Understanding the Spread of Systemic Corruption in the Third World

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ABSTRACT:

The traditional approach to modeling corruption in the social sciences has been to see it as a classic principal-agent problem. While excellent for analyzing individual actions, the principal-agent approach cannot explain the spread of corruption when society is characterized by a norm of 'non-arm's-length' dealings, or how a superior's corruption affects subordinates' behavior, i.e., it cannot incorporate social interactions. This paper presents a threshold model of corruption that shows how, in economies characterized by relatively under-developed formal institutional checks and balances, 'non-arm's-length' dealings and leadership corruption can rapidly lead to systemic corruption. The model accommodates the differences seen in corruption levels in the Third World. Also addressed are some implications of this model for reforming systemically corrupt countries. The model can be readily adapted to other situations where the attitudes and inclinations of the leadership are important in determining the final outcome.

I. INTRODUCTION TO THE PROBLEM

All models are wrong but some are useful (George Box)

The case of Nigeria underlines the importance of corruption as a key explanatory factor in understanding why some Third World countries have failed to achieve any appreciable measure of socio-economic development. The world's eighth largest oil exporter earned over $56 billion from oil exports in 2006 (Energy Information Administration 2007, 4 & 9) but has one of the world's poorest track records on delivering development to its people: ranking only 158th out of 177 countries in the 2007-2-08 United Nations Development Program's Human Development Report (UNDP). Transparency International's 2007 Corruption Perception Index put Nigeria as only the 147th (out of 179) most honest country (i.e., tying for the 9th most corrupt) in the world.[2]

Can corruption be blamed for underdevelopment? How crippling to the nation is systemic corruption? Fagbadebo (2007, 35) concludes his study of governance in Nigeria by stating outright that, "A failed, corrupt and inept leadership… have plunged

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[2] See the UNDP HDI website, http://hdr.undp.org/en/statistics/, for more details on the Index and how it is calculated. See the Transparency International website, http://www.icgg.org/corruption.index.html, for more details on the corruption perception index and how it is constructed.

development performance in Nigeria into the abyss." In 2005 the Nigerian National Planning Commission, the apex government economic planning and coordination body, "identified systemic corruption… as the major source of development failure" (Fagbadebo 2007, 29) and one major USAID/World Bank survey indicated that 64% of respondents had personally witnessed corrupt acts carried out by public officials (Apampa 2005, 241).

While Nigeria has not yet collapsed, Zaire (now renamed Democratic Republic of the Congo) did in 1997. The extent of systemic corruption in Zaire was almost unimaginable: one estimate from the 1970s put the amount of the annual government operating budget that was "lost or diverted" under the rule of Mobutu Sese Seko, for thirty-two years the strongman of Zaire, at 60 percent (Callaghy 1984, 189). Zaire under Mobutu was the exemplar par excellence of what Stanislav Andreski termed "kleptocracy," to differentiate it from simple corruption, which is merely "the practice of using the power of office for making private gains in breach of laws and regulations nominally in force" (Andreski 1968, 92, emphasis added).

The current academic consensus is that high levels of corruption reduce both economic growth and overall social welfare: systemic corruption is seen as an obstacle to overall economic and social development (Rajkumar and Swaroop 2008; Bose *et al* 2008; Lambsdorff 2003; Mo 2001; Wei 2001, 2000; Andreski 1968; among many others). As such, both the World Bank and the International Monetary Fund, among other international aid donors, are continuing their earlier efforts to combat it.

This is in contrast to the earlier academic views of corruption being either relatively harmless (Leys, [1965] 2002) or possibly even beneficial if it helps to overcome structural bottlenecks in the economy (Huntington 1979[3], 1968; Nye, [1967] 2002; Leff, [1964] 2002).[4] Part of the reason for the change in how corruption was viewed could be due to the realization of how easily petty corruption could reach systemic levels as the institutional structure decays over time (see, e.g., Shleifer and Vishny 1993), and how many bureaucrats deliberately increased the level of regulation complexity in order to increase their level of bribes (Guriev 2004; Kaufman and Wei 2000).

While now recognizing the negative effects of corruption, the literature lacks a clear model of a mechanism by which a government *becomes* systemically corrupt, i.e., of how it may go from being relatively honest to a predatory state that preys on its citizenry. The objective of this paper is to develop a simple and intuitively obvious threshold model that, building upon the behavioral insights of the traditional Principal-Agent model, incorporates both the asymmetric demonstration effect of a superior's corruption and of how a systemically corrupt system of government can come about as the result of a change in societal norms: from favoring arm's-length transactions to ones that allow non-arm's length transactions (a requirement for corruption). In addition, some implications of the model regarding the potential outcomes of reform efforts will also be considered.

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[3] The most succinct pro-corruption argument is Huntington's (1979, 321): "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, honest bureaucracy."

[4] Andreski (1968) is an early exception to this, but these authors were referring to petty and not to systemic corruption. Bucking current research, Olsen and Torsvik (1998) argue that, under very specific circumstances, individual acts of corruption can lead to overall societal gain.

II. THE BASIC PRINCIPAL AGENT MODEL OF CORRUPTION

Why do bureaucrats and politicians become corrupt and act in any of the myriad ways that fall under the catch-all rubric of corruption? As Becker's (1968) seminal work showed, choosing corruption over honesty is the optimal choice for a rational utility-maximizer if the benefits from being corrupt outweigh those from staying honest.

Following Becker (1968), "the standard institutional context is a two-person hierarchy consisting of a principal and an agent" (Bac 1996, 277) where the politician or government bureaucrat is faced with the choice of either behaving in a corrupt manner or staying honest, i.e., a classic principal-agent (PA) problem (see, e.g., Blackburn, Bose and Haque 2006; Guriev 2004; Mookherjee and Png 1995; Huang and Wu 1994; Basu *et al* 1992; Klitgaard 1988; Rose-Ackerman 1999, 1978; and many others).

The PA approach has a principal (the supervisor) employing an agent (the subordinate) to carry out some assigned task. Asymmetric information on the principal's part means that she does not know whether or not the agent will perform the task in a non-corrupt manner or succumb to the moral hazard of behaving corruptly. The possibility of corruption may also lead to an adverse selection problem as corrupt agents apply for the government post, as well as a moral hazard one if agents realize that their corruption may not detectable or punishable. Accordingly, the principal may employ secondary agents to monitor the first agent's work (e.g., external auditors such as the US General Accounting Office), but these may also turn out to be unreliable. So, the process of hiring workers to monitor other workers can go on, in theory at least, indefinitely. A possible solution this problem is to give the external monitors an incentive contract to promote continued diligence, with severe penalty clauses in case of collusion with corrupt agents. However, this does not really solve the recursive failure problem since collusion between the corrupt agents and the external monitors is always possible (Bac and Bag 2006, Mishra 2006, Besley and McLaren 1993, Basu *et al* 1992, Lui 1986, and many others). Most attempts at analyzing corruption using the PA model assume a uniform attitude to corruption in order to keep the model tractable (e.g., Bac and Bag 2006, Mookherjee and Png 1996). Other authors (e.g., Mocan 2008, Treisman 2000, Besley and McLaren 1993) realize the excessive oversimplification of this assumption and acknowledge both the presence of honest individuals in corrupt environments and that essentially similar payoffs and probabilities may produce very different results.

From the agent's perspective, the PA model gives a very straightforward analysis of the decision facing her: the individual weighs the benefit from corruption against the (net) benefit if she is caught. Klitgaard (1988, 71) puts a slight twist in this standard model by incorporating "the moral satisfaction [the individual] takes from not being corrupt" into the individual's utility calculations. The inclusion of a moral element in the EU function is a notable refinement since individual utility in this context has at least two distinct components: material and moral benefits.

Thus differences in how strongly moral beliefs are held affect the level of disutility (cognitive dissonance) from contravening them. So, corruption proclivity will be distributed across the spectrum from 0 (completely corrupt) to 1 (completely honest); there will be some individuals who will be always corrupt and some who will be

absolutely incorruptible. Hence, the observation of both Ostrom *et al* (1993, 148) and Klitgaard (1988, 52-55) that there do exist honest officials in systemically corrupt organizations.

The inclusion of moral benefits into corruption analysis is an important refinement since a major limitation of the standard PA model is that, although probabilities and payoffs may be the same, different individuals do not necessarily behave in the identical manner predicted by the PA model: one greedily accepts the bribe but the other refuses. How and why different levels of morality come about is, obviously, a topic far beyond the scope of this analysis.

Klitgaard's (1988) model of expected utility from being corrupt can be modified, the notation made slightly simpler, and the moral element included, as follows:

$$EU^C = pB^C + (1-p)B^P - M^C \qquad (1)$$

$$\text{Honesty payoff} = B^H + M^H \qquad (2)$$
$$\text{and } B^C > B^P \text{ and } M^C < M^H.$$

EU^C is the expected utility from corruption,
p is the probability of not being caught and punished (including the probability that if caught, he can bribe his way out of punishment),[5]
B^C is the material utility if corrupt when C is the payoff from corruption,
B^P is the net material utility if caught and punished when P is the punishment,
M^C is the moral cost of corruption,
$M^{C=0} = M^H$, the moral benefit from honesty, which decreases in C,
B^H is the material utility from honesty when H is the honesty payoff (i.e., wages).

The model assumes that there is a positive moral benefit to not taking a bribe and it decreases with the size of the bribe. Furthermore, C = 0 means that the individual is acting honestly, not that he is acting corruptly without accepting a payoff.

The individual will choose corruption if his expected utility from corruption (after accounting for a guilty conscience) is greater than his utility from honesty (after augmenting it for the moral satisfaction from not being corrupt). Assuming that all payoffs are held constant, *ceteris paribus*, changes in p, the probability of detection and punishment will determine whether the individual will act corruptly.[6] This is because, at the margin, the individual is indifferent between honesty and corruption, i.e., the total utility from honesty equals that from corruption, when:

$$B^H + M^H = pB^C + (1-p)B^P - M^C \qquad (3)$$

Solving for p^*, the value of p that equates both sides of the equation, gives us:

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[5] The value of p is determined by the overall level of societal corruption, as proxied by the proportion of corrupt individuals (see Lui 1986).

[6] Contrary to conventional wisdom that low civil service wages spur corruption therein, Van Rijckeghem and Weder (2001) find that low wages are not a major source of corruption *per se* since a near-eradication of corruption in their sample countries would require an *average* civil service wage of between 2.81 to 7.08 times the average manufacturing wage.

$$p^* = \frac{B^H + M^H - B^P + M^C}{B^C - B^P} \qquad (4)$$

This value, p^*, is the individual's corruption threshold. The p^* value is very important as it allows the analysis to move beyond the confines of the PA model while still utilizing the model's key insights into individual behavior. *Ceteris paribus*, a decrease in p will make the individual *behave* in a more 'honest' fashion and vice-versa, while an increase in p^* means that the individual has *become* more honest and vice-versa.

III. MOVING BEYOND THE PA MODEL

The PA model of corruption, extremely useful in looking at environments where most corruption is of the isolated kind, has shortcomings that reduce its explanatory power when it comes to corruption in Third World economies. It lends insight into the actions of any given actor but it cannot show – since it was never meant to – how corruption spreads or how the actions of one individual (e.g., a superior) affect the actions of others (e.g., subordinates).[7] Rose-Ackerman (1978, 1999) and Klitgaard (1988) have extensive discussion of the effects of a supervisor's corruption proclivities on the behavior of subordinates but do not incorporate threshold effects in their analysis, and Basu *et al* (1992) acknowledges that incorruptible superiors will keep the government honest. Some PA models do incorporate greater degrees of institutional refinement and realism than others: e.g, recursive corruption with corruptible law enforcers (e.g., Guriev 2004; Basu *et al* 1992), and group reputation impacting new members (Tirole 1996). What is lacking is a model of how a superior's corrupt behavior affects that of the whole organization and of how the behavior of individual agents changes over time.

Why is leadership behavior important? In the real world, *who* is corrupt will affect the decision of others as to whether they will opt for honesty or not. Assume, for the sake of argument, that 10% of the population is corrupt. If this is the bottom 10% in terms of power and influence in society, then this corrupt element will not significantly influence large proportions of society since this is not the relevant reference group for them. However, if this is the top 10% of the population in terms of power and influence and they are seen to escape punishment, this will obviously affect a much large portion of society since many people will use the top 10% as their reference group. The inability to accommodate this type of asymmetrical demonstration effect is a weakness of the PA model; from its perspective, marginal variations in the probability of being caught give only marginal variations in outcome.

In a different context, the dynamics of revolutions, Kuran (1989, 46) shows the importance of an *asymmetric demonstration effect* on individuals and how this can change the situation drastically. Similarly, even if individuals are personally disinclined either to be corrupt or, *ceteris paribus*, to facilitate corrupt behavior in others, they may well be forced to act corruptly by dishonest superiors, or risk reprisals. It is also possible

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[7] The absence of social linkages in the standard PA model led Tanzi (1995, 167) to assert that the Beckerian model is "of limited applicability" to much of the Third World. While probably too strong a statement, it does bring up the crucial weakness of these type of models.

that after being forced to act corruptly on the behalf of others, the hitherto uncorrupt individual may decide to act corruptly on his own behalf.

What we need is a model that offers some understanding of how systemic corruption occurs within a society. The level of corruption within a society is usually endogenous to it and thus a model that helps in better understanding this process is needed. Observers of Third World societies will attest to the fact that the situation *vis-a-vis* corruption can change for the worse in the space of a few years. For instance, Burki (1999), Theobald (1990) and Klitgaard (1988) detail how rapidly, within a generation, systemic corruption replaced isolated corruption in Pakistan, the Phillippines and Nigeria.

There are two possible time paths for a transition to systemic corruption: relatively rapid and comparatively slow. A rapid transformation of the societal norm from isolated corruption to systemic corruption requires corrupt leadership (i.e., top down corruption) while a comparatively slow transition requires a transformation of existing societal norms and institutions.

IV. THE THRESHOLD CORRUPTION MODEL

A heuristically richer model can be built by allowing the criteria for choosing corruption or honesty to be endogenous to that society: interactions among individuals determine the societal corruption level by affecting actor's corruption threshold and so affecting the societal norms. Each individual's p^*, the threshold value of p at which they are indifferent between honesty or corruption, can be determined from the standard PA model and arranged in ascending order. We know that (1) every individual has a threshold and (2) that they are distributed across the range 0-1. This allows the use of this important insight about threshold probability gained from the principal-agent model and endogenizes the incentives faced by each individual actor. Once this is done, a more realistic model of corruption, one that incorporates the importance of social linkages, can be developed.

Threshold models, also known as bandwagon-effect models, critical-mass models, tipping models, and cascade models, have a long history in the social sciences. Granovetter's (1978, 1973) and Schelling's (1978) works are classics in this area and, arguably, the inspiration for an entire generation of models that show how seemingly "minor" factors can result in "major" results.[8]

While there have been many adaptations of a threshold model to corruption (e.g., to give only a few more recent citations, Bose *et al* 2008; Mishra 2006; Blackburn *et al*

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[8] In a different context, that of the consumption of goods usually considered taboo by society, Leibenstein (1950, 196-199), drawing upon the insights offered by the Old Institutional Economics school on the social construction of market demand for goods, makes what is essentially an information asymmetry argument (his term is ''accurate expectations'') in arguing that public consumption of 'taboo' goods would not be zero but a significant positive value if all potential consumers knew the preferences of all other potential consumers. Leibenstein argues that, when/if expectations become accurate (actual demand becomes accurately known), there may be a sudden increase in demand due to a strength-in-numbers effects. That is, knowing how many of them want the hitherto "taboo" good X, some very large quantity of the good will be demanded at a price where up till now there had been none. Neither Granovetter (1978, 1973) nor Schelling (1978) use threshold analysis similar to Leibenstein's in their work but the similarities to systemic corruption are obvious even if the mechanism is quite different: when the true (high) extent of societal corruption proclivities becomes known, a bandwagon transition to systemic corruption may take place. I am grateful to an anonymous referee for drawing my attention to the Old Institutional Economics origins of some of the more recent work in threshold models.

2006; Blanchard *et al* 2005), very few of them attempt to explicitly model the impact of a superior's decision to act corruptly on a subordinate. The attitudes of a society's leadership are extremely influential in determining the behavior of subordinates, particularly with regards to corruption (see, e.g., Ahforth and Anand 2003; Rose-Ackerman 1999 and 1978; Basu *et al* 1992; and Klitgaard 1988). The importance of this is summed up by Ashforth and Anand (2003, 7) who argue that leaders who are "rewarding, condoning, ignoring, or otherwise facilitating corruption… often send a clear signal to employees."

The threshold corruption model expands upon Kuran's path-breaking work (1989, 1991, 1995) on explaining unexpected revolutions such as the collapse of Communism in Eastern Europe by adapting and extending some of his analytical framework to corruption. In general, the threshold corruption model developed here will use the same basic premise: seemingly minor changes in individual behavior lead through a cumulative causation mechanism to major changes in societal outcomes.

In the threshold corruption model, the individual's decision whether or not to act corruptly is endogenized since the incentives to act corruptly depend upon the societal value of p, the probability that corruption will not be detected and punished, and this value is now determined within the model itself. At the extremes, such incentives do not matter: people who are truly incorruptible or truly corrupt will behave predictably no matter what the incentives might be. However, the vast majority of the population will fall somewhere between these two extremes and for them the prevailing societal incentives – the value of p – will determine their behavior. [9] Since the prevalent morality in a systemically corrupt society is not conducive towards ethical behavior, most individuals, taking their behavioral cues from their superiors and peers, act accordingly.

Assume for simplicity the total population of a society consists of 10 persons. These are denoted by a_1 through j_1 and each individual has to chose between behaving honestly or behaving corruptly. Each individual faces an infinite number of decision rounds and all individual decisions are made simultaneously at the start of each round and, once made, this choice cannot be changed in the same round. At the start of the next round, the individual can see the individual decisions of the other members and may then make a new decision. Whether the individual behaves corruptly is determined by her "corruption threshold," the weighted proportion of the population (or relevant reference group) that has to act corruptly before the individual will. Different individuals arrive at different cost-benefit valuations and, hence, may have differing thresholds.

The current decisions of some individuals are clearly more important in influencing future decisions than the decisions of others. Within the context of a threshold model, this can be shown by assigning each individual's decision a weight consonant with their "importance and influence in society" (Kuran 1989, 46). The model captures the fact that a hierarchical social structure, or even a non-hierarchical one in which individuals have asymmetrical levels of influence, is very important in bandwagon effects.

Following Kuran (1989, 46), the effects of a separate weight being assigned to different individuals can be gauged thus:

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[9] See, e.g., Marché (2005) for a discussion of risk-seeking and risk-averse behavior among those engaged in "corrupt exchanges."

$$\mathbf{C^T} = \sum_{i=1}^{n} w_i c_i \tag{5}$$

where $\mathbf{C^T}$ is the (weighted) proportion of society that is corrupt;

n is the number of individuals in society;

w_i is the weight assigned to each corrupt individual i;

c_i is 1 if individual i is corrupt and zero if honest.

All individual weights sum to 1. Thus, if everyone is honest then C^T equals zero. Similarly, if only individual i is corrupt but he is of minimal societal importance, then C^T is near zero and the societal norm is honest. Most individuals do not have an infallible moral compass to guide their daily actions and, hence, take many of their behavioral cues from the actions of others around them. Corruptibility, like other forms of human behavior, is usually dependent upon the relative corruption of others in society.

If an individual's personal corruption threshold is 0.20, the weighted corruption average for society must be at least 20% before he will behave in a corrupt manner (i.e., for him, p = 1-0.2 or 0.8). Similarly, a person with a threshold of 1.0 is incorruptible since all of society must be corrupt before she will be, but this cannot occur since all of society cannot be corrupt if she is not.

Consider the population in Table I Scenario A. This society is overwhelmingly honest as its weighted corruption level, C^T, is only 0.05 and only person a_1 acts corruptly but his corruption is not enough to trigger similar behavior in any one else. Suppose now that b_1's corruption threshold drops to 0.05 (Threshold$_2$) since his daughter's upcoming wedding requires more money than he can earn from his salary.[10] Now this is a slightly more corrupt society as two persons are corrupt and C^T rises to 0.15. Suppose now that seeing a_1's and b_1's successful corruption lowers c_1's corruption threshold to 0.15 (Threshold$_3$). She now acts corruptly as well. This raises the societal C^T to 0.25 which is enough to trigger a bandwagon effect that causes all but i_1 and j_1 to behave corruptly. The corruption threshold's of these two individuals has not yet been reached. This is an example of bottom-up corruption.

Table I

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	Scenario A										
Individuals	a_1	b_1	c_1	d_1	e_1	f_1	g_1	h_1	i_1	j_1	C^T
Threshold$_1$	0	0.1	0.2	0.25	0.35	0.45	0.55	0.65	0.75	1.0	0.05
Threshold$_2$	0	0.05	0.2	0.25	0.35	0.45	0.55	0.65	0.75	1.0	0.15
Threshold$_3$	0	0.05	0.15	0.25	0.35	0.45	0.55	0.65	0.75	1.0	0.80

	Scenario B										
Individuals	a_1	b_1	c_1	d_1	e_1	f_1	g_1	h_1	i_1	k_1	C^T
Threshold$_4$	0	0.1	0.2	0.25	0.35	0.45	0.55	0.65	0.75	0.0	1.00
Weight	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.15	0.20	

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[10] This is, of course, just one of many possible reasons. This choice is not as facetious as it may appear; see Wade (1989) for just such an instance.

Suppose now that there is a change in government that brings a much more corrupt leadership to power (Scenario B, Threshold$_4$), i.e., j_1 has been replaced by k_1. Thus, the leadership's corruption threshold has declined from 1.0 to 0.0. This, admittedly extreme, change now raises the C^T to 0.25, enough to trigger a corruption bandwagon in the rest of the population. The final C^T is now 1.0 – systemic corruption. This is an example of top-down corruption and we can thus see the importance of weights in determining whether the eventual outcome is honesty or corruption.[11]

The point of these distribution and changes is to show how seemingly minor changes in the thresholds of individuals, and their resulting seemingly isolated corrupt acts, can rapidly change the existing status quo. Of course, the greater is the individual's weight in society, the more likely are his or her action to change the societal equilibrium. However, the enforcement of existing anti-corruption laws and an efficient legal system is more likely to prevent an undesirable change in the threshold distribution and, hence, prevent a norm change from honesty to corruption. If, when she first acted corruptly, a_1 was caught and given exemplary punishment, it is entirely possible that b_1's corruption threshold might have been raised from 0.2 to 0.3 instead of being lowered. Then there would be no need to worry about the effects of corruption on society since the dominant societal norm would continue to be honesty. So, it follows then that strict enforcement of anti-corruption laws and ruthless prosecution of the corrupt can hold the threshold sequence constant and prevent the vicious corruption bandwagon from starting. A successful example of just such a strategy is Singapore (Quah 2007), one of the least corrupt countries in the annual Transparency International surveys of international corruption levels.

However, Singapore (and Hong Kong) are relative anomalies in what Fritzen (2005, 80) has described as a situation where anti-corruption efforts in much of the world's corrupter countries are "hopelessly outgunned in an uneven fight against systemically corrupt institutions… [where for] every high-profile success story, there are dozens of spectacular failures or efforts that would appear to be on the fast track to nowhere." In his analysis of successful anti-corruption efforts in Singapore and Hong Kong, Quah (2007) concludes that efforts there succeeded because of the political will of the government that led to the drafting of comprehensive anti-corruption legislation, and the creation of an independent and impartial anti-corruption agency that had the full confidence of the chief executive. If new anti-corruption agencies modeled on the Singaporean or Hong Kong pattern were to become more common in highly-corrupt countries, then the overall societal corruption trend would be a more desirable one. However, anticorruption agencies that are understaffed and underfunded, used to harass political opponents, are an integral part of other (corrupted) law-enforcement agencies, or lack the support of higher political authority are bound to fail in their efforts. Indeed, such agencies may simply make a bad situation worse.

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[11] The distributions used in this paper were chosen to illustrate specific points and this is just one of an infinite number of possible distributions. Different distributions may result in no bandwagon effect after a threshold change; or perhaps only minor effects such as only one or two more people acting corruptly; or all members may already be acting corruptly. Also, the availability heuristic would require that there usually be more than one occurrence before the average observer decides that the probability of detection is low enough for him to take a chance (see Kuran (1995) for a full exposition of the effects of heuristics on human behavior).

In addition, it follows that lax law enforcement and/or an ineffective legal system could change the existing threshold distribution in the other direction. This would occur when hitherto honest officials reevaluate their decision to stay honest in light of the knowledge that the legal system cannot (will not) easily punish the corrupt.

V. SYSTEMIC CORRUPTION: BOTTOM-UP AND TOP-DOWN PATHS

The preceding examples in Table I had a norm of honesty as an initial starting point. But is it accurate to presume that most non-Western countries started their post-colonial history more honest than they were corrupt? Based upon what we know about their current corruption levels, very low according to Transparency International surveys, why presume a relatively honest initial point?

The preceding examples, with weights skewed towards honesty, reflect the situation in most post-colonial states at the time of independence. These states, in general, inherited a bureaucratic structure that was fundamentally honest – at least as far as the personal enrichment of the ruling colonial elite went (Andreski 1968, 103 & 110-115; see also Myrdal [1968] 2001; and Ali 1985).[12]   Myrdal, for example, buttressed his claims of an honest British colonial administration by extensively quoting from the post-independence Indian Government's 1964 *Report of the Committee on Prevention of Corruption* (aka the Santhanam Report). After reviewing the evidence presented in the Report, Myrdal concurs with the Report that the pre-independence, elite "Indian Civil Service was largely incorrupt" (Myrdal [1968] 2001, 270). For the post-independence period, the consensus of testimony to the Committee was that:

> corruption had increased to such an extent that people have started losing faith in the integrity of public administration. . . . corruption has, in recent years, spread even to those levels of administration from which it was conspicuously absent in the [colonial] past (quoted in Myrdal [1968] 2002, 276).

It is unlikely that any post-colonial government would have an incentive to paint the colonial rulers as being more honest than they actually were.

Ali, in a work that has a strong anti-colonial tone and includes a scathing denunciation of neo-imperialism by multinational corporations, admits that, while "Colonial rule was not free from its share of corruption, but since independence the

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[12] However, while Ali (1985, 194-195) agrees that the British colonial administration was administratively uncorrupt, he argues that this administrative honesty did not extend to personal dealings with the natives: accepting expensive "gifts" was commonplace, as was the custom of the wives of officials on the verge of retirement accepting "presents" from influential natives. Even these "corrupt" officials are described as being "scrupulously careful and honest about government money." Thus Ali's implicit argument has to be that natives who did not give gifts would be punished, but nowhere does Ali actually state that this occurred. Corruption among British administrators, in so far as it existed, would have been of the isolated kind. Collins and Lapierre (2001) also remark on the propensity of the wives of some extremely high-ranking British colonial officials in India to solicit gifts of expensive jewelry, though they make it clear that these were exceptional cases. Finally, Ali's allegations are flatly contradicted by the post-colonial Indian Government's own report on corruption. In support of this, both Mocan (2008) and Treisman (2000) find that a British legal heritage is a good predictor of low corruption levels.

shocking increase in graft and bribery has bewildered nearly every observer" (Ali 1985, 157).

The above should not be taken to imply that the source of all corruption is within the Third World itself. Lambsdorff (1997; see also Lambsdorff 2005 for more on this), after extensive econometric analysis, compiled an indicator of the bribery potential of leading exporting countries, i.e., how likely is an exporter to bribe his importing counterpart and how much of an exporting country's sales abroad are due to bribery. Naturally, Western countries were heavily over-represented in his "bribery propensity rankings." Similarly, others, e.g., Lambsdorff (1997) and Ali (1985), have remarked upon the role of multinational (i.e., mainly Western) firms in encouraging corruption in the Third World. In this context, Lambsdorff (1997) further pointed out that bribes paid to foreigners by businessmen were tax deductible in Germany and Belgium, and that the US was the only advanced Western country to specifically prohibit bribing foreign customers although an OECD internal agreement extended this practice to all member countries in 1998.[13] A true chicken-or-the-egg type of question is whether, in the first instance, a bribe was offered to an official or whether it was demanded by him. However, in either case, the basic point remains that it is an internal decision (whether to demand or accept a bribe) that starts the rot in the government apparatus, not the external decision to offer it.

So, why and how did this "shocking increase" take place? As Tanzi (1995), Alexander (1994), Ali (1985), and Banfield (1958), and many others, have argued, much of traditional society (now found mainly in non-Western countries) is characterized by the belief that objective criteria in public dealings should not apply to friends and relatives. Thus Tanzi's (1995) norm of "arm's length dealings" does not apply in transactions involving relatives, clan/tribe members and friends, who are given preferential treatment while non-associates are discriminated against.

The argument here is not one of the superior morality of colonial administrators but a more prosaic one. The colonial administrators were much less susceptible to pressure from their family and friends for favorable treatment, if for no other reason than the fact that their (extended) families were not in the colonies and most of their friends were other colonial officials. After decolonization, the natives who assumed full political power were susceptible to this pressure for favorable treatment and, without the presences of Basu *et al*'s (1992) "incorruptible civil service elite" to keep them on the straight and narrow, did their duty to their family and friends rather than to their profession. Given the fact that most of the newly independent states were scarcity economies, i.e., marked by a relative shortage of modern goods, it would be extremely difficult for government administrators, who often enjoy considerable discretionary power, to resist the demand of family, friends, and even perhaps co-ethnics, for favorable treatment in the allocation of scarce resources (Bates 1974). Even if they did not want to favor friends and relatives, after independence, the administrators no longer had the excuse of saying that the colonial authorities would not allow them to bypass normal administrative procedures.

Thus, we see a gradual decay in administrative standards and a rise in corruption as friends and relatives benefit from their association with those in power. From this, it is a

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[13] The actual enforcement of these anti-bribery laws, if the US example of complete laxity after a brief initial enforcement spurt is anything to go by, will be problematical at best.

comparatively easy step, since the norms of professional conduct have already been violated, to favor complete strangers in exchange for monetary consideration (Tanzi 1995).

Within the context of the threshold corruption model, this process would work as detailed below. Consider the new group of government administrators in Table II (shown on following page) at $Threshold_{t=0}$ (i.e., the threshold distribution at time zero). Assume that this is the situation in a former European colony (e.g., India or Pakistan) immediately after independence. Corruption is found only at the lowest levels of the administration and the upper ranks are fairly honest. The only openly corrupt individual here is a_2 and society is extremely honest ($N = 0.9$ and $C^T = 0.05$). The result of the removal of an upper echelon not responsive to local pressures is a continual erosion of individual corruption thresholds – shown here by a 0.03 decrease in each time period. As a result of this continual erosion, at t=2, individual b_2's corruption threshold is reached and the government's weighted corruption level, C^T, reaches 0.10.

This is not enough to set a bandwagon effect in motion. We simply have a slightly more corrupt government. At time t=4, the continued erosion in corruption thresholds causes c_2 and d_2 to behave corruptly as well and the government's C^T reaches 0.30. We still see no bandwagon effect since the erosion in thresholds has not yet reached the critical point. At t=5, individual e_2's personal corruption threshold is reached and he behaves corruptly as well, raising the C^T to 0.40. Finally at t=7, the steady decline in individual corruption thresholds reaches the critical point and a bandwagon effect is triggered--corruption is now complete as the government's C^T reaches 1.

Table II

Individuals	$a2$	$b2$	$c2$	$d2$	$e2$	$f2$	$g2$	$h2$	$i2$	$j2$	C^T
$Threshold_{t=0}$	0	0.10	0.20	0.25	0.45	0.60	0.65	0.65	0.90	0.95	0.05
$Threshold_{t=1}$	0	0.07	0.17	0.22	0.42	0.57	0.62	0.62	0.87	0.92	0.05
$Threshold_{t=2}$	0	0.04	0.14	0.19	0.39	0.54	0.59	0.59	0.84	0.89	0.10
$Threshold_{t=3}$	0	0.01	0.11	0.16	0.36	0.51	0.56	0.56	0.81	0.86	0.10
$Threshold_{t=4}$	0	0.00	0.08	0.13	0.33	0.48	0.53	0.53	0.78	0.83	0.30
$Threshold_{t=5}$	0	0.00	0.05	0.10	0.30	0.45	0.50	0.50	0.75	0.80	0.40
$Threshold_{t=6}$	0	0.00	0.02	0.07	0.27	0.42	0.47	0.47	0.72	0.77	0.40
$Threshold_{t=7}$	0	0.00	0.00	0.04	0.24	0.39	0.44	0.44	0.69	0.74	1.00
Weight	0.05	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	

Table II illustrates a gradual decay in administrative standards – as shown by the eroding corruption thresholds[14] – could lead to a systemically corrupt society. This gradual transition, fueled by a general societal preference for non-arm's-length

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[14] Within the context of the original PA model, the process by which corruption thresholds are lowered could work thus: continued pressure by family and friends on government administrators marginally lowers their corruption thresholds as their willingness to accept a slightly higher risk level increases and some hitherto honest individuals now act corruptly. This has two effects: (i) some individuals may reevaluate their own assessment of the situation in light of others' successful corruption; and (ii), family pressure on these still honest individuals increases--"Why can't you do for your family what X did for his?" This causes a further fall in individual corruption thresholds and more corrupt acts. More corruption leads to a further drop in corruption thresholds, which, in turn, leads to....

transactions, is an inevitable outcome insofar as the rulers of the new state are unable or unwilling to prevent themselves or their subordinates from using non-arm's-length criteria in their official dealings.

Leadership determined to maintain high societal honesty levels would, of course, obviate the need for analyses such as this. Indeed, Quah (2007) argues that Singapore's determined leadership actually raised the societal honesty level to a point much higher than that under the colonial regime. An inefficient or non-independent legal system would also help hasten this transition to systemic corruption if it provided inadequate recourse to those elements of the population who wish to prevent a non-arm's-length criteria in decision making.

So far the implicit statement in the previous models has been that corruption spreads from the bottom up. This belief is correct insofar as the stated impetus for corruption came from outside the administrative structure and first affected the lower ranking members of the government – whose corruption thresholds were lower than those of their superiors. But, in general, would these corruption thresholds actually be lower for lower-ranking officials? Initially at least, yes. This is because natives in the upper ranks of the colonial administration were held to a higher standard of morality than natives in the lower ranks. Thus, having served in that environment, high-rank natives who moved into the highest strata of government would, initially at least, retain a comparatively higher corruption threshold (see, e.g., Huntington 1968, 68).[15] This is, however, clearly at odds with the historical record of rulers such as, for example, Mobutu, Marcos or Duvalier. In these cases, it cannot be argued that corruption was a bottom-up phenomenon.

As was shown in Table I Scenario B, a change in leadership, from honest to corrupt, can give us a massive, immediate swing in societal norms from honesty to corruption. Compared to Table II, which produced a corruption norm after seven time periods, Table II Scenario B produced a corruption norm after only one period.

Further refinements to the basic model would move it closer to the real world. For example, the size of the population could be increased, enabling the creation of different layers of hierarchy, arranging the population into peer groups and giving the peer's actions greater weight, and so on. Thus, we could show the existence of (relatively more) honest sub-groups in a (relatively more) dishonest society and vice-versa.[16]

In a more nuanced threshold corruption model with different subgroups (or different government departments), we could use a weighted average of the corruption levels of

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[15] See also Mason's (1978) highly readable memoir for an account of life in the preindependence Indian Civil Service (ICS) and, especially, the pronounced differences between native members of the ICS and lower ranking administrative/support staff.

[16] All societies are sub-divided into myriad sub-groups and, of course, individuals may belong to more than one sub-group. For example, one sub-group may be individuals working for a particular corporation; another the alumni of a particular university; and a third members of a particular religious denomination. Any given individual may belong to all three (or more) of these sub-groups. Many of these sub-groups influence the behavior of members of different sub-groups but this may not always be so; the issue is one of salience. Your boss's behavior may influence your own but it is unlikely that the behavior of the boss of a fellow member of the church choir is going to materially affect your own behavior. Sub-groups that are seen as criminal entities often do not affect persons outside their sub-group. For instance, in the U.S. the behavior of criminal gangs does not (usually) cause individuals in significantly different areas to pattern their behavior after gang members as this behavior is simply not salient. On the other hand, gang members' behavior is likely to affect the attitudes and behavior of non-members who live in the same neighborhood--non-members may wish to emulate them.

the individual's home department and the rest of society/government to determine whether or not the individual will act corruptly. Using a weighted average is justified because, while a shared corporate culture does shape individual expectations (Tirole 1996, 3; Huang and Wu 1994, 400), the influence of those individuals with whom one has the most daily contact is likely to be stronger than that of the entity as a whole. However, the corporate culture of the entity as a whole cannot be neglected entirely since it has an influence, if not on the rank and file, then at least on the sub-group's leadership. So the weight assigned by any individual i to the C^T of the home department must be at least equal to, if not greater than, the weight assigned by that individual to any other department's C^T. Equation 6 shows such a weighted average, assigning equal weights to both departments.

$$C^T = (0.5C^{Ta} + 0.5\ C^{Tb}) \qquad\qquad (6)$$

Where C^{Ta} and C^{Tb} are individual i's home department and the rest of the government.

Now consider a government bureaucrat whose individual corruption threshold is 0.15 but whose departmental weighted corruption level is only 0.10. His threshold has not been reached but this would hold true only if his home department is indeed hermetically sealed. Suppose that, in making his corruption decision, the individual uses an equally weighted cross-departmental weighted corruption average, C^T, in determining whether or not his individual corruption threshold has been reached. If the rest of the government's weighted corruption average is 0.3, then for this individual,

$$C^T = (0.5*0.30 + 0.5*0.10) = 0.20 \text{ (versus a } C^T \text{ of 0.10 earlier).}$$

For example, British colonial tradition was to isolate the armed forces from the rest of colonial society as much as possible. So a would-be corrupt army officer (at least in the immediate postcolonial era) would assign a much greater weight to the army's C^T than to that of any other department. The normal weight assignment would be to give a substantially higher weight to one's own department than to that of one's peers. In the Japanese and South Korean (under General Park) traditions, the economic bureaucracy was kept isolated and shielded from the political sphere (Kong 1996; Dutt and Kim 1994) while in the Indian case, the once insulated and highly capable Indian Administrative Service (successor to the colonial Indian Civil Service) was turned into the civil service wing of the ruling Congress Party (Dutt and Kim 1994). So, for the Japanese and the South Korean economic bureaucracy, the weights assigned by a would-be corrupt official to the departmental C would be much higher than the weight assigned to the C of the politicians. Some spillover of corruption is of course likely to occur in even these tightly insulated cases, as shown by, for example, reports of corruption among the top bureaucrats of the Japanese Finance Ministry (Efron 1998).

The usual expectation would be that an overnight change in most governments is not likely. Even in Zaire, Mobutu's reign did not convert the entire national government into a kleptocracy overnight. We are likely to see a more gradual erosion over time (as in Table II), with the rate of corruption spread being determined by several factors (pervasiveness of non-arm's-length dealings, the corruption inclinations of the higher leadership, the efficacy of the judicial system, and so on).

VI. SOME IMPLICATIONS OF THE THRESHOLD CORRUPTION MODEL

Many, if not all, of the following results are not surprising to any well informed observer of the corruption scene, whether in the Third World or the First. For example, the importance of leadership is intuitively obvious since "Do as I say, not as I do" is a notoriously ineffective leadership principle, and the lack of institutional constraints on the leadership in the Third World has been remarked upon by many (e.g., Ostrom 1993; Leff, [1964] 2002; Klitgaard 1988; and Andreski 1968). However, the threshold model of corruption described here provides a mechanism that can actually generate these results. Since these results can be generated, it is also possible to see under what circumstances these consequences can be avoided.

The principal-agent model (PA) has no readily generalizable stylized facts for the analysis of systemic corruption since it assumes that the leaders – the principals – are honest. By definition, systemic corruption is the result of a completely corrupt leadership. The basic PA model is also not readily applicable to other situations which involve system-wide consequences, although it is invaluable for analyzing individual actions in a wide variety of circumstances. The basic PA model has, as shown in section II earlier and as is apparent from the model itself, definite implications for the effect on individual behavior of changes in corruption due to changes in the level of punishment or the probability of detection. The threshold corruption model described here is a heuristic model that, building upon the PA model, has more to say about the likely effects of different circumstances on systemic corruption.

In an ideal world the threshold corruption model would generate easily testable hypotheses. However, corruption, by its very nature is a *sub rosa* activity; therefore the evidence to 'test' the model described here would be very difficult to obtain. Evidence of this sort might be, for example, confidential surveys among bureaucrats asking about:

(1) what proportion of their compatriots would have to behave corruptly before they would also do so;
(2) has their answer to (1) changed over time? And especially the extent to which well-publicized and successful corruption prosecutions affected their answer, as well as the extent to which did knowledge of those that 'had gotten away with it.';
(3) the extent to which their corrupt behavior (if any) was influenced by the actions of their superiors versus those of their peers/subordinates;
(4) the extent to which they take their behavioral cues regarding corruption from the actions of their departmental colleagues versus those of government servants or society as a whole.

As this is a heuristic model, it does offer some useful insights into certain key aspects of any analysis of the transition to a systemically corrupt outcome.

i.   Variability of the Demonstration Effect

Given the importance of role models, frames of reference and in-group versus out-group behavior in determining an individual's own actions, corrupt leadership is more likely to lead to systemic corruption due to the variability of the demonstration effect. In plain English, you are more likely to be corrupt if your superior is, since his actions carry greater salience for you. This fact is captured by the weights assigned to each

individual. This, of course, underscores the importance of leadership behavior in determining the outcome: corruption or honesty.

ii. Centralization of Power

A clear implication of this model is that countries with a highly centralized system of government will be more vulnerable to systemic corruption. This is because the inclinations of the leadership have a direct effect on a larger number of civil servants at all levels of government. In short, the network of interactions among individuals in a centralized system of government allows for the more rapid transmission of corruption. In more decentralized systems, in a best-case scenario, corrupt leadership in one part of the administrative apparatus may have no spillover effects since (1) it would not serve as a reference group for many civil servants and (2) the effects of corrupt leadership may be countered by other non-corrupt leaders at different levels of government who have independent power bases. Alternatively, the spread of corruption may simply be slowed down at best.

iii. Institutional Constraints

An indirect implication of this model is that countries that do not have independent institutions with countervailing power against the executive, i.e., no formal system of checks and balances based on a separation of powers system such as that of the US, will be more susceptible to systemic corruption than countries that do. This is because such a system raises the likelihood that corruption, especially high-level corruption, will be detected and punished (i.e., p is lowered). Furthermore, it also creates independent power bases that the executive has, by definition, very little control over.

iv. Culture

Culture, i.e., the accepted norms and practices of a society, matters greatly in determining whether the final outcome is systemic corruption or relative honesty. This is because it is exactly this culture – the environment that the individual concerned has to live with and in on a daily basis – that provides her with behavioral and attitudinal cues. It is the dominant cultural norms and not some abstract, Weberian ideal of the perfect bureaucrat that guides the actions of the vast majority of workers in any government entity. Therefore, societies that have a norm of "non-arm's-length" dealings, i.e., a relatively strong "traditional" socio-economic structure, are much more likely to be corrupt than societies that have a relatively weak "traditional" component to their social fabric. The latter tend to have a stronger formal social safety net and weaker interpersonal ties between individuals. In this context, the development of strong formal institutions that can substitute for traditional ones becomes very important if corruption is to be reduced.

v. Predictability

The final system state can only be, at best, imperfectly predicted and, *ex ante*, we cannot make authoritative pronouncements about the final outcome no matter how 'obvious' it may seem *ex post*. This is because there are so many "small events," many of which are unpredictable and whose importance for the future cannot be known now, that determine the final outcome that seemingly minor changes may have major

consequences down the road. In addition, the likelihood of a corruption bandwagon taking place is extremely sensitive to the distribution of corruption thresholds in any given population or subgroup. Thus, a seemingly minor difference may give us very different results.

vi. The Possibility of Reform

The final, and most dispiriting, stylized fact emerging from this model is that minor reforms are generally useless in a systemically corrupt society. Once the C^T of the entire system is close to one, small changes cannot reverse the status quo. Successful reforms would then have to include a major transformation of the entire governing apparatus. Simply inducting honest leadership at the very top of the administrative structure will not necessarily give us an honest outcome[17] – unless the systemic corruption equilibrium is unstable and sensitive to small changes in threshold distribution. Unfortunately, given the history of increasing corruption in the developing world, the norm appears to be more corruption and not less. Successful reform will most likely require a complete reconstruction of the existing administrative structure – probably the induction of new people with a new threshold distribution.

The PA model holds that corruption reform is relatively simple: raising the probability of detection and punishment or increasing the severity of punishment will reduce corruption. Such an undertaking, for reasons already explained, is not likely to be successful. However, as history of the West shows, it is possible to move from a low-honesty equilibrium to a high-honesty one eventually. The disheartening aspect of this transition in the West, from the standpoint of today's Third World countries, was that it took several generations to achieve.

VII. CONCLUSIONS

Although they may define it differently, 'corruption' is stigmatized by virtually all societies at all times (Ali 1985; Noonan 1984), because, in addition to the ethical and moral damage it does, it misallocates resources, reduces economic surplus and consequently economic growth, and degrades the all important link between effort and reward. A corruption-free society is as likely as a crime-free one, but there are certainly great benefits from reducing corruption, at least until the point where the marginal benefit of reduced corruption is equal to its cost.

There are essentially two ways a society can become thoroughly corrupted. The first is a gradual erosion of corruption thresholds to give us a systemically corrupt outcome. This is a relatively slow process but, given a societal norm of non-arm's-length dealings and the absence of truly exemplary leadership determined to prevent it, there is a certain inexorable inevitability to it. The second is through a much more rapid transformation of existing societal mores due to the rise to power of a thoroughly corrupt leadership. The presence of both a non-arm's-length dealings norm and leadership

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[17] Klitgaard (1988, 173-175) gives an example of this when a newly appointed "Mr. Clean" fails to root out corruption in a "Ruritanian" (actually Pakistani) government department because he lacked the support of his superiors, and corrupt departmental officials were therefore able to stymie his efforts. Feichtinger and Wirl (1994, 116-117) argue that this is essentially what happened to Gorbachev's reforms in the Former Soviet Union.

corruption, acting as a mutually reinforcing relationship, is responsible for the speed of the transition to systemic corruption in the developing world.

If the entire societal norm is one of non-arm's-length dealings and the leadership is no different than the population, then why condemn them? Because systemic corruption has many of the characteristics of a Prisoner's Dilemma game. If everyone is honest, then we all gain. If all are honest save I, then my corruption has a much larger reward accruing to it than my honesty. However, if all are corrupt, then we all lose. Thus, a universal condemnation of corruption serves an important societal function. Its aim is to prevent, at the systemic level, self-interested (i.e., profit-seeking) behavior from taking the next step and turning into opportunistic (i.e., corrupt) behavior. The latter, of course, serves no good societal purpose.

More effective corruption reduction is possible only if we can better understand its spread. The complete eradication of isolated corruption is probably neither feasible nor desirable from a cost-benefit perspective. The removal of systemic corruption is both feasible and desirable, though neither easy nor inexpensive.

The traditional approach to modeling corruption in the social sciences has been to view it as a principal-agent problem. While invaluable in understanding the individual's decision to act corruptly or not (i.e., in estimating the individual's corruption threshold), the PA model does not increase our understanding of *how* corruption spreads in a society where there are few effective institutions to temper the power of the executive. In the atomistic PA model, the individual changes only his own behavior, without reference to that of any other person. The threshold model underscores the importance of feedback effects on the spread of corruption. Specifically, it incorporates the effects of high level corruption on the overall corruption level in society, an important social dynamic that many other theories of corruption miss. Thus, this model includes important sociological effects that a simple PA model cannot adequately handle: the importance of role models, particular frames of reference and in-group versus out-group behavior in determining an individual's own actions.

Finally, as Tanzi (1995) and others have persuasively argued, societies without a norm of non-arm's-length dealings are much more likely to be corrupt than societies that do have this norm. In such a situation, the character of the leadership assumes even greater importance. When the natural predilection of the vast majority of the bureaucracy is to favor their own friends or relatives, it requires an iron will to enforce the rules. A corrupt leadership is far less likely to exhibit such resolve than an honest one, if for no other reason than the fact that a dishonest leadership has already demonstrated that its strength of character is lacking.

Historical data from India appears to support this contention. The norm in Indian/ South Asian society is non-arm's-length dealings (Tanzi 1995; Alexander 1994; Bhatia 1967). The Indian government's own Santhanam Report indicated that, seventeen years after independence, leadership corruption was now widespread (Myrdal, [1968] 2002). More recent reports from India indicated that its corruption level had increased substantially (e.g., Tharoor 1997).

The falsification of at least a part of the model would be if corruption among the leadership did not cause increased (overall) administrative corruption. South Korea and Japan, two post-WWII economic success stories, have had extremely high levels of leadership corruption. However, many analysts (e.g., Khan 1996; Kong 1996) argue that

these countries were unique in their ability to keep the administrative bureaucracy separate from the political leadership. Unlike most Third World states, the administrative bureaucracy was not turned into a *de facto* extension of the ruling party apparatus, one whose purpose was not policy implementation but to ensure the continuation in power of the ruling establishment. Thus, the weight assigned by a Japanese or South Korean bureaucrat to the corruption of the political establishment would have been very low and there would then be minimal spillover corruption effects. Unfortunately, this kind of compartmentalization of the administrative (i.e., policy implementation) apparatus is very rare in the Third World. Dutt and Kim (1994, 196) describe how the Indian Administrative Service (the post-independence successor to the colonial Indian Civil Service), "virtually unparalleled in the Third World" in its professional competence, was turned into a *de facto* extension of the ruling political party.

The PA model gives invaluable insight into individual decision-making by examining the incentives faced by each individual as he or she is trying to decide whether to act corruptly or not. The threshold model brings the social interaction aspect of the corruption decision to the fore since corruption is a social act and no analysis of systemic corruption can ignore this aspect of it. The threshold corruption model utilizes both of these methodological approaches to help explain systemic corruption. The model's major innovation is in endogenizing individual corruption thresholds, and hence individual incentives, and then showing how systemic corruption can come about.

Furthermore, the threshold corruption model can account for cultural effects in the systemic corruption phenomenon. This is done by specifically incorporating the effects of a norm of "non-arm's-length" transactions into the analysis of how the transition to systemic corruption occurs. Finally, the assigning of a weight, consonant with her standing in society, to each individual incorporates the asymmetric demonstration effect, i.e., the importance, of leadership behavior into the analysis of both how a systemically corrupt society comes about and of any efforts to reform it. The threshold corruption model also illustrates the path-dependent nature of the transition to systemic corruption – it matters *who* acts corruptly and *when*. The model also highlights the imperfect predictability aspect of the systemic corruption transition – *ex ante*, we cannot predict, since we lack perfect information and foresight, who will act corruptly and when. However, the model does allow us to predict, in general, under what circumstances we can expect to see an increase or a decrease in corruption.

The model gives a more formal exposition of the old Chinese adage that fish (and nations) rot from the head down. Well over two millennia ago, a Chinese sage wrote:

> The key to success or failure in government lies in the ruler. If the inkling line is properly set above, the wood will be straightened beneath it. It is not that the inkling line does anything in particular to the wood, but rather that the disciplining of the wood in following the inkling line makes it so. Thus, if the ruler is truly upright, honest officials will be commissioned and villainous persons will hide themselves. But if the ruler is not upright, the wicked will get on in the world and loyal subjects will withdraw into retirement (Section 7 of *The Hua Nan Tzu, Book Nine: The Art of Rulership* from Ames 1983; quoted in Huang and Wu 1994, 390).

In accord with *The Hua Nan Tzu*, the model suggests that the single most important determinant of whether isolated corruption becomes systemic is the honesty level and determination of the leadership to prevent systemic corruption from becoming the norm. From this, it is a natural conclusion that higher level corruption should be punished more severely than lower level corruption. This is because especially severe sanctions against higher level officials will carry a much greater demonstration effect, as well as reduce the public perception that corruption punishments are suffered only by the unimportant and unconnected. This is, unfortunately, easier said than done. As von Klausewitz said, winning a war is actually a very simple matter but, in war, it is the simplest things that are the most difficult.

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