



Development Performance and the Institutions of Governance: Evidence from East Asia and Latin America

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Summary. — The purpose of this paper is three-fold: to assess the extent to which the institutional characteristics of governance can be captured with available data, to evaluate the ability of such measures to explain development performance across regions, countries and time, and to examine the extent to which different governance characteristics are complements (rather than substitutes) to one another. Using the four operational governance characteristics, we find that, first, in the full sample, all governance characteristics have the expected effects on development performance and, second, both the relative importance of these characteristics and the degree of complementarity/substitutability among them vary by region. © 1999 Elsevier Science Ltd. All rights reserved.

1. INTRODUCTION

An excellent example of the increasing recognition of institutional factors in the economics of development is the attention given to the concept of governance by both academicians (e.g., Ball and Rauser, 1995; Streeten, 1996) and international agencies (e.g., World Bank, 1993, 1994, 1997; International Monetary Fund, 1997).

While differing definitions of governance have been used, those of academicians tending to be more difficult to operationalize, as the first to enter this field, the World Bank seems to have gone further in operationalizing the concept than anyone else. In particular, governance is said to have five critical institutional components: (1) the executive, (2) the bureaucracy, (3) the rule of law, (4) the character of the policy-making process, and (5) civil society. Corresponding to each one of these institutional components is a characteristic associated

with good governance. In particular, (1a) the executive branch of government should be accountable for its actions; (2a) the quality of the

* The author would like to thank Deborah Brautigam, Pierre Englebert, James McGuire and two anonymous referees for invaluable comments, suggestions and criticisms. An early version of this paper was presented at the Conference Rethinking Development in East Asia and Latin America, held in Los Angeles, and organized by the Pacific Council on International Policy. The authors wish to acknowledge helpful suggestions from the participants, especially Albert Berry, Yi Feng, Michael Intriligator, Jane Jaquette, Abraham Lowenthal, Richard Sabot, Judith Tendler, and Kurt Weyland. The responsibility for all remaining errors is solely ours. The data set used in this paper is available on-line, from URL <http://www-rcf.usc.edu/~nugent/blackbox.htm>. Final revision accepted: 15 September 1998.

bureaucracy should be high (“imbued with a professional ethos”) such that it is efficient and capable of adjusting to changing social needs; (3a) the legal framework should be appropriate to the circumstances and adhered to by members of both the private and public sectors; (4a) policy-making should be open and transparent so that all affected groups may have inputs into the decisions to be made; and (5a) civil society should be strong so as to enable it to participate in public affairs.

Several other inferences can be drawn from these characteristics. First, the notion that they should be jointly satisfied to assure success implies that the different characteristics are complements to one another. The satisfaction of any one component raises the probability that another will be satisfied and/or its effects on development performance will be raised.

Second, several (if not all) of these indicators are clearly multidimensional. For example, for civil society both its strength and its involvement in public affairs matter. In the case of the quality of the bureaucracy, relevant dimensions include the competitiveness and objectivity of recruitment, the incentives provided by internal and external promotion, the competitiveness and objectivity of the promotion process, and the extent to which those served by the bureaucracy can exercise voice over what the bureaucracy does. In the rule of law, there are dimensions which relate to the public sector and others pertaining to the private sector and for each there are juridical, legislative, executive, enforcement and acceptability dimensions, the latter of which may involve perceptions of fairness and compatibility with informal social norms.

Third, the fact that several quite different dimensions may be involved in any single institutional characteristic and that no less than five different characteristics are involved in governance implies also that the concept is exceptionally comprehensive.

Finally, although these characteristics are institutionalized (i.e., are derived from institutions, their rules and how well they work), their relevance and importance for development performance depend on the degree to which a given country’s governance characteristics can be changed over time. While improvements in governance may be reinforcing, institutional decay and loss of capacity may also ensue when the governance conditions in a country become adverse.

Thus far, analyses of the effects of governance characteristics have taken quite different forms. Some, e.g., Pritchett, Isham and Kaufmann (1997) have investigated the relevance of governance characteristics in detailed micro-level studies, but generalizations from such studies are difficult to derive. Other studies have investigated the effects at the macroeconomic level but of a single characteristic of governance at a time (e.g., the effect of bureaucratic quality on the prospects for macroeconomic reform as in Ball and Rauser, 1995). Generally speaking, macro-level tests of the effects of these and other institutional characteristics on economic development have been almost exclusively limited to international cross-section studies. As such, there is no guarantee that any of the results obtained from such studies would apply to individual countries over time. Indeed, it is the potentially dynamic character and comprehensiveness of governance characteristics that give the concept of governance such relevance and importance for development economics. Yet, for these reasons the various characteristics have to be tested collectively and in a context in which they may have changed considerably over time.

The purpose of this paper is to investigate the extent to which these principles can be operationalized at the country level and then used to determine the extent to which collectively as well as individually they can distinguish between successful and unsuccessful episodes of development experience in a relevant set of countries. Other objectives of our analysis are to examine the extent to which the governance characteristics are changeable over time, are complements to one another, and can affect each of three different dimensions of development performance: level of per capita income, infant mortality, and adult illiteracy rates.

Given these objectives and the multidimensional character of both development performance and the governance characteristics deemed conducive to development, it is clear that these testing objectives can be accomplished only if we have the appropriate data for a set of countries in which either governance characteristics or indicators of development performance (or both) have changed substantially over time.

Latin America and East Asia have had rather different development experiences and quite different governance characteristics both over time and across countries. Africa, the Middle East, and South Asia, on the other hand, have

experienced remarkably little change in governance characteristics over the same period, and what growth has occurred seems largely to have resulted from terms of trade improvements from which we would want to abstract. In addition, the countries of East Asia and Latin America have the relevant data to a greater extent than Africa, the Middle East and South Asia. Hence, for an appropriate testing grounds for accomplishing the proposed tasks we choose countries from Latin America and East Asia.¹

While development models and policies may be capable of explaining changes over time, governance considerations may be more fundamental in the sense that they may provide the appropriate incentives and rules within which appropriate policies are most likely to be chosen and implemented. In the results presented below, we show that the trajectories of governance characteristics can explain significant percentages of the variation on development performance across countries and over time.

The organization of the paper is as follows: Section 2 describes the hypothesized links among the various characteristics of good governance and between them and the various indicators of development performance. Section 3 identifies the potential data sources for creating measures of the different governance characteristics as well as of development performance. Section 4 summarizes the outstanding differences in these various measures between regions, across countries and over time. Section 5 investigates whether the observed differences in governance characteristics are significant in explaining different aspects of

development performance. Our conclusions are given in Section 6.

2. CONCEPTUAL FRAMEWORK

The five characteristics of good governance have been identified in (1a)–(5a) above. The purpose of this section is to relate these both to each other and to each of three indicators of economic development performance, namely the level of GDP per capita, the infant mortality rate, and the adult illiteracy rate.

A crude framework for viewing the relationships between governance and the various indicators of economic development is presented in Figure 1. As suggested above, the relationships among the various components of good governance are deemed by the World Bank to be complementary. Specifically, when (2a) the quality of bureaucracy (as defined above) is high, the government may be better able to respond to the changing needs of its citizenry. These needs can be better expressed when there is both a strong civil society (5a) and the executive branch is accountable for its actions (1a). The relevance and strength of both (1a) and (5a), in turn, are increased when the policy-making process is characterized by a high degree of transparency, i.e., governance characteristic (4a) is fulfilled. The effects of all the other governance characteristics would be undermined if neither the public nor private sectors behave according to the rule of law.

Without transparency, the interest groups that make up civil society would be likely to impede changes in the direction of better

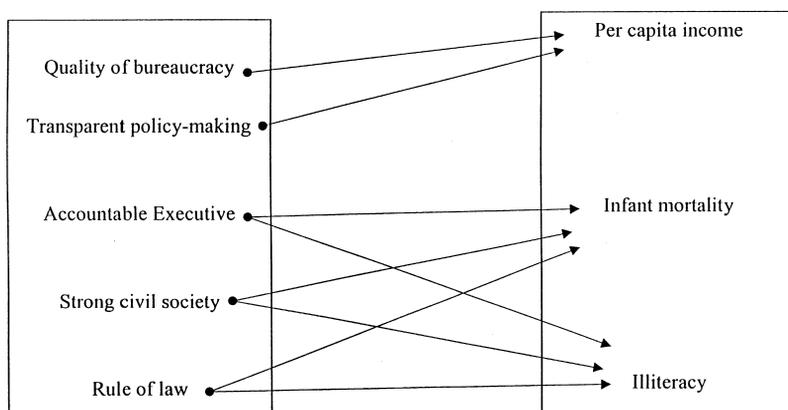


Figure 1. *Institutions of governance and development performance.*

governance and better policies. Yet, with transparency, civil society is more likely to become involved in the policy-making debate. On the other hand, the achievement of transparency requires pressures for widespread participation from civil society. By the same token, without transparency of the policy-making process, even well-intentioned and constructive efforts by such groups will be less likely to know how to succeed, and hence be less successful in affecting policy and governance characteristics in the right direction. The executive arm of the government must be accountable for its actions if those actions are not to be "captured" by a small, narrowly defined interest group more interested in rent-seeking than in broadly based development.

As indicated in Figure 1, collectively the governance characteristics could be expected to influence the development indicators. The three development indicators can in turn be aggregated into two groups, the level of per capita income which (as a measure at least) is independent of distributional considerations, and both the infant mortality and adult illiteracy rates which are likely to depend on both the level of per capita income and its distribution.²

One might suspect that some of the characteristics of good governance would have stronger effects on some elements of development performance than on others. For example, (2a) and (4a) would seem to be most directly related to the level of income per capita. On the other hand, characteristics (1a), (3a) and (5a) might well be relatively more important in determining the infant mortality and adult illiteracy rates. If there would seem to be two or more different variables primarily responsible for determining any one development performance indicator, the necessity of pure complementarity among the governance characteristics might be questioned. Indeed, one could think of (1a) and (4a) as being substitutes for one another, (2a), (3a) and (5a) as potential substitutes for one another. The complementarity would be between each of these sets. In this light, strong assertions of this type would seem risky without an empirical basis.

3. DATA SOURCES AND THE CONSTRUCTION OF MEASURES

As noted above, measurement of the various characteristics of governance is no easy matter. For one thing, several of these characteristics

are, in principle, multidimensional. To do justice to the multidimensionality of these characteristics could well imply the need for different measures for each dimension. Until full-fledged sample surveys designed specifically to measure governance are developed, studies will have to utilize existing data sets with less than ideal data for the purpose. Given the importance of such issues, the important investments in new data that have been made in recent years, and the costs of collecting such additional and better data of this kind, it behooves us to take stock of the available data, utilize it to determine whether the hypotheses have merit and whether further investments in data collection seem deserved.

Until rather recently it would have been virtually impossible to find quantitative measures of any of the characteristics of good governance. In recent years, however several new sources of such data have been compiled and made public for a relatively large number of countries.³ One of these new, important and widely used data sources is the International Country Risk Guide (ICRG). Another is the Business Environmental Risk Intelligence (BERI). Both of these data sources are commercial ones, explaining why most of the indicators provided by them are ones relevant to foreign investment in general and country risk in particular, and why these data were not available in the public domain until recently.⁴ A third important source is Polity III (a collection put together under the supervision of an academician, Robert Gurr). It is in the public domain and has more comprehensive country and time coverage than the ICRG and BERI data sets.⁵

Our first step is to identify indicators from any of the above sources which may be relevant to each of the desired characteristics of good governance (1a)–(5a) above. Characteristic (1a), the accountability of the executive, is perhaps captured by two indicators from Gurr's Polity III. The first is "executive constraints," referring to the extent of institutionalized constraints on the decision-making powers of the chief executives. A seven-point scale is used in which the lowest score of "1" is given for the absence of any such constraints on executive power, and a high of "7" if the legislature or other accountability groups has greater authority than the executive. The second such indicator is "regulation of executive recruitment," which measures the degree of institutionalized procedures regarding the

transfer of executive power. A three-point scale is used wherein a score of "1" is given if there are no such institutional regulations, and a score of "3" if the transfer of executive power is "either hereditary or through elections." Because these two indicators seem to capture somewhat different but complementary dimensions of the characteristic in question (and both have identical country and time coverage), we decide to interact them (i.e., multiplying one by the other) in a variable we call "Accountable Executive."

There are also two indicators that can measure characteristic (2a), the quality of the bureaucracy. The first, obtained from the ICRG, is called "bureaucratic quality" and captures the extent to which the national bureaucracy enjoys autonomy from political pressure, has the strength and expertise with which to govern in a stable manner without drastic changes in policy, and has an effective mechanism for recruiting and training. The second such indicator, from BERI, is one of "bureaucratic efficiency." It measures, on a 0–4 scale, the speed or efficiency with which the bureaucracy can respond to various requests for services such as processing customs clearances and applications for foreign exchange remittances. Country-specific scores (higher scores for more efficient and prompt bureaucracies) are available for most countries in the sample for 1982–95.

Characteristic (3a), the rule of law, can be captured by an ICRG indicator (called "rule of law tradition") reflecting the country-specific degree to which citizens are willing to accept the established institutions for making and implementing laws and adjudicating disputes. Higher scores of "rule of law" indicate that the country has sound political institutions, a strong court system and provisions for an orderly succession of power. Scores on this indicators range from zero to six, and are available for 1972–95 for the entire sample except Thailand (1978–95), Hong Kong and Taiwan (for which no such data exist).

In contrast to the first three institutional characteristics, for characteristics (4a) and (5a) we found considerably greater difficulty in identifying suitable indicators. In the case of (5a), the strength of civil society, the best we could do was to identify four series that indirectly depict some of the necessary conditions under which a strong civil society might emerge. They are two indicators originally from Gastil (now Freedom House) – "civil liberties"

and "political rights" – and two other indicators from Gurr's Polity III, the "competitiveness of political participation"⁶ and the "regulation of political participation."⁷ In each case we hypothesize that a high score on the indicator would identify a country whose decision-making process is open, transparent and replete with effective "checks." Because these latter two indicators capture different dimensions of the civil society characteristic (and both have identical country and time coverage), we decide to interact them (i.e., multiplying one by the other) in a variable we call "strong civil society."

In the case of (4a), the transparency of the decision-making process, however, we were not able to obtain even an indirect measure. This is no doubt because the construction of a relevant indicator in this case is much more challenging than for the other characteristics. For one thing, foreign investors or the services developed for foreign investors, such as ICRG and BERI which have produced several of these data sets, are not likely to be knowledgeable about such matters. Second, it is a characteristic which is as much a matter of perception as of fact, and hence obtainable only through the use of a detailed and specially designed survey. The best we can do in this case, therefore, is to assume that, if the four other institutional characteristics of good governance are in place for a given country, that country would also be likely to have an open and transparent decision-making process.

Our next step is to obtain the relevant indicators of governance characteristics for as many countries as possible within the respective areas chosen for sampling which (as explained above) are Latin America and East Asia. For Latin America, the sample consists of Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela. For East Asia, it consists of Hong Kong, Indonesia, (South) Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand. In each region, the countries represent different geographic subregions, different sizes, polity types, levels of development and rates of economic growth. Nevertheless, to abstract from the extra complications that would arise if the samples included socialist and transition-type economies, China, Cuba, Laos, and Vietnam are excluded.

4. INSIDE THE INSTITUTIONAL BLACK BOX: WHAT THE DATA SAY

In order to simplify the analysis that follows, we normalized all the indicators discussed above, so that high scores always represent better governance characteristics than low scores. Because of their different scales, we also chose to re-scale all of them to a common scale going from zero to 10.

One first important question is whether the data we assemble is able to capture differences in each institutional characteristic between the two regions as well as over time. In Table 1 we show the results of analysis of variance (ANOVA) tests for differences in the means of our various institutional characteristics (after all the indicators have been normalized and re-scaled).

By comparing the observations in the Latin America with those in the East Asia column, it can be seen that the Latin American scores are statistically significantly higher than those of East Asia for "competitiveness of participation" and for "political rights." In other words, institutional development as measured only by these two variables has been higher in the last three decades in Latin American than in East Asia. Despite the well-known high correlation between the indexes of political rights and civil liberties, we were not able to detect statistically significant differences in the latter between the two regions. Table 1 also shows that the East Asian scores are statistically significantly higher than those of Latin America for "bureaucratic quality," "bureaucratic efficiency" and the "rule of law."

It is also worth noting that only some of the institutional characteristics were found to

change over time. We find that the means of "competitiveness of participation," "regulation of executive recruitment," "constraints on the executive," "civil liberties," as well as "accountability of the executive," all show statistically significant differences across decades.⁸ Yet, it is rather surprising that the two bureaucracy-related variables seem not to have changed over this long period.

A second important issue is to assess the extent to which the five institutional characteristics of governance discussed above can be captured by the data we assembled. The relevance of this exercise is given by the expectation that these five institutional characteristics are complements to, not substitutes for, each other. The method we chose to deal with this issue is to study the pair-wise correlation coefficients. A low and statistically insignificant correlation will suggest that the two underlying variables capture different institutional characteristics of governance, and *vice versa*, a high and statistically significant correlation suggests that the two underlying variables capture the same institutional characteristics of governance. The pair-wise correlation coefficients are given in Table 2. Because of the ordinal character of these institutional indicators, Spearman (rank) correlations were deemed to be more appropriate. Since the number of observations varies for each indicator, they are also noted in the table.

By visual inspection, and following the rule above, we can identify at least three different groups of institutional indicators. The correlation coefficients within these three groups tend to be high, while among groups they tend to be low. Five indicators, political rights, civil

Table 1. *Tests of differences in means of institutional characteristics by region and decade*

	Latin America	East Asia	Over-time
Regulation of executive recruitment	7.86	7.44	7.75 ^a
Executive Constraints	5.88	5.13	5.68 ^a
Competitiveness of participation	6.04 ^b	4.85 ^b	5.73 ^a
Civil liberties	5.45	4.33	5.16 ^a
Political rights	5.74 ^b	4.00 ^b	5.28
Bureaucratic efficiency	3.98 ^b	5.08 ^b	4.51
Bureaucratic quality	3.89 ^b	6.01 ^b	4.49
Rule of law	4.33 ^b	6.38 ^b	4.91
Regulation of participation	6.53	6.83	6.61
Accountable Executive	50.87	42.05	48.58 ^a
Strong Civil Society	40.73	33.48	38.85

^a Over time differences are significant at the 0.05 level.

^b Latin America–East Asia differences are significant at the 0.05 level.

Table 2. Spearman rank correlation coefficients, *p*-values and number of observations

	Executive Recruitment Regulation	Competitiveness of Participation	Regulation of Participation	Political Rights	Civil Liberties	Bureaucratic Efficiency	Rule of Law	Bureaucratic Quality	Accountable Executive	Strong Civil Society
Executive Constraints	0.78440 0.0001 108	0.85852 0.0001 108	-0.1265 0.1919 108	0.74864 0.0001 54	0.85522 0.0001 54	-0.0349 0.8286 41	0.19502 0.1576 54	0.21003 0.1274 54	0.98551 0.0001 108	0.55438 0.0001 108
Executive Recruitment Regulation	0.67281 0.0001 108	0.00489 0.9599 108	0.0088 0.9279 108	0.48796 0.0002 54	0.71691 0.0001 54	-0.1445 0.3674 41	0.16060 0.2460 54	0.20425 0.1385 54	0.85651 0.0001 108	0.42480 0.0001 108
Competitiveness of Participation				0.78829 0.0001 54	0.83762 0.0001 54	-0.10735 0.5041 41	0.3191 0.0187 54	0.35769 0.0079 54	0.83830 0.0001 108	0.77823 0.0001 108
Regulation of Participation				-0.0890 0.5222 54	-0.0632 0.6494 54	0.23683 0.1360 41	0.25369 0.0642 54	0.14574 0.2930 54	-0.092 0.3434 108	0.44229 0.0001 108
Political Rights					0.80537 0.0001 54	-0.29204 0.1394 41	0.18098 0.3663 54	0.19607 0.3270 54	0.69576 0.0001 54	0.51457 0.0001 54
Civil Liberties						-0.12838 0.5234 54	0.16945 0.3981 27	0.27682 0.1622 27	0.86959 0.0001 54	0.52423 0.0001 54
Bureaucratic Efficiency							0.57861 0.0013 28	0.69658 0.0001 28	-0.0477 0.7668 41	0.01427 0.9295 41
Rule of Law									0.21304 0.1219 54	0.38388 0.0042 54
Bureaucratic Quality								0.74538 0.0001 56	0.22718 0.0985 54	0.32232 0.0175 54
Accountable Executive										0.54614 0.0001 108

liberties, competitiveness and regulation of participation, and strong civil society (this latter being an interaction between the previous two, as explained above) form one group. Three other indicators, regulation of executive recruitment, constraints on the executive, and accountable executive (again this latter being an interaction between the previous two variables) form a second group. Finally a third group of indicators is formed by "bureaucratic quality," "bureaucratic efficiency," and the "rule of law."

It should be clear that these three groups fall short of matching the four key institutional dimensions identified in the previous section. In particular, the correlation between the components of the third group is sufficiently high as to make it difficult to distinguish between these two characteristics (bureaucracy-related and rule of law) with the available data.

Yet, taking into consideration the data limitations discussed before and our concern for capturing the largest possible number of institutional characteristics, we decided that in what follows, we would limit our attention to four variables.⁹ The variable we selected to capture the strength of civil society is called "strong civil society." "Accountable executive" is expected to capture the accountability of the executive arm. Because of its superior coverage and its greater variation across regions, "bureaucratic quality" is chosen to represent the quality of bureaucracy group (characteristic 2). Despite its high correlation with the latter, "rule of law" is left to reflect governance characteristic (3).

5. WHAT ROLE FOR INSTITUTIONS IN DEVELOPMENT PERFORMANCE?

Having selected the four factors (or groups of institutional characteristics of governance), the next question is whether the differences they capture are significant in explaining different aspects of development performance over time and across countries. So also to avoid common but unfortunate emphasis on income alone or on narrowly defined economic growth, we regress various measures of development performance (namely, level of income per capita, infant mortality rate and illiteracy rate) on the set of institutional factors.¹⁰

Before presenting our empirical results, it is important to issue some words of caution. First, the analysis is somewhat exploratory in

that we do not put forward a formal theoretical model from which the findings can be checked against a concrete set of hypotheses. Indeed, to the best of our knowledge, such a model does not yet exist.¹¹ Second, due to the many gaps in the availability of the institutional data, the number of observations varies from one development performance indicator to another and is often smaller than would be desirable.¹² Third, the institutions of governance are assumed to be exogenous to each of the development performance indicators, thereby justifying the use of ordinary least squares (OLS).

Our first set of results is shown in Table 3. In the first three columns we report the coefficients and *t*-statistics from OLS regressions of the average level of per capita GDP on the set of four institutional indicators.¹³ Altogether, the set of governance characteristics captures a satisfactory proportion of the interregional differences in the level of per capita GDP over time. For the complete sample, three out of the four institutional indicators are statistically significant and have the correct sign (recall that all institutional indicators were normalized and re-scaled so as to justify the expectation of a positive effect of each institutional characteristic on the level of per capita GDP). The institutional indicator that performs best (i.e., is statistically significant and of the expected sign) in explaining differences in the level of income per capita among East Asian countries is the strength of the civil society, while in Latin America this role seems to be jointly played by the rule of law and the quality of the bureaucracy.

With respect to the level of the infant mortality rate, as shown in the second set of columns in Table 3, the institutional indicators capture a rather high proportion of the interregional differences and all have their expected signs. Notice that, in this case as well as for adult illiteracy, each of the normalized and re-scaled institutional indicators would be expected to have a *negative* effect. The stronger and most significant of these determinants are the rule of law and the quality of the bureaucracy. In the case of Latin America, the effectiveness of the rule of law seems to matter most, while in the case of East Asia it is the quality of the bureaucracy which has the greatest influence over infant mortality rates.

Finally, as shown in the last three columns of Table 3, the sizable over time and crosscountry

Table 3. *OLS regression results*

	Dependent variable								
	Average level of real per capita GDP			Infant mortality rate			Adult illiteracy rate		
	All	E. Asia	LAC	All	E. Asia	LAC	All	E. Asia	LAC
Accountable Executive	-11.31 (-1.513)	-11.058 (-1.162)	-2.9434 (-0.306)	-0.165* (-2.181)	-0.1764 (-1.955)	-0.2300 (-1.841)	-0.0603 (-1.241)	0.02702 (0.6761)	-0.1041 (-1.684)
Strong Civil Society	16.828* (2.098)	26.218* (2.090)	8.441 (0.849)	-0.1309 (-1.353)	0.03142 (0.2258)	-0.1944 (-1.500)	-0.0862 (-1.739)	0.07412 (1.3593)	-0.0579 (-0.992)
Bureaucratic Quality	355.6** (3.343)	330.20 (1.556)	307.1** (2.7213)	-3.438* (-2.386)	-6.627* (-2.315)	-0.5508 (-0.268)	-2.90** (-4.15)	-5.18** (-5.698)	-3.04** (-2.932)
Rule of Law	262.3** (2.584)	290.738 (1.59)	277.9* (2.221)	-5.46** (-4.000)	-3.357 (-1.224)	-5.15** (-3.325)	-0.7585 (-1.158)	4.883** (5.146)	-2.67** (-3.476)
Adjusted R^2	0.3816	0.5701	0.2405	0.6095	0.6989	0.5680	0.3849	0.6830	0.4738
N	108	28	80	108	28	80	107	28	79

^a White-corrected t -values in parentheses. Intercept and decades dummies not shown.

* Significant at the 5% level.

** Significant at the 1% level.

variation in our last measure of development performance, adult illiteracy rates, is better explained at the regional level than in the pooled sample. For Latin America, the higher are the effectiveness of the rule of law and the quality of the bureaucracy, the lower is the rate of adult illiteracy. Although for East Asia these same two variables are found to be statistically significant, the sign of the rule of law coefficient is “wrong” (suggesting that the more effective is the rule of law in the East Asian countries, the higher is the adult illiteracy rate). While such a result is theoretically possible it could be the inadvertent result of multicollinearity and the aforementioned complementarity of characteristics. The complementarity of characteristics will be investigated shortly.

Before taking up this last issue, we summarize our first set of findings. Despite its obviously exploratory character, our analysis generates some quite interesting results. Even after controlling for trend factors, several of the institutional characteristics captured by the data we assembled have significant effects on various development performance indicators. Another striking general finding is that different institutional features play prominent roles in explaining the same aspects of development performance in the two different regions. In

particular, the rule of law seems to be the primary institutional determinant of development performance in Latin America (on the basis that the coefficient on this variable is statistically significant in all three development performance regressions). In the smaller East Asia sample, the prominent role seems to be played by the efficiency of the bureaucracy (although the coefficient on this variable is statistically significant only in two out of three development performance regressions).¹⁴

Next we turn to the issue of the complementarity/substitutability between the different institutional indicators in the “production” of each development performance indicator. The method we chose to investigate this issue was to enlarge the specifications from Table 3 with the set of six possible interaction terms (among all variables in our group of four institutional characteristics). We then evaluate the significance and sign of the coefficients of the interaction terms in order to determine whether any given pair or institutional characteristics are complements to or substitutes for each other *vis-à-vis* the specific development performance indicator at hand. We now turn to these results in Table 4.

In the first three columns of Table 4 we report the coefficients and t -statistics from

Table 4. OLS regression results ^a

	Dependent variable								
	Average level of real per capita GDP			Infant mortality rate			Adult illiteracy rate		
	All	E. Asia	LAC	All	E. Asia	LAC	All	E. Asia	LAC
Accountable Executive AE	16.5019 (1.2683)	-16.68 (-0.394)	11.392 (0.6597)	-0.3475 (-1.351)	-0.865* (-2.304)	0.22156 (0.9905)	-0.212 (-1.629)	-0.46** (-5.844)	0.0115 (0.0774)
Strong Civil Society CS	77.495* (2.3835)	141.923 (1.5018)	62.50 (1.7696)	-0.5893 (-1.207)	-0.3029 (-0.266)	-0.1240 (-0.247)	-0.1859 (-0.698)	0.606** (3.3087)	-0.099 (-0.322)
Bureaucratic Quality BQ	286.73 (1.0409)	-667.5 (-1.616)	1173.1* (2.5421)	-2.0183 (-0.433)	2.45654 (0.4141)	-6.9918 (-1.22)	-11.0** (-5.66)	-2.3564 (-1.939)	-13.8** (-3.808)
Rule of Law RL	-216.56 (-0.556)	-1052.3 (-1.51)	255.718 (0.6506)	-13.3** (-2.647)	-11.758 (-1.719)	-40.8** (-6.75)	-9.13** (-3.653)	-2.716* (-2.334)	-19.4** (-5.68)
<i>Interactions terms</i>									
BQ_RL	53.4579 (0.9024)	253.12* (2.7284)	-119.17 (-1.841)	0.14052 (0.2775)	-0.4409 (-0.707)	4.749** (5.4374)	1.503** (5.6156)	0.384** (3.491)	3.198** (5.2017)
BQ_CS	-4.977 (-0.796)	19.663 (1.1289)	-0.9889 (-0.122)	0.00123 (0.0179)	-0.439* (-2.624)	0.04568 (0.6692)	-0.0026 (-0.075)	-0.16** (-4.91)	0.01254 (0.2884)
BQ_AE	1.10208 (0.3892)	-21.89 (-1.639)	-5.3284 (-1.143)	-0.0054 (-0.092)	0.20889 (1.7222)	-0.128* (-2.194)	0.0494* (2.1295)	0.01967 (1.0602)	0.01114 (0.2802)
RL_CS	5.68835 (1.4293)	-31.27* (-2.246)	3.12364 (0.6475)	0.0996* (2.2906)	0.420** (3.017)	0.1121* (2.4279)	0.01806 (1.0621)	0.0806* (2.6038)	0.03975 (1.6936)
RL_AE	-0.8662 (-0.255)	23.1422 (1.5407)	5.44605 (1.0288)	0.05978 (1.0221)	-0.0796 (-0.572)	0.10741 (1.5349)	0.00512 (0.2456)	0.0723* (2.865)	0.00343 (0.0953)
CS_AE	-0.77** (-3.639)	-0.3294 (-1.597)	-0.711* (-2.176)	-0.0014 (-0.416)	-0.00261 (1.0826)	-0.009* (-2.615)	-0.0001 (-0.043)	-0.0008 (-1.177)	-0.0024 (-1.173)
Adjusted R ²	0.4075	0.6204	0.2612	0.6249	0.7364	0.7199	0.5382	0.9032	0.6375
N	108	28	80	108	28	80	107	28	79

^a White-corrected *t*-values in parentheses. Intercept and decades dummies not shown

* Significant at the 5% level.

** Significant at the 1% level.

OLS regressions of the average level of per capita GDP on both the set of four institutional indicators and the set of interaction terms. For the complete sample, only the “strong civil society” characteristic remains statistically significant by itself, and interestingly, so too is the interaction term between “strong civil society” and “accountable executive.” By the negative sign of this interaction term, we conclude that these two characteristics substitute for each other in the “production” of real per capita income. Notice that this result also obtains for the Latin American subsample, together with a statistically significant role for the quality of the bureaucracy. Among East Asian countries, we find the quality of the bureaucracy and rule of law to be complements, and rule of law and strong

civil society to be substitutes in explaining the levels of real per capita income.

With respect to the level of infant mortality, as shown in the second set of columns in Table 4, only the “rule of law” characteristic remains statistically significant, and interestingly, so is the interaction term between the latter and “strong civil society.” The positive sign of the coefficient indicates that the two characteristics are substitutes for one another in explaining the observed variation in infant mortality rates. Notice that this latter finding also obtains for both the Latin American and East Asian samples. Regarding the Latin American countries, there are some other noteworthy results. First, the rule of law characteristic is the only one that remains statistically significant (compared to Table 3). Second, we find three other

statistically significant interaction terms: the one between “accountable executive” and “strong civil society” (the sign suggesting complementarity between them), the one between the quality of the bureaucracy and the rule of law (*idem*, substitutability), and the one between the quality of the bureaucracy and “accountable executive” (*idem*, complementarity). For the East Asian countries, only the “accountable executive” characteristic remains statistically significant, in addition to the statistically significant interaction term between the quality of the bureaucracy and “strong civil society,” the sign suggesting complementarity between them.

Finally, we report on our findings for the adult illiteracy rates in the last three columns of Table 4. For the complete sample, the quality of the bureaucracy and the rule of law characteristics are statistically significant and have the expected (negative) signs. The effects of the two interaction terms, one between the quality of the bureaucracy and rule of law, and the other between quality of the bureaucracy and “accountable executive” are statistically significant and their positive sign indicates substitutability between each member of each pair. For the East Asian sample, the accountability of the executive, the strength of civil society and the rule of law characteristics are statistically significant and all have their expected signs. In addition, we find four statistically significant interaction terms for East Asia: one between the quality of the bureaucracy and the rule of law (the sign suggesting substitutability), one between the quality of the bureaucracy and the strength of civil society (the sign suggesting complementarity between them), one between the rule of law and the strength of civil society (the sign suggesting substitutability between them), and one between the rule of law and the accountability of the executive (also suggesting substitutability between them). Despite the larger sample size, the number of significant results for Latin America is smaller. Both the rule of law and the quality of the bureaucracy characteristics are statistically significant and have the expected signs, and also the interaction term between the same two variables is statistically significant, the sign suggesting substitutability between them.

In summary, after accounting for the possibility of interactions between our institutional characteristics, we find that for our complete sample, the rule of law is the most important

institutional characteristic (on the basis of a statistically significant coefficient on two out of three development performance regressions). It is especially dominant in the Latin American sample. For the East Asia sample, we find that the quality of the bureaucracy remains the most quantitatively important and consistent institutional characteristic. Moreover, we also find that in East Asia the strong civil society and the rule of law are more often than not substitutes, while in Latin America the quality of the bureaucracy and the rule of law are often substitutes.

6. CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Our purpose in this paper was three-fold: (a) to take stock of the data on the relevant institutional dimensions of governance in both Latin America and East Asia, (b) to assess the extent to which the available data capture these characteristics, and (c) to assess the ability of such measures to distinguish success from failure in improving development performance, between, as well as within both, Latin America and East Asia.

On the first count, one cannot help but be rather upbeat about the prospects. There is already a reasonably satisfactory body of data suitable for the extremely demanding task of measuring institutional differences over time and across countries. Moreover, this information seems able not only to capture these characteristics, but also to suggest important differences between the two regions.

Our most striking finding is that, for each region, a different institutional characteristic seems to have played a prominent role in improving development performance. In East Asia such an institution is the quality of the bureaucracy, whereas in the case of Latin America the prominent role appears to be played by the effectiveness of rule of law.

A comparison of the results for different regions across the different development performance indicators reveals another important finding, namely that, the processes linking various types of institutions with various aspects of development performance differ substantially between East Asia and Latin America.

Our results also suggest that these institutional indicators change over time. In contrast with the rather pessimistic views of the

path-dependency literature, our more encouraging finding is that institutions are by no means as immutable and unchangeable as that literature has led us to believe. This implies that the feasibility space for policy choices (in attempting to change institutions) may be much wider than often assumed.

Given the exploratory character of the paper, numerous interesting and important issues are left for further research. First, it would be highly desirable to improve upon the measures used for several of the individual dimensions of governance. Those components that most need improvement are the strength of civil society and the transparency of the decision-making process. At the same time, it would be desirable to expand the scope of the fundamental institutions beyond polity or governance to other related institutional characteristics such as the character, and degree of enforcement, of property rights.

Second, it would be highly desirable to expand the sample size to include both all the remaining countries of the regions compared in this paper and countries from other regions so as to afford comparisons of East Asia and Latin America to sub-Saharan Africa, South Asia and the Middle East.

Third, more should be done to control for the differences in initial conditions and resource endowments and to investigate other related hypotheses. Are there some still more fundamental cultural or endowment considerations

lying behind the important institutional characteristics identified in this paper?

Fourth, the ideal solution to the problem at hand would be to have a well-specified "institutional production function", where all the essential inputs were identified and accounted for, and from which we could investigate the patterns of substitutability and complementarity among pairs of these inputs. The paper suggests that this is an, albeit ambitious, but appropriate goal for future efforts.

Fifth, it is important to investigate some of the issues raised in our introduction concerning the relationships between polity institutions and the existence as well as character of other more specific institutions such as central banks, regulations on labor and other markets on the one hand and policy on the other. Are favorable polity characteristics complements to or substitutes for good policies? To what extent and why does the answer to this question vary across regions and over time?

The reason why the results of this paper are in their admittedly exploratory form is precisely to encourage others to undertake various aspects of this important research program. Only when a large number of independent scholars are able to engage in sustained research programs of this sort for a significant period of time will the analysis of the role of institutions in development be able to achieve anything like the progress that has been made on the analysis of technological change over the last half century.

NOTES

1. The differences in economic growth rates and income distribution between the two regions since the 1980s have been very substantial indeed and justifiably have received considerable attention. Somewhat neglected are other elements of performance such as gender equity (United Nations Development Program, 1995) and infant mortality and literacy rates during this period and the growth differentials for earlier periods, which were in some cases much more favorable to Latin America (Cardoso and Fishlow, 1992).

2. Naturally, there are many theoretical links between growth and distribution, some going from growth to distribution and others (especially recently) going from distribution to development.

3. Other important data sources, not used here, are Gwartney, Lawson and Block (1996, Messick (1996), and Holmes, Johnson and Kirkpatrick (1997).

4. They are presently available from the Economic Growth Project at the World Bank. We thank William Easterly and Giuseppe Iarossi for making this data set available to us.

5. POLITY III is available from the Inter-University Consortium for Political and Social Research (ICPSR, at the University of Michigan).

6. Competitiveness of political participation refers to the extent to which alternative preferences for policy and

leadership can be pursued in the political arena. It is measured on a five-point scale from "1" when competition among groups or parties is totally suppressed to "5" when there are relatively stable and enduring groups which compete regularly and without violence.

7. A five-point scale is used where a "1" represents the absence of such regulation, a "2" if there exists competition among parties, groups or factions but that competition often takes the form of violence, a "3" when power oscillates between different factions more or less regularly but from which important minorities are excluded and bitterly repressed, a "4" for the same characterization as for "3" but without violence in the exclusion of some groups, and a "5" if there is competition among groups in decision-making but without violence.

8. The latter finding is especially important given the conventional wisdom that institutions do not change over time, except in the very long run. For a critical view, see Campos and Nugent (1998). The statistical levels of significance of these differences are indicated in the tables.

9. But this is not without costs, mainly the risk that the results will be somehow biased by multicollinearity.

10. Data on the level of per capita GDP are from the latest version of the Penn World Tables (PWT 5.6). Income inequality data are from Deininger and Squire (1996). The data on infant mortality rates are from

United Nations Population Division (1995). Finally, the data on adult illiteracy rates are from World Bank (various issues) SID.

11. Campos and Nugent (1998) construct a composite aggregate index of institutional development, and embed it in an explicit theoretical framework (the Solow-Swan growth model).

12. The data set is available from the authors, and also from the Internet.

13. The effects of the decade dummy variables are omitted from Tables 3 and 4 in the interest of space.

14. These results seem quite consistent with the "par-simonious explanation" of the East Asian Miracle put forward by Rodrik (1996), which was based solely on institutional quality (a simplified version of our multi-dimensional characterization of governance), and the initial levels of education and development (captured by the time dummy variables in our approach). That bureaucratic quality is so high in East Asia and that has such a positive effect on per capita GDP in the region makes this finding seemingly paradoxical. One possible explanation can be found in Evans's concept of "embedded autonomy" (Evans, 1995). That is, even an efficient bureaucracy will be of limited value if its working are not embedded in the preferences of the citizenry (in this case, for reducing income and wealth disparities).

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