National Corruption and the Size of the Public Sector ❖

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Corruption plagues many economies throughout the world. It is a major international problem that demands attention. When corruption takes hold in an economy it is very hard to even modestly moderate, let alone keep it under control or possibly eliminate. In a world stricken by the ill effects of corruption, explaining the basic causes for differences in corruption across nations becomes an extremely worthwhile task. Among all the myriad and varied explanatory factors potentially accounting for differences in international corruption there most certainly exists an assortment of structural economic characteristics. One predominant structural element is the public sector share in the economy. This paper uses cross-country regression analysis to assess whether the size of the government sector is an empirically important determinant of corruption across nations. **JEL: 010.**

There is more and more focus on corruption as a major problem for economic development. In some of the transition economies, such as Russia, corruption is rampant. In a few of the African and Asian economies, corruption seems to be a way of life. Corruption lowers investment by lowering the rate of return on investment. Corruption both increases the cost of investment and lowers the returns to investment. Investment, the addition to the capital stock, is a prime determinant of technological advance, growth, and development. The reduced levels of investment brought about by higher levels of corruption lead to lower economic growth and economic development. This holds true even for some of the anomalous East Asian miracle countries that have managed to obtain high rates of growth in the presence of corruption. The lower growth and incomes due to reduced investment brought about by corruption, in turn, generate further corruption, resulting in a vicious cycle.

Reducing corruption, its intensity, and its extent is therefore very important for economic performance. In this regard, it becomes valuable to identify structural characteristics of the economy that may potentially have an impact on corruption. A fundamental overall structural characteristic of the economy is the size of the public sector. The importance of the size of the public sector as a structural variable is highlighted by its common employment in trying to explain differences in cross-country economic growth in the empirical growth literature.[1]

There is a long-standing controversy over the role of government versus the private sector in the economy. On the right, conservatives and libertarians argue that the best government is the least government. They argue that extensive government dampens private incentives, undermines entrepreneurship and innovation, and, in general, retards economic progress. The left, on the other hand, believes in the virtues of bigger government. Liberals content that the free market left to its own devices will result in numerous unjust inequities, in a deficiency of social goods and services, and in a misallocation of resources. From their perspective, government can be employed to ameliorate the shortcomings of the private sector and to rescue an unfettered capitalist economy from its potentially worst manifestations.

These two basic overall global positions with regard to the role of the government in the economy can be extended to the relationship between the government sector and corruption. What is the effect of the size of the government sector on corruption?

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[1] For example, see Barro (1990) or Ram (1986) for opposite quantitative findings with regard to the relationship between the size of the government sector and economic growth.

Theoretically, one can make a case for any possibility. It is conceivable that it may have a positive corruption reducing effect (liberal view), or a negative corruption enhancing effect (conservative view), or no effect at all.

I. Possible Effects of the Size of the Public Sector on Corruption

If greater government increases the opportunities of the disadvantaged and thereby fosters greater upward mobility, then it may end up reducing corruption by diminishing the resentment, anger, and bitterness directed at the system that may be the fundamental underlying source of corruption. The inevitable inequalities of income and wealth resulting from the operation of capitalism make it a system that is inherently unjustly structured resulting in unequal life chances between the rich and poor. For example, without government intervention, the poor will likely have less access both to educational institutions and to educational institutions of higher quality.

One way that those at the bottom can strike back at a system that they consider to be unfair (and to potentially augment their income) is through corruption and other illegal activities. To the extent that the government can level the playing field by providing more equal opportunity between the rich and the poor the inevitable unequal outcomes of the capitalist system will tend to be more tolerable resulting in reduced levels of corruption.

On the other hand, from the conservative viewpoint, the mere mention of the word government conjures up a whole series of negative connotations. The government is a potential cesspool of red tape, unnecessary bureaucracy, incompetence, and inefficiency. It is not subject to a market test and is protected from competition. Such an environment

is a potential breeding ground for corruption. With regard to size, the larger is a country's government, the greater will be the concentration of power, legitimacy, and authority making abusive and corrupt practices more viable and prevalent. From this point of view, the government, rather than being a buffer from the evils of the market and thereby mitigating corruption in society, is seen to be itself the very vehicle for corruption. Government and corruption from this perspective are seen to go hand in hand.

Lastly, the size of the public sector may have very little to do with corruption. This can occur if the two aforementioned effects are minimal, offset each other, or only manifest themselves under special circumstances.

The question of the general effect of the size of the government on corruption thus becomes an empirical matter. To test whether the size of the government is associated with corruption, and, if so, in which direction, three cross sections are developed for the years 1980, 1995 and 1996. For each of these three years international data is collected on four variables. The four variables are measures of corruption, public sector size, per capita GDP, and the level of development.

The empirical model used here is a very basic model. It highlights the relationship between corruption and the size of the public sector when one adjusts either for the size of the economy or for the level of economic development. Its purpose is simply to identify, in an overall sense, what type of relationship, if any, exists between corruption and the size of government, so as to shed at least some light on a major ideological struggle. It is by no means designed to explain, and certainly not to separately measure, all the varied, intricate, and complex

determinants of corruption that exist across countries.

II. Corruption and Government Size: A brief look at some of the literature

For a heightened awareness of the gravity of the problem of corruption for sustained economic health, one should look at Azfar et al. (2001). The authors provide a nice theoretical and empirical overview of both the causes and consequences of corruption. They suggest that in many cases corruption is not just a small matter of the second or third order of magnitude, but a primary problem with deep ingrained and systemic roots. They see the failure to give corruption its proper due as one potential reason why many policies fail to achieve successful results in promoting economic development.

Corruption is not just a serious problem but a widespread problem both in time and in space. LaPalombara (1994) in his article, "Structural and Institutional Aspects of Corruption", points out that corruption is not just a problem for developing countries, but for developed countries as well, and not just a modern problem, but an ancient historic problem for representative democracies. He is particularly concerned that in the fervor to combat corruption, anti-corruption measures are not dangerously misdirected at valuable democratic institutions, but are properly targeted at discredited political leaders. Particularly germane to this study, he finds that the overall size of the government budget relative to GDP is positively correlated to corruption.

La Porta et al. (1999) - in their article "Quality of Government" - and also in La Porta et al. (1997), use a cross section of countries to assess government performance on a variety of measures including government size. However, the authors believe a more appropriate measure of government

interference with private markets is the extent of a government's redistribution activity. They find this variable to be positively associated with corruption. In addition, they consider three broad theories, economic, political, and cultural, that attempt to explain government and institutional performance. They maintain that historical circumstance, leading to differences in legal, ethnic, and, religious conditions represent an important source of differences in government performance across countries.

Husted's (1999) main interest is the cultural determinants of corruption. He uses Hofstede's cultural indexes to assess the potential effect of culture on corruption. He finds that three of Hofstede's indexes, power distance, masculinity, and uncertainty avoidance, are statistically significant in explaining corruption in cross country data using a specification that includes measures for the level of development and inequality in the distribution of income. With regard to the size of government, he anticipates a positive relationship between corruption and government size. His reasoning is that larger governments tend to have larger bureaucracies. As he sees it, these larger bureaucracies provide more and better opportunities for corrupt activities. In his cross-country regressions, he finds that the government size variable, government consumption as a percent of GDP is not significant, but the focus of his analysis is primarily on cultural variables.

Elliot (1997), on the other hand, finds a strong positive correlation between government size and corruption. However, she feels that what really matters are the type of activities in which the government is engaged. When the government is heavily engaged in activities that restrict competition, then one is likely to find a lot of corruption and other rent-seeking behavior.

It is not just the size of government that may matter with regard to corruption, but its personality. Fisman and Gatti (2000) look at an important governmental characteristic: the extent of decentralization. Their empirical work suggests that greater government decentralization may be associated with lower levels of corruption.

There are likely to be conditions that impact the efficiency and effectiveness of government for any given size. One example is the relative wages of the public sector. Higher wages for public officials and bureaucrats are apt to give them a reduced incentive to engage in illegal activities. With this in mind, Treisman (2000) employs a measure of relative government wages as one of his many variables to explain corruption.

The relationship between Government size and corruption can be very complicated. It can be both direct and indirect. The relationship between government size and corruption may be due to the fact that each one of them is related to some third underlying variable or variables. One such potential variable is trust. Trust may be an important behind the scene mover in the relationship between government size and corruption. High levels of trust may provide an environment that enables bigger governments to operate efficiently and with minimal levels of corruption. Using cross-country data, La Porta, et.al (1997) finds a positive relationship between a variety of measures of government performance and the extent of trust in society. Trust itself is found to be negatively related to the dominance of strong hierarchical religions such as Catholicism.
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III. The Collected Variables and their Sources

Transparency International makes available a corruption perception index on a country by country basis for several different years for a fairly wide cross section of countries. The index varies from one to ten. For correct interpretation of the empirical results, it must be carefully noted that Transparency International's corruption perception index is inverted. The name corruption perception index is really a misnomer. The corruption perception index is really a measure of the absence of corruption. Higher scores for the corruption perception index indicate that a country has lower levels of corruption and lower scores of the corruption perception index indicate that a country has higher levels of corruption. The country scores for the corruption perception index for 1995 and 1996 are taken directly from Transparency International's web site, while the numbers for the corruption perception index for the period 1980-83 are from the appendix to Bardhan's (1997) article *Corruption and Development: A Review of Issues.*

A more than adequate measure of the size of the public sector is the percentage of general government consumption to GDP. General government consumption represents the combined expenditures for all levels of government. The data source for this public sector size measure is the World Bank's *World Development Indicators* available on CD-ROM from the Bank. For the years 1980,1995 and 1996, the percentage of general government consumption to GDP is identified as PUBLIC80, PUBLIC95, and PUBLIC96.

PCGDP96, PCGDP95, and PCGDP80 are labels for per capita GDP in constant 1987 international dollars obtained by using purchasing power parity rates. Each international dollar represents the purchasing power of a U.S. dollar in the

United States in 1987. Once again, the data source is the 1998 *World Development Indicators* on CD-ROM available from the World Bank

A good measure of the level of country development is the human development index published on a yearly basis by the United Nations. The human development index not only takes into account income but other things, namely, life expectancy and adult literacy rate, to obtain a measure of human development. The human development index ranges from zero to one with higher values indicating higher levels of development. The human development index for 1980 and 1997 are respectively labelled HDI80 and HDI97. Since the human development index for 1996 is not available, the simple arithmetic average for the years 1995 and 1997 is employed. This is simply identified as HDI96.

For the three variables, the corruption perception index, the percentage of government consumption to GDP, and per capita GDP, complete data is available for a total of sixty countries in 1980-83, thirty-nine countries in 1995, and thirty-two countries in 1996. This breaks down, using the World Bank classification from the CD-ROM, into forty-nine developed and eleven developing countries for 1980-83, thirty-six developed and three developing countries for 1995, and twenty-four developed and eight developing counties for 1996. The number of countries falls for every year once the human capital index is added to the group of variables due to missing values.

IV. Cross-country Regression Results

Does the share of the public sector matter with regard to corruption? Tables 1, 2, and 3 show the results of corruption index run on the size of the

public sector using ordinary least squares for the years 1995, 1996, and 1980.

Table 1: Cross-country regressions on perceived country corruption index for 1995

	(1)	(2)	(3)
CONSTANT	1.945 (1.839) ***	0.850 (1.237)	-6.206 (-3.139) *
PUBLIC95	0.277 (4.036) *	0.103 (2.082) **	0.178 (2.997) *
PCGDP95		.0003 (7.468) *	
HDI95			11.234 (4.550) *
N	39	39	35
RSQ	0.301	0.728	0.592

Table 2: Cross country regressions on perceived country corruption index for 1996

	(4)	(5)	(6)
CONSTANT	0.983 (1.012)	0.396 (1.024)	-4.779 (-4.025) *
PUBLIC96	0.252 (3.801) *	0.129 (4.612) *	0.159 (3.240) *
PCGDP96		.0004 (12.763) *	
HDI96 95, 97.AVG			9.663 (5.816) *
N	32	32	31
RSQ	0.325	0.898	0.698

Table 3: Cross country regressions on perceived country corruption index for 1980-1983

	(7)	(8)	(9)
CONSTANT	3.966 (4.323) *	3.084 (4.198) *	-1.261 (-1.119)
PUBLIC80	.184 (3.160) *	.120 (2.549) **	.098 (1.924) ***
PCGDP80		.0003 (5.778) *	
HDI80-83			9.663 (5.816) *
N	61	60	43
RSQ	0.145	0.469	0.578

Each table contains results from three equations. The first, is the simple regression of the corruption perception index on the public sector share (column 2). The second is a multiple regression of this relationship adjusting for differences in per capita income (column 3), and the third is a multiple regression adjusting for the level of development (column 4).

The first column of the tables lists the potential dependent variables. The last two rows give the number of observations (N) and the R-squared values (RSQ) for the estimated equations. Each cell in the body of the table gives the estimated coefficient as its topmost value followed by the t-statistic in parentheses. The asterisks identify the level of statistical significance for an individual variable in an equation. One asterisk indicates the variable is significant at the one percent level of significance or better, two, at the five percent level of significance or better, and, three, at the ten percent level of significance or better.

The results tend to lend support to the liberal position that increases in the size of the public sector lead to a reduction in corruption. In every one of the nine equations in the three tables

representing three different years the sign on the public sector variable is positive indicating there is a negative relationship between the size of the public sector and corruption. Remember that the perceived corruption index is an inverted measure of corruption so that a positive relationship between the corruption index and the public sector indicates a negative relationship between the public sector and corruption. The negative relationship between the size of the public sector and corruption holds true whether the public sector variable is considered strictly in isolation (the first equation in the tables), or is adjusted for differences in per capita income across countries (the second equation in the tables), or for differences in the level of development (the third equation in the tables).

The estimated coefficient on the public sector variable is significant at the five percent level or better in all of the equations and is significant at the one percent level in six of the nine equations. By itself, depending on the year, the size of the public sector accounts for between fourteen and thirty-two percent of the total variation in the corruption perception index across countries. Looking at the smallest estimated coefficient for size of the public sector, 0.098 for equation (9), indicates that a ten percent change in the percentage of government consumption to GDP leads to around a one point change in the perceived corruption index.

In order to check the results for robustness, using a different measure of development to the human development index, we decided to go for a measure with the largest set of cross section data for 1980-1983 period. This alternative measure of the level of development is Morris' physical quality of life index for 1970 developed in his book "Measuring the Condition of the World's Poor" (Morris 1979). The physical quality of life index is based on

life expectancy at age one, basic literacy, and infant mortality. The index's scale ranges from zero to one hundred with higher values indicating higher quality of life.

The results of the cross county regressions with the physical quality of life index are shown in table 4. The physical quality of life index is labeled PQLI70 in the table. Equation (10) in table 4 is similar to equation (9) in table 3 except that the human development index is replaced with the physical quality of life index. Looking at equation (10), once again, the government size variable registers a positive and statistically significant sign.

Table 4: Cross country regressions on perceived country corruption index for 1980-1983 using physical quality of life index for 1970

	(10)	(11)
CONSTANT	0.331 (.354)	1.238 (1.293)
PUBLIC80	0.351 (2.365) **	0.091 (1.910) ***
PCGDP80		0.0001 (2.534) **
PQLI70	0.067 (6.528) *	0.043 (3.247) *
N	57	56
RSQ	0.508	0.546

Lastly, when using the physical quality of life index, one can venture to estimate the effect of government size on corruption adjusting for both per capita GDP and the level of development. This is done in equation (11). The positive sign between the corruption perception index and government size, indicating a negative relationship between corruption and government size, holds true even under

a specification that takes into account the size of the economy and the level of development.

V. Conclusion

Contrary to the expectations from a purely conservative perspective, the cross country empirical findings suggest there is a negative relationship between a country's perceived corruption and the size of a country's government sector relative to the economy.   In other words, the expansion of the government sector in a nation does not lead to an increase, but, rather, to a reduction in amount of perceived corruption. Future studies are needed to confirm this overall result and to investigate the relationship between the various components of government spending and corruption.

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❖ *The views expressed here are personal to the author and do not necessarily reflect those of the other staff, faculty or students of this or any other institution.*

Book Review:

Hans-Peter Kohler (2001) – Fertility and Social Interaction: An Economic Perspective. Oxford University Press: New York. PP 176. ISBN: 0-19-924459-6

Dudley Kirk's excellent review of demographic transition theory (*Population Studies*, 1996) acknowledges the central role of diffusion in demographic transition saying: "without the assumption of diffusion, it would be difficult – if not impossible – to explain the rapidity and pervasiveness of fertility declines". However, he laments that the role of diffusion is still description in search of a theory and advocates that "a potentially fruitful line of enquiry…is the networking that initiates or legitimises birth control". Kohler's book fills just that gap by studying the role of social interaction in the diffusion of birth control.

Given that there are as many theories of fertility decline as there are pebbles on the beach – almost any change in the direction of modernisation may be listed as a 'cause'- the challenge of the subject is to integrate the various theories into a coherent, more complete framework that is capable of better explaining observed fertility decline experiences in developing and developed countries. This book is an admirable attempt at integrating economic and sociological explanations for fertility behaviour. While it does not achieve a deep integration, it is nevertheless a convincing integration in parts. Moreover the study advances knowledge considerably by unpacking the ways in which diffusion via social networks affects fertility behaviour.

The author contends that the role of social interaction in fertility behaviour has become an issue of study because demographic transition theory (which ascribes fertility reductions to preceding mortality reductions) and the individual-centred economic approaches (which condition couples' fertility behaviour on the prices of inputs into the production of progeny) are inadequate in explaining the complex realities and subtleties of the fertility transition. He goes on to present five very readable and interesting chapters looking closing at the ways in which social interaction leads to diffusion.

The book argues that demographic behaviour is associated with externalities that render the adoption of low fertility by one couple dependent on the contemporaneous fertility behaviour of other community members. These externalities arise because the adoption of low fertility by some parents contributes to the erosion of traditional norms or of pressures to conform. The choices of early adopters influence the availability of information for later decision-makers, so that the diffusion of information is a path-dependent process. Economic externalities arise because the return to human capital of children depends on the average level of education in the community.

The most original contribution of the book – apart from its excellent summary of the fertility literature – is the empirical tests it devises of mechanisms through which social interaction affects fertility trends. For instance, using data from Kenya, the author asks whether social networks act on fertility via promoting social learning or by exercising social influence (chapter 3).

The book also provides interesting and plausible theoretical insights into the role of social interaction in explaining fertility behaviour. For example, the puzzle about the persistence of *diversity* in contraceptive practices across communities and social strata is explained by the fact that women are uncertain about the merits of modern contraception; they estimate the qualities of the available methods based on imprecise information from network partners and their contraceptive choices are determined by this imprecise estimate and their own personal characteristics (chapter 2). Chapter 5 views fertility decline as a coordination problem because the benefits of choosing low or high fertility are uncertain and depend in part on the unknown fertility choices of other adults in the population, due to externalities. Thus, *expectations* are an important determinant of fertility. The author distinguishes between two types of social networks: information networks and coordination networks. Information networks provide information about the fertility intentions of other community members. They can increase the pace of a fertility decline that is already taking place but have little effect on the *initiation* of a fertility decline. In coordination networks, the ties among individuals

in a group are sufficiently strong to allow collective action, and in this case the group emerges as the decision-maker. The chapter shows that the presence of coordination networks helps to explain the sudden onset of rapid fertility declines in both Europe and contemporary developing countries.

The book is essentially a reproduction of the author's doctoral thesis with an introduction and conclusions chapter added. Most of the chapters are by now published as papers in peer-reviewed economic and demographic journals. However, it is useful to have brought them together in one volume. The chapters do not dialogue with each other much but this does not detract from the usefulness of the volume which has a more intrinsic coherence by virtue of a strong single theme running through them, namely the role of social interaction. Another attractive feature is that the book is quite accessible to non-specialists. Overall, I enjoyed reading this book and would recommend it warmly.

Geeta Gandhi Kingdon

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