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Corruption in Economic Transition and Development: Grease or Sand?

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" If you look under most banking crises, there's always a degree of fraud and abuse, and there's often a large amount of criminal activity. Corruption threatens growth and stability in many other ways as well: by discouraging business, undermining legal notions of property rights and perpetuating vested interests."

Lawrence Summers
Speech to the Summit of Eight, Denver, June 10, 1997

" In terms of economic growth, the only thing worse than a society with a rigid, over-centralized, dishonest bureaucracy is one with a rigid, over-centralized and honest bureaucracy."

Samuel P. Huntington
Political Order in Changing Societies, 1968, p386

1. Introduction

Corruption in the transition economies is a recurrent news item. Like cockroaches, corruption has been with human society for a long time and is still wide spread even beyond the transition economies. Does corruption stifle the transition and the development process in these countries? Or does it actually provide a 'grease' that smoothes the transition and development? For the role of corruption in economic development in general, one can in fact find conflicting opinions from intelligent people as reflected by the two quotes at the beginning of the paper. One can probably find anecdotes that appear to support both (and mutually inconsistent) statements. There appear to be examples of value-destroying corruption (as the first quote suggests) as well as value-creating corruption (as the second quote implies). However, there is a limit to what anecdotes can tell us. What does a careful examination of facts and data tell us? The purpose of this paper is to

review the recent academic studies on the consequences of corruption on economic development.[1]

This paper is organized in the following way. Section 1 discusses how cross-country difference in corruption may be measured. Section 2 reviews the evidence on economic consequences of corruption based on cross-country regressions. Section 3 discusses the evidence that is based on firm-level observations. Section 4 discusses the notion of cultural difference in the consequences of corruption. Section 5 discusses factors that may contribute to the different extent of corruption in different countries, and possible remedies to the problem. Section 5 provides some concluding thoughts.

1. Corruption: Which Corruption?

This paper focuses on corruption in the economic sphere involving government officials. Corruption here is defined as government officials abusing their power to extract/accept bribes from the private sector for personal benefit. This is to be distinguished from political corruption (e.g., vote-buying in an election, legal or illegal campaign contributions by the wealthy and other special interest groups to influence laws and regulations), and bribes among private sector parties. The other types of corruption are undeniably important as well for economic transition and development. But due to the need to stay focused and to the limitation of my expertise, this paper reviews the evidence primarily concerning official corruption defined at the beginning of the paragraph.

By the very nature of corruption (secrecy, illegality, variations across different economic

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1 Previous survey papers include Andvig (1991), Bardhan (1997), Kaufmann (1997b), UNDP (1997), and Tanzi (1998). Several new features of the current paper are worth pointing out. First, it emphasizes data-based studies rather than mere theories. Second, as the research on corruption expands rapidly in the last half decade, it reviews more recent studies including those using firm-level observations in addition to cross-country regressions.

activities), it is impossible to obtain precise information on the extent of corruption in a country, unlike, for instance, measuring inflation. This difficulty also precludes a precise grading of countries according to their relative degree of corruption.

Moreover, what is called "abuse of power" or "corruption" in one cultural context may not be so labeled in another. However, just because something has a long history, is widespread and difficult to control, does not justify ignoring it. The cockroach has been with human society for a long time and is wide spread. But we still have to have pest control. Of course, the exact boundary of what is considered "corruption" may depend on culture. A survey in Thailand in the early 1990s revealed that the Thai people are willing to accept a wider range of behavior by government officials as "permissible" that would have been called "corruption" in the U.S. or Western Europe. Still, there are abuses of power that are considered "corruption" everywhere in the world. The same Thai survey revealed that the Thai people, despite displaying a higher level of tolerance of the behavior by their government officials, still considered official corruption to be a major issue in their country. An overwhelming majority of them wished something could be done to substantially reduce corruption. This is not just a Thai phenomenon. From Russia to Indonesia, and from China to Venezuela, corruption is denounced as public enemy number one by people in these countries.

Like pornography, corruption is difficult to quantify, but you know it when you see it. In spite of all the difficulties associated with any attempt to quantify corruption, one can still get useful information on the seriousness of corruption in a country by surveying experts or firms in that country. There are essentially four types of "corruption ratings."

(A) Corruption ratings based on "expert opinions."

A prominent example is the International Country Risk Guide (ICRG) Index, which has been produced every year since 1982 by Political Risk Services, a private international investment risk service. The ICRG corruption index is apparently based on the opinion of the "in-house experts" and supposed to capture the extent to which "high government officials are likely to demand special payments" and to which "illegal payments are generally expected throughout lower levels of

government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessments, police protection, or loans."

(B) Corruption ratings based on surveys of firms or citizens

Two prominent examples in this category are the Global Competitiveness Report (GCR) corruption index, and the World Development Report (WDR) corruption index. Unlike the ICRG indices, the GCR Index is based on a 1996 survey of firm managers, rather than experts or consultants. Sponsored by the World Economic Forum (WEF), a Europe-based consortium with a large membership of firms, and designed by the Harvard Institute for International Development (HIID), this survey asked the responding firms about various aspects of "competitiveness" in the host countries where they invest. 2381 firms in 58 countries answered the question on corruption which asked the respondent to rate the level of corruption on a one-to-seven scale according to the extent of "irregular, additional payments connected with import and export permits, business licenses, exchange controls, tax assessments, police protection or loan applications." The GCR corruption index for a particular country is the average of all respondents' ratings for that country.

Similar to the GCR Index, the WDR index is based on a 1996 survey of firms conducted by the World Bank for its 1997 World Development Report. Every respondent was asked a long list of questions, one which is on perceived level of corruption. The question is essentially identical to the one in the GCR survey. The WDR survey covers over 70 or so countries (many of which are not in the WDR sample, and the reverse is also true). The WDR survey tend to cover more medium and small firms whereas the GCR survey had more large firms.

(C) Corruption ratings based on "a poll of polls"

The best known index in this category is the index produced annually since 1995 by Transparency International (TI), an international non-governmental organization dedicated to fight corruption worldwide. The TI corruption index is based on a weighted average of approximately ten surveys of varying coverage. It ranks countries on a one-to-ten scale.

As a survey of surveys, the TI index has its advantages and disadvantages. If the measurement errors in different surveys are independent and identically distributed (iid), the averaging process used to produce the TI index may reduce the influence of measurement errors. But the iid assumption may not hold. Moreover, since different surveys cover different subsets of countries, the averaging process may introduce new measurement errors when cross-country rankings are produced. One should also note that, as the TI indexes in different years are derived from potentially different set of surveys, they should not be used to measure changes in corruption level over time for a particular country.

Recently, Kaufmann, Kraay and Zoido-Lobaton (1999) applied an unobserved component framework to derive an aggregate indicator of governance (or corruption) that pools together the diverse array of individual perception indexes (including the ICRG, WDR and GCR indexes). This has the virtue of producing an index that has more country coverage than any single index, and is statistically better justified that the Transparency International's method.

(D) Corruption ratings based on more "objective" and "harder" data

All of the previous indexes are based on subjective judgement of the respondents. A more "objective" way to measure corruption might be to quantity fraction of business transactions in a country that involves bribery to government officials. This is inherently difficult, because very few business people in a country would have admitted to have paid bribes to domestic officials as they constitute a criminal violation in most countries (even if bribery is common). The only example that I can find is what I would label as the Neumann Index. It was based on information obtained in 1994 by Peter Neumann for a German publication, *Impulse*, from interviewing people with business experience in foreign countries, mainly German exporters. He interviewed on average ten individuals (with a minimum of three) per foreign importing country with a guarantee of strict confidentiality. The measure indicates the proportion of the transactions that involve bribe payments. These numbers are apparently rounded up to the nearest 20%. It is useful to note that the at time of the interview, it was not a crime in German for German businessmen to bribe foreign

government officials. Unfortunately, such effort was not repeated in later years.

As examples, I have reproduced the corruption ratings in Table 1 from three sources (WDR, TI and Neumann indexes) for the transition economies in Europe. Most other corruption ratings such as the GCR index have only a sparse coverage of the transition economies. [In the original WDR and TI indexes, large numbers refer to low corruption . To avoid awkwardness in interpretation, I re-scale all the indices in Table 1 so that low values imply low corruption.]

Table 1: Corruption Measures for Transition Economies in Europe

	WDR 1997	TI 1999	Neumann Index
Albania		8.7	
Azerbaijan	4.6	9.3	6
Belarus	4.2	7.6	4
Bulgaria	4.6	7.7	4
Croatia		8.3	4
Czech Republic	2.8	6.4	4
Estonia	2.2	5.3	2
Macedonia, FYR	3.1		8
Georgia	4.2	8.7	4
Hungary	2.6	5.8	6
Kazakhstan	4.3	8.7	4
Latvia	3.9	7.6	4
Lithuania	3.3	7.2	0
Moldova	4.2	8.4	
Poland	3.1	6.8	4
Romania		7.7	6
Russian Federation	3.8	8.6	8
Slovak Republic	4.1	7.3	4
Slovenia		5.0	2
Turkmenistan			4
Ukraine	3.4	8.4	4
Uzbekistan	4.4	9.2	4
Mean	3.7	7.6	4.3

It is worthwhile to keep in mind that the WDR and TI indices are based on people's perception, as opposed to objective measures of corruption. Perception can be different from reality. However, two things may be worth noting. First, for many questions such as how corruption affects foreign investment, perception -- and thus perhaps our measure -- is what actually matters. Second, despite the very different sources of the surveys, the pairwise correlations among the subjective indexes as well as with the more "objective" Neumann index are very high.

2. Consequences of Corruption: What Does the Data Say?

In this section, we review some recent studies that systematically examine the consequences of corruption on the economic development.

On domestic investment

In a regression of total investment/GDP ratio, averaged over 1980-1985, on a constant and the corruption index, the point estimate of the slope is 0.012 (Table IV, in Mauro, 1995, p696). This shows that investment and corruption are positively correlated. We can illustrate the quantitative effect of corruption by taking literally the point estimate and the corruption ratings. Unfortunately, because most transition economies are not in Mauro's sample, we have to illustrate it with countries from some other regions. If Philippines could reduce its corruption level to the Singapore level, other things being equal, it would have been able to raise its investment/GDP ratio by 6.6 percentage points (=(6.5-1)X0.012). This is quite a substantial increase in the investment.

On foreign direct investment

Using a data set of bilateral foreign direct investment in the early 1990s from fourteen major source countries to forty one host countries, Wei (1997) studied the effect of corruption on host countries' ability to attract foreign investment. He employed a modified Tobit framework (see the appendix to Wei 1997 for details) that takes into account the fact that some host countries practically

do not attract any FDI from certain source countries. Controlling for the size, level of development of the host country, the historical/linguistic linkage, geographic proximity between the source and host countries, he found evidence that corruption in host countries is negatively associated with foreign investment (the coefficients on corruption and host country tax rate are -0.09 and -1.92, respectively). Taking these point estimates at the face value, and using the corruption ratings in Table 1, one would say that a rise in corruption from the Singapore level to the India level is equivalent to raising the marginal tax rate by over twenty percentage points.

Many transition or developing countries offer substantial tax incentives to lure multinational firms to locate in their countries. For example, China offers all foreign invested firms an initial two years of tax holiday plus three subsequent years of half of the normal tax rate. This research suggests that these countries would have attracted just as much or even more foreign investment without any tax incentive if they could get domestic corruption under control.

In fact, Wei(1995) documented that, contrary to a cursory reading of the news, China is an underachiever as a host of direct investment from five major source countries (the U.S., Japan, Germany, the United Kingdom, and France), once one takes into account its size, proximity to some major source countries and other factors. Wei(1998) suggests that high corruption in China may very well have contributed to this.

A Specific Example on Transition Economies: Corruption and Foreign Investment

More recently, Smarzynska and Wei (2000) undertook a study on corruption and FDI that was specifically on the set of transition economies in Europe. A few features of the study are worth highlighting here. First, it has a relatively wide coverage of the transition economies (22 in all). Second, it utilizes a unique firm-level FDI data set based on a survey conducted in 1995 by the European Bank for Reconstruction and Development (EBRD). Firm-level studies are generally rare, for the obvious reason that the firm-level data are more difficult to assemble. Third, the paper examines two questions simultaneously. First, does corruption reduce the total volume of FDI in the transition economies? This may be labeled as a "volume effect. " Second, does corruption in Eastern Europe and former Soviet republics alters the entry mode of the multinational firms?" This may be labeled as a "composition effect."

The statistical analysis reveals a strong "volume effect": more corrupt transition economies (such as Azerbaijan or Uzbekistan) have a significantly less chance to attract foreign direct investment than less corrupt economies (such as Estonia or Czech Republic). This is true after one controls for the influence from the host country's size, labor cost, tax rate, trade openness, and other characteristics.

In addition, there is also a robust support for an intriguing "composition effect": once a

foreign firm decides to enter a transition economy, whether it forms a joint venture with a local partner or maintains full ownership control depends on the level of local corruption as well as the level of technological sophistication of the investing firm. Corruption makes a country's business transaction and the interaction between the government and the business less transparent. A local partner may help the foreign firm to acquire the local licenses and permits, or otherwise negotiate with the bureaucratic maze at a lower cost. Hence, other things equal, a foreign firm may find it more advantageous to use a local partner in a host country with a more serious corruption problem. This is confirmed in the data.

On the other hand, a foreign firm with sophisticated technology may worry about the leakage of the technology by the local partner. This could reduce the profit of the foreign firm even in a third market. In a corrupt host country, the chance declines that the foreign firm can get an adequate protection from the local court system in the event of an unlawful leakage of its technology by the local partner. Therefore, other things equal, a foreign firm with more sophisticated technology is less likely to invest in a more corrupt host country, and if it does decide to invest, is more likely to prefer the wholly-owned mode.

On economic growth

If corruption is negatively associated with domestic investment and reduces foreign investment, one would think that it would also be negatively associated with the economic growth rate. Mauro examined how the conditional growth rate (that is, the growth rate given the country's starting point and population size in a Solow-Baro style cross-country growth regression framework) is affected by corruption. He found that the data reveals just that relationship.

To illustrate the quantitative effect, let me take the point estimate in Column 6, Table VII of his paper. If Bangladesh reduced its corruption to that of Singapore level, its average annual per capita GDP growth rate over 1960-1985, would have been higher by 1.8 percentage points (=0.003x(7-1)). Assuming its actual average growth rate was 4% a year, its per capita income by 1985 could have been more than 50% higher[2]. Using an instrumental variable approach (where

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[2] $(1+ 0.018/1.04)^{25} - 1 = 0.54$. Lower assumption on its actual growth rate (say 3% a

ethno-linguistic fractionalization is the instrument for corruption), as in Column 8 in Table VII of Mauro's paper, one would get even larger effect of corruption on growth, though the result becomes borderline significant at the 15% level.

On the size and composition of government expenditure

Tanzi and Davoodi (1997) carried out a systematic study on the effect of corruption on government's public finance. There are several important findings. (A) Corruption tends to increase the size of public investment (at the expense of private investment) because many items in public expenditure lend themselves to manipulations by high level officials to get bribes. [One should note that the causality could go the other way as well. That is, more government expenditure may provide more opportunities for corruption.] (B) Corruption skews the composition of public expenditure away from needed operation and maintenance towards expenditure on new equipment (see also Klitgaard, 1990, for this point). (C) Corruption skews the composition of public expenditure away from needed health and education funds, because these expenditures, relative to other public projects, are more difficult for officials to extract rents from. (D) Corruption reduces the productivity of public investment and of a country's infrastructure. (E) Corruption may reduce tax revenue because it compromises the government's ability to collect taxes and tariffs, though the net effect depends on how the nominal tax and other regulatory burdens were chosen by corruption-prone officials (see Kaufmann and Wei, 1998).

Similarly, Mauro (1997) found that corruption tends to skew public expenditure away from health and education, presumably because they are more difficult to manipulate for bribe purposes than are other projects.

Let us illustrate some of the Tanzi-Davoodi findings by looking at the effect of a change in corruption on a variety of indicators, averaged over 1980-95. An increase in corruption from the Singapore level to Pakistan level would increase the public expenditure/GDP ratio by 1.6 percentage

year) would result in even greater improvement in 1985 per capita income from reducing its corruption level.

points (Column 2 of Tanzi-Davoodi's Table 1); and reduce government revenue/GDP ratio by 10 percentage points (Column 2 of Tanzi-Davoodi's Table 2).

An increase in corruption reduces the quality of roads, and increases incidence of power outages, telecommunication faults, and water losses. Specifically, an increase in corruption from the Singapore level to the Pakistan level would be associated with an extra 15 percent increase of roads in bad condition, after controlling for a country's level of development and its public investment to GDP ratio (Column 2 in Tanzi-Davoodi's Table 5).

On Domestic Financial System and on Propensity for Currency Crises

The financial sector is weak in many countries in the recent crisis. Might corruption be implicated? Corruption could obscure the meaning and reliability of publicly disclosed accounting numbers. Corruption can also skew the financial resources away from the most efficient resources towards less efficient, but politically better connected firms.

Using a clever data set that measures the strength of Indonesian firms' connection to Suharno and his family, Fisman (1998) showed that the stock market valuation of the politically well-connected firms tend to lose value sharply each time there was a rumor about the health problem of Suharno. This suggests that the market does not believe that the resources allocated to these firms are justified except for the abnormal returns associated with their political connection. Using the data from the 1997 GCR survey, Wei and Sievers (1999) reported a clear correlation pattern: corrupt countries are more likely to have inadequate government supervision of the financial system, and are also more likely to have vulnerable banks. Du and Wei (2000) reported evidence that more corrupt countries tend to have more volatile stock returns, more inside trading, and smaller capital markets.

Crony capitalism is also sometimes mentioned as a possible contributor to the 1997-98 emerging market currency crisis. But systematic evidence is generally lacking. As a step towards providing the evidence, Wei (2000) shows that corruption tends to influence a country's composition of capital inflows to make it more dependent on international bank loans as opposed to international direct investment. Such a composition of capital inflows makes it more vulnerable to currency crises

triggered by a sudden shift in international investors' sentiment. Thus, this is one possible channel through corruption may increase a country's propensity to run into a currency crisis. Other channels are possible. But the evidence on them awaits future research.

Why is Corruption So Taxing?

Why is corruption so damaging to economic activities relative to a revenue-equivalent tax system? The answer lies in the nature of corruption. Unlike tax, it is inherently secretive and arbitrary. The implicit contract between the briber and bribee cannot be enforced by a reliable court system. Shleifer and Vishny (1993) theorized that countries with a more disorganized corruption would be particularly inhospitable to economic growth. Wei(1997b) shows that, after holding level of corruption constant, countries with a more disorganized corruption structure – measured by the dispersion in the corruption ratings by the respondents -- receives significantly less foreign direct investment.

Discretion by officials and consequently uncertainty faced by firms and private citizens are crucial characteristics of corruption. That is why bribery in a corrupt society and fees paid to lawyers in a relatively clean society are not equivalent.

A Cautionary Note on Inferences Based on Cross-country Regressions

Most of the studies reviewed in this section are based on cross-country regressions. It is useful to stress that significant coefficients in these regression are evidence of a correlation between corruption level and other variables of interest (such as economic growth rate, investment, or composition of public expenditure). They may not necessarily imply that corruption causes them. On an *ex ante* basis, it is plausible that changes in corruption (particularly the subjective perception of corruption) can be caused by changes in income level, in investment and so on. Besides, good things tend to go together. It is possible something else causes investment and income rise, this something could be correlated with corruption even if corruption does not cause either investment or income to change. In illustrating the results from other studies, I often invoke the kind of thought

experiment such as "if we could reduce corruption from the level in Country X to that in Singapore, variable Y could have go up by Z percent." In fact, one might argue that equally plausible statement may be that "if variable Y (say income level) goes up by Z percent, then the level of corruption in Country X could reduce the Singapore level."

Some of the studies do employ instrumental variable regressions. For example, Mauro (1995) use ethno-linguistic fractionalization as an instrument for his corruption measure (this particular instrument has been followed in many subsequent studies) and shows that corruption instrumented by this variable has a negative effect on economic growth. This is one step closer to establish causality. But the validity of the causality influence depends on the validity of the instruments. For example, if one wants to be picky, one might say that ethno-linguistic fractionalization can slow down growth for reasons unrelated to corruption, e.g, through raising the possibility of ethnic conflict and civil wars. In that case, the correlation between ethno-linguistic fractionalization and growth would not be evidence that corruption causes the growth to be slower.

To establish the causality relationship involving corruption, it would be very useful to supplement cross-country regressions with some event studies in which some determinants of corruption experience a discreet change. For example, from time to time, some countries may experience "exogenous" regime changes – such as a military coup overthrowing a democratic government, or the reverse, a new democracy emerging from a previous dictatorship. If we believe that these changes should exogenously increase and decrease the extent of corruption, then, studying the growth rate, investment, or other variables of interest before and after the regime change may provide useful information on the effects of changes in corruption.

Aside from the issue on the direction of causality, one should also note that across countries, broad attributes of public governance and public institutions (for example, rule of law, strength of civil group, press freedom, education level of the civil servants and corruption) tend to be correlated. This renders isolating the effect of corruption more challenging if not infeasible.

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Does Bribery Grease the Wheels of Commerce? Additional Firm-level Evidence

The studies reviewed so far are mostly based on country-level observations and cross-country regressions (with the exception of Smarzynska and Wei, 2000). As we just noted, isolating the effects of corruption from the other attributes of public institutions and determining the direction of causality are difficult in cross-country regressions.

While the previous evidence has clearly showed that domestic investment, foreign investment and economic growth are lower in more corrupt countries, one sometimes still hears a version of "virtuous bribery" story. In particular, some say that bribes often work as "grease" that can speed of wheels of commerce. In a country that is rife with bad and heavy regulations, the opportunity to offer bribes to circumvent bad government control is like deregulation, and hence can be good.

Kaufmann and Wei (1999) argue that this view is true only in a very narrow sense when the bad regulation and official harassment are taken as exogenous. Officials often have lots of leeway to customize the type and amount of harassment on individuals firms. Tax inspectors may have room to over-report taxable income (see Hindriks, Keen and Muthoo, 1998). Fire inspectors can decide how frequently they need to come back to check fire safety in a given year. Taking account of these, Kaufman and Wei built a simple model in which bureaucrats set up red tape and bureaucratic obstacles in order to extract bribery and stop only when firms start to exit (by not investing or by fleeing to foreign countries). Furthermore, the outside options of the firms differ either because of the characteristics of their industry or type of the investors (foreign versus domestic). In this case, they show that bribery across firms are not only positively correlated with the nominal red tape on the book, but can be positively correlated with the effective red tape (e.g., the length of wasted time in securing a permit after having paid a bribery). It is not that paying bribery causes red tape to go up, rather, the size of bribery and the red tape are simultaneously determined by the same set of firm characteristics.

Using data on a survey of nearly 2400 firms in 58 countries, Kaufmann and Wei show that, even within a country, managers of the firms that pay more bribes on average waste more, rather than less, time negotiating with government officials. This evidence supports the idea of "tailored

harassment" and "endogenous obstacles," and thus rejects the hypothesis of beneficial "grease." It is useful to stress that the evidence does not suggest that individual firms can do better by not bribing. They cannot given the environment. However, all firms collectively can do better if there is something that can exogenously constrain all firms' ability to bribe. For example, the OECD convention on combating bribery in international transactions that went into effect in February, 1999, could not only reduce bribery, it may well help to reduce bureaucracy as well in equilibrium.

One problem with the Kaufmann and Wei study is that the observations on bribery are "inferred" from survey respondents answers on their perceived corruption level. Svesson (1999) extends this research in a significant way by utilizing a direct firm-level measure of bribery in Uganda. He showed that bribes are positively related to the firms' profitability (which can be instrumented by industry and location dummies) and negatively related to a measure of investment irreversibility. Both findings are consistent with the hypothesis that harassment and bribery demand are related to firms' underlying characteristics, and rejects the "efficient grease" hypothesis.

Using the same Uganda firm-level observations, Fisman and Svensson (1999) revisited the question posed in Wei (1997a and 1997b). They found that an increase in the bribery rate is associated with a reduction in the firm's growth rate about three times as large as an equivalent increase in tax.

4. Corruption Control: What Can Be Done?

Because corruption is a crime in most countries' penal codes, it is common to emphasize the role of law enforcement in the fight against corruption. While there is no question that law and law enforcement are important, we should note that it is at least as important to look into the root causes of corruption, the institutional environment and the incentive structure under which corruption thrives.

Several important theoretic works (e.g., Rose-Ackerman, 1978; Tanzi, 1998; etc) have pointed out factors that affect a country's level of corruption. I will first review these factors from

the theoretical viewpoints and summarize recent empirical attempts at testing and quantifying the roles of these factors.

A. Opportunities induced by Government's Role in the Economy

While we want to recruit moral people to be government officials, economists are never tired of pointing out the importance of minimizing the institutionalized opportunity for officials to take bribes. The more discretion government officials have over the operation of business or lives of citizenry, the more likely corruption would occur and flourish, other things being equal. Labyrinthine government regulations create fertile grounds for government officials to extract rents, whereas an economy where government's role is minimal is less likely to breed corruption.

This point is almost elementary. If it requires obtaining a license and paying a tariff before a firm can import certain goods from abroad, then officials deciding who gets a license and granting tariff exemptions have the opportunity to extract bribe payments. If no license or tariff is needed, no firm would pay bribes before importing.

Tanzi's excellent survey (1998) offers a number of concrete descriptions of where opportunity for corruption may arise as a result of government (over-)regulation. For example, in the taxation area, he pointed out that the more difficult it is to understand the laws, the more likely there is corruption; the more discretion given to tax administrators over the granting of tax incentives, determining tax liabilities, and selecting audits and litigations, the more likely there is corruption.

Similarly, the size of government spending and the procedure used in allocating the expenditure also significantly affects the opportunity for corruption. Also, if a government is involved in providing certain goods and services at subsidized prices, say foreign exchange, credit, public housing, educational opportunities, or water and electricity, then officials with the duty to to decide also have the opportunity to pocket a fraction of the implicit subsidy (e.g. the difference between the market value of the goods or services and the price the government is asking), in the form of bribes extracted from the recipient of the subsidized goods or services. In the papers both by Mauro (1995) and by Kaufmann and Wei (1998), it is shown that the corruption index and the index

of government regulation is positively correlated.

Among the transition economies in Europe, some have been pursuing a more active industrial policies than others. Industrial policies by their very nature involve discretion on the part of government officials, in terms of which industry to support, which firms within a industry to support, how to allocate subsidized loans, grants, tariff rebates, and so on. Ades and Di Tella (1997) argue that, logically, industrial policies can promote corruption as well as investment. Using data on indices of corruption and industrial policy across a number of countries, they then show that corruption is indeed higher in countries with more active industrial policy. The negative effect of corruption induced by the industrial policy seems large (probably on the order of 56% to 84% of the direct beneficial effect), and therefore should not be neglected in any cost-benefit analysis of industrial policies.

Gatti (1999) reaffirms that more open economies tend to have lower corruption. Furthermore, she shows that while the share of imports in GDP is not a significant explanatory variable for corruption (controlling for other variables including population), average tariff is. She interprets this as evidence that the direct policy distortion rather than the absence of foreign competition is more important in inducing corruption. One question that needs further research is whether high tariffs are erected for the purpose of extracting bribes (rather than the exogenous causes of corruption). The models in Kaufmann and Wei (1999) and Svesson (1999) suggest that this is possible.

Svensson (1998) reported evidence that some countries that receive generous foreign aid (which is determined by geopolitical reasons) tend to see their level of corruption rising. As a consequence, the economic lot of the people in these countries may not be made better off (and can be made worse-off).

Based on information on transition economies in Europe, a recent paper by Abed and Davoodi (2000) suggests that the cross-country variation in the level of corruption among the transition economies is best explained by an index of the depth of structural reform – a composite of privatization, price and financial sector liberalization and competition policies.

Before leaving this subsection, it should be pointed out that, while less discretion by government officials reduces the scope for corruption, we are not advocating abolishing all the regulations. Many regulations and even bureaucratic discretion serve useful functions in the society. The point is that we should be mindful of the implications for corruption when designing government regulations.

B. Civil servant recruitment and promotion system

The moral character and quality of government officials are certainly another very important determinant of the extent of corruption in a country. The quality of the bureaucrats, in turn, is highly related to how they are recruited and promoted. In a country where nepotism and patronage are rampant, or government posts are sold explicitly or implicitly, bureaucrats will be less competent and less well-motivated because success depends on advantages gained by connection or bribing superiors rather than merit, and will be very vulnerable to corruption. The German sociologist Max Weber (1947) made this point amply clear.

Rauch and Evans (1997) composed indices of degree of meritocratic recruitment and promotion for civil servants in 35 countries (as well as their average wages relative to private sector alternatives). They then show that the cross-country ratings a la the International Country Risk Guide are statistically significantly related to the way civil servants are recruited and promoted. Meritocratic recruitment is most important for reducing corruption, followed by meritocratic promotion and security of employment.

C. Compensation for Civil Servants

It has been long recognized that it is naive to give people power, pay them a pitiful wage, and expect them not to use their power for personal gains. Because of this realization, Singapore, starting in the 1960s under the leadership of then Prime Minister Lee Kuan Yew, and Hong Kong, starting in the late 1970s, began to pay their civil servants well, sometimes above their best alternative in the private sector. For example, it is often noted, fondly or not, that the Singapore's

cabinet ministers' salaries are pegged to those of the CEOs in the largest multinational firms in the world. The Singapore Prime Minister's pay is several times that of the United States President. Many scholars (and the governments in Singapore and Hong Kong) contend that this wage policy is in an important way responsible for the very low corruption levels in these two economies. [Singapore is often rated as one of the least corrupt countries in many surveys.]

The view that high salaries to civil servants help to deter corruption is certainly not restricted to Asia. For example, according to Tanzi (1998), Assar Lindbeck (1998) attributes the low corruption in Sweden during the 1870-1970 period partly to the fact that high-level government administrators earned 12-15 times the salary of an average industrial worker.

Systematic and statistical examination of the evidence on the connection between corruption and public sector wage is a relatively recent undertaking. In a cross-country regression study cited above, Rauch and Evans (1997) did not find robust support for the role of high salaries. But the World Bank's World Development Report 1997 and the working paper by Van Rijckeghem and Weder (1997) do report evidence that countries with poorly paid public officials tend towards higher corruption.

What is important here is not the absolute level of civil servants' wages, but their values relative to the best private sector alternatives. In Van Rijckeghem and Weder's paper, given the constraint of data availability, they take the average civil servant pay relative to average manufacturing sector wage, as their measure of officials' incentive to resist corruption.

One should note that the true private sector alternatives for senior government officials with comparable skills and responsibilities are likely paid a lot more than the average wage in the manufacturing sector. But the manufacturing sector wage is the only wage data available on a consistent cross-country basis. Hence there is potential measurement error on the denominator. On the numerator, one should note that only civil servants wage data were found by the authors. In many countries, fringe benefits of the civil servants (e.g., free housing, maids, and expense accounts) can be large relative to official salaries. So there can be measurement errors on the numerator as well. The assumption in the study is that, across countries, the manufacturing wage and the salaries of the private sector alternative of government officials are highly positively

correlated. Furthermore, the fringe benefits plus official wages are highly correlated with the civil servants' official wages.

Using a regression technique, they found a negative and statistically significant correlation between public sector's relative wages and the extent of corruption involving government officials. Based on their point estimates, one can calculate, for each country in their sample, the ratio of public to private sector wages that is needed in order to reduce the corruption to Singapore level, which has the lowest corruption grade (this is called "warranted relative wage" below). Unfortunately, since their sample does not cover the transition economies in Europe, we cannot report the results with these economies as examples. Nonetheless, it maybe instructive to reproduce the part of their Table 6 below that reports the actual versus the warranted relative wages for a few countries that are in their sample. Like all other projections in this paper, the numbers below are meant to be illustrative and not to be taken literally.

Table 2: How Much Increase in Civil Servants' Legal Pay Is Needed if one takes Van Rijckeghem - Weder (1997) calculation literally?

Country	Public Sector relative to Manufacturing Sector Wage		
	Actual	Calibrated ratio to reduce corruption to Singapore level	
	(1)	(2)	(3) Needed increase in Public Sector's Legal Pay by taking van Rijckeghem-Weder literally
Singapore	3.49	3.49	0%
Hong Kong	1.79	2.85	59%
Korea	1.91	7.08	271%
India	1.09	5.40	395%
Kenya	0.90	5.36	496%
Sri Lanka	0.85	5.07	496%
Turkey	0.92	5.38	498%
Colombia	0.64	4.87	660%
Mexico	0.50	5.04	908%
Ghana	0.63	6.77	975%

Source: The first two columns are from Table 6 in Van Rijckeghem and Weder (1997). Column (3) is author's calculation based on the first two columns.

A few things are particularly worth noting from the table. First, to really eradicate corruption (or to reduce it to the Singapore level), one needs to raise the public sector's pay by a substantial margin (sometimes by 500% or even 900%). Second, we do not know for sure if the warranted salary increase should raise the pay to the government officials above their private sector alternatives[3]. If they do, there is a serious equity issue even if these governments have the money (or have the ability to transform most of the currently illegal bribes to the incremental taxes needed to raise the civil servants' legal pay). Third, if civil servants are paid a higher salary than their private sector alternatives, many people may pay a bribe to be chosen for these public jobs. So the high pay

[3] One should note that the true private sector alternatives for senior government officials with comparable skills and responsibilities are likely paid a lot more than the average wage in the manufacturing sector. But the manufacturing sector wage is the only wage data available on a consistent cross-country basis. The assumption in the study is that, across countries, the manufacturing wage and the salaries of the private sector alternative of government officials are highly positively correlated.

policy itself may create new type of corruption. Forth, extortion and bribe-taking practices could have become part of the bureaucrats' work culture and habit, so that increased legal pay may not do much to reduce corruption, at least initially.

Fortunately, one need not draw such a pessimistic conclusion from this exercise if one realizes that the public sector wage is but one of the elements in a successful anti-corruption campaign. We now turn to another important component below.

D. Decentralization, Legal system, "watch-dog" organization, "hot-line," client surveys, free press and democracy.

In any fight against corruption, the ability for a country to detect acts of corruption and to prosecute those guilty of committing them is essential to deter corruption.

There are several channels through which detection and punishment capacity is realized. Let me mention seven of them here: (A) An independent and impartial judicial system, (B) an official anti-corruption agency such as Hong Kong's Independent Commission Against Corruption (ICAC)[4], (C) existence of grassroots "watchdog" organizations, (D) a telephone "hot line" as those in the United Kingdom and Mexico that allow citizens to complain directly to the government, (E) public opinion surveys such as those carried out by Public Affairs Center in Banglore, India or by the World Bank's Economic Development Institute in other countries that register the public's attitude, particularly those of the poor, towards corruption, (F) freedom of the press to bring to light any official corruption, and finally (G) democracy that serves the dual purpose of throwing corrupt officials out of power by the populace and protecting those individuals and organizations that dare to expose corrupt officials. All of these channels are potentially important. There are some case studies and much anecdotal evidence that demonstrate both effectiveness in specific countries and time periods, and suggestions on how to implement them[5]. It seems possible that the extra revenue

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[4] See Quah (1989 and 1993) for a discussion of Hong Kong and Singapore's anti-corruption measures along this and other lines.

[5] For example, see the cases presented at the Ninth International Anti-Corruption

collected by the government as a result of the actions of the various anti-corruption bodies can exceed the cost of these bodies.

While the intuition for the importance of these channels seems straightforward, so far there is very little systematic statistical analysis of their relative importance for a broad sample of countries. Such will be a very fruitful future research topic.

One of the questions that has received some attention from statistical research is on the relationship between decentralization (more powers devolving from the central government to local governments) and corruption. In terms of logic, decentralization could reduce corruption if it can help to increase the accountability of the action of the government. However, it could also increase corruption if the propensity and the scope to engage in rent-seeking are greater at the local level than at the central level. While the theoretical prediction is ambiguous, Fisman and Gatti (1999) found that across countries, countries with a higher degree of fiscal decentralization (a larger share of total government expenditure by local governments) tend to be those that have a lower level of perceived corruption. This is the first regression study on this question, so it is very valuable. Of course, central-local government relationship may be well-captured conceptually by the expenditure shares. So this paper is not likely to be the last work on the question.

E. International Pressure

There are two kinds of international pressure that can be brought to bear on the corruption problem. First, international organizations such as the United Nations Development Program, the World Bank, the International Monetary Fund, the EBRD, and the like, can provide persistent moral persuasion as well as technical assistance[6] to induce or help countries in their fight against

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Conference in Lima, Peru, in September, 1997.

[6] Proper procurement guidelines are an example of this.

corruption. Various conferences on good governance and corruption organized by the UNDP, the World Bank and so on are useful. Cutting off loans or threatening to cut off loans by the IMF or World Bank on the ground of corruption in recipient countries may be even more effective on the margin in some cases.

The second channel is concerted international effort to criminalize the offering of bribes by multinational firms to host countries' officials. So far, the United States has been the only major source country of international direct investment that has an enforced law -- The Foreign Corrupt Practices Act (FCPA) of 1977 -- that prohibits its companies from bribing foreign officials. For most other major source countries in the OECD, not only it is not illegal to bribe foreign officials, it is, up until very recently, tax-deductible[7]. The U.S. law has not been very effective in reducing corruption in foreign countries, mainly because companies from other countries are too eager to pick up the business that the U.S. firms miss due to the law[8]. Corruption-prone foreign officials do not feel enough pressure to change their behavior even if they are genuinely interested in attracting foreign investment into their countries. An international treaty that bans foreign corruption can strengthen the collective ability of all major multinational firms not to pay bribes. They are more likely resist demand of bribes if they can be confident that they will not lose business to their competitors as a result.

It should be pointed out that we should not have any romantic hope on the degree of effectiveness of international pressure. First, the mandates of almost all international governmental organizations place some limits on how much anti-corruption objective can be pursued in the organizations' activities. If the World Bank were to suspend lending to countries with severe

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[7] Britain has a 1906 law that can be interpreted as prohibiting its firms from bribing foreign officials. But it is essentially not enforced.

[8] Hines (1995) found that the U.S. firms do invest less in more corrupt countries. Wei (1997a) found that U.S. firms are not very different from those from other OECD source countries in this regard, and hence U.S. firms' behavior may not be attributable to the FCPA. A Wall Street Journal article (September 29, 1995), "Greasing Wheels: How U.S. Concerns Compete in Countries where Bribes Flourish?" suggests that some firms may indeed evade the requirement of the law.

corruption ratings according to the Transparency International, it would have to stop half or more of its loans. That is not realistic as it would contradict its other very important objectives and possibly the survival tendencies of the organizations.

Second, and more importantly, domestic efforts and domestic institutions ultimately determine the success of any anti-corruption program. If government officials do not intend to seriously reduce corruption, they would simply not request a loan if the international organization requires corruption reduction as a prerequisite.

So while the international pressure is useful and should be applied whenever and wherever possible, it should be regarded as supplemental to other domestically-based reforms.

F. Political Economy Considerations and "Special Governance Zones"

It is observed that following a price liberalization or exchange rate stabilization in a developing country, the finance minister or the prime minister often has to leave the office involuntarily. So economically efficient reforms can be politically risky for individual political leaders. Similarly, comprehensive reforms that are necessary to reduce corruption can also be politically risky. In addition, anti-corruption reform can be expansive as we discussed in Point C in this section. Finally, even if we are sure that we know why corruption is low in Singapore and Sweden (which is a big if), it is quite a separate story to convince a corrupt country like Kenya or India to do what Singapore or Sweden is doing in their country. Local culture, history and institutions could matter. A combination of these considerations often results in political inaction.

Are there reform proposals that can deal with these kinds of political economy considerations better than the usual comprehensive national reform program? A "special governance zone" (SGZ) suggested by Wei (1999a) is one possibility. An SGZ is an enclave within a country within which a comprehensive set of reforms can be undertaken ahead of the rest of the country. An SGZ is small enough that the perceived political risk would be smaller than a national reform. It is small enough that a given amount of financial resources can make a bigger difference (for example, it is now possibly to raise the civil servants' salary all the way to the appropriate level). And it is explicitly an

experiment: a "blueprint" based on international experience can be fine-tuned to fit local conditions. The initial success in an SGZ not only provides a model for the rest of the country, it indeed can put pressure on political leaders in other regions to imitate effective measures in reducing corruption. Because comprehensive reforms can be done within an SGZ, it has some distinctive advantages over an alternative partial reform proposal that focuses on a particular function of the government operation (e.g. tariff collection).

6. Concluding remarks

While one may think of examples in which some firms/people are made better off either by paying a bribe or the opportunity to pay a bribe, the evidence surveyed here suggests that the overall effect of corruption on economic development is strongly negative. Systematic research conducted recently find that corruption is negatively related with a number of "desirable items" (such as income level). There are several channels through which corruption hinders economic development. They include reduced domestic investment, reduced foreign direct investment, overblown government expenditure, distorted composition of government expenditure away from education, health, and the maintenance of infrastructure, towards less efficient but more manipulatable public projects. Again, much of the evidence is based on cross-national regressions. As such, reverse causality or correlation with a common third factor is a real possibility. Instrumental variable regressions would help, but only when one finds the valid instruments.

The fight against corruption has to be multi-fronted. While laws and law enforcement are indispensable, countries serious about fighting corruption should also pay attention to reforming the role of government in the economy, particularly those areas that give officials discretionary power which are hot beds for corruption. Recruiting and promoting civil servants on a merit basis, and paying them a salary competitive to private sector alternatives help to attract high quality, moral civil servants. International pressure on corrupt countries, including criminalizing bribing foreign officials by multinational firms, is useful. But the success of any anti-corruption campaign ultimately depends on the reform of domestic institutions in currently corrupt countries.

Political economy considerations are important for a successful entry strategy. A special governance zone within a country may help to reduce perceived political risk, make it financially more affordable, and allow more scope for local adaptation. In other words, it allows the political leaders to get away from the narrow choice between embarking on a risky nationwide reform and doing nothing. So it helps to enhance the chance of an initial success that can generate momentum for a further reform.

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