

Corruption Perception Indices: A Comparative Analysis

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1. INTRODUCTION

The empirical literature on corruption has used data on corruption from three different sources: (i) investigative reports, (ii) newspapers, and (iii) surveys or questionnaire-based data. Some studies on corruption are based on case studies and newspaper reports. Studies by Wedeman (1997); Wade (1982) and Alam (1996) fall in this category. While these studies have presented an in-depth analysis of corruption, they do not examine a large sample of countries. Moreover, the investigative reports require detective work and sometimes connections with people in high echelons in order to expose corruption. Unlike investigative reports, access to survey data on corruption enables researchers to study corruption for a large sample of countries, but at the same time, raises questions about their subjectivity.¹ However, the subjectivity of these indices is often justified on the ground that corruption is illegal in nature, and hard to measure directly.

Empirical studies on the causes of corruption after the mid-1990s have used several corruption indices from Business International, International Country Risk Guide, Peter Neumann and his collaborators at Impulse, Transparency International, and World Competitiveness Report. More than one corruption index has been used in most of these empirical studies. For example, Ades and Di Tella (1997) used corruption indices from WCR and Peter Neumann and his collaborators at Impulse (1994). Treisman (2000) recently utilised four corruption indices: three from Transparency International (1996 to 1998) and one from Business International. While empirical literature on the causes of corruption using these indices continues to surge, it is imperative carefully to examine what exactly these indices portray.

I have selected four sources: (i) World Competitiveness Report WCR (1990, 1992, 1994, 1996), (ii) Transparency International TI (1995 to 1998), (iii) International

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¹See Fisman and Gatti (1999); Husted (1999); Mauro (1995); Rijckeghem and Weder (1997); Tanzi (1998) and Tanzi and Davoodi (1997).

Country Risk Guide ICRG (1982 to 1995), and (iv) the World Bank WB (1996) data to examine this issue. The following section presents various sources of corruption indices. The analysis will be performed in two phases. In Section 2, I present a comparative analysis based on rank correlation across various sources and over time. To strengthen my analysis, Section 3 presents a regression analysis to show whether these indices produce similar results for a common set of countries. There are only 20 countries for which the data are available from these sources. I run regressions on a common set of independent variables encompassing variables from winners' and losers' side. The main purpose of these regressions is carefully to examine the relationship between the corruption indices and all the independent variables. This empirical exercise will help determine the association between the corruption indices and the independent variables. The final section concludes.

2. SOURCES OF CORRUPTION INDICES

The data on corruption and other risk factors are now available for a large number of countries. These indices are sold to banks, multinational companies and international investors. The first set of data comes from Business International (BI), now incorporated into The Economist Intelligence Unit. The survey asks about "the degree to which business transactions involve corruption or questionable payment". The assessment reports are completed by the staff members of Business International working in the survey countries. The replies are examined at Business International's regional and corporate headquarters. The survey covers 68 countries for 1980–1983 period (one observation per country for the entire period). The index ranges from 0 (corrupt) to 10 (clean).

The second set of corruption data comes from World Competitiveness Report (WCR), which is published by the Institute for Management Development. The report compares and ranks countries on 224 criteria under 8 categories. These eight categories are domestic economy, internationalisation, government, finance, infrastructure, management, science and technology, and people. In this survey, one of the questions asks top and middle management about the prevalence improper practices, such as bribery or corruption in the public sphere. The exact question about corruption varies slightly from year to year. In 1989, the question involves "the extent to which the country prevents corruption". In 1990, the question dealt with "the extent to which government regulations prevent improper practices in the public sphere" and in 1991, and 1992, the question addressed "the extent to which improper practices such as bribing and corruption do not prevail in the public sphere".

The index ranges from 0 (corrupt) to 10 (clean). For the four years, 1993–96, the survey included 37, 45, 48, and 46 countries, respectively. One advantage of the WCR data over the BI data is that the WCR data contain responses of people who have intimate knowledge of the business practices in each of the surveyed countries.

In a similar fashion, in 1997, the Political and Economic Risk Consultancy (PERC) in Hong Kong surveyed 280 expatriate business executives in 12 Asian countries, asking “to what extent does corruption exist in the country in which you are posted in a way that detracts from the business environment for foreign companies?” The index ranges from 1, which represents a situation in which corruption does not exist, to 10 which represents a completely corrupt environment.

Unlike the BI and WCR, the indices constructed by DRI/McGraw-Hill Global Risk Service and International Country Risk Guide (ICRG) were based on assessments made by their staff members after an in-depth country analysis and discussion, although this method is somewhat less transparent to outsiders. The DRI/McGraw Hill Global Risk Service covers 105 countries for 1995. Unlike the BI index, the ICRG index is prepared annually. It covers 1982 to 1995 and, depending on the year is available for 88 to 129 countries.

The most interesting contribution to the corruption index is the Gallup International Survey for 1997. On average, 800 individuals from the general population are interviewed in 44 countries, either in person or on the telephone. Question 5 of the “global” portion of the questionnaire is as follows: “From the following groups of people, can you tell me for each of them, if there are a lot of cases of corruption, many cases of corruption, few cases, or no cases of corruption at all. The groups listed afterwards were “politicians,” “trade unionists,” “public officials,” “policemen,” “businessmen,” “judges,” “ordinary citizens,” “clergy/priests,” and “journalists.” For each country the replies to the 5 categories (“a lot,” “many,” “few,” “none” and “no answer”) were aggregated, yielding data by categories.

Similar to the Gallup International data, Göttingen University conducted a survey via the Internet to generate a corruption perception index (Internet Corruption Perception Index). Between January and June 1997, Internet users with interest in the topic of corruption were asked to complete an interactive questionnaire. There were 246 responses to the questionnaire. Internet users were asked the following question: “You enter a public office which is authorised to grant licenses and permits (e.g. the license to conduct business). After you have waited for a long time you are expected to pay a bribe and are told that otherwise you will not receive the license. According to your perception, in which countries may this (i.e. the asking for bribes by public officials) happen? On the other hand, where do you consider it to be unlikely?” Three choices, “often,” “sometimes,” and “rarely,” were listed at the end of the question.

The indices discussed are based on the perception of heterogeneous respondents with different nationalities. Peter Neumann and his collaborators at Impulse, a German business firm, conducted a survey in 1994 in which only German businessmen (exporters) were interviewed who were normally involved in the trade with each of the countries. They were asked to indicate the number of deals that

involve corrupt payments and the estimate of kickback per deal as a percentage of the deal value. One hundred and three countries were included in the survey. These indices are less subjective because of the nature of the questions asked. Each respondent had to give an estimate of the kickback per deal. Moreover, the respondents were taken from a homogeneous group of people (German exporters) with practical business experience in each country.

Transparency International and Göttingen University combined several corruption indices to produce a composite index of corruption. This index is available for 1995 to 1998. In 1997, an index (TI-Corruption Index) was compiled for 52 countries from 7 sources. The seven sources were two surveys from the Institute for Management Development in Lausanne, Switzerland (World Competitiveness Report), one from the Political and Economic Risk Consultancy Ltd. in Hong Kong (Asian Intelligence Issue No. 482), one by Gallup International, two assessments by DRI/McGraw-Hill (Global Risk Service) and the Political Risk Services, East Syracuse, New York (International Country Risk Guide), and a survey conducted at Göttingen University via the Internet (Internet Corruption Perception Index). From Gallup International survey only 4 groups "politicians," "public officials," "policemen" and "judges," were used in this index because the other groups mentioned in the Gallup International survey do not fit the definition of corruption as the misuse of public power for private benefits. The index is a "poll of polls". Recently Transparency International has released corruption rankings for 90 countries for the year 2000.

There are four statistics given for each country. The first is its position in the TI-index. The second figure is the overall integrity ranking (out of 10). Ten stands for a highly clean country, while zero is for a country where business transactions are entirely dominated by kickbacks, extortion, and bribery. No country scored a ten or a zero. The third figure indicates the number of surveys in which the particular country has been included (from 4 to 7). The fourth figure indicates the variance of the different sources. The minimum number of surveys in which a particular country is included was reduced from 4 to 3 in 1998. The 1997 index has an average variance that is almost one third lower than in 1996, making it far more reliable. A higher variance indicates a higher degree of deviating opinions, with some respondents placing the country much higher and others much lower on the overall scale.

All the sources of corruption indices discussed above focus on perceptions of foreign firms only. These indices represent either the perception of staff members (external viewpoint) or the perception of people working in organisations located in those countries (internal viewpoint). Unlike these sources, the World Bank conducted a worldwide survey of the private sector. The survey questionnaire measured the uncertainty of government policies. Section three of the questionnaire asks the degree to which corruption is problematic for doing business. The survey

dealt with both domestic and foreign business firms. The indices are available for 67 countries for 1996 and range from 1 to 6.

Several important characteristics of the World Bank data on corruption make these indices very useful. First, unlike all other corruption indices, the World Bank data include the perception of people who work in domestic firms i.e., firms with no foreign participation. Second, the data are also available for specific departments such as the police, customs, and the judiciary. Third, this data set provides measures of corruption from several perspectives. For example one question asks respondents to rate how corruption is problematic in doing business. The other question asks respondents to rate on a scale of 1 to 6 whether these businesses accept bribes. Still another question asks about the pervasiveness of bribery.

In the following section, I will present correlation coefficients among the corruption indices discussed in this section.

3. CORRUPTION INDICES AND RANK CORRELATION

A few recent survey studies on corruption have documented various sources of corruption indices. The explanation of these corruption indices has already been discussed in Section 2. Nevertheless, I will briefly mention the types of corruption reflected by these indices. Virtually all sources define corruption as an abuse of public office for private benefit. These indices reflect the behaviour of public officials and politicians. While these indices theoretically define corruption in a same fashion, they do not guarantee that the rankings they generate are consistent. This section investigates whether these rankings produce consistent results and whether they are consistent over time.

The rank correlation coefficients are given in Table 1. The correlation coefficients between ICRG95 and WCR96 (0.80) and between WCR96 and WB96 (0.82) are higher than the correlation between ICRG95 and WB96 (0.56). The high correlation between WCR96 and ICRG95 may be due to the fact that both indices

Table 1

Rank Correlation:
(WCR96, ICRG95, TI96, WB96)

	WCR96	ICRG95	TI96	WB96
WCR96	1.000			
ICRG95	.8035(44)	1.000		
TI96	.9644(43)	.8739(53)	1.000	
WB96	.8224(22)	.5612(47)	.8385(29)	1.000

Note: Figures in parenthesis are the number of observations.

WCR = World Competitiveness Report, ICRG = International Country Risk Guide,
TI = Transparency International, and WB = World Bank.

focused on firms or businesses engaged in foreign activities. On the other hand, the correlation between WCR96 and WB96 is higher because these indices represent the internal viewpoint about corruption. In contrast, the correlation coefficient between WB96 and ICRG95 is only 0.56. One plausible reason for this low correlation is that the ICRG95 corruption indices include foreign firms with external viewpoints about corruption, whereas WB96 corruption indices represent internal viewpoints with concentration in local business firms.

Although the above indices evidence a close association among themselves, the question is whether they rank countries consistently over time. To ascertain this, rank correlation coefficients of the various corruption indices from the same sources, but for the different time periods have been calculated. The rank correlation for ICRG, WCR, and TI corruption indices are presented in Tables 2, 3, and 4 respectively.

The indices are highly correlated between any two consecutive surveys. It is evident from these tables that the value of correlation coefficient decreases as the time span between the two indices expands. Notice that the minimum value of correlation coefficient in Tables 2, 3 and 4 is 0.68 [ICRG (1982) and ICRG (1995)], which is high. This demonstrates that the corruption rankings are persistent over time.

Table 2

Rank Correlation:
(*World Competitiveness Report 1990, 1992, 1994, 1996*)

	WCR90	WCR92	WCR94	WCR96
WCR90	1.000			
WCR92	.9378(34)	1.000		
WCR94	.9093(34)	.9514(36)	1.000	
WCR96	.8892(33)	.9482(35)	.9386(43)	1.000

Figures in parenthesis are number of observations.

Table 3

Rank Correlation:
(*Transparency International 1995, 1996, 1997, 1998*)

	TI95	TI96	TI97	TI98
TI95	1.000			
TI96	.9784(40)	1.000		
TI97	.9274(41)	.9594(47)	1.000	
TI98	.9478(41)	.9559(53)	.9813(52)	1.000

Figures in parenthesis are number of observations.

Table 4

Rank Correlation:

International Country Risk Guide (ICRG) 1982–1995

	Icrg82	Icrg83	Icrg84	Icrg85	Icrg86	Icrg87	Icrg88
Icrg82	1.000						
Icrg83	.9819(88)	1.000					
Icrg84	.9179(88)	.9624(90)	1.000				
Icrg85	.8748(88)	.9131(90)	.9579(111)	1.000			
Icrg86	.8713(88)	.9124(90)	.9545(111)	.9959(129)	1.000		
Icrg87	.8582(88)	.8988(90)	.9420(111)	.9871(129)	.99(129)	1.000	
Icrg88	.8336(88)	.8707(90)	.9208(111)	.9724(129)	.9715(129)	.9829(129)	1.000
Icrg89	.7837(88)	.8194(90)	.8730(111)	.9370(129)	.9357(129)	.9464(129)	.9660(129)
Icrg90	.7824(88)	.8143(90)	.8488(111)	.9132(129)	.9116(129)	.9211(129)	.9391(129)
Icrg91	.7877(88)	.8135(90)	.8430(111)	.8866(128)	.8850(128)	.8922(128)	.9089(129)
Icrg92	.7602(88)	.7805(90)	.8060(111)	.8020(128)	.7994(128)	.8048(128)	.8229(128)
Icrg93	.7149(88)	.7415(90)	.7734(111)	.7448(128)	.7437(128)	.7473(128)	.7643(128)
Icrg94	.7162(88)	.7435(90)	.7752(111)	.7446(128)	.7432(128)	.7465(128)	.7643(128)
Icrg95	.6899(88)	.7165(90)	.7418(111)	.7113(128)	.7063(128)	.7138(128)	.7315(128)
	Icrg89	Icrg90	Icrg91	Icrg92	Icrg93	Icrg94	Icrg95
Icrg89	1.000						
Icrg90	.9789(129)	1.000					
Icrg91	.9442(128)	.9672(129)	1.000				
Icrg92	.8294(128)	.8499(129)	.9082(129)	1.000			
Icrg93	.7619(128)	.7759(129)	.8358(129)	.9358(129)	1.000		
Icrg94	.7570(128)	.7719(129)	.8339(129)	.9317(129)	.9968(130)	1.000	
Icrg95	.7142(128)	.7304(129)	.7940(129)	.8883(129)	.9621(130)	.9763(130)	1.000

Figures in parenthesis are the number of observations.

These rank correlation coefficients produce very close estimates of how these corruption rankings are correlated over time. Furthermore, I categorised countries into three groups: namely clean (0-2), partly corrupt (2-7), and corrupt (7-10)². Tables 5, 6, and 7 present the changes in corruption rankings for WCR (1994 to 1996), TI (1997–1998), and ICRG (1982 to 1995) respectively. Table 5 reveals that only 8 countries out of 43 have succeeded in moving from one category to another. The results are mixed when the changes within groups were considered. Fifteen countries increased their rankings, whereas rankings of fourteen countries have gone down. Six countries did not change rankings. Most of the countries whose rankings had increased or decreased were European countries. It is evident from Table 5 that very few countries have succeeded in moving from one category to another. As far as increase (or decrease) in corruption rankings within categories is concerned, the results are mixed.

²The list of countries and their categorisation are presented in Appendix A.

Table 5

*Changes in Corruption Rankings (WCR: 1994, 1996)**Changes 1994 to 1996*

(One Category to Another)

	Improve	Decrease	Total
Africa/Middle East			
Asia/Pacific Region	1		1
Europe	4	2	6
Latin America/Caribbean			
North America		1	1
Total	5	3	8

(Within Categories)

	Improve	Decrease	Unchanged	Total
Africa/Middle East			1	1
Asia/Pacific Region	6	5	1	12
Europe	8	6	2	16
Latin America/Caribbean	1	2	1	4
North America		1	1	2
Total	15	14	6	35

Table 6

*Changes in Corruption Rankings (TI: 1997-1998)**Changes 1997 to 1998*

(One Category to Another)

	Improve	Decrease	Total
Africa/Middle East			
Asia/Pacific Region	1		1
Europe		1	1
Latin America/Caribbean	1		1
North America	1		1
Total	3	1	4

(Within Categories)

	Improve	Decrease	Unchanged	Total
Africa/Middle East	1		1	2
Asia/Pacific Region	8	6		14
Europe	3	11	8	22
Latin America/Caribbean	4	2	2	8
North America			2	2
Total	16	19	13	48

Table 7
Changes in Corruption Rankings (ICRG: 1982–1995)
Changes 1982 to 1995
 (One Category to Another)

	Africa/ Middle	Asia/ Pacific	Europe	NA	LA/CAR	Total
Unchanged						
Clean	1	7	14	2	1	25
Less Corrupt	7	2	1	1	11	22
Corrupt	2					2
Less corrupt to clean to less corrupt	1		1		1	3
Less corrupt to corrupt to less corrupt					1	1
Sub-total	11	9	16	3	14	53
Improvement						
Less corrupt to clean	2	1	3		1	7
Corrupt to less corrupt	4	5			3	12
Corrupt to clean	1					1
Corrupt to clean to less corrupt	1					1
Corrupt to less corrupt to clean	4					4
Less corrupt to corrupt to less corrupt to clean	1					1
Corrupt to less corrupt to clean to less corrupt	1					1
Sub-total	14	6	3		4	27
Decrease						
Clean to less corrupt	1	1			3	5
Less corrupt to corrupt	2					2
Sub-total	3	1			3	7
Total	28	16	19	3	21	87

I observed similar results in changes in corruption rankings using Transparency International indices between 1997 and 1998. Four countries out of 52 were successful in changing their categories. Sixteen countries increased their rankings, whereas rankings of nineteen countries have gone down. Thirteen countries did not change rankings. The data in Table 6 indicate that many countries do change their rankings within categories. This may be because corruption rankings might be affected with certain sudden changes in government policies. These changes do not cause the public to overlook government corruption altogether, but they do have some impact on corruption rankings.

The above analysis revealed that few countries have managed to move from one category to another, suggesting the entrenched nature of corruption. To determine whether corruption exerts a persistent nature over a longer period of time I have, using corruption indices from ICRG, categorised countries into three groups: (1) clean (0–2), (2) partly corrupt (2–7), and (3) corrupt (7–10).

Of the 87 countries for which data are available for 1982 to 1995, 53 countries remain corrupt (partly corrupt or clean), suggesting persistency in corruption rankings. For a corrupt country, it is difficult to change people's perception about corruption because it takes time for the government to make people believe that they are sincere in their efforts to mitigate corruption. In other words, perceptions about corruption exhibit a self-generating property. As Tirole (1996) and Tanzi (1994) argue, corruption is likely to be found in countries where corruption existed for some time as compare to countries where corruption is relatively new.

Table 7 confirms that perceptions about corruption do not change quickly. It shows that only three European countries improved their ranking from one category to another between 1982 to 1995. Similarly, out of 21 Latin American countries, only 3 have achieved improvements from one category to another.

4. CORRUPTION PERCEPTION INDICES: A REGRESSION ANALYSIS

Although the above analysis suggests that these corruption indices are highly correlated and stable over time, investigators continued using at least two indices to support their hypotheses. To widen my analysis, I have run regressions on the same set of independent variables using several corruption indices for a common set of countries.

A corrupt transaction always creates winners and, almost, always losers. The current empirical literature on causes of corruption has, however, failed to analyse corruption from winners' and losers' perspectives. In this analysis, I have included factors from winners' and losers' point of view.

From winners' side, I have included two factors that generate rent, i.e., the size of the government, and an index of regulations. The share of government consumption in GDP measures government size. It can be intuitively argued that large governments create large bureaucracies, which, in turn, provides more opportunities for graft. I expect a positive relationship between government size and corruption. Husted (1999) has used this measure as a determinant of corruption. The index of government regulation measures the extent of regulations imposed by government regarding business operations, price controls, foreign trade (exports and imports), labour regulations, foreign currency regulations, tax regulations, and safety and environmental regulations. This index is a sum of seven indices. These seven indices are (i) regulations for starting business and new operations, (ii) price controls, (iii) regulations on foreign trade, (iv) labour regulations, (v) foreign currency regulations, (vi) tax regulations and/or high taxes, and (vii) safety or environmental regulations. I expect a positive relationship between the composite index of regulations and corruption.

From the losers' side, I have included an index of bureaucratic competition, newspaper circulation (level of information), urbanisation, average years of schooling, index of political liberty.³ All these variables enhance the ability of losers to take

³ See Alam (1995).

countervailing actions against corrupt officials. The index of bureaucratic competition measures the extent to which people can obtain fair treatment by avoiding corrupt officials. Level of information is another factor that helps people take countervailing actions. The print media keep people well-informed about public officials who are misusing their powers. I have used newspaper circulation per 1000 persons as a measure of the level of information. Urbanisation deters corruption. People living in urban areas can raise their voice against corruption through the platform of various organisations such as association of producers, traders, importers, and consumers. These associations will increase the effectiveness of direct countervailing actions.⁴ Urbanisation is defined as the share of urban population in the total population. I expect a negative relationship between urbanisation and corruption. Educational level is likely to enhance the awareness of the people about their rights and increase their ability to fight against their losses from corruption. Average years of schooling at age 15 and above in the total population measures the level of education. Finally, democracy can also increase the effectiveness of countervailing actions. An index of political rights is used as a measure of democracy. In democratic societies, the weak bargaining power of public officials because of decentralised political power may enable losers to resist corrupt officials with ease.

The dependent variable, corruption index, is taken from various sources. I have included three indices from Transparency International (1996 to 1998), one from the International Country Risk Guide (1995), one from the World Competitiveness Reports (1996), and one from the World Bank (1996). These indices cover a wide range of perceptions of corruption, including internal and external viewpoints and domestic and foreign firms' perspectives. Ordinary least square technique is used to estimate the coefficients of independent variables. Table 8 presents the regression results.

An examination of the regression results leads to several convincing arguments. First, in all regressions, these independent variables explain more than 50 percent of variations in corruption. Second, with one exception, the relationship between the independent variables and the corruption index is consistent across all sources. The coefficient for newspaper circulation is positive only in the case of ICRG (1995). Third, the coefficient of the measure of government regulations has

⁴The discussant, Mr Daniyal Aziz, argued during the general discussion that urbanisation fosters conditions that are conducive to corruption. The same argument was put forward by Meier and Holbrook (1992) who argue that in an urban environment, family and religion lose their social control, which, in turn, reduces the ability of losers to take countervailing actions against corruption. The investigators measured corruption as the number of public officials convicted of corruption charges. The problem with this measure is that it may be a proxy for the effectiveness of the reporting system and cannot take care of those corrupt activities that are not reported, as discussed in Knack and Keefer (1995). It is likely that urbanisation has provided more opportunity to uncover corruption charges as compared to rural areas, and therefore it is unclear whether urbanisation induces public officials to become involved in corruption or if it helps to uncover already corrupt officials.

Table 8

Regression Results: WB96, TI98, TI97, TI96, WCR96, and ICRG95

Independent Variables	WB96	TI98	TI97	TI96	WCR96	ICRG95
Regulations	1.66***	1.05***	0.92***	0.68*	1.09**	0.57**
Bureaucratic Competition	-0.38**	-0.60**	-0.56**	-0.55*	-0.65*	-0.53**
Average Years of Schooling	-0.044	-0.098	-0.083	-0.18	-0.11	-0.16
Government Consumption	-0.063	-0.15**	-0.13**	-0.17**	-0.21**	-0.08**
Urbanisation	0.010	0.009	0.011	0.027	0.012	0.018
Political Liberty	-0.34	-0.57**	-0.74***	-0.32	-0.39	-0.47**
Newspaper Circulation	-0.003*	-0.001	-0.001	-0.003	-0.002	0.0009
Adjusted R ²	0.78	0.74	0.76	0.65	0.60	0.56
Number of Observations	20	20	20	20	20	20

*10 percent level of significance.

** 5 percent level of significance.

*** 1 percent level of significance.

Results are adjusted for heteroscedasticity.

The 20 countries are Austria, Canada, Colombia, France, Germany, Hungary, Ireland, Italy, Malaysia, Mexico, Poland, Portugal, South Africa, Spain, Switzerland, Turkey, U.K, U.S.A, USSR, and Venezuela.

expected positive sign in all cases. Finally, bureaucratic competition, the average years of schooling, and an index of political liberty have the expected negative signs in all cases, whereas the coefficients of urbanisation and government size have wrong signs in all cases.

5. CONCLUDING REMARKS

An attempt has been made to examine various corruption indices that are used in current empirical literature, especially with regard to the causes of corruption. The primary purpose of this analysis is to demonstrate that these corruption indices not only produce similar results, but that the results are consistent over time. I approach this task by first presenting rank correlation coefficients among these indices and then categorising countries into three groups to analyse their rankings over time. Finally, I regress these indices on the same set of independent variables for a common set of countries. The results reveal that these indices are correlated among each other and are stable over time. In addition to the rank correlation, the regression results confirm that these indices yield similar results. Thus, using any one of these sources would be sufficient for the determination of the causes of corruption. However, the regression results must be considered with caution because these results may be influenced by the small sample size. Nonetheless, this analysis has shed some light on the consistency of the corruption indices across various sources and over time.

*Appendices***APPENDIX A*****WORLD COMPETITIVENESS REPORT (WCR) 1990*****Clean:**

Singapore, Denmark, New Zealand, Netherlands, United Kingdom.

Partly Corrupt:

Hong Kong, Switzerland, Finland, Sweden, Germany, Canada, Norway, Ireland, Australia, United States, France, Belgium, Luxembourg, Japan, Austria, Malaysia, Taiwan, Portugal, Turkey, Mexico, Spain, Thailand.

Corrupt:

India, Greece, Hungary, Indonesia, Italy, Brazil.

WORLD COMPETITIVENESS REPORTS (WCR) 1992**Clean:**

Singapore, New Zealand, Finland, Denmark, Sweden, Netherlands, Switzerland, Canada, United Kingdom, Australia.

Partly Corrupt:

Germany, Ireland, Norway, Austria, United States, Hong Kong, Japan, France, Belgium, Luxembourg, Hungary, Taiwan, Portugal, Malaysia, Turkey, Spain, Greece, Mexico.

Corrupt:

Thailand, Italy, India, Brazil, Indonesia.

WORLD COMPETITIVENESS REPORT (WCR) 1994**Clean:**

New Zealand, Denmark, Singapore, Sweden, Finland, Canada, Ireland, Australia, Norway, Switzerland, United Kingdom.

Partly Corrupt:

Netherlands, Germany, United States, Austria, France, Hong Kong, Portugal, Malaysia, Belgium, Luxembourg, Japan, Spain, Mexico, Taiwan, Greece, Turkey.

Corrupt:

Hungary, Thailand, Indonesia, India, Italy, Brazil.

WORLD COMPETITIVENESS REPORT (WCR) 1996**Clean:**

Denmark, Singapore, Finland, New Zealand, Norway, Australia, Ireland, Canada, Sweden, United Kingdom, Netherlands.

Partly Corrupt:

Switzerland, Luxembourg, United States, Germany, Austria, Hong Kong, Japan, France, Belgium, Portugal, Taiwan, Malaysia, Hungary, Spain, Turkey, Italy.

Corrupt:

Greece, Brazil, Thailand, Indonesia, India, Mexico.

TRANSPARENCY INTERNATIONAL 1995**Clean:**

New Zealand, Denmark, Singapore, Finland, Sweden, Canada, Australia, Switzerland, Netherlands, Norway, Ireland, United Kingdom, Germany.

Partly Corrupt:

Chile, United States, Austria, Hong Kong, France, Belgium, Japan, South Africa, Portugal, Malaysia, Argentina, Taiwan, Spain, Hungary, Turkey, Greece, Colombia, Mexico.

Corrupt:

Italy, Thailand, India, Philippines, Brazil, Venezuela, Pakistan, China, Indonesia.

TRANSPARENCY INTERNATIONAL 1996**Clean:**

New Zealand, Denmark, Sweden, Finland, Canada, Norway, Singapore, Switzerland, Netherlands, Australia, Ireland, United Kingdom, Germany.

Partly Corrupt:

United States, Austria, Japan, Hong Kong, Belgium, Chile, France, Portugal, South Africa, Malaysia, Greece, Taiwan, Hungary, Spain.

Corrupt:

Brazil, Colombia, Philippines, Indonesia, India, Venezuela, China, Pakistan.

TRANSPARENCY INTERNATIONAL 1997**Clean:**

Denmark, Finland, Sweden, New Zealand, Canada, Netherlands, Norway, Australia, Singapore, Switzerland, Ireland, Germany, United Kingdom.

Partly Corrupt:

United States, Austria, Hong Kong, Portugal, France, Japan, Chile, Spain, Greece, Belgium, Hungary, Italy, Taiwan, Malaysia, South Africa, Brazil, Turkey, Thailand, Philippines.

Corrupt:

China, Argentina, Venezuela, India, Indonesia, Mexico, Pakistan, Colombia.

TRANSPARENCY INTERNATIONAL 1998**Clean:**

Denmark, Finland, Sweden, New Zealand, Canada, Singapore, Netherlands, Norway, Switzerland, Australia, United Kingdom, Ireland.

Partly Corrupt:

Germany, Hong Kong, United States, Austria, Chile, France, Portugal, Spain, Japan, Belgium, Malaysia, Taiwan, South Africa, Hungary, Greece, Italy, Brazil, China, Turkey, Mexico, Philippines, Argentina, Thailand.

Corrupt:

India, Pakistan, Venezuela, Colombia, Indonesia.

APPENDIX B**SOURCES OF INDEPENDENT VARIABLES**

The data on measures of regulations and bureaucratic competition are taken from the World Bank (1996). Data on government consumption, and urbanisation are taken from World Development Indicators (1998) for 1996. Data on newspaper circulation are taken from the World Development Report (WDR) for 1994; Data on total years of schooling are taken from Barro and Lee (1993, 1996) for the period of 1990. The political liberty index is taken from Gastil (1996).

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Comments

It was a great pleasure for me to read the paper by Mr Naved Ahmad because it is very rare that you come across such a clean and such a simply stated hypothesis and the follow-through that was there statistically. So I was very excited to see this and the main reason is not so much because of the methodology or the statistical procedures, the differences between the questions or the different scales that were used to measure corruption indices. Of course that technical side of thing had it been represented in the documents one could have gone into but since it was not in there. The most important thing that this was saying when you look at the number of countries which have moved on the indices that are shown in one of the tables on page 6. You can see the countries which have been able to move from either being highly corrupt, to less corrupt, or from less corrupt to clean, and the other way around from being highly corrupt from being clean to less corrupt or from being less corrupt to totally corrupt. And I think, the amazing result that you can see from this is that there are very very few countries over a long period of years that have been able to move upward on the index, who have been able to move from a corrupt style of government. According to these indices to another level. – cleanliness and I think, that will speak volumes when it is juxtaposed to what the development literature in its emphasis of the development has been from the end of the colonial era till today. Because many of the developing countries were parts of colonial empires, the inheritance of the governance structures was quite solid when these countries achieved independence mostly after World War-II and soon after that. And I think that the important thing is that, soon after the independence was achieved the era of aid sort of took over and it was all of the growth models about how we can create bigger savings to have bigger investments and than get out of this low level, what Rostow called the low level liquidity trap, and thereby when we make a bigger pie the trickle down effect will take over and you have all of this external and internal balance economics and all of these things coming up. And that was basically what was concentrated on. And you had the green revolution technologies being introduced and how to shift revenues from agricultural productivity into industrialisation and urbanisation type activities and so on and so forth. It's not until very very recently that the underlying problems with the governance institutions like e.g. accounts, or the judiciary, or management of audit system, or for example, efficiency in discipline rules, or other kinds of regulatory frameworks that actually run governance structures even in service oriented type of organisations like railways or airlines etc. That the spot-light has really come to be shown on them only very recently. So I think, that in one-way what this data really is saying is that we have also arrived at a time in history, of the development literature as a whole governance is coming into centre stage. In the past this is some thing that was taken for granted

that you would have justice, that you would have good policing, that you would have functional tax machinery, so on so forth. That is changing. I think to me that was a very important thing that stuck me. The other thing just to wind up quickly because I know, we are the short of time is. I think, it goes its stretches beyond really the mandate of, what it is trying to do in term of the very clear and clean almost clinical analysis that it gives of the comparison between these different indices when it starts making some assumptions, when it gets into the regression analysis against the independent variable in the end of the paper, e.g., it says, it can be intuitively argued that large governments creates large bureaucracy which in turn provide more opportunity for graft. That is a very loaded statement, does this mean that you can't have small highly corrupt government or that a large government can be relatively less corrupt even though the incidences of corruption or more so. It is difficult to judge from that or to ascertain to statistically what really is being targeted and similarly in the same section it was very difficult to understand what was meant by from the winner's side or from the loser's side. I think, that definition wasn't unclear to me at least on as to what that meant. In some of the other assumptions again it says that the urban associations were able to control corruption because a stronger voice more organisational skills perhaps better financing, and it use that to say that the urban areas will tend to have less corruptions in government that also not necessarily true. We know e.g., in Pakistan's case that it's very difficult to make a broad statement. In urban areas, the land mafia and the corruption in the land management department is huge compared to the rural areas. The burning down of the record-rooms just in Pakistan alone in order to sort of deter scrutiny on land ownership has taken place in the city like Lahore. So, it's not entirely clear that follows either or what those level of association are that will actually tend to make less or more corruption. I think in that part really the also in term of democracy the paper states that where there is democracy there will be more decentralise decision-making better voice and therefore less corruption. I think, may be the past four or five democracies in Pakistan were dismissed because of corruptions. So that also doesn't follow you can have very corrupt democracy, it's not necessarily true that democracy introduces is more clean government, if you will. So, in this way I think, some of these assumptions were bit over-stated or stretch. But other than that, I think that in the beginning part. This is the first work of its kind that I have seen of its kind. And its very interesting to bring into ambit of some accountability round what is taken as global statistical knowledge. Some time it is not knowledge it is just here say put in to numbers. And this really attempts to shine light on that which I think, was excellent.

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