

# IMF Working Paper

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## Institutional Reform in Transition Economies: How Far Have They Come?

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**IMF Working Paper**

Research Department

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**Abstract**

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This paper examines how institutional conditions in transition economies compare with those in the rest of the world using various indicators of governance. The focus is on the countries in Central and Eastern Europe and the former Soviet Union but, when possible, transition countries, in Asia and Africa are also considered. The main findings are that transition economies, as a group, are no longer distinguishable from other economies, but at the same time, there are large differences in institutional performance within the group of transition economies. A formal cluster analysis is conducted in order to map transition economies into homogeneous groupings of countries. The results of this analysis highlight that transition economies are found at all clusters (from best to worst institutional performers) and also that a group of five countries, all of which are EU accession countries, appear to have “graduated”: when taking into account their level of income, their institutional conditions are no longer distinguishable from those in the most advanced industrialized countries.

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## I. INTRODUCTION

The label “transition economies” is by now part of our regular vocabulary. Yet, the group of countries that share this label seem to have become increasingly diverse and their commonalities are increasingly historical. After all, the transition process is by now about a decade old. The countries that emerged from the former Soviet Union have been in transition for eight to nine years and Eastern European countries started transiting even earlier. The Asian’s transition is more difficult to date since there are some countries that have only started transforming their economies and others that arguably have been doing so for a much longer time than the last decade. At any rate, about 10 years after the breakup of the former Soviet Union it seems natural to ask whether the transition label is still warranted or whether for some countries the transition is over and, for the others, how far their reforms have come. There are already a number of recent papers that address this question, but they mainly focus on the macroeconomic dimension and try to settle some of the early debates (such as the impact of inflation and stabilization, the choice of exchange rate regime, big bang versus gradualist reforms etc.)<sup>2</sup>

The aim of this paper is to take stock of the *institutional and legal dimensions* of the reform process. It does this by asking three questions: How do transition economies compare among themselves in terms of their institutional performance? How do they compare with the rest of the world? And: How would a more appropriate grouping of transition economies look like? To answer the first question a number of indicators of institutional performance are analyzed. To answer the second question, I run regressions that test whether institutional conditions are significantly different in transition economies from the rest of the world. To answer to the third question I conduct a formal cluster analysis.

The paper indicates that (i) transition economies are very diverse in terms of their institutional conditions and (ii) that transition economies as a group are no longer distinguishable from other economies. Yet there are groups of countries that are very similar among themselves and dissimilar from the others. For instance, the EU accession countries as a group have clearly better institutional conditions than the countries of the FSU. In fact, one finding of the paper is that (according to some measures) institutional conditions in some EU accession countries are not significantly different from those of industrialized countries. A new mapping of ex-transition economies is provided by a clusters analysis in which I classify about 150 countries into homogenous groups taking into account six factor that reflect institutional conditions. We find transition economies in all clusters.

The quantitative assessment of institutional performance conducted in this paper is feasible only because a number of indicators of institutional quality have become available recently. For instance, a world wide private sector survey, carried out for the World Development Report (1997), provided indicators of firms’ perceptions about issues such as the predictability of rule making, property rights enforcement or reliability of the judiciary. Firms

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<sup>2</sup> See e.g. Fischer and Sahay (2000), Wyplosz (1999) , or Berg, Borensztein, Sahay, and Zettelmeyer (1999).

that sell country risk assessments have been holding experts' survey on issues such as the quality of the bureaucracy, rule of law and corruption. Finally, researchers have aggregated indicators from different sources into summary indicators. This paper uses data from all these sources to compile a comprehensive picture of institutional conditions.

At the outset, it is important to clarify the definition of "institutional conditions." The underlying concept is that a market economy can only operate if there are certain rules of the game and, in particular, that property and contract rights have to be defined and there have to be mechanisms that will credibly enforce them. A well working institutional framework guarantees these rights by enforcing them against violation by third parties as well as by the state.<sup>3</sup> For instance, corruption, discretionary action of bureaucrats, unpredictable changes in rules and policies, unreliable judiciaries are all means by which the state can de facto expropriate private agents.

The indicators used in this paper addresses these issues, i.e. they map out the quality of the institutional and legal infrastructure for private sector development. Several indicators directly reflect the views of the private sector as they are based on surveys of entrepreneurs. Thus, what is being assessed is not the theoretical legal framework adopted by legislature but rather the actual conditions facing individuals. This is the main advantage of the subjective indicators used in this analysis, (i.e. indicators based on opinions either of country experts or of private sector participants); they tend to reflect the reality of institutional reform rather than the rules that exist on paper. In terms of country coverage, I use both regional and global data sets. The regional data sets cover only the transition economies of the FSU and Eastern Europe. The cross section data sets cover transition economies in Asia and Africa, which will also be included in the analysis. However, the focus of the paper is on the "traditional" transition economies.

It is also important to note what this paper does not do: it is not qualifying the political system. Although there exist indicators that gauge the degree of democracy or autocracy, or the extent of political and civil rights, these are not the issues addressed here. Political and civil right are mostly not associated with economic performance whereas institutional variables of the kind used here have been shown to be closely associated with investment and growth.<sup>4 5</sup>

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<sup>3</sup> As emphasized for instance by North (1981).

<sup>4</sup> Mauro (1995), Knack and Keefer (1995) Brunetti and Weder (1998) study of large samples of countries and find that institutional performance impacts on investment and growth. Brunetti, Kisunko and Weder (1997) and Havrylyshyn, and van Rooden (2000) investigate transition economies and find a positive impact of institutions on FDI and growth (respectively). The results of the latter paper are consistent with the view that at first stabilization and good policy stimulate recovery, but sustained growth requires adequate *pari passu* development of institutions, which becomes more important over time.

<sup>5</sup> Another dimension that is not in the scope of this paper, but which could easily be addressed with a similar methodology are structural reforms, which include *inter alia* the degree of privatization, the degree to which the domestic financial system has been developed, the working of central banks etc.

The paper is organized as follows. The first section describes the data and presents some comparisons within the group of transition economies. The second section compares transition economies to the rest of the world by running regressions in a large cross section. The third section presents result from mapping transition economies within a worldwide comparison of institutional performance into clusters. The fourth section concludes.

#### **A. Indicators of Institutional Performance and Differences Within Transition Countries**

The paper makes use of three data sets on institutional indicators two of which are themselves aggregations from several underlying data sets. The first data set is from Kaufmann, Kraay, and Zoido Lobaton (1999a). They calculate six aggregate indicators on a scale from -20 to +20 (with higher ratings indicating better performance) for the period 1997–98.<sup>6</sup> Each indicator is based on aggregating information from a large number of underlying component indicators. For instance the aggregate indicators of "Rule of Law" is based on 28 component indicators which are in turn drawn from nine different sources. The advantage of this aggregation exercise is that it creates a comprehensive cross section: the total number of countries in this data set is 175 and it includes all transition economies. The main disadvantage is that noise may be introduced into each indicator by combining information from so many different sources, which explains why the standard errors of the estimate is quite large (see Kaufmann, Kraay, and Zoido Lobaton, 1999b). Their approach presupposes that all component indicators which are used to calculate the summary indicator are measures of the same underlying basic concept. However, when combining information from such a large variety of sources this assumption may easily be violated. Nevertheless, I use these indicators (in addition to others) because they are the most comprehensive governance indicators available. In the tables, all indicators from this source are labeled PP, which stands for poll of polls.

A second data set from Brunetti, Kisunko, and Weder (1998), is derived from a worldwide survey of private sector views in 73 countries conducted in preparation of the World Development Report 1997. This data covers a sample of 20 transition economies. The scale is from one to six, with higher ratings indicating better performance. The advantage of this survey data is that it provides detailed indicators for instance on issues such as judiciary enforcement or predictability of rules. In the tables, indicators from this source are labeled PSS, private sector survey.

A third source is Campos (2000), who aggregates indicators from various sources. This source provides time series data and thus permits an assessment of institutional progress in

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<sup>6</sup> The indicators are called "Voice and Accountability," "Political Instability and Violence," "Government Effectiveness," "Regulatory Burden," "Rule of Law," and "Graft." In most of the paper I use five of the six variables, leaving aside the most political variable, "Political Instability and Violence." Each indicator is based on a combination of component indicators and the aggregation is performed with an unobserved components model (which expresses the observed data as a linear function of the unobserved common component of governance, plus a disturbance term capturing perception error and/or sampling variation in each indicator). See Kaufmann, Kraay, and Zoido Lobaton (1999a, p. 9).

transition economies. It was compiled only for transition economies of the FSU and CEE, and therefore it does not provide a benchmark. The scale is from 0 to 10 with higher ratings indicating better performance.

All indicators data sets are described in Appendix Table 2.

**Figure 1** gives a first impression of the differences between transition economies and their distance from industrialized countries in terms of institutional quality. It uses the overall institutional quality (IQ), an average of five PP indicators and subtracts the mean of the ratings of industrialized countries from each country rating. The results is one possible measure of the “Reform Gap” that is the distance that the country has to go in order to reach the level of institutional quality of the average industrialized country. The figure shows large differences. Hungary, Slovenia, and Poland have institutional quality ratings which are only five points below the average industrialized country (as noted above, the ratings range from -20 to +20) whereas the reform gap is massive in countries such as Turkmenistan, Tajikistan, or the Lao.

**Figure 2** gives an impression of the changes in institutional quality over time. It presents means of bureaucratic quality (as calculated by Campos) for four groups of countries: the CIS, the Baltic’s, the EU accession countries (which also include the Baltic’s) and CE3, namely Hungary, Poland, and the Czech Republic. The main implication from this figure is that there are large differences between the transition countries. Furthermore, these differences already existed already a decade ago in 1989 and have stayed fairly constant over the last 10 years

Figure 1: The Reform Gap:  
Deviation of PP Overall Average Institutional Quality (1997) from the Mean of Industrialized Countries

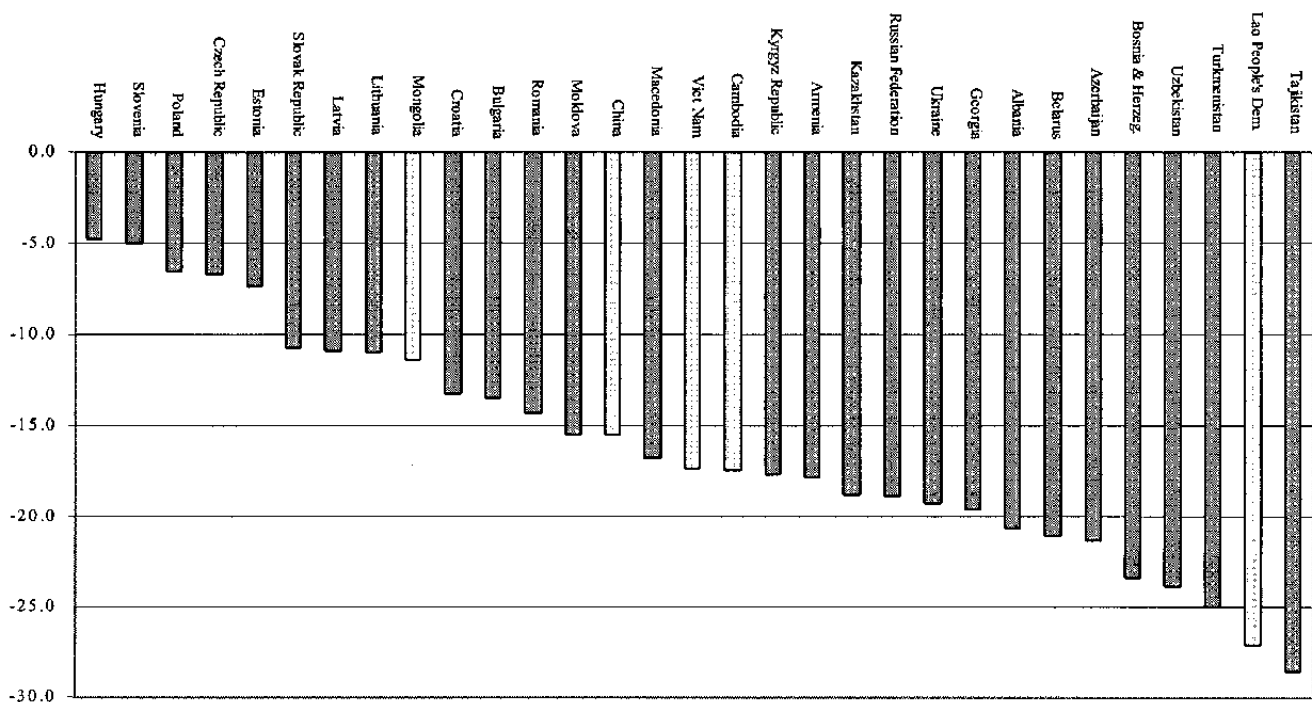
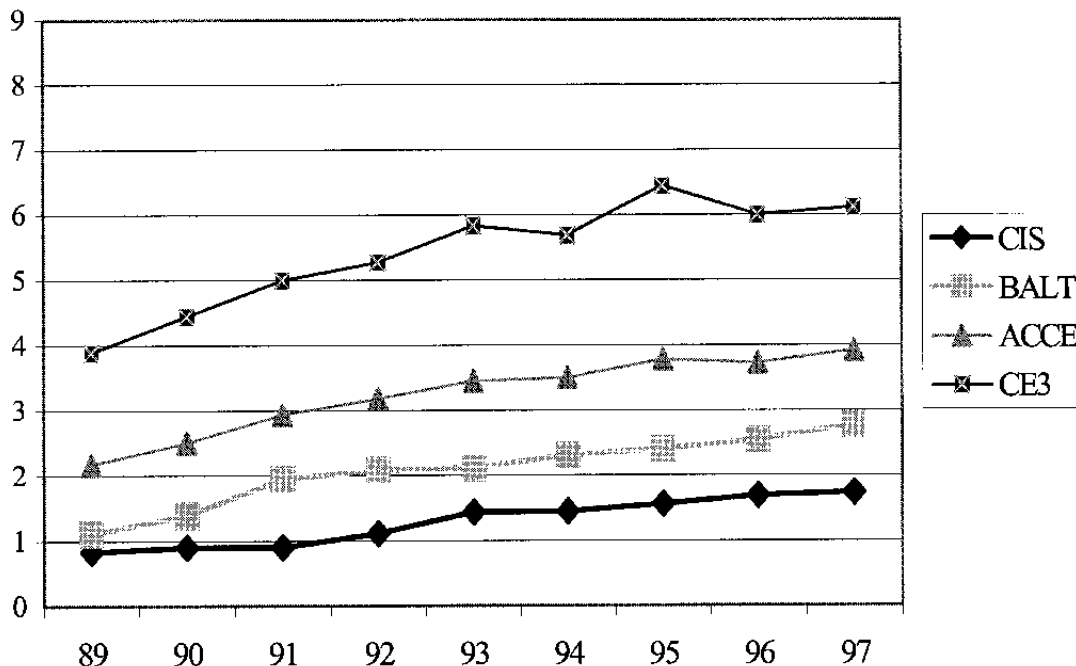


Figure 2: Time Series Evidence on Bureaucratic Performance by Country Groups Mean Bureaucratic Quality (NC), 1989-1997



CIS	Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan
BALT	Estonia, Lithuania, Latvia
ACCE	Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Moldova, Poland, Romania, Slovakia, Slovenia
CE3	Czech Republic, Hungary, Poland

### B. Are Transition Economies Different from the Rest of the World? Results from Cross-Country Estimates of Institutional Conditions

This section presents the results of cross-country estimates of institutional conditions. The aim is to test whether institutional conditions in transition economies are recognizably different from other countries with a similar per capita income. Following Gros and Suhrke (2000) initially I adopt a dummy variable approach, that is I estimate equations of the following type:

$$IQ_i = \alpha + \beta \log (GDPpc_i) + \delta TransDum_i + \phi OthDum_i + \varepsilon_i \quad (1)$$

where IQ stands for various measures of institutional quality that are available for a cross-section of countries, (PP and PSS measures) GDPpc is GDP per capita, TransDum are dummies for groups of transition economies and Othdum stands for other regional country groups. I control for the level of income per capita because richer countries have a higher quality of institutions for a variety of reasons, and I want to control for differences in the stage of development. The first regression in Table 6 shows that GDPpc is positively associated with IQ and by itself



explains about 60 percent of the cross country variation in IQ. TransDum are dummies for various groupings of transition economies: TRANSFSU&CEE, (includes the FSU and the Eastern European countries), TRANSASIA and TRANSAFRICA. The definition of the transition dummies are shown in Appendix Table 1. GDPpc stands for income per capita in PPP terms in 1998 (from the Weo Data base). OthDum are other continental dummies, LATIN, AFRICA, EASIA and INDU (which stands for industrialized countries).

**Table 1** shows the results of six indicators of institutional quality from PP. The first indicator, labeled “Overall Inst. Quality” is the average of the five following ones. The results show that the transition dummies are not significant. TRANSFSU&CEE has a negative sign (implying lower institutional quality than in other countries with a similar income per capita) but it is not significant. (The same is true for AFRICA). TRANSASIA and TRANSAFRICA are not significant either. The INDU dummy is positive and the coefficient is large but it is not significant after controlling for differences in income. When the income variable is removed this indicator becomes highly significant. (AFRICA becomes significantly negative but all TRANS dummies remain insignificant at conventional levels). These first results suggest that institutional conditions in the transition economies are no longer different from the rest of the world.

The next regressions on the individual PP indicators (Rule of law, Graft, Regulatory Burden, Accountability and Government Effectiveness) mostly confirm this impression. The only dimension in which TRANSFSU&CEE is recognizably different (and worse) from the rest of the world is graft. In the other dimensions the dummy is not significant after controlling for income per capita.<sup>7</sup>

**Table 2** summarizes the results of 14 regressions. The aim is to test whether there are groups within the “classical” transition economies that are distinguishable from the rest of the world. After all, the fact that TRANSFSU&CEE was not significant in the previous estimates could be related simply to large differences within this group that were documented in the previous section. In this table two dummies are considered, CIS and CEE (see Appendix Table 1 for countries in each dummy). The picture is now quite different from the one in Table 3: the CIS dummy is negative and significant in all but one regression. By contrast, the results on the CEE dummy are much more mixed: they are positive and significant in some cases, negative and significant in others and insignificantly different from zero in most cases. The CEE seem to have a higher overall institutional quality than countries with similar income levels and higher voice and accountability but seem to be less strong in terms of consultation and communication with the private sector and have more bureaucratic discretion than other countries in the same income class.

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<sup>7</sup> Some interesting side results are that LATIN countries, as a group, have significantly less regulatory burden and are more accountability than predicted by their income, but have a significantly low ratings in terms of rule of law. INDUstrialized countries have more accountability even than predicted by their high income and EastASIAN countries are not special in any dimension except for Regulatory Burden, where they show significantly more.

Table 1: Are Transition Economies Different? Cross-Country Evidence on Institutions and Transition Economies OLS Estimates, Various Dependent Variables, 1997

Independent Variable	Dependent Variable													
	PP Avg. Inst. Qual		PP Avg. Inst. Qual		PP Rule		PP Graft		PP Regul.Burden		PP Accountab.		PP Gov. Effectivenss	
	coeff.	t-Statistic	coeff.	t-Statistic	coeff.	t-Statistic	coeff.	t-Statistic	coeff.	t-Statistic	coeff.	t-Statistic	coeff.	t-Statistic
C	-5.83	-9.84	5.25	-4.67	-6.03	-5.21	-6.15	-5.86	-4.02	-2.88	-4.17	-3.05	-6.70	-5.18
GDPPP98	0.001	13.942	0.001	7.010	0.001	8.785	0.001	6.776	0.001	5.560	0.001	3.613	0.001	6.883
TRANSFSU&CEE			-0.70	-0.55	-0.94	-0.79	-2.45	-2.08	-1.92	-1.11	1.52	0.86	-1.40	-1.08
TRANSASIA			0.02	0.01	0.92	0.43	1.83	1.57	-1.20	-0.35	-4.02	-1.02	4.12	2.94
TRANSAFRICA			1.50	0.92	0.38	0.13	-0.87	-0.80	1.88	1.00	3.99	1.81	2.62	2.19
LATIN			1.04	0.89	-2.43	-1.91	-1.55	-1.18	5.50	3.91	3.82	2.36	1.10	0.80
AFRICA			-1.41	-1.10	-1.05	-0.71	0.00	0.00	-1.00	-0.62	-2.35	-1.44	0.22	0.15
INDU			2.05	1.06	0.34	0.18	2.83	1.09	0.02	0.01	5.87	1.93	3.28	1.45
EASIA			-0.86	-0.57	-0.77	-0.36	-0.36	-0.20	2.37	2.06	-5.05	-1.64	0.80	0.37
Adjusted R-squared	0.62		0.62		0.67		0.70		0.41		0.44		0.65	
S.E. of regression	4.97		5.01		5.28		5.03		5.97		7.02		5.19	
Numb. Countries	160		160		154		143		154		160		144	

Standard Errors are calculated using White correction.

Table 2: FSU and CEE in Cross-Country Comparisons OLS Estimates, Various Dependent Variables, 1997

Dependent Variable	Independent Variables				Adj. R2	No. of Obs.
	C	GDPPP98	CIS	CEE		
PP Average Institutional Quality	-5.48 -8.54	0.001 13.520	-4.11 -3.64	1.77 1.74	0.64	160
PP, Rule of Law	-6.73 -9.33	0.001 15.776	-2.67 -2.09	1.15 1.21	0.68	154
PP, Low Graft	-6.54 -10.49	0.001 12.658	-4.90 -5.66	-0.82 -0.70	0.71	143
PP, Low Regulatory Burden	-2.95 -3.62	0.001 9.715	-8.09 -4.90	1.45 1.20	0.43	154
PP, Accountability and Voice	-4.57 -5.15	0.001 7.664	-3.68 -2.06	5.14 3.87	0.40	160
PP, Government Effectiveness	-6.02 -8.54	0.001 12.584	-4.97 -4.84	-0.48 -0.39	0.66	144
PSS, Predictability of Rule Changes	3.12 47.12	0.000 5.980	-0.45 -2.92	-0.19 -0.89	0.37	73
PSS, Credibility of Gov. Announcements	3.79 36.72	0.000 1.939	-0.65 -3.71	-0.42 -1.57	0.18	73
PSS, Information about Changes in Rules	2.86 32.67	0.000 5.881	-0.22 -1.59	-0.45 -1.71	0.38	73
PSS, Consultation	2.73 32.57	0.000 3.648	-0.70 -4.92	-0.70 -4.40	0.38	73
PSS, Property Rights Enforcement	2.10 13.40	0.000 4.585	-0.42 -2.35	-0.23 -0.75	0.30	73
PSS, Judiciary Reliability	2.42 19.49	0.000 5.960	-0.35 -2.16	-0.17 -1.11	0.44	73
PSS, Predictability of Bribes	3.69 29.35	0.000 4.271	-0.46 -2.97	-0.13 -0.58	0.37	72
PSS, Freedom from Discretionary Bureaucrats	3.02 37.03	0.000 4.070	-0.30 -3.10	-0.29 -1.86	0.32	72

Note: T: Statistics below Coefficient, Standard Errors are calculated using White correction.

Corruption has been such a prominent topic in transition economies that it is worth restating the results. Table 1 suggested that corruption is one dimension in which transition economies of the FSU and CEE have a markedly worse performance than other countries. Table 2 clarified that this pertains mostly to the CIS. This confirms what some observers have been claiming, namely that the problem of corruption is particularly serious in the CIS. Indeed some of the recent interest in corruption and some academic advances into this topic have been motivated by the experience of these countries.<sup>8</sup>

**Table 3** has the same structure as Table 2, but focuses on testing whether EU accession countries are different. In all estimates with PP indicators, the EU accession dummy is significant and positive. For instance, the first estimate shows that in EU accession countries overall institutional quality is higher than predicted by their level of income. Moreover, a Wald test on the coefficient cannot reject the hypothesis that the coefficient of ACCE and of INDU are the same. The picture is a different when seen from the perspective of the private sector: the PPS indicators are negative for consultation, communication, predictability and credibility of government. The remaining PPS indicators (on the judiciary and the bureaucracy) are not significant.

Finally, as an additional check on the robustness of these results. I use an alternative to the dummy variable approach. I estimate the following equation:

$$IQ_i = \alpha + \beta \log(\text{GDPpc}_i) \quad (2)$$

excluding the transition economies for three income groups: (1) countries with (1998) GDP per capita below US\$3,000 (2) countries with (1998) GDP per capita between US\$3,000 and US\$7,000 and (3) countries with GDP per capita above US\$7,000. Using the estimates of the alpha and beta coefficients, thus obtained and the GDP per capita numbers of for the transition economies of the corresponding income groups, predicted values of institutional performance are derived. If the actual and the predicted values of the IQ measures for the transition economies are significantly different, one may conclude that these countries are still distinguishable from the rest of the world. The procedure differs somewhat from the dummy approach adopted above in that the latter assumes that the transition countries are sufficiently similar to the rest of the world to have common parameters alpha and beta and that information from these countries therefore can be exploited to estimate these parameters more efficiently.

The result of this exercise using PP is that predicted values and actual values of institutional quality in transition economies do differ significantly (the t-test for the equality of means between the two series yields  $p=0.02$ ) for the high and middle income countries. The low

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<sup>8</sup> See e.g. Shleifer and Vishny (1995). For surveys of corruption and development see Bardhan (1997) or Tanzi (1994). Wolf and Grger (2000) give some actual examples of corruption and poor governance in transition

income countries were excluded since institutional quality turned out not to be significantly related with income.<sup>9</sup>

**Figure 3** shows the actual minus the predicted values of overall institutional quality for the middle and high income transition countries. By this measure Belarus, the Russian Federation and Turkmenistan are the largest under performers (their actual institutional quality is lower than predicted by their income and their membership in an income group). However, as mentioned above, for the group of transition economies overall actual institutional quality is well predicted by income and the two means are not significantly different. Thus, this additional exercise corroborates the finding of the dummy approach, namely that institutional quality in transition countries are no longer distinguishable from the rest of the world.

### C. Mapping Ex-Transition Economies into New Clusters

Given the results of the previous sections it seems clear that the old transition label is no longer adequate. This last section maps the ex-transition economies into new groups by forming clusters of relatively homogenous institutional performers.

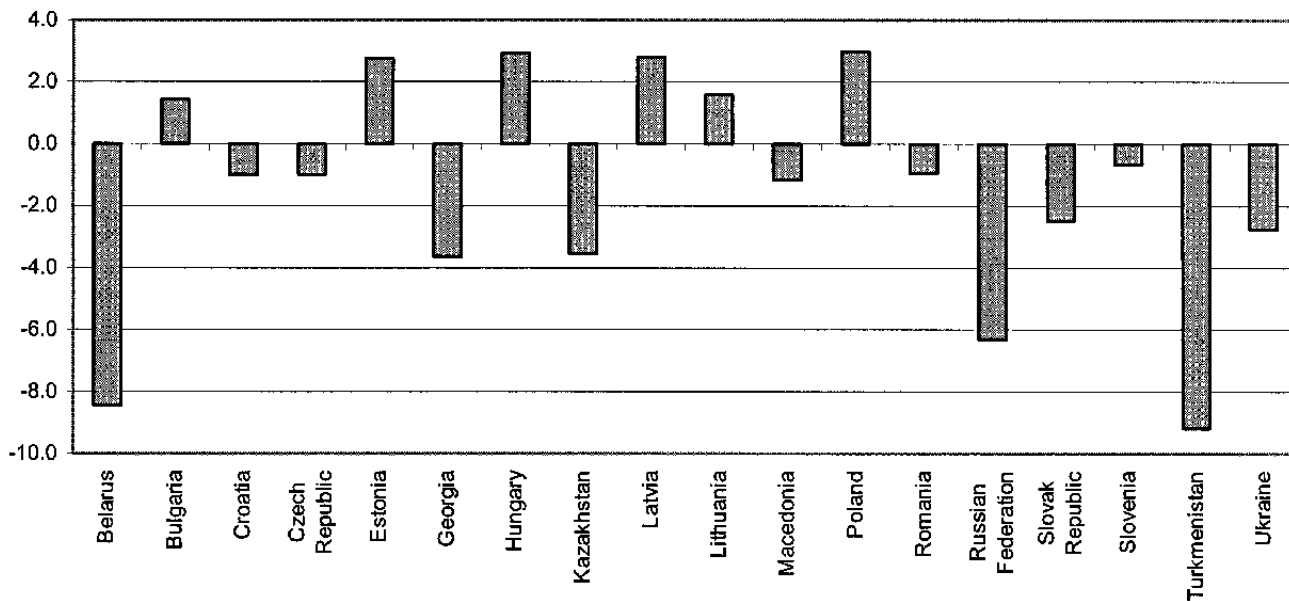
**Table 4** presents the results of a of mapping countries into groups using cluster analysis, a technique that allows to identify homogeneous groups based on a large number of criteria. The results presented here were computed using six individual PP indicators (standardized for the level of income per capita).<sup>10</sup> The algorithm used is K-Means cluster analysis. This algorithm works by assigning a country to the cluster with the smallest distance between the country and the center of the cluster. It thereby constructs groups of countries according to similarities (distances) between the sample elements measured over the six dimensional space.

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<sup>9</sup> This may be an interesting results in itself since income and institutional quality are mostly thought to go hand in hand. However it does not apply for the poorest countries and this is robust for most measures of institutional quality and both, in samples including and excluding transition countries.

<sup>10</sup> In the table countries are presented in alphabetical order (on top the transition economies—in gray and below all other countries) since there is no particular ranking within each cluster. In addition to the "standard" PP indicators here I also included an indicator of political instability. The results are for the transition economies are sensitive to exclusions of this variable only in two cases: Turkmenistan and Uzbekistan are in the group of the poorest performers if we only consider the standard five PP indicators.

Figure 3. Actual - Predicted Overall Institutional Quality  
Predicted Performance is Based on Out of Sample Estimates for Groups of Income Levels



**Table 3: Are Accession Countries Different? Cross Country Evidence  
OLS Estimates, Various Dependent Variables, 1997**

Dependent Variable	Independent Variables							R2	No. of Obs.
	C	GDPPP98	ACCE	INDU	EASIA	LATIN	AFRICA		
PP Avg. Institutional Quality	-5.85 -6.58	0.001 7.518	4.37 4.50	3.01 1.63	-0.06 -0.04	1.73 1.66	-0.61 -0.52	0.64 160	
PP, Rule of Law	-6.57 -7.46	0.001 9.606	2.55 2.82	1.00 0.55	-0.17 -0.08	-1.86 -1.64	-0.42 -0.31	0.67 154	
PP, Low Graft	-7.38 -8.94	0.001 7.158	2.24 1.71	3.68 1.43	0.66 0.39	-0.42 -0.35	1.07 0.92	0.69 143	
PP, Low Regulatory Burden	-5.35 -4.72	0.001 6.360	5.38 4.58	1.36 0.82	3.71 3.47	6.84 5.34	0.52 0.35	0.44 154	
PP, Accountability and Voice	-4.62 -4.01	0.001 3.533	8.64 7.21	7.15 2.43	-4.13 -1.39	4.47 2.96	-1.50 -0.97	0.47 160	
PP, Government Effectiveness	-7.13 -7.39	0.001 7.335	2.12 1.53	4.06 1.83	1.43 0.67	1.62 1.34	1.02 0.77	0.65 144	
PSS, Predictability of Rule Changes	3.06 26.28	0.000 2.891	-0.29 -1.93	0.13 0.55	0.43 2.41	0.06 0.39	-0.04 -0.30	0.32 73	
PSS, Credibility of Gov. Announcements	3.51 22.71	0.000 2.397	-0.52 -2.35	-0.29 -0.86	0.36 0.80	-0.25 -1.39	0.39 2.01	0.2 73	
PSS, Information about Changes in Rules	2.92 26.93	0.000 3.443	-0.81 -5.36	-0.08 -0.27	0.51 2.10	0.07 0.41	-0.21 -1.50	0.52 73	
PSS, Consultation	2.48 18.03	0.000 2.045	-0.61 -4.22	0.02 0.06	0.53 1.50	0.38 2.08	0.09 0.56	0.32 73	
PSS, Property Rights Enforcement	2.00 10.42	0.000 2.645	-0.09 -0.31	-0.03 -0.06	1.38 3.36	-0.31 -1.01	0.11 0.42	0.37 73	
PSS, Judiciary Reliability	2.38 16.03	0.000 3.430	0.02 0.08	0.22 0.60	1.01 3.71	-0.19 -0.64	0.02 0.09	0.48 73	
PSS, Predictability of Bribes	3.63 21.33	0.000 1.748	0.13 0.50	0.40 0.76	-0.12 -0.21	-0.11 -0.58	0.00 0.02	0.32 72	
PSS, Freedom from Discretionary Bureaucrats	2.85 29.31	0.000 3.190	-0.03 -0.15	-0.02 -0.05	0.14 0.44	0.11 0.76	0.16 1.18	0.44 72	

Note: T: Statistics below Coefficient, Standard Errors are calculated using White correction

Table 4: Results of K-Means Cluster Analysis, Clusters based on Six PP Indicators

Highest IQ Cluster	Second Cluster	Intermediate Cluster	Forth Cluster	Lowest Cluster	IQ
Czech Rep	Bulgaria	Albania	Azerbaijan	Tajikistan	
Estonia	China	Armenia	Belarus	Algeria	
Hungary	Croatia	Georgia	Turkmenistan	Iraq	
Poland	Latvia	Kazakhstan	Uzbekistan	Sierra Le	
Slovenia	Lithuania	Kyrgyz Rep	Angola	Somalia	
Australia	Mongolia	Macedonia	Chad	Sudan	
Austria	Romania	Moldova	Congo		
Bahamas,	Slovak Rep	Russian Fed	Guinea-Bissau		
Belgium	Vietnam	Ukraine	Haiti		
Canada	Argentina	Bangladesh	Kenya		
Chile	Bahrain	Benin	Liberia		
Costa Rica	Bolivia	Burkina Faso	Niger		
Cyprus	Botswana	Cameroon	Nigeria		
Denmark	Brazil	Colombia	Syrian Arab. Rep		
Finland	Burma	Ecuador	Togo		
France	Cote d'Ivoire	Gabon	Yemen, Rep		
Germany	Dominica	Guatemala			
Greece	Dominican	Guinea			
Hong Kong	Egypt	Honduras			
Iceland	El Salvador	Indonesia			
Ireland	Gambia, T	Iran			
Israel	Ghana	Jamaica			
Italy	Guyana	Lesotho			
Japan	India	Madagascar			
Luxembourg	Jordan	Mali			
Malta	Korea, Re	Mozambique			
Netherlands	Kuwait	Nicaragua			
New Zealand	Lebanon	Pakistan			
Norway	Libya	Papua New G.			
Portugal	Malaysia	Paraguay			
Singapore	Mexico	Peru			
Spain	Morocco	Senegal			
Sweden	Namibia	Sri Lanka			
Switzerland	Panama	Suriname			
Trinidad	Philippines	Swaziland			
United Kingdom	Qatar	Turkey			
United States	Saudi Arabia	Uganda			
	South Africa	Venezuela			
	Taiwan	Zambia			
	Tanzania	Zimbabwe			
	Thailand				
	Uruguay				

Notes: Countries are in alphabetical order (divided in transition and non-transition economies). An additional PP Indicator "Political violence" is included in this analysis. The results on transition economies is mostly unaffected if the analysis is conducted for five PP Indicators (without political violence); only Uzbekistan and Turkmenistan change cluster, membership: they then fall into the lowest cluster of institutional quality.



Appendix Table 3 shows statistics of the data and results of the cluster analysis. The top panel presents descriptive statistics of the six dimensions of governance, the middle panel of Table 3 gives the cluster means for every dimension and the bottom panel shows the distribution of countries in five clusters. Appendix Figure 1 shows an "elbow" diagram, a diagnostic device that helps determine the optimal number of clusters.<sup>11</sup> It plots the fit of the classification against the number of clusters. The higher the number of clusters the better the fit of the classification (the lower the within-cluster variance and the higher the between-cluster variance).<sup>12</sup> The fit improves visibly as the number of clusters reaches five and then improves only marginally with higher numbers of clusters.<sup>13</sup> The continuation of Table 3 shows significance in cluster differences in all six dimensions based on an analysis of the variance of cluster means (within and between group variance).

The results from the cluster analysis confirm some earlier results: In other words, ex-transition economies are found in every cluster. Five of them now fall into the cluster with the highest mean performance along all institutional dimensions. Nine transition economies are found in the second and third clusters, respectively. Five (out of 16) transition economies are in the second last cluster and one (out of six) in the very last cluster.

The results emphasize that a group of ex-transition economies have "graduated" to the cluster of the highest institutional performers (after taking into account their level of development).<sup>14</sup> These are the Czech Republic, Estonia, Hungary, Poland, and Slovenia. In the second cluster we find the other two Baltic's and the other countries of the CEE, as well as some Asian transitions economies: China, Mongolia, and Vietnam come into the same cluster. The intermediate cluster contains most of the FSU countries with the exception of Azerbaijan, Belarus, Turkmenistan, and Uzbekistan, which belong to the low cluster. Again, we find Tajikistan in the bottom cluster.

Finally, **Table 5** shows the results of the same cluster analysis exercise using the raw PP indicators, that is not controlling for the level of development. So far, in the paper I have preferred to evaluate institutional performance by taking into account the relative level of development, since clearly institutional and economic development go hand in hand. However, causality may be going in both directions and therefore, this last table gives an indication of how well former transition economies are doing in absolute terms. By this measure, none of the former transition economy falls in to the cluster of highest institutional quality. However, we still

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<sup>11</sup> The number of clusters was determined using an explorative hierarchical cluster analysis.

<sup>12</sup> In other world that classification fit is best (and this criterion is zero) when the number of clusters is equal to the number of countries.

<sup>13</sup> An alternative classification, according to this criterion, would be one which considers only three clusters. But this would come at the cost more heterogeneity within each cluster.

<sup>14</sup> If the correction for the level of income is not made and instead the raw indicators are used we find all of these economies in the second cluster.

find former transition economies in the other four clusters, with most EU accession candidates in the second highest quality cluster.

Table 5: Results of K-Means Cluster Analysis, Clusters based on Six PP Indicators  
(without controlling for differences in GDP per capita)

Highest IQ	High Cluster	Intermediate	Low Cluster	Lowest IQ
Australia	Czech Republic	Bulgaria	Albania	Tajikistan
Austria	Estonia	Croatia	Azerbaijan	Yugoslavia
Belgium	Hungary	Macedonia	Belarus	Algeria
Canada	Latvia	Moldova	Bosnia and Herz.	Angola
Chile	Lithuania	Romania	Kazakhstan	Congo
Cyprus	Poland	Russia	Kyrgyz Republic	Haiti
Denmark	Slovak Republic	Armenia	Turkmenistan	Iraq
Finland	Slovenia	Benin	Ukraine	Libya
France	Argentina	Bolivia	Uzbekistan	Somalia
Germany	Bahamas, The	Brazil	Cameroon	Sudan
Hong Kong	Botswana	Burkina Faso	Chad	Zaire
Iceland	Brunei	China	Cuba	
Ireland	Costa Rica	Colombia	Georgia	
Italy	Fiji	Cote d'Ivoire	Guinea-Bissau	
Japan	Gambia	Dominican Rep.	Indonesia	
Luxembourg	Greece	Ecuador	Iran, I.R. of	
Netherlands	Israel	Egypt	Kenya	
New Zealand	Jordan	El Salvador	Korea, North	
Norway	Korea, South	Ethiopia	Liberia	
Portugal	Kuwait	Gabon	Myanmar (Burma)	
Singapore	Malaysia	Ghana	Niger	
Spain	Malta	Guatemala	Nigeria	
Sweden	Mauritius	Guyana	Pakistan	
Switzerland	Mongolia	Honduras	Sierra Leone	
Taiwan	Morocco	India	Syria	
United Kingdom	Namibia	Jamaica	Togo	
United States	Oman	Madagascar	Vietnam	
	Philippines	Malawi	Yemen	
	Qatar	Mali	Zimbabwe	
	Thailand	Mexico		
	Tunisia	Mozambique		
	Uruguay	Nicaragua		
		Panama		
		Paraguay		
		Peru		
		Senegal		
		South Africa		
		Suriname		
		Tanzania		
		Turkey		
		Venezuela		
		Zambia		

## II. CONCLUSIONS

This paper has used governance indicators from different sources to explore the state of institutional conditions in transition economies and has obtained results that are quite consistent across indicators and sources. They show that transition economies are very diverse in terms of their institutional conditions but that transition economies as a group are no longer distinguishable from other economies. It follows that, at least as far as the institutional framework is concerned, the label “transition economies” is no longer warranted, since there is no such homogenous grouping. It should probably be replaced by a series of new labels since there are groupings of countries that are very similar among themselves and dissimilar from the others. For instance, the EU accession countries as a group have clearly better institutional conditions than the countries of the FSU. In fact, one finding of the paper is that institutional conditions of EU accession countries are no longer significantly different from those of industrialized countries. A formal cluster analysis confirms this by allocating five EU accession countries in the cluster of best institutional performers.

Table 1. Countries Included in Transition Dummies and Country Coverage of the Three Main Data Sets, PSS, PP, EBRD

CTRY	Country	DumFSU	DumCIS	DumCEE	ACCE	PSS	PP
<b>TRANSFSU&amp;CEE</b>							
ALB	Albania	N	N	Y	N	Y	Y
ARM	Armenia	Y	Y	N	N	Y	Y
AZE	Azerbaijan	Y	Y	N	N	Y	Y
BLR	Belarus	Y	Y	N	N	Y	Y
BIH	Bosnia and Herz	N	N	Y	N	N	Y
BGR	Bulgaria	N	N	Y	Y	Y	Y
HRV	Croatia	N	N	Y	N	N	Y
CZE	Czech Republic	N	N	Y	Y	Y	Y
EST	Estonia	Y	N	N	Y	Y	Y
GEO	Georgia	Y	Y	N	N	Y	Y
HUN	Hungary	N	N	Y	Y	Y	Y
KAZ	Kazakhstan	Y	Y	N	N	Y	Y
KGZ	Kyrgyz Republic	Y	Y	N	N	Y	Y
LVA	Latvia	Y	N	N	Y	Y	Y
LTU	Lithuania	Y	N	N	Y	Y	Y
MKD	Macedonia	N	N	Y	N	Y	Y
MDA	Moldova	Y	Y	N	N	Y	Y
POL	Poland	N	N	Y	Y	Y	Y
ROM	Romania	N	N	Y	Y	N	Y
RUS	Russian Federation	Y	Y	N	N	Y	Y
SVK	Slovak Republic	N	N	Y	Y	Y	Y
SVN	Slovenia	N	N	Y	Y	N	Y
TJK	Tajikistan	Y	Y	N	N	N	Y
TKM	Turkmenistan	Y	Y	N	N	N	Y
UKR	Ukraine	Y	Y	N	N	Y	Y
UZB	Uzbekistan	Y	Y	N	N	Y	Y
<b>TRANSASIA</b>							
KHM	Cambodia					N	Y
CHN	China					N	Y
LAO	Lao People's					N	Y
MNG	Mongolia					N	Y
VNM	Viet Nam					N	Y
<b>TRANSAFRICA</b>							
BEN	Benin					Y	Y
COG	Congo					Y	Y
ETH	Ethiopia					N	Y
MDG	Madagascar					Y	Y
MOZ	Mozambique					Y	Y
TZA	Tanzania					Y	Y

Table 2. Description of Indicators and Sources

	Method	Countries Transition /Total	Timing	Description
PP Overall Institutional Quality	Mean of first five ve PP Indicators	26/173	1997, Indicators from 1996-1998	Kaufmann, Kraay, and Zoido-Lobaton (1999)
PP, Rule of Law	Poll of Polls: Aggregation of Indicators Unobserved Components Model	26/173	1997, Indicators from 1996-1998	Kaufmann, Kraay, and Zoido-Lobaton (1999)
PP, Low Graft	Poll of Polls: Aggregation of Indicators Unobserved Components Model	26/173	1997, Indicators from 1996-1998	Kaufmann, Kraay, and Zoido-Lobaton (1999)
PP, Low Regulatory Burden	Poll of Polls: Aggregation of Indicators Unobserved Components Model	26/173	1997, Indicators from 1996-1998	Kaufmann, Kraay, and Zoido-Lobaton (1999)
PP, Accountability and Voice	Poll of Polls: Aggregation of Indicators Unobserved Components Model	26/173	1997, Indicators from 1996-1998	Kaufmann, Kraay, and Zoido-Lobaton (1999)
PP, Government Effectiveness	Poll of Polls: Aggregation of Indicators Unobserved Components Model	26/173	1997, Indicators from 1996-1998	Kaufmann, Kraay, and Zoido-Lobaton (1999)
PP, Political Instability and Violence	Poll of Polls: Aggregation of Indicators Unobserved Components Model	26/173	1997, Indicators from 1996-1998	Kaufmann, Kraay, and Zoido-Lobaton (1999)
PSS, Predictability of Rule Changes	Private Sector Survey in each country	26/173	1997	Brunetti, Kisunko and Weder (1998)
PSS, Credibility of Gov. Announcements	Private Sector Survey in each country	20/73	1997	Brunetti, Kisunko and Weder (1998)

Table 2 (continued). Description of Indicators and Sources

PSS, Information about Changes in Rules	Private Sector Survey in each country	20/73	1997	Brunetti, Kisunko and Weder (1998)
PSS, Consultation	Private Sector Survey in each country	20/73	1997	Brunetti, Kisunko and Weder (1998)
PSS, Property Rights Enforcement	Private Sector Survey in each country	20/73	1997	Brunetti, Kisunko and Weder (1998)
PSS, Judiciary Reliability	Private Sector Survey in each country	20/73	1997	Brunetti, Kisunko and Weder (1998)
PSS, Predictability of Bribes	Private Sector Survey in each country	20/73	1997	Brunetti, Kisunko and Weder (1998)
PSS, Freedom from Discretionary Bureaucrats	Private Sector Survey in each country	20/73	1997	Brunetti, Kisunko and Weder (1998)
Bureaucracy	Aggregation of ICRG Bureaucracy and Freedomhouse	25/25	1998-1997	Campos (2000)

Table 3. Statistics on Results Cluster Analysis

Descriptive Statistics	No	Minimum	Maximum	Mean	Std. Dev.
PP Rule of Law	165	-239.09	195.79	-8.45	102.94
PP Low GRAFT	154	-229.84	211.43	-7.40	98.12
PP Government Effectiveness	155	-247.37	203.79	-6.84	96.67
PP Low Regulatory Burden	165	-397.15	154.66	-0.30	92.07
PP Accountability and voice	171	-268.95	166.14	-0.07	106.87
PP Low Political Instability and Violence	154	-286.47	173.72	-9.20	106.12
Valid N (listwise)	154				

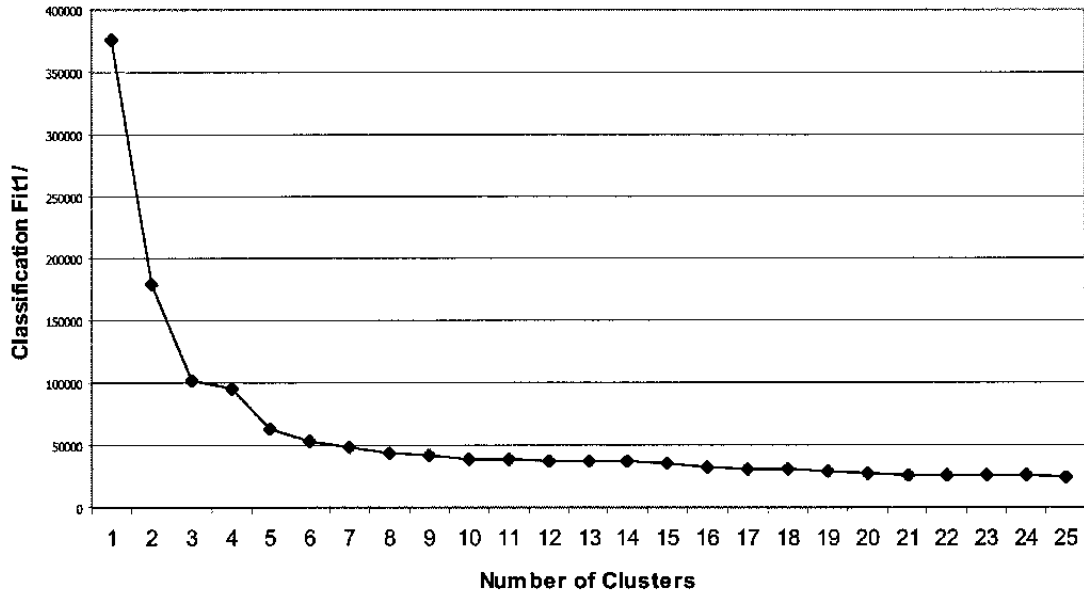
  

Final Cluster Centers	Highest Cluster	High Cluster	Intermediate Cluster	Low Cluster	Lowest IQ
PP Voice and Accountability	128.40	-1.06	-24.51	-120.77	-219.88
PP Political Instability and Violen	104.41	22.88	-75.71	-126.20	-262.04
PP Government Effectiveness	117.26	1.14	-60.06	-126.59	-174.24
PP Regulatory Burden	85.39	26.76	-9.13	-126.14	-228.88
PP Rule of Law	123.73	16.23	-69.92	-143.08	-184.14
PP GRAFT	129.47	-11.14	-74.75	-107.57	-124.39
Mean	114.78	9.14	-52.35	-125.06	-198.93

Number of Countries in each Cluster	Transition economies in each Cluster
Highest	5
High	9
Intermediate	9
Low	5
Lowest	1

Figure 1: Goodness of Classification and Number of Clusters



1/ Lower numbers indicate a better fit of classification (variance of characteristics within clusters and higher variance between clusters), based on hierarchical cluster analysis using the "between group linkage" Method.



## REFERENCES

- Bardhan, Pranab, 1997, "Corruption and Development," *Journal of Economic Literature* 25, pp. 1320–1346.
- Berg, Andrew, Eduardo Borensztein, Ratna, Sahay and Jeromin Zettelmeyer, 1999, "The Evolution of Output in Transition Economies—Explaining the Differences," IMF Working Paper WP/99/73.
- Brunetti, Aymo, Gregory Kisunko and Beatrice Weder, 1998, "Credibility of Rules and Economic Growth: Evidence from a Worldwide Survey of the Private Sector," 1998, *World Bank Economic Review* 12 (3), pp. 353–384.
- Brunetti, Aymo, Gregory Kisunko, Beatrice Weder, 1997, "Institutions in Transition: Reliability of Rules and Economic Performance in Former Socialist Countries," World Bank Policy Research Working Paper No. 1809, Washington DC: The World Bank.
- Campos, Nauro, 2000, "Context is Everything," World Bank Policy Research Paper No. 2269.
- European Bank for Reconstruction and Development, *Transition Report*, various issues.
- Fischer, Stanley; Sahay, Ratna, 2000, "The Transition Economies After Ten Years," IMF Working Paper WP/00/30.
- Gros, Daniel and Marc Suhrke, 2000, "Ten Years After: What is special about transition countries?" Paper presented at the Meetings of the American Economic Association, January 2000, in Boston.
- Havrylyshyn, Oleh; van Rooden, Ron, 2000 "Institutions Matter in Transition, but so do Policies," IMF Working Paper WP/00/70.
- Kaufmann Daniel, Aart Kraay and Paolo Zoido Lobaton, 1999a, "Governance Matters," The World Bank, at [www.worldbank.org/wbi/governance/wp.htm](http://www.worldbank.org/wbi/governance/wp.htm).
- Kaufmann Daniel, Aart Kraay and Paolo Zoido Lobaton, 1999b, "Aggregating Governance Indicators," The World Bank, at [www.worldbank.org/wbi/governance/wp.htm](http://www.worldbank.org/wbi/governance/wp.htm).
- Knack, Stephen and Philip Keefer, 1995, "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures," *Economics and Politics* 7, pp. 207–227.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny, 1998, "The Quality of Government," NBER Working Paper No. 6727, Cambridge MA: National Bureau of Economic Research.
- Mauro Paolo, 1995, "Corruption and Growth," *Quarterly Journal of Economics*, 110(3) pp. 681–712.

North Douglass, 1981, *Structure and Change in Economic History*, New York: WW Norton.

Shleifer, Andrei and Robert Vishny, 1993, "Corruption," *Quarterly Journal of Economics* 108, pp. 599–617.

Tanzi, Vito, 1994, "Corruption, Governmental Activities and Markets," IMF Working Paper 94/99, Washington DC: International Monetary Fund.

Wolf, Thomas A. and Emine Gurgun, 2000, "Improving Governance and Fighting Corruption in the Baltic and the CIS Countries—The Role of the IMF," IMF Working Paper WP/00/1.

Wyplosz, Charles, 1999, "Ten Years of Transformation: Macroeconomic Lessons," Paper prepared for the World Bank Annual Bank Conference on Development Economics to be held in Washington on April 28–30, 1999.