RI-1	25.00	32.04		24.83		25.39	
	(3.97)	(4.46)		(4.01)		(3.98)	
RI-2	12.79	14.17		12.11		12.47	
	(4.34)	(4.42)		(4.11)		(4.01)	
IC1	-1.83		-1.91	-1.40	-2.10	-1.76	0.33
	(-3.95)		(-3.14)	(-2.34)	(-2.53)	(-3.70)	(0.57)
IC2	-2.38		-1.63	-2.82	-1.32	-2.37	-2.26
	(-4.43)		(-2.02)	(-4.75)	(-1.24)	(-4.35)	(-3.06)
FRpol				0.25	-0.12		
				(1.34)	(-0.41)		
EUR						0.03	0.43
						(0.31)	(7.04)
Adj. R2	0.70	0.62	0.21	0.73	0.21	0.69	0.38
N	168	168	192	168	192	168	192

T-values in parentheses.

using inter alia the institutional factors and then explain growth with RI but excluding institutional factors (probably using 2SLS). But that too would miss something as noted in Section II: The resulting "policies" or "institutions" we think of as economic liberalization are not only determined by legal and political institutions, but the impact of good policies on growth is likely to be greater the stronger and more developed these institutions. This view of the process argues for the frugal and simpler OLS specification we use which adds to RI other institutional variables.

29. Given the limited data availability of variables that represent market-enhancing institutions and taking into account that these indices are highly correlated among each other and show little change over time when they are available for more than one year (reflecting probably also their obviously "rough" nature), we have tried a different approach, similar to the method that was used by de Melo et al. (1997b) when they tried to account for the effect of initial conditions. In order to reduce the subjectivity of the individual indices, as well as deal with the multicollinearity, we have used principal components analysis to best capture the "broad consensus" of the observers who constructed the institutional indices. We first applied the principal component analysis to 8 of the 9 indices described in section III for the year 1997, which is the only year for which all of them were available (we excluded the results from the World Bank survey because these showed only very little variation among transition countries). Next we used principal components analysis to determine the "broad consensus" regarding only the indices that represent either the legal framework or the level of political freedom.

30. Principal component analysis indeed appears to be capturing the "broad consensus" contained in the set of individual indices. Table 3 shows the variability in the set of individual indices explained by each principal component, as well as the correlation of the first component with each of the individual indices. In each case, the first principal component explains close to 90 percent of the variability among the individual indices and has high positive correlations with each of them. Hence, we only use the first principal components in our regression analysis.

31. Table 4 shows a set of regressions where the first principal component of the dataset comprising all 8 institutional indices (PRall) has been added to our basic equation, as well as the first principal components of the datasets comprising only indices representing the legal framework (PRleg) or political liberties (PRpol) (equations (1)–(3)). The basic finding is that including an institutional variable adds somewhat to the explanatory power of our original equation; about five percent of the total variation explained can be attributed to institutional factors. While PRall is of the correct sign but not statistically significant, PRleg is almost significant at the 5 percent level, suggesting a particular importance of establishing a legal framework for restoring economic growth. The relationship between economic performance and the level of development of the institutional framework can also be seen in Figure 3, which plots the first principal component of the legal indices against the level of output in 1998 compared to that in 1990. A polynomial trendline was added, indicating a positive correlation. Figure 3 also shows that the institutional framework is generally better developed in the Central and Eastern European countries and in the Baltics. These countries had more of

Table 3: Results from the Principal Component Analysis

I. All indices (excluding EBRDri and WB)

Component	Variation Proportion	Cumulative	Correlations Variable	PR1
PR1	0.873	0.873	HERgen	0.95
PR2	0.045	0.918	HERleg	0.91
PR3	0.036	0.954	FRleg	0.99
PR4	0.026	0.980	FRec	0.96
PR5	0.012	0.993	FRdem	0.98
PR6	0.005	0.997	FRpol	0.94
PR7	0.002	0.999	EBRDleg	0.87
PR8	0.001	1.000	EUR	0.87

II. Legal framework indices

Component	Variation Proportion	Cumulative	Correlations Variable	PR1
PR1	0.869	0.869	HERleg	0.92
PR2	0.100	0.968	FRleg	0.97
PR3	0.032	1.000	EBRDleg	0.90

III. Political framework indices

Component	Variation Proportion	Cumulative	Correlations Variable	PR1
PR1	0.983	0.983	FRdem	0.99
PR2	0.017	1.000	FRpol	0.99

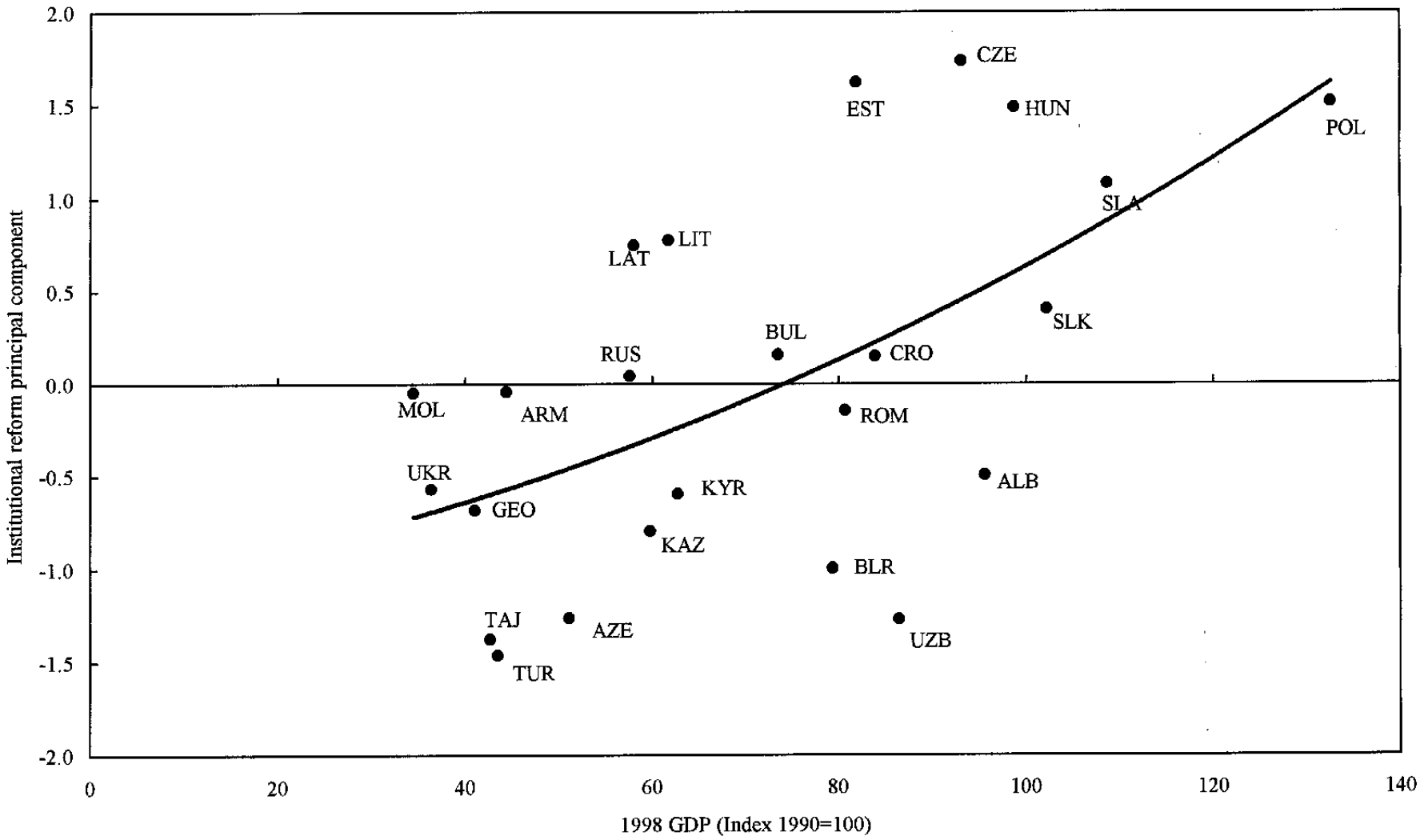
Sources: Heritage Foundation, Freedom House, Euromoney, EBRD.

Table 4: Regressions Using Principal Components of Institutional Indices

	Dependent variable: GR									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
INFL	-0.34	-0.34	-0.34	-0.34	-0.33	-0.32	-0.32	-0.32	-0.32	-0.58
	(-5.02)	(-5.03)	(-5.03)	(-5.28)	(-4.98)	(-4.89)	(-4.91)	(-4.85)	(-5.01)	(-7.73)
RI	-32.62	-32.92	-32.49	-33.62	-36.37	-34.16	-33.98	-34.65	-33.51	
	(-7.08)	(-7.18)	(-6.92)	(-7.41)	(-7.72)	(-7.94)	(-7.93)	(-7.90)	(-7.99)	
RI-1	24.82	25.02	24.92	23.76	29.21	27.61	27.43	28.14	26.13	
	(4.04)	(4.08)	(4.00)	(3.84)	(4.53)	(4.60)	(4.58)	(4.62)	(4.43)	
RI-2	12.32	12.31	12.35	14.26	12.77	10.96	10.87	11.21	11.53	
	(4.17)	(4.14)	(4.20)	(4.60)	(4.15)	(3.42)	(3.40)	(3.50)	(3.63)	
IC1	-1.30	-1.13	-1.59	-1.10						
	(-2.06)	(-1.83)	(-2.61)	(-1.85)						
IC2	-2.77	-2.67	-2.62	-1.92						
	(4.92)	(-4.92)	(-4.67)	(-3.42)						
IC1T					-7.72	-7.37	-7.17	-7.52	-6.93	-0.52
					(3.85)	(-3.95)	(-3.87)	(-3.97)	(-3.80)	(-0.25)
IC2T					-13.81	-16.14	-15.55	-16.14	-13.44	-15.96
					(-5.39)	(-6.42)	(-6.27)	(-6.34)	(-5.33)	(-5.38)
PRall	0.94									
	(1.53)									
PRleg		1.09		3.78						
		(1.90)		(2.93)						
PRpol			0.49	-3.12						
			(0.86)	(-2.40)						
PRallT						0.17				0.53
						(2.97)				(6.73)
PRlegT							0.18		0.52	
							(3.13)		(2.83)	
PRpolT								0.14	-0.38	
								(2.49)	(-1.98)	
Adj. R2	0.73	0.73	0.72	0.74	0.70	0.76	0.76	0.75	0.77	0.35
N	168	168	168	168	168	168	168	168	168	192

T-values in parentheses.

Figure 3. Growth and Institutional Reforms



an institutional framework already in place before the start of the transition process and have spent less time under communism than the CIS countries.

32. Political liberties appear to be of less importance. When combined with the legal variable (equation (4)), PRpol becomes significant but with a negative coefficient, which taken literally, would suggest that political liberties actually hurt growth prospects. While this implausible result is probably caused mainly by the multicollinearity between the two variables, one should not forget that in the short run, there have been examples where progress in implementing reforms has been slowed down or stopped by relatively freely elected parliaments opposing more reformist governments. Part of the story of lagging reforms in Russia and Ukraine may be of this type; Polish parliaments have at a minimum slowed reform of pensions; Latvian parliaments have been more protectionist on agriculture than the governments.

33. The next question we tried to answer is whether the effects of both initial conditions and of market-enhancing institutions can be assumed to have the same intensity over time. In our panel data context, the same value of the initial condition and institutional variables is entered into the dataset for each year of the sample. This might be too strong an assumption. Intuitively, one would expect the effect of adverse initial conditions to diminish over time, as the economy is increasingly transformed into a market economy. In the same vein, one might expect that after the initial stabilization and liberalization, the establishment and effective implementation of strong legal institutions becomes increasingly important for achieving sustainable growth. As mentioned before, by their very nature, the establishment of these institutions takes more time than, for example, price liberalization, but there is a growing understanding that developing institutions that create a market-friendly environment cannot be delayed for too long without running the risk of reversing macroeconomic stability and stalling the overall reform process.

34. To test for these assumptions, we made the variables representing initial conditions and the institutional framework time-dependent, with the prior assumption that the impact of adverse initial conditions declines over time ($ICT_{i,t} = IC_i / T$), while the effect of the institutional environment is assumed to increase over time ($PRlegT_{i,t} = PRleg_i * T$). The results are shown in Table 4, equations (5)–(9). While making the initial conditions time dependent (equation (5)) increases their statistical significance, this by itself does not result in an improvement in the overall goodness of fit compared to our basic equation (1) in Table 2. However, when a time dependent variable for the institutional conditions is added, the overall goodness of fit of the estimates and the statistical significance of this variable increase significantly. Almost 10 percent of the variation explained by equations (6) and (7) can be attributed to the institutional factors. This means that the relevance of institutional factors is in the same order of magnitude as that of initial conditions. Moreover, while the importance of adverse initial conditions is declining with time, our results confirm the growing importance of establishing a sound institutional environment for a country's economic performance.

V. Conclusions

A. Concensus of Earlier Studies on Growth in Transition

35. Empirical studies of recovery and growth in transition economies have emphasized three categories of determinants: macroeconomic stabilization; progress in economic liberalization; and initial conditions. Generally, they have not included institutional development as separate, measurable variables except in limited bivariate correlations showing that greater economic liberalization tends to coincide with greater political freedom.

36. It is almost universally agreed that stabilization of inflation at low levels is a necessary—but not sufficient—condition for recovery and growth to begin.

37. There is also a wide consensus on the eventual positive impact on growth of liberalization policies and related structural reforms. Differences remain on several aspects of this, however: is liberalization necessarily painful early on, and how long and strong is this pain before the gains register; can growth preceding significant reform be sustained; is botched privatization better than no privatization?

38. On initial conditions, there remains the greatest degree of dispute. Though virtually all analysts agree that initial conditions do matter, some believe they matter a great deal, others find the impact is there, but small. Another view is that the effect diminishes over time, and matters more in explaining output decline than explaining growth once the stabilization and liberalization policies are put in place. A broader view is that the initial conditions do not affect growth directly, but determine the degree and speed of reform policies undertaken by governments.

39. It is notable that conventional factor input or technology determinants of growth (investment, human capital) are not statistically significant for transition countries. This should not be so surprising; the recovery from the transition depression is likely to be based on vast reallocation and efficiency improvements, i.e., on "creative destruction."

B. The Value-Added of Institutional Variables

40. The spate of empirical analyses spawned by the new growth theory include many that incorporate some measure of institutional development, usually in a large sample of countries for periods from about 1960 to around 1990—and therefore excluding transition countries. At the same time, the number of different cardinal measures of institutional development has proliferated, including for transition countries. Our paper builds on the above two foundation blocks to compile a set of such institutional indicators for transition countries and include them in a simple OLS analysis of growth.

41. The nine indicators we have compiled show a surprisingly high consistency of the country ratings by different measures. Alas, they also appear consistent in making the same errors, such as rating countries much higher or lower than suggested by common sense. Nevertheless, on balance the great similarity of these indicators gives some comfort that the

subjectivity and reverse causation biases (perception of performance influences ratings) are not so serious as to render the indicators useless.

42. When one asks how much statistical value is added to econometric explanations of growth by indicators of institutional development, the short answer is, a significant but perhaps not overwhelming amount. Certainly, the effects are in the direction as expected, are statistically significant, and are visible both for overall average indicators comprising all categories of institutional development, as well as for separate components such as economic, legal and political framework.

43. But good economic policies remain the dominant statistical determinant of growth in the transition economies. This conclusion is particularly clear if such indicators as economic freedom or economic liberalization are narrowly interpreted as measures of government policies rather than institutional development.

44. Once stabilization and liberalization policies are accounted for, the separate and additional effect of legal and political variables is much smaller, although clearly still significant in the econometric results.

45. We began with a statement of Hernando de Soto that is both pithy and we believe correct. Let us end with a statement of him that is equally pithy but we believe less correct: "I predict... that the countries... [making the jump to a developed market economy]... will be those that spend their energies ensuring that property rights are widespread and protected by law; *rather than those that continue to focus on macroeconomic policy*" (our italics). We interpret the results of our paper as saying that, yes, it is good that the owner's dogs bark and perhaps thereby press governments to enforce legal support for a market economy which in turn promotes growth and prosperity. But you still need to get the prices rights and keep them stable.

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Table 1. Economic, Institutional and Political Reform Indicators, 1997

	Heritage Foundation		Freedom House				EBRD		World Bank	Euromoney	Average
	Index of economic freedom	Property rights and regulation	Political and civil rights	Democratic freedom	Economic freedom	Rule of law and public administration	Reform index	Legal index	Property rights and public administration	Political risk	
Central and Eastern Europe											
Albania	0.45	0.50	0.57	0.47	0.50	0.41	0.63	0.47	0.53	0.26	0.48
Bulgaria	0.47	0.50	0.79	0.65	0.56	0.59	0.67	0.71	0.38	0.42	0.57
Croatia	0.45	0.40	0.57	0.53	0.60	0.52	0.74	0.94	N/A	0.60	0.59
Czech Republic	0.80	0.80	0.93	0.95	0.86	0.89	0.82	0.94	0.56	0.96	0.85
FYR Macedonia	N/A	N/A	0.64	0.58	0.48	0.54	0.67	0.47	0.57	0.39	0.54
Hungary	0.62	0.70	0.93	0.94	0.90	0.89	0.87	0.94	0.63	0.85	0.83
Poland	0.61	0.70	0.93	0.95	0.87	0.91	0.81	0.94	0.51	0.84	0.81
Romania	0.54	0.40	0.86	0.60	0.50	0.55	0.66	0.71	N/A	0.58	0.60
Slovak Republic	0.59	0.60	0.71	0.62	0.63	0.59	0.79	0.71	0.49	0.76	0.65
Slovenia	0.58	0.70	0.93	0.88	0.83	0.86	0.77	0.71	N/A	0.84	0.79
Baltics											
Estonia	0.77	0.80	0.93	0.86	0.86	0.82	0.82	0.94	0.61	0.68	0.81
Latvia	0.63	0.60	0.93	0.85	0.79	0.80	0.74	0.71	0.50	0.61	0.72
Lithuania	0.60	0.60	0.93	0.88	0.77	0.82	0.74	0.71	0.51	0.64	0.72
CIS											
Armenia	0.51	0.50	0.50	0.45	0.56	0.46	0.61	0.71	0.56	0.25	0.51
Azerbaijan	0.32	0.40	0.43	0.37	0.43	0.30	0.51	0.24	0.48	0.31	0.38
Belarus	0.39	0.40	0.29	0.26	0.25	0.25	0.37	0.47	0.41	0.26	0.33
Georgia	0.47	0.40	0.64	0.51	0.57	0.45	0.66	0.47	0.53	0.28	0.50
Kazakhstan	0.38	0.40	0.36	0.38	0.50	0.38	0.66	0.47	0.44	0.48	0.44
Kyrgyz republic	0.40	0.40	0.57	0.46	0.61	0.50	0.70	0.47	0.48	0.25	0.48
Moldova	0.53	0.60	0.64	0.59	0.55	0.54	0.64	0.47	0.46	0.36	0.54
Russia	0.51	0.50	0.64	0.57	0.58	0.52	0.72	0.71	0.48	0.49	0.57
Tajikistan	0.32	0.40	0.29	0.32	0.27	0.23	0.39	0.24	N/A	0.24	0.30
Turkmenistan	0.30	0.40	0.14	0.15	0.23	0.18	0.36	0.24	N/A	0.35	0.26
Ukraine	0.44	0.40	0.64	0.55	0.46	0.52	0.59	0.47	0.47	0.34	0.49
Uzbekistan	0.29	0.30	0.21	0.21	0.25	0.23	0.54	0.47	0.46	0.40	0.34

Sources: Heritage Foundation, Freedom House, Euromoney, EBRD, Worldbank.

Note: individual indicators have been rescaled to range between 0 and 1, and, in the case of the Heritage Foundation and Freedom House indicators, have been reordered to show higher values for better performance.