KOREA ECONOMIC INSTITUTE

Academic Paper Series

May 2008. Volume 3. No 4

Korean Institutional Reform in Comparative Perspective

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Korea is arguably the premier development success story of the last half century. Despite this success, there has been a nagging sense among many observers that the development of Korea's economic and political institutions has not kept pace with the breakneck tempo of economic growth. During the decade since the 1997–98 financial crisis, center-left governments have placed considerable emphasis on institutional reform. Accomplishments have included the establishment in 1998 of the Financial Supervisory Commission (recently renamed the Financial Services Commission) and the introduction of new regulatory practices, approaches, and standards; the passage of the Anti-Corruption Act in 2001 and the establishment of the Korea Independent Commission against Corruption in 2002; and the development of more robust civil society institutions such as the Council for the Korean Pact on Anti-Corruption and Transparency founded in 2005.

Now, 10 years after the crisis, coinciding with an electoral shift to the center-right, is an opportune time to take stock of the progress made during the past decade. The country's institutional development has relevance beyond the specific case of Korea: the importance of institutions versus other factors is subject to considerable dispute in development economics literature, and whether Korea, the development exemplar, conforms to the "institutions rule" notion is of broader intellectual interest.[1]

To address these questions, this paper exploits the growing body of quantitative data on institutional performance. Specifically, this project examines 52 institutional indicators covering 44 countries from four sources: Transparency International's (TI) "Corruption Perceptions Index," the World Bank's Worldwide Governance Indicators (WGI) research project, the World Economic Forum's (WEF) *Global Competitiveness Report* (GCR), and the Institute for Management Development's (IMD) *World Competitiveness Yearbook* (WCY). Data on governance and corruption are derived from the first three sources; all other time-series tranches are derived only from the *World Competitiveness Yearbook*. These sources allow us to analyze on a consistent international basis Korea's relative performance over the past decade.

A preview of the conclusions: Improvements in Korea's political and economic institutions during the past decade have outstripped the country's "First World economy, Third World politics" image. Although the data are noisy, and Korea generally underperforms modestly relative to its level of per capita income, the country is not an outlier; and on most

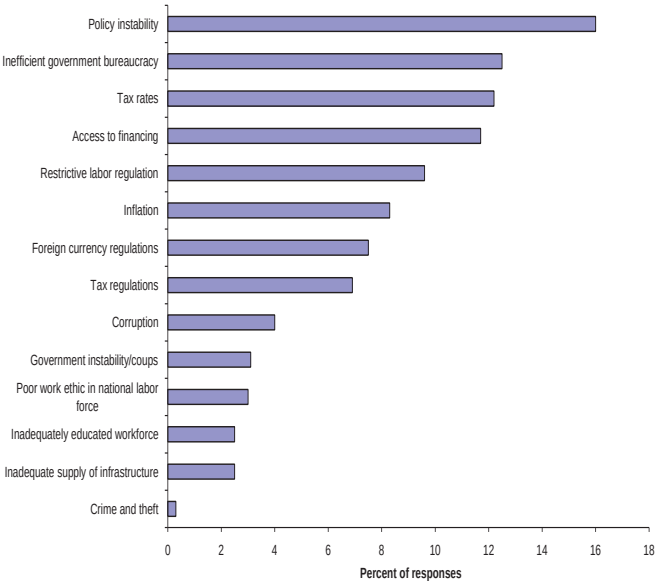
The paper by Dr. Noland and Mr. Weeks is the fourteenth in KEI's *Academic Paper* series. KEI intends to commission 9 to 10 papers per year, entailing original work on a subject of current interest to Korea watchers. KEI edits and distributes each paper to over 2,000 government officials, non-government experts, and scholars around the United States and the world. Distribution of a paper is followed immediately by a public discussion with the author. The papers distributed over a calendar year will be compiled into a published volume, *On Korea*, the first of which was issued in January 2008. The next Academic Paper will be distributed in June 2008. Authored by Jennifer Amyx of the University of Pennsylvania, it will address "The Creation and Operation of Sovereign Wealth Funds in Korea."

indicators Korea is converging on global norms. It would be hard to argue on the basis of this analysis that institutional development has led economic growth in Korea.

Korea's Performance

Koreans have high expectations about what the public sector can deliver. In the 2007–08 World Economic Forum survey (as in those of prior years), local business executives identified "policy instability" and "inefficient bureaucracy" as the two biggest problems in doing business in Korea, followed by tax rates and factor market rigidities (***Figure 1***). At the other extreme, infrastructure, labor quality, and crime and theft are the least of their concerns. In other words, in this self-assessment the country does well in terms of the provision of basic inputs—labor and capital—but poorly in the political economy of their management.

Figure 1: The Most Problematic Factors for Doing Business



Source: *Global Competitiveness Report* (Geneva: World Economic Forum, 2007).
Note: From a list of 14 factors, respondents were asked to select the 5 most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings.

Table 1 places Korea in comparative relief, reporting Korea's percentile rankings on institutional indicators from the four sources calculated for a consistent 44-country sample. (The country sample, definitions of the indicators, and other details are reported in the Appendix.) The higher the percentile ranking, the better Korea performed relative to the comparator countries sampled for this paper. For some indicators, such as corruption, we report multiple variants derived from different sources as an implicit check on the robustness of the survey.

We examine first- and last-year data for each indicator in order to gauge the degree of improvement in various aspects of institutional quality and competitiveness. Unfortunately, the beginning and ending years are not the same for all data sources, but retaining time-series information in this case supersedes the desire for standardization in the time sample. The "Corruption Perceptions Index" data (which take into account lagged data from the year before) begin in 1996 and end in 2007; the Worldwide Governance Indicators data begin in 1996 and end in 2006; and the *World Competitiveness Yearbook* data begin in 1998 and end in 2007. The *Global Competitiveness Report* data are reported only from the latest report, issued in 2007 by the World Economic Forum, and are not available for the starting year.

Of less consequence is the difference in ending years. Differences in the beginning year may be more problematic. Worldwide Governance Indicators and "Corruption Perceptions Index" data both begin in 1996, prior to the Asian financial crisis, whereas *World Competitiveness Yearbook* data begin in 1998 at the height of Korea's financial crisis. Although there may have been very little fundamental change in institutional quality or competitiveness in certain dimensions during this time, a massive economic crisis could certainly have an adverse effect on perceptions of Korean institutions. This caveat must be considered where large absolute or relative improvements in Korea's scores are observed.

Table 1 reports rankings for 1996 and 1998, the two starting years of the sample, and for 2006 and 2007 and also the change in rankings during this period. A higher number indicates stronger performance on that criterion. As the left panel shows, at the outset all of Korea's scores were below the mean, and more than half were in the lowest quartile. Despite its reputation in some quarters, Korea did relatively well on the corruption indices, with scores ranging from 32 to 41—not good but far better than the multiple indices on which it was in the lowest decile.

The right panel reports results for 2006–07 as well as the change in rankings. Korea scored at or above the mean in 18 of 52 categories although this improvement may be exaggerated somewhat by the inclusion of the *Global Competitiveness Report* data, in which Korea tends to do fairly well. Korea's rankings improved in the vast majority of categories, with double-digit improvements on bureaucracy (20 percentile points), personal security and private property (13 percentile points), government decisions (11 percentile points), and political parties (10 percentile points). On the corruption rankings, for example, the range rose from 32–41 percent at the beginning of the sample period to 34–48 percent at its end—still below the mean but an improvement.

Table 1: Institutional Percentile Rankings (First and Last Year Available)

Beginning percentile rank Indicator	Percentile
Government Effectiveness (WGI)	43
Corruption perceptions index (TI)	41
Public service (WCY)	41
Control of Corruption (WGI)	39
Personal security and private property (WCY)	39
Political Stability (WGI)	36
Rule of Law (WGI)	36
Voice and Accountability (WGI)	36
Harassment (WCY)	34
Bribing and corruption (WCY)	32
Justice (WCY)	32
Labor regulations (WCY)	27
Competition legislation (WCY)	23
Customs authorities (WCY)	20
Regulatory Quality (WGI)	18
Adaptability of government policy (WCY)	18
Government decisions (WCY)	16
Discrimination (WCY)	16
Bureaucracy (WCY)	11
Investment incentives (WCY)	11
Transparency (WCY)	9
Product and service legislation (WCY)	9
Foreign investors (WCY)	9
Parallel economy (WCY)	7
Legal and regulatory framework (WCY)	5
Political parties (WCY)	5
Immigration laws (WCY)	5
International transactions (WCY)	5
Public sector contracts (WCY)	5
Price controls (WCY)	2
Protectionism (WCY)	2

Ending percentile rank Indicator	Percentile	Change in overall rank
Burden of government regulation (GCR)	91	n.a.
Centralization of Economic Policymaking (GCR)	85	n.a.
Favoritism in decisions of government officials (GCR)	77	n.a.
Wastefulness of government spending (GCR)	73	n.a.
Public trust of politicians (GCR)	70	n.a.
Personal security and private property (WCY)	68	13
Diversion of public funds (GCR)	59	n.a.
Bureaucracy (WCY)	57	20
Reliability of police services (GCR)	57	n.a.
Intellectual property protection (GCR)	57	n.a.
Ethical behavior of firms (GCR)	55	n.a.
Property rights (GCR)	55	n.a.
Business costs of crime and violence (GCR)	55	n.a.
Efficiency of legal framework (GCR)	55	n.a.
Stringency of environmental regulations (GCR)	53	n.a.
Parallel economy (WCY)	52	20
Public service (WCY)	50	4
Government Effectiveness (WGI)	50	3
Bribing and corruption (WCY)	48	7
Judicial independence (GCR)	48	n.a.
Efficacy of corporate boards (GCR)	48	n.a.
Transparency of government policymaking (GCR)	48	n.a.
Business Costs of Corruption (GCR)	46	n.a.
Political Stability (WGI)	45	4
Business costs of terrorism (GCR)	45	n.a.
Protection of minority shareholders' interests (GCR)	45	n.a.
Strength of auditing and reporting standards (GCR)	45	n.a.
Organized crime (GCR)	43	n.a.
Justice (WCY)	43	5
Rule of Law (WGI)	43	3
Government decisions (WCY)	41	11
Harassment (WCY)	41	3
Voice and Accountability (WGI)	41	2
Corruption perceptions index (TI)	39	-1
Regulatory Quality (WGI)	36	8
Transparency (WCY)	34	11
Adaptability of government policy (WCY)	34	7
Control of Corruption (WGI)	34	-2
Customs authorities (WCY)	32	5
Political parties (WCY)	27	10
Investment incentives (WCY)	25	6
Legal and regulatory framework (WCY)	23	8
Labor regulations (WCY)	23	-2
Competition legislation (WCY)	20	-1
Price controls (WCY)	18	7
Product and service legislation (WCY)	18	4
Protectionism (WCY)	16	6
Public sector contracts (WCY)	16	5
Foreign investors (WCY)	14	2
Discrimination (WCY)	11	-2
Immigration laws (WCY)	9	2
International transactions (WCY)	7	1

notes:
- n=44
- high percentile ranking corresponds to better performance
- WCY = World Competitiveness Yearbook
  - series begins in: 1998
  - series ends in: 2007
- GCR = Global Competitiveness Report
  - series begins in: n.a.
  - series ends in: 2007
- TI = Transparency International
  - series begins in: 1996
  - series ends in: 2007
- WGI = World Governance Indicators
  - series begins in: 1996
  - series ends in: 2006
- Change in overall rank represents the number of places, on a scale of 1-44, that South Korea has moved up or down between the beginning and ending year

Sources: Institute for Management Development 2008, Transparency International 2007, World Bank 2007, WEF 2007

One conundrum is that local conditions may be improving in an absolute sense (which local residents may observe and appreciate), but the country could still be falling behind in relative terms—which may be the relevant criterion for other actors, say, international investors. In Figure 2 through Figure 6, the data are reorganized into five broad categories (governance and corruption, political institutions, domestic business institutions, international business institutions, and societal institutions), and standardized scores (taking into account the cross-country dispersion of the individual indices) are graphed.[2] The southwest quadrant indicates performance below the mean in both the starting and terminal years of the sample; the northwest quadrant depicts below-average performance at the start and above-average performance at the end. In the case of Korea, the other two quadrants are empty. Observations above the 45-degree line signal improvement, below it means deterioration.

Figure 2 displays data on governance and corruption. Most of the indicators lie above the 45-degree line, indicating relative improvement. Two—the "Corruption Perceptions Index" from Transparency International and the control of corruption indicator from the World Bank—lie below the line, indicating deterioration in relative position. However, the third corruption indicator, bribing and corruption from the Institute for Management Development's *World Competitiveness Yearbook*, shows an improvement. Note how tightly packed the governance and corruption indicators

are—all are within a single standard deviation of the mean. Neither Korea's profile nor the change in its profile appears dramatically different from those of the comparator countries on this basket of indicators. Somewhat more dispersion is evident for data on political institutions, all of which show improvement over the sample period (***Figure 3***).

Figure 2: Governance and Corruption

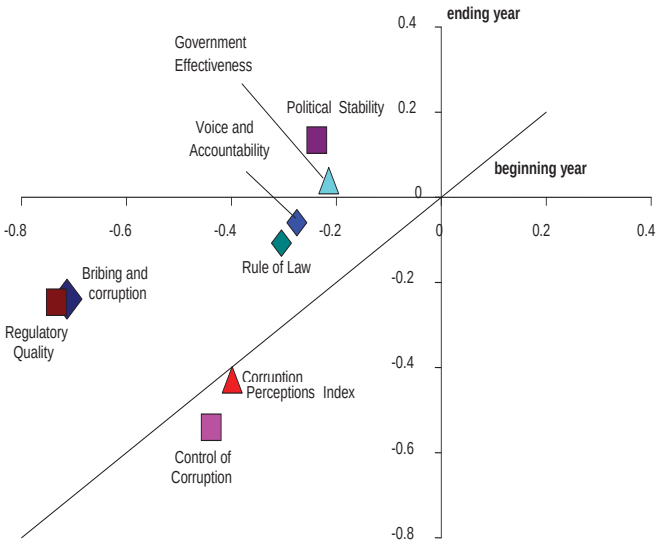
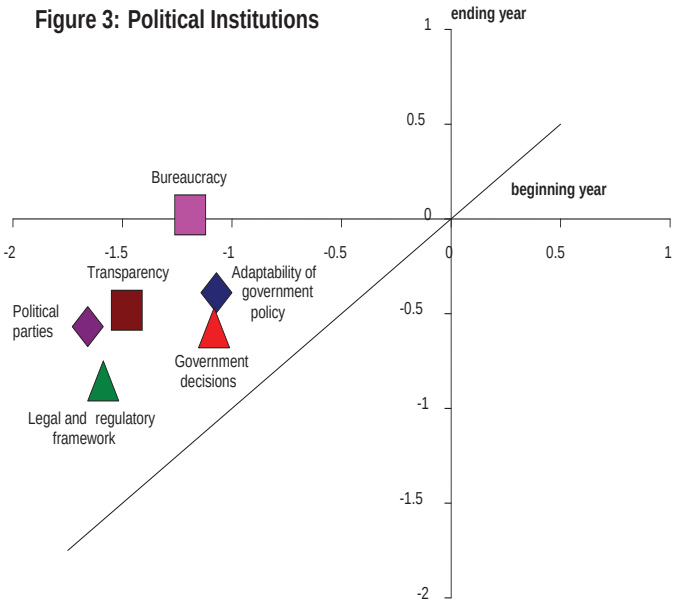
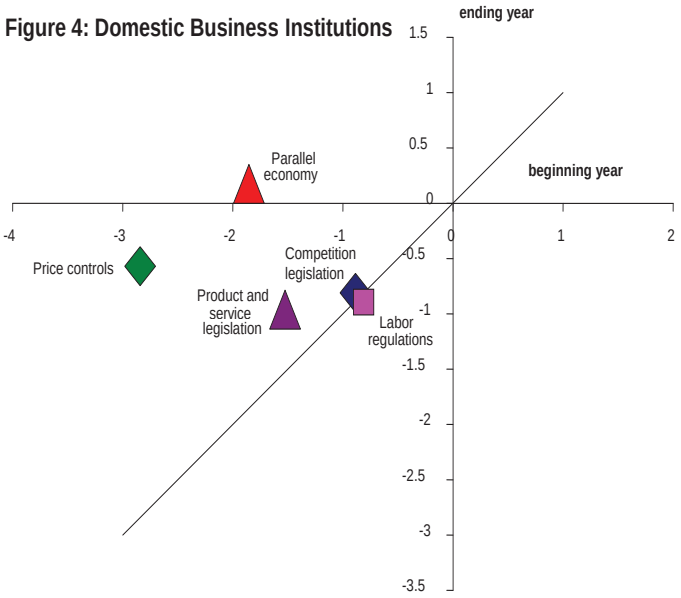


Figure 3: Political Institutions



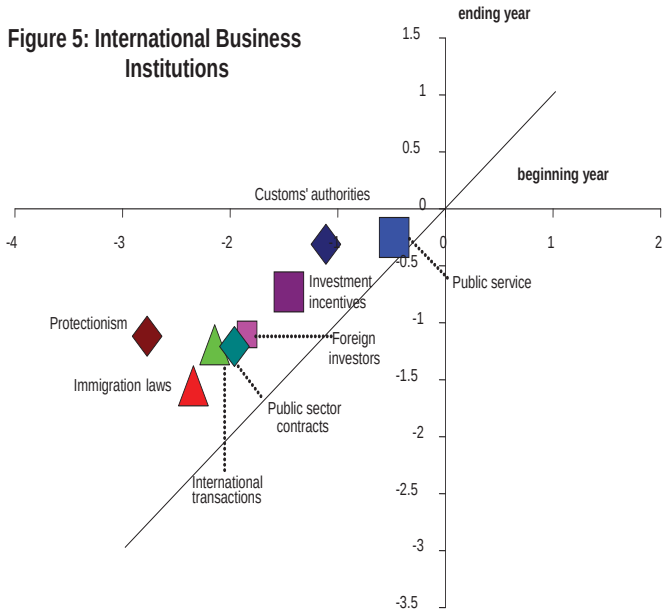
The data on domestic business institutions show yet more dispersion, with the price controls indicator being more than two standard deviations below the mean (a crude indicator of a truly outlying observation) in 1998 (***Figure 4***). Four of the five indicators are above the 45-degree line, the sole exception being the critical indicator of labor regulations, although in this case it is so close to the line that the apparent deterioration in relative performance may not be statistically significant.

Figure 4: Domestic Business Institutions



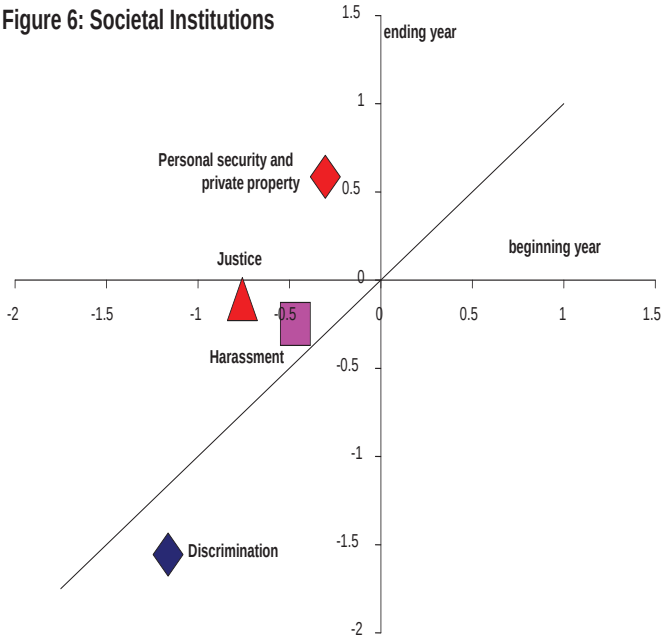
Korea exhibits the most outlying behavior with respect to international business institutions, where three of the eight indicators are more than two standard deviations below the mean at the beginning of the sample period (***Figure 5***). Perhaps driven by the reforms undertaken in the wake of the crisis, all of the international business institution indicators show improvement, falling above the 45-degree line.

Figure 5: International Business Institutions



In the final tranche of indicators, societal institutions (***Figure 6***), three of the four indicators show improvement, with one, personal property and personal security, landing in the northwest quadrant, indicating better-than-average performance at the end of the sample period. Conversely, the worst performance was on the discrimination indicator, where Korea's performance was below the norm at the start and then deteriorated further.

Figure 6: Societal Institutions



Income and Convergence

Thus far we have examined Korea's status without any reference to its level of development or that of its comparators. It is evident from cross-national data that the quality of institutions increases with income; what is more controversial is whether this relationship is causal. One possibility is that good institutions lead to good performance. The other is that with rising incomes governments come under both internal and external pressure to improve institutions and practices.

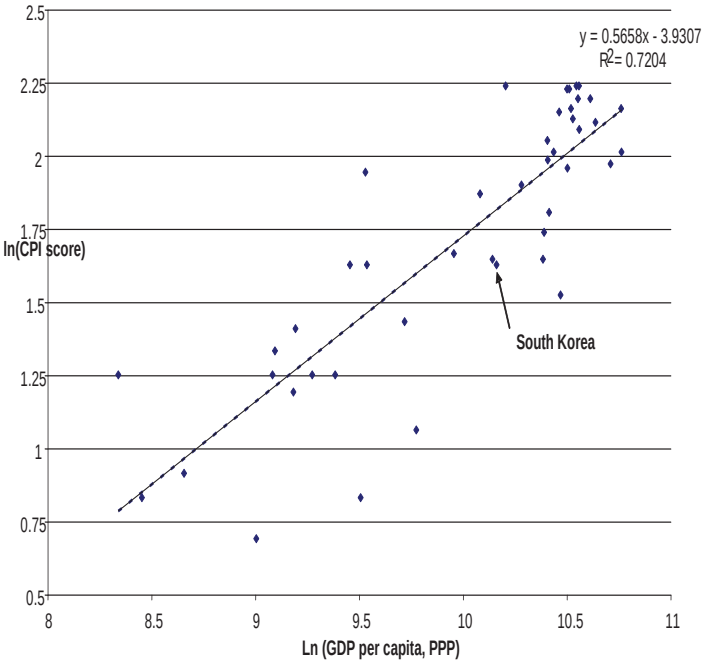
To get a sense of how Korea stacks up in these surveys, in ***Table 2*** we report Korea's "neighbors" for each indicator—the countries just above and just below Korea in the ranking—and the ratio of Korean per capita income to its neighbors' incomes. (For this calculation we use all available data because we are trying to identify the countries to which Korea is most similar, not establish a consistent ranking.) The countries appearing most frequently as Korea's neighbors in 1996 and 1998 are Japan (five entries), followed by Venezuela and the Czech Republic (four entries each). For 2006 and 2007, Israel and Slovenia (five and four, respectively) are Korea's most common neighbors.

For each of the five institutional baskets, on average, Korea's institutions are most similar to countries that are poorer than it is. There are exceptions. Korea's neighbors with respect to personal security and private property, for example, are significantly richer than it is in both the starting and terminal years of the sample period and by an increasing margin, as the ratio of per capita incomes rises from 1.22 to 1.58.

However, Korea does not appear to gravitate toward higher-income neighbors, in general. A significant average increase in the per capita income ratio in governance and corruption is offset by a decline with respect to international business institutions.

This analysis can be made more rigorous by regressing each of the institutional indicators on per capita income.[3] The estimated regression for the first indicator, Transparency International's "Corruption Perceptions Index," for the terminal year of the sample period, 2007, is displayed in ***Figure 7.*** The estimated regression indicates that a 1 percent increase in purchasing power–adjusted per capita income is associated with a 0.57 percent improvement in the "Corruption Perceptions Index." In this particular case, the Korean observation lies below the regression line, indicating that Korea has a higher-than-expected perception of corruption (that is, a lower "Corruption Perceptions Index" score) than would be expected on the basis of its income level.

Figure 7: Corruption perceptions Index and Income Per Capita, 2007



In Figures 8 through 12, we report the Korean studentized residuals from similar regressions on each institutional indicator for each year, organized by the five baskets. (The studentized residual can be interpreted as the t-statistic associated with a dummy variable added to the regression for that particular observation.) As a rule of thumb, a studentized residual exceeding 2.0 in absolute value is notable.[4] So, for example, in the case of governance and corruption (***Figure 8***), most of the Korean residuals are negative, indicating underachievement relative to income

Table 2: Public Institutions Indicators and South Korea's "Neighbors"

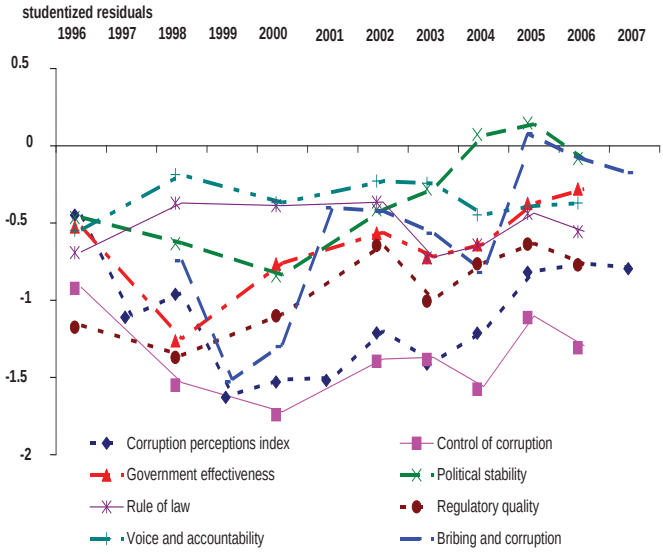
Indicator	Beginning year neighbors		Ending year neighbors		Average income ratio (neighbor: South Korea)	
	High	Low	High	Low	beginning year	ending year
Governance and corruption						
Corruption perceptions index (TI)	Malaysia	Greece	South Africa (tie)	Malaysia (tie)	0.97	0.52
Control of corruption (WGI)	Czech Republic	Malaysia	American Samoa	Italy	0.82	1.30
Bribing and corruption (WCY)	Italy	Russia	Slovenia	Israel	1.11	1.16
Regulatory quality (WGI)	Jamaica	Bahamas	Trinidad and Tobago	South Africa	0.66	0.64
Rule of law (WGI)	Kuwait	Malaysia	Czech Republic	Oman	0.97	0.87
Political stability (WGI)	Tunisia	Argentina	Cyprus	Vietnam	0.60	0.69
Government effectiveness (WGI)	Chile	Oman	Israel	Spain	0.74	1.24
Voice and accountability (WGI)	Mongolia	Papua New Guinea	Tuvalu	Israel	0.16	1.31
Average income ratio for tranche					*0.75*	*0.96*
Political institutions						
Adaptability of government policy	Czech Republic	Sweden	Taiwan	Lithuania	1.41	0.98
Bureaucracy	China	Colombia	Israel	Hungary	0.36	1.05
Government decisions	Greece	South Africa	Slovak Republic	United Kingdom	1.08	1.11
Legal and regulatory framework	Colombia	Venezuela	France	Russia	0.46	0.90
Public service	Austria	France	Lithuania	Belgium	1.87	1.05
Political parties	Venezuela	Japan	Hungary	Czech Republic	1.13	0.90
Transparency	Venezuela	Turkey	Turkey	Spain	0.47	0.76
Average income ratio for tranche					*0.97*	*0.96*
Domestic business institutions						
Competition legislation	Czech Republic	Hungary	Italy	Lithuania	0.98	0.97
Labor regulations	Argentina	Greece	Philippines	Argentina, Portugal	1.22	0.22
Price controls	Poland	(none)	Slovak Republic	Slovenia	0.69	0.90
Parallel economy	India	Russia	Germany	Sweden	0.30	1.35
Product and service legislation	Venezuela	Colombia	Romania	Croatia	0.46	0.52
Average income ratio for tranche					*0.73*	*0.79*
International business institutions						
Customs authorities	Philippines	Argentina	Italy	Slovak Republic	0.61	1.01
Foreign investors	Japan	Thailand	India	China	1.12	0.25
Investment incentives	Poland	Japan	Mexico	Japan	1.26	0.89
Immigration laws	Switzerland	Japan	Israel	Russia	1.97	0.91
International transactions	Poland	India	Argentina	Thailand	0.43	0.53
Protectionism	China	(none)	Russia	Slovenia	0.25	0.78
Public sector contracts	China	Japan	Ukraine	Argentina	1.04	0.51
Average income ratio for tranche					*0.95*	*0.70*
Societal institutions						
Discrimination	India	Indonesia	Indonesia	Poland	0.19	0.41
Harassment	Hungary	Czech Republic	Hungary	Slovenia	0.98	0.92
Justice	Chile	Brazil	China	South Africa	0.62	0.44
Personal security and private property	Chile	Italy	Ireland	Japan	1.22	1.58
Average income ratio for tranche					*0.75*	*0.84*
Most frequently occurring neighbors and overall average income ratio	Japan (5), Venezuela and Czech Republic (4)		Israel (5), Slovenia (4)		***0.84***	***0.86***

Sources: International Monetary Fund 2008, Transparency International 2007, WEF 2007, World Bank 2007

level. Some improvement is, however, evident over time—Korea remains an underperformer, though by a narrowing degree—and, if one adopts the rule of thumb that a studentized residual more than 2.0 in absolute value signals a true outlier, Korea is within tolerance on all of the governance and corruption indicators.

Similar patterns are obtained in ***Figure 9*** and ***Figure 10*** regarding political and domestic business institutions. Most residuals are negative, and the margins are narrowing. The absolute value of the studentized residuals tends to be larger, particularly for domestic business institutions. There are some instances of dramatic improvements: two indicators on which South Korea appears to be a real negative outlier at the beginning of the sample period—political parties and legal and regulatory framework—show significant improvements, as does bureaucracy ("bureaucracy does not hinder business activities"), which actually displays

Figure 8: Governance and Corruption



positive residuals in the last four years of the sample. Among the domestic business institutions, price controls show striking improvement, and by the end of the sample period none of the indicators deviates significantly from the international norm.

Figure 9: Political Institutions

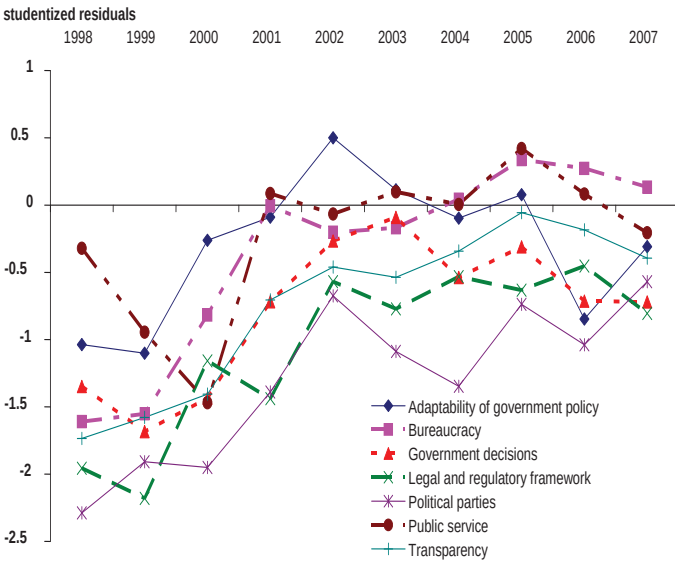
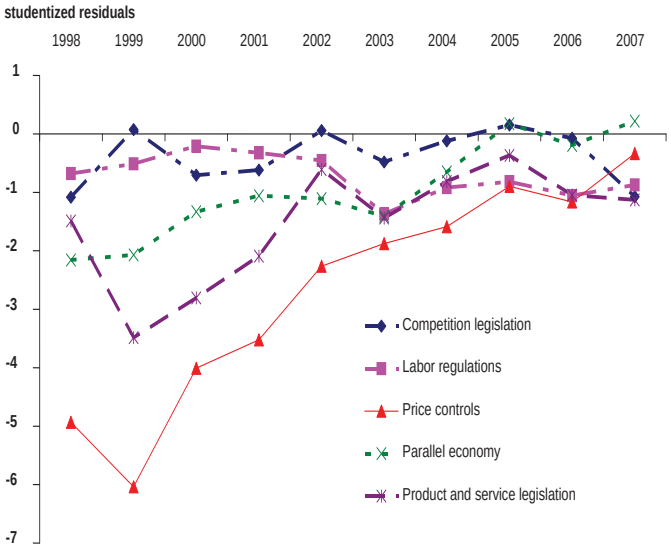
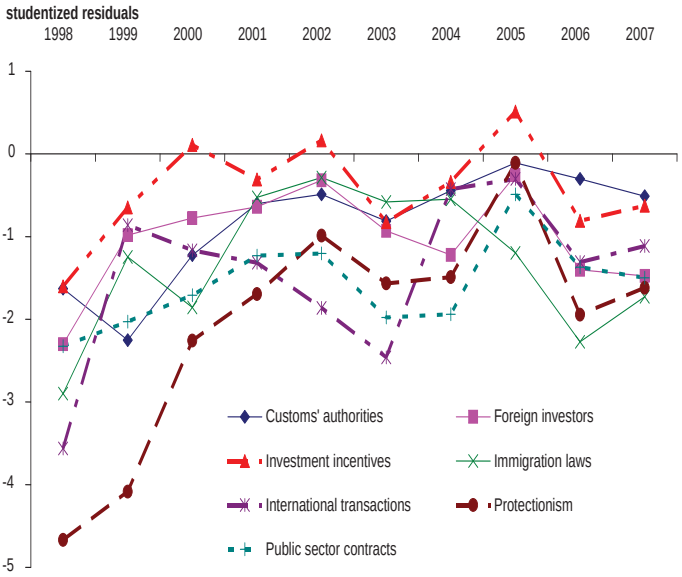


Figure 10: Domestic Business Institutions



However, in ***Figure 11*** on international business institutions, the magnitudes of the studentized residuals are generally larger, and evidence of improvement over time is less obvious. There is a dramatic improvement in the protectionism residual, even if it remains negative throughout the sample period. Nevertheless, by the end of the sample period, all seven indicators are within rule-of-thumb margin of tolerance.

Figure 11: International Business Institutions

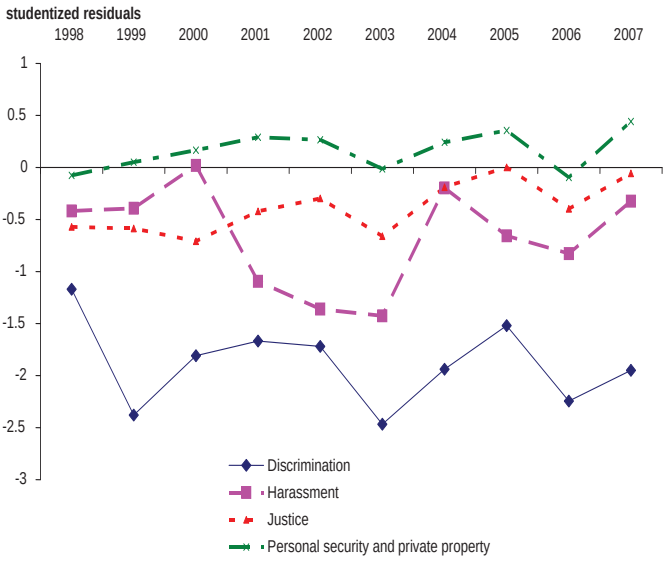


Finally, ***Figure 12*** shows Korea's residuals for societal institutions. Korea generally does better than expected on personal security and private property, though not by a significant margin. The country fares relatively poorly on the discrimination indicator that "discrimination with respect to race, gender, age, etc., does not hinder economic development."

Conclusion

In recent years academic economists have come to appreciate the centrality of public institutions in contributing to economic performance. Yet Korea, arguably the premier success story of the last half century, has sometimes been described as a First World economy with Third World in-

Figure 12: Societal Institutions



stitutions. Although the country modestly underachieves on most of the 52 criteria examined in this paper, Korea is not an outlier, and on most indicators it is converging on global norms from below. It would be difficult to argue narrowly on the basis of this analysis that institutional development led economic growth. Institutions do not appear to rule, at least in Korea.

The patterns on specific indicators suggest that global institutions play some role as an external policy anchor. International trade policy, for example, has been the area in which there has been the greatest consensus about and articulation of international norms (such as free trade in goods), and international institutions such as the World Trade Organization have been the most developed. In the financial arena, there is less consensus about best practices with respect to either domestic institutions or external relations, and the international institutions (Bank for International Settlements and the International Monetary Fund) have been relatively less successful in promoting an international consensus about desirable norms. In areas such as labor policy, there has been little consensus beyond some minimal standards (that is, prohibitions on forced or child labor); and the international institution, the International Labour Organization, has been, and remains, weak. The Organization for Economic Cooperation and Development (OECD), which Korea joined in 1996, has been at the forefront of anticorruption activities but has no enforcement power. In the area of competition policy, there has been little consensus about desirable practices, and no international organization (except perhaps the OECD) has really addressed these issues.

Perhaps it is not surprising then that Korea has made great progress on protectionism (admittedly from a low base made possible by the lack of enforcement power in the World Trade Organization's forerunner, the General Agreement on Tariffs and Trade, and the "special and differential" provisions that made commitments by developing countries nonbinding). Arguably, Korea's next best performance has been in financial reform and issues relating to investment, and probably the worst performance has been in the largely domestic arenas of competition and labor policy. The reason is straightforward: the existence of international norms gives policymakers a goal to aim for, and the existence of international institutions (and other avenues of international diplomatic pressure) helps in overcoming the historical weakness and parochialism of Korean public institutions.

Appendix A: Survey Data on Institutional Performance

In recent years a cottage industry has developed centered on various organizations' attempts to construct cross-national data on the quality of public institutions. Although the data are considerably noisy, these indicators are useful, if imperfect, tools for cross-country and intertemporal comparison.

As mentioned in the paper earlier, this study employs four sources of quantitative institutional data: Transparency International's "Corruption Perceptions Index" (CPI), the World Bank's Worldwide Governance Indicators (WGI), the Institute for Management Development's (IMD) *World Competitiveness Yearbook* (WCY), and the World Economic Forum's (WEF) *Global Competitiveness Report* (GCR). We hope that the use of multiple sources will increase the reader's confidence in the salience of these scores. Two sources, WCY and GCR, present data on institutional competitiveness of individual economies based on surveys of their own design,[5] while the other two, WGI and CPI, are aggregates of a broader set of research on governance and corruption within countries.[6] See the Appendix Table at the end of this paper.

Comparability issues within and across sources can occur contemporaneously between countries, within countries over time, and by extension between countries over time. Contemporaneous inconsistencies between countries can arise owing to standardization issues; a single respondent cannot know everything about his relative position in the world, so it is difficult to ensure cross-country consistency of standards. GCR and WCY, both of which gather data on institutional competitiveness of a host economy through executive opinion surveys, address cross-country standardization by selecting participants who operate in an international capacity. Aggregate measures, which take a wider range of data into account, should help to smooth this effect over, but different sources also apply different aggregation and standardization methodologies when creating composite institutional indicators.

Scoring methodology differs among sources. As mentioned earlier, CPI and GCR scores consist of information from the current and previous years. CPI standardizes data from individual sources using a matching percentiles technique to normalize scores, applies a beta transformation to prevent convergence in country scores over time, then averages these individual data inputs to calculate a CPI value for each country.[7] WGI aggregates are calculated using an unobserved components model.[8] WCY scores are country-level averages of executive responses to the WCY executive opinion survey, whereas GCR applies a slightly more

nuanced weighted and time-discounted two-year moving average to score the results of the GCR executive opinion survey.

Country samples, data samples, and respondents may change in the data from year to year, and individual perceptions may lag real institutional changes on the ground, introducing time inconsistencies into the data. Countries may also enter or exit from a data set over time, rendering changes in percentile rankings meaningless. A changing country sample can be addressed directly by limiting the number of countries to those with complete data. Some of the sources report data for larger country samples, but for the sake of comparability we report the rankings on a consistent sample basis. Adding relatively small, poor countries to the sample will tend to improve Korea's rankings. In their most recent versions, the WGI research project compares 212 countries and territories, CPI covers 180 countries, GCR covers 131 economies, and WCY covers 55 economies. From these four sources, we obtained a common set of 44 countries for examination in this study: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Colombia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Kingdom, United States, and Venezuela.

Once the underlying methodological differences between sources are accounted for, comparing scores across sources is simple. Individual country scores for each indicator are standardized by differencing each country's score by the mean and then normalizing this difference by the indicator's standard deviation. Countries are also ranked across a consistent sample to help detect relative improvements against a group of comparator countries.

A final issue to consider is that these sources are not entirely independent from one another. Both CPI's and WGI's aggregate measures of governance and corruption incorporate data from both GCR and WCY, meaning that their apparent consistency may be illusory. Conversely, divergences might signal fragility in these indices.

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Appendix Table: **Indicator Labels, Descriptions, and Sources**

Indicator	Description	Source
Governance and corruption		
Bribing and corruption	Bribing and corruption do not exist	IMD
Control of corruption	Extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests	WB
Corruption perceptions index	Aggregate measure of the "extent of corruption" with corruption being defined as the use of public power for private gain	TI
Government effectiveness	Quality of public services, quality of the civil service and the degree of its independence from political pressures, quality of policy formulation and implementation, and credibility of the government's commitment to such policies	WB
Political stability	Perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism	WB
Regulatory quality	Ability of the government to formulate and implement sound policies and regulation that permit and promote private sector development	WB
Rule of law	Extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence	WB
Voice and accountability	Extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and free media	WB
Political institutions		
Adaptability of government policy	Adaptability of government policy to changes in the economy is high	IMD
Bureaucracy	Bureaucracy does not hinder business activity	IMD
Government decisions	Government decisions are effectively implemented	IMD
Legal and regulatory framework	Legal and regulatory framework encourages the competitiveness of enterprises	IMD
Political parties	Political parties do understand today's economic challenges	IMD
Public service	The public service is independent from political interference	IMD
Transparency	Transparency of government policy is satisfactory	IMD

Domestic business institutions		
Competition legislation	Competition legislation is efficient in preventing unfair competition	IMD
Labor regulations	Labor regulations (hiring and firing practices, minimum wages, and so forth) do not hinder business activities	IMD
Parallel economy	Parallel (black-market, unrecorded) economy does not impair economic development	IMD
Price controls	Price controls do not affect pricing of products in most industries	IMD
Product and service legislation	Product and service legislation does not deter business activity	IMD
International business institutions		
Customs authorities	Customs authorities do facilitate the efficient transit of goods	IMD
Foreign investors	Foreign investors are free to acquire control in domestic companies	IMD
Immigration laws	Immigration laws do not prevent a company from employing foreign labor	IMD
International transactions	International transactions can be freely negotiated with foreign partners	IMD
Investment incentives	Investment incentives are attractive to foreign investors	IMD
Protectionism	Protectionism does not impair the conduct of a company's business	IMD
Public sector contracts	Public sector contracts are sufficiently open to foreign bidders	IMD
Societal institutions		
Discrimination	Discrimination (race, gender, age, and so forth) does not hinder economic development	IMD
Harassment	Harassment (unethical behavior, mobbing, violence) is adequately addressed	IMD
Justice	Justice is fairly administered	IMD
Personal security and private property	Personal security and private property are adequately protected	IMD
GCR public institutions		
Property rights	Property rights, including over financial assets: 1 = are poorly defined and not protected by law, 7 = are clearly defined and well protected by law	WEF

Intellectual property protection	Intellectual property protection in a specific country: 1 = weak and not enforced, 7 = is strong and enforceable	WEF
Diversion of public funds	Diversion of public funds to companies, individuals, or groups due to corruption: 1 = is common, 7 = never occurs	WEF
Public trust of politicians	Public trust in the financial honesty of politicians: 1 = very low, 7 = very high	WEF
Judicial independence	Judiciary independent from political influences of members of government, citizens, or firms: 1 = is heavily influenced, 7 = is entirely independent	WEF
Favoritism in decisions of government officials	When deciding on policies and contracts, government officials: 1 = usually favor well-connected firms and individuals, 7 = are neutral	WEF
Wastefulness of government spending	Public spending in the country: 1 = is wasteful, 7 = provides necessary goods and services not provided by the market	WEF
Burden of government regulation	Complying with administrative requirements (permits, regulations, reporting) issued by the government in the country is: 1 = burdensome, 7 = not burdensome	WEF
Efficiency of legal framework	Legal framework in the country for private businesses to settle disputes and challenge the legality of government actions and/or regulations is: 1 = inefficient and subject to manipulation, 7 = efficient and follows a clear, neutral process	WEF
Transparency of government policymaking	Firms in the country are usually informed clearly by the government on changes in policies and regulations affecting specific industry: 1 = never informed, 7 = always informed	WEF
Business costs of terrorism	Threat of terrorism in the country: 1 = imposes significant costs on business, 7 = does not impose significant costs on business	WEF
Business costs of crime and violence	Incidence of common crime and violence (e.g., street muggings, firms being looted): 1 = imposes significant costs on businesses, 7 = does not impose significant costs on businesses	WEF
Organized crime	Organized crime (mafia-oriented racketeering, extortion) in the country: 1 = imposes significant costs on businesses, 7 = does not impose significant costs on businesses	WEF
Reliability of police services	Police services: 1 = cannot be relied upon to protect businesses from criminals, 7 = can be relied upon to protect businesses from criminals	WEF
Ethical behavior of firms	Corporate ethics (ethical behavior in interactions with public officials, politicians, and other enterprises) of firms in the country are: 1 = among the world's worst, 7 = among the world's best	WEF

Strength of auditing and reporting standards	Financial auditing and reporting standards regarding company financial performance in the country are: 1 = extremely weak, 7 = extremely strong, the best in the world	WEF
Efficacy of corporate boards	Corporate governance by investors and boards of directors in the country is characterized by: 1 = management has little accountability, 7 = investors and boards exert strong supervision of management decisions	WEF
Protection of minority shareholders' interests	Interests of minority shareholders in the country: 1 = not protected by law and seldom recognized by majority shareholders, 7 = protected by law and actively enforced	WEF
Centralization of economic policymaking	Economic policymaking in the country: 1 = centralized—national government controls almost all important decisions, 7 = decentralized—states and cities have important decision rights affecting economic development	WEF
Business costs of corruption	Illegal payments influence government policies, laws, or regulations, and impose costs or otherwise negatively affect the company: 1 = yes, they have a significant negative impact, 7 = no, they have no impact	WEF
Stringency of environmental regulations	How stringent is the country's environmental regulation: 1 = lax compared to most countries, 7 = among the most stringent	WEF

IMD = Institute for Management Development, *World Competitiveness Yearbook*
TI = Transparency International, "Corruption Perceptions Index"
WB = World Bank, Worldwide Governance Indicators project
WEF = World Economic Forum, *Global Competitiveness Report*

Sources Used for the Evaluation

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Global Competitiveness Report 2007–2008. New York: Palgrave Macmillan (World Economic Forum), 2007.

World Competitiveness Yearbook. Lausanne: Institute for Management Development, 2008. www.imd.ch/research/publications/wcy/index.cfm.

Worldwide Governance Indicators Project. Washington, D.C.: World Bank, 2007. http://info.worldbank.org/governance/wgi2007/.

Endnotes

1. Daron Acemoglu, Simon Johnson, and James Robinson, *Institutions as the Fundamental Cause of Long-Run Growth*, NBER Working Paper no. 10481 (Cambridge, Mass.: National Bureau of Economic Research, 2004; Edward L. Glaeser et al., "Do Institutions Cause Growth?" *Journal of Economic Growth* 9 (2004): 271–303; Benjamin F. Jones and Benjamin A. Olken, "Do Leaders Matter? National Leadership and Growth since World War II," *Quarterly Journal of Economics* 120, no. 3 (2005): 835–64.

2. Scores are standardized by subtracting the mean from the observed score for each year, and dividing this difference by the standard deviation of scores for that year.

3. Figures 8 through 12, which correspond to the regression analysis, display South Korea's studentized residuals from cross-sectional ordinary least squares regressions for every year and indicator. In each simple regression, the level score for each institutional indicator is regressed on the log of per capita income, effectively creating a crude form of per capita income control. The residuals are then studentized to allow for comparison across institutional indicators because they are originally scored on different scales and therefore not readily comparable without some form of standardization. Per capita income is measured in purchasing power terms as reported in the International Monetary Fund's "World Economic Outlook" database.

4. David A. Belsley, Edwin Kuh, and Roy E. Welsch, *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity* (New York: Wiley, 1980).

5. Perceptions may vary among managers operating in different economic sectors, so data collection agencies such as IMD and WEF collecting primary data from executive surveys must ensure that a broadly representative sample of managers is obtained. The most recent iteration of the WCY survey was completed by 3,700 executives from 55 economies, and the GCR survey was completed by 11,000 executives in 131 economies; see Suzanne Rosselet-McCauley, "Methodology and Principles of Analysis," *IMD World Competitiveness Yearbook 2007* (Lausanne: Institute for Management Development, 2007), www.imd.ch/research/publications/wcy/upload/methodology.pdf; World Economic Forum, *Global Competitiveness Report* (New York: Palgrave Macmillan, 2007). Both surveys ask respondents to judge local conditions relative to a global best-practices benchmark on an ordinal scale. GCR records and reports these results on a scale from 1 to 7, and WCY has executives rank conditions on a scale from 1 to 6 and then converts these scores to a 1-to-10 scale for reporting. The WEF and its network of affiliates attempt to get a cross-section of respondents from firms of differing sizes across a range of activities, tapping partner affiliate institutes to ensure that a relatively heterogeneous sample is selected across countries. The IMD takes a similar approach, capturing the opinions of upper and middle management from both domestic and multinational firms across a broad range of economic sectors that operate internationally. These managers are asked to evaluate conditions within their host economy from an international perspective. A potential weakness of this approach is that the respondents may not know enough about the best practices to meaningfully compare with local circumstances. Respondents to survey questionnaires will by necessity change over time owing to expanding samples, staff changes at the firms and organizations being surveyed, and a variety of other reasons. To address this issue, the IMD encourages alumni to participate in each sequential survey. For our purposes, time inconsistencies as they may exist are irrelevant in the case of GCR because we examine only a single year of data from this source.

6. WGI examines six distinct aggregate indicators of governance composed of data from 33 sources provided by 30 independent organizations, and CPI aggregates data from 14 sources provided by 12 independent organizations into a single measure of perceptions of corruption; see Daniel Kaufmann, Aart Kraay, and Massimo Mastruzzi, *Governance Matters VI: Aggregate and Individual Governance Indicators*, World Bank Policy Research Working Paper no. 4280 (Washington, D.C.: World Bank, 2007); Johann Graf Lambsdorff, "The Methodology of the Corruption Perceptions Index 2007," Transparency International, Berlin, and University of Passau, 2007, http://www.transparency.org/policy_research/surveys_indices/cpi. CPI incorporates data from the past two years in order to mitigate abrupt random shifts in a country's CPI score; see also World Economic Forum, *Global Competitiveness Report*, 2007. WCY's single-year survey does not incorporate lags and is more susceptible to random shifts in perceptions but has the advantage of being more immediately responsive to real changes in the quality of public institutions.

7. See Lambsdorff, "The Methodology of the Corruption Perceptions Index 2007." A consequence of matching percentiles is that it reduces the standard deviation of individual scores. The beta transformation remedies this by widening the standard deviation.

8. Kaufmann, Kraay, and Mastruzzi, *Governance Matters VI*.