# The Economics of Corruption

## by Prosper Raynold

Most economists define corruption as the abuse of public or governmental power for private benefit. Accordingly, I will adopt it as my working definition of corruption. While this definition of corruption is restricted to the public arena, it nonetheless casts a broad net. For example, as defined here, corruption includes blatantly corrupt acts such as the unauthorized sale of passports and outright embezzlement of public funds as well as subtle acts such as specifying the requirements for an advertised job in ways that rule out all but an official's friends or cronies even if no explicit bribe is paid. In fact, it also includes seemingly insignificant acts by government employees such as calling in sick in order to accomplish some private task. In interpreting this definition of corruption, one should note that private benefit is by no means restricted to directly observable personal benefit. For example, a government official who hires a person from his village or clan over a more qualified candidate may be abusing his or her governmental authority for the private benefit of his or her village or clan and may thereby acquire IOU's (I owe you's) that raise his or her status in the village or clan. It is also important to note that as defined here, corrupt acts may or may not be illegal. For example, under most jurisdictions it may not be illegal for the head of government to divulge privileged information to his or her siblings that gives them a competitive advantage over other citizens. But surely, a head of government who does this has abused public power for the private benefit of his or her siblings. One may disagree on how strictly the definition of corruption employed here should be interpreted and I expect that this will be influenced by societal norms and cultural factors. However, my hope is that a careful consideration of the economic consequences of corruption will encourage a relatively conservative or strict interpretation.

**Opportunities to abuse governmental power for private gain are an inevitable by-product of governments' economic role in market economies.**

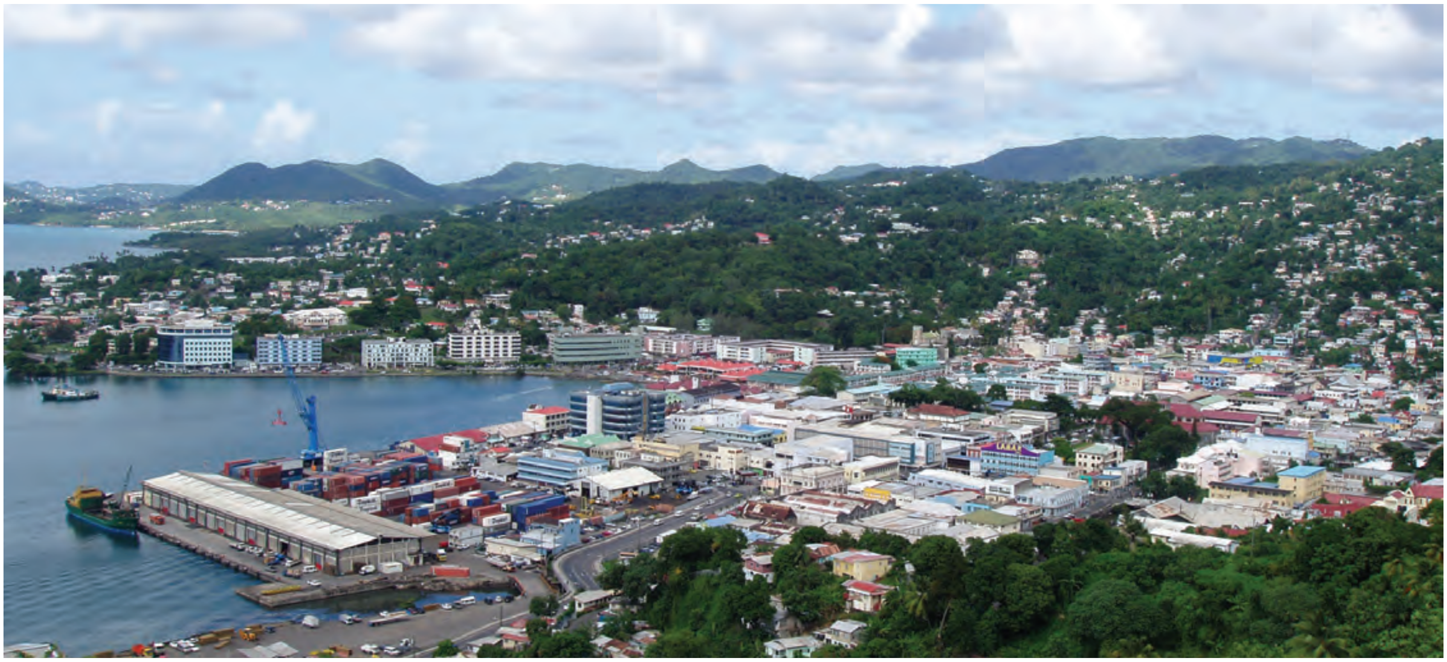
It is important for citizens to know what constitutes corruption; to be aware of its prevalence; to understand the conditions under which opportunities for corruption arise and are taken advantage of; to appreciate the economic consequences and/or costs of corruption; and given the preceding competencies, to develop a sense of the kinds of actions, policies, and institutional mechanisms that are required to combat corruption. This article provides a discussion of some of these issues with particular emphasis on the costs of corruption.

### Government Activism and Opportunities for Corruption

The quality of democratic government is heavily reliant on the choices voters make at the polls. However, the quality of these choices depends on the extent to which voters are informed about current affairs and the political and economic landscape in which their representatives are required to make decisions on their behalf. To the extent that corruption or the potential for corruption is an important part of the landscape, making informed choices at the polling booth requires an appreciation of the societal impact of corruption. Is corruption an important part of the political landscape? Is it likely to be in the future? My answer to both questions is a resounding yes that is informed by the observation that the necessary and sufficient conditions for corruption to thrive exist in virtually every state albeit at differing levels. Corruption is ubiquitous in both time and space. For example, in a widely cited treatment of public administration written in the fourth century B.C., Kautiliya characterized the ubiquity of corruption as follows:

*Just as it is impossible to not taste the honey that finds itself at the tip of the tongue, so it is impossible for a government servant to not eat up at least a bit of the king's revenue.*

Voters who are interested in fighting corruption should and do place substantial weight on the perceived personal integrity of those who offer themselves for political office. However, it is not clear that they pay as much attention to the implications of advocated economic policies for corruption. My sense is that voters take the level of opportunities to engage in corrupt acts as given and elect political parties or politicians who, based on voters' perception of their integrity, are least likely to take advantage of these opportunities. Unfortunately, to the extent that voters fail to appreciate and thereby ignore the effects of advocated economic and other policies on opportunities for corruption, this approach may be fundamentally flawed. For example, the analysis to follow will demonstrate that failure to appreciate the implications of proposed policy on opportunities for corruption could result in the election of a political party that is successful in positioning itself as the anti-corruption party but may concurrently propose a set of well intentioned economic policies that have the unintended consequence of increasing opportunities for corruption. For a voter who accepts the seeming inevitability of corruption suggested by Kautiliya, the importance of limiting opportu-



**Overlooking the city of Castries, St. Lucia's seat of Government**

nities for corruption looms large and should place a high premium on developing an understanding of how opportunities for corruption arise.

Economic theory suggests that opportunities to abuse governmental power for private gain are an inevitable by-product of governments' economic role in market economies. At the most general level, the economic role of the government is to provide support for the market system when it yields socially desirable results and to correct for the market system when it yields results that are deemed socially undesirable. In democratic political systems, socially desirable outcomes are defined by political competition. In particular, open election campaigns allow political parties to advance competing views on what is socially desirable. If a given election result is justifiably interpretable as conferring a mandate, the winning party gets an opportunity to implement its previously advanced views on what is socially desirable. To the extent that unfettered markets yield results that are considered socially desirable under the prevailing view, no economic role is envisioned for the government.

## The relative absence of arm's-length relationships increases the probability that government officials will engage in corruption by granting preferential treatment to relatives and friends.

However, the view that unfettered markets will yield some socially undesirable results and that there is an economic role for government is widely accepted. For example, the consensus view in economics is that in unfettered markets, goods for which producers are unable to capture most of the benefits associated with their production will tend to be produced at levels below the socially optimal level. Similarly, goods whose production includes some costs that are borne by society at large instead of by the producer will tend to be produced at levels that exceed the socially optimal level. In the former case, we observe either government subsidies as is common in education or outright government provision as in the case of national defense, law enforcement, and public roads. For goods that are over produced (for example pollution) we observe government regulations or taxes intended to force producers to incur the full costs of their productive activity and thereby bring their production in line with socially optimal levels. These examples are illustrative of the view that the degree of government intervention (i.e. the governments economic role) in the economy in any given era or country is defined by the gap between what is currently deemed to be socially desirable and the results generated by markets in the absence of government intervention.

In practice we observe governments around the world intervening in markets as regulators and facilitators of economics activity, as providers of public goods (i.e. goods for which purely market incentives may not lead to positive output such as public roads and infrastructure, border control, and national parks), and as income re-distributors. For example, the market system is fundamentally reliant on voluntary exchange. Such exchange cannot take place in an environment in which property rights are not adequately defined and protected. To see this, imagine a world in which property rights are not properly defined and/or enforced. Would you be willing to buy a piece of property if you could not verify that it belongs to the seller or if you believed that you would have no recourse if a third party choose to steal your newly acquired property? Similarly, in order for markets to work well, it is vitally important for market participants to have the ability to conduct transactions that require the exchange of a good, service, or payment today for some good, service, or payment in the future. However, in order for an economic entity to enter into an exchange that requires future performance, it must be confident that it will have recourse in the event the other party fails to perform. Consequently, coherent contract law and enforcement of contracts is vitally important to the functioning

**Government Waterfront Buildings, Castries, St. Lucia**

of markets. These observations highlight the consistency of government definition and enforcement of property rights and contract law with the view that some government actions support and/or facilitate the operation markets.

In a pure market system at least some socially desirable public roads and infrastructure will not be built because private agents will not be able to capture enough of the gains from these projects to make them profitable. As a consequence the government corrects the purely market result by building roads and infrastructure. However, in order for it to do so it may award construction and maintenance contracts that inevitably provide opportunities for ministers and other officials entrusted with the public power to award contracts in ways that yield private benefits. In addition, the maintenance of civil order requires government regulation of the use of roads by, among other things, requiring drivers' licenses and licensing of automobiles. This in turn creates opportunities for government officials entrusted with governmental authority to abuse this authority for private gain by, for example, issuing driver's licenses to undeserving individuals in return for a monetary bribe or some other consideration.

**Our culture may make it more difficult to conduct government business with private entities at arm's-length and may contribute to corruption.**

Government programs to redistribute income typically specify eligibility criteria for the beneficiaries of these programs. In most cases political leaders typically rely on civil servants to administer these programs and thereby, provide opportunities for them to abuse their governmentally derived authority to, among other things, grant undeserving benefits to relatives and friends. In some cases political leaders maybe deliberately vague in specifying eligibility criteria in other to grant greater discretion to civil servants who are willing to assist them in granting favors to political supporters.

Clearly, the pattern of government intervention in markets creates opportunities for corruption as defined earlier. This pattern extends to all areas of government intervention in economic activity or markets. For example, government imposition of border controls in the form of tariffs, immigration requirements, and controlled issuance of passports create opportunities for customs officers, immigration officers, and employees of the passport office to use their governmental authority for private gain. In fact, one of the great ironies of government intervention in economic activity is that while many interventions may be well intentioned, opportunities for corruption increase as government intrusion in markets increase. This may present voters who are concerned about corruption with a difficult conundrum if political parties that are most likely to advocate an anti-corruption plank are also more disposed to increasing government intervention in markets.

Despite the clear positive correlation between the invasiveness of government intervention in markets and the opportunities for corruption, it bears re-emphasizing that government intervention in markets creates opportunities for corruption but does not by itself create corruption. The Nobel laureate, Gary Becker, has suggested that corruption, as defined here, would not exist if all governments were abolished. However, his observation must be weighed against the fact that countries like Canada, Denmark, Finland, and Sweden that by most measures have relatively high degrees of government intervention in markets are among the least corrupt countries in the world. Clearly, government intervention in markets is a necessary but not sufficient condition for the existence of corruption. There are other conditions such as the relative absence of arm's-length relationships that encourage or facilitate taking advantage of opportunities to engage in corruption. While a thorough discussion of the conditions under which government officials are likely to take advantage of opportunities to engage in corrupt activities is beyond the scope of this article, a brief discussion of arm's-length relationships in markets is likely to be particularly instructive.

## Arm's Length Relationships and Corruption

While it is difficult to precisely define an arm's-length relationship, it may be easier to talk about what it looks like. Accordingly, for the purposes of this article we will assume that an arm's-length relationship exists between a government agent with the authority to grant licenses, contracts, etc., and private entities who apply for these licenses, contracts, etc., if the decision to award the license, contract, etc., is not influenced by personal relationships or emotional connections. In situations where an arm's-length relationship does not exist, it is much more likely that decisions on contracts, licenses,

**Greaham Louisy Administration Building**
**Office of the Prime Minister of St. Lucia**

and so forth will not be based on consistently applied rational and transparent procedures and universally accepted principles. The relative absence of arm's-length relationships increases the probability that government officials will engage in corruption by granting preferential treatment to relatives and friends. In fact, the absence of arm's-length relationships could be so pervasive that government officials may come to believe that they deserve special consideration from strangers who apply for licenses, contracts, passports, etc. When such consideration is not forthcoming, these unconnected applicants may face an increase in the costs of acquiring licenses etc., in the form of longer waiting periods, unnecessary documentation, or in extreme cases, outright denial.

After spending a few months in 1989 studying life in the Danish village of Hvilsager (population 104), Prakash Reddy, an

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Indian professor of social anthropology recorded his impressions of the relations among the villagers in a paper titled "Danes are Like That" which was reviewed by the Economist magazine in its January 25, 1992 issue. Professor Reddy found an emphasis on individualism and independence and a general absence of close relations among villagers. For example, villagers knew very little about their neighbors and hardly visited each other's houses. Within families, children were raised to be independent and encouraged to leave home as soon as they turned eighteen. Adult children hardly visited their parents and preferred to keep in contact via the telephone. The elderly were put into group homes and seem contented. Given our observations about the nature and importance of arm's-length relationships, it seems reasonable to argue that Danish culture, as represented by the villagers in Hvilsager, should be relatively conducive to the maintenance of arm's-length relationships between government officials and the people they serve.

If an anthropologist were to undertake a similar study in St. Lucia or the broader Caribbean, I suspect his impressions would be very different. Our children are raised within extended families that extend beyond blood relations to members of the church and neighbors. Upon becoming adults children leave their parents homes after they get married, enter a live-in relationship, or emigrate. Our society frowns upon individuals who "foresake" their families by failing to share resources with less fortunate members of the family; by withholding emotional support in the form of visits and other contact; and by refraining to use governmental and other authority to help members of the extended family. Perhaps because of the perceived obligation to help family members in the ways described above, individuals do not hesitate to give unsolicited advice or otherwise insert themselves in other peoples business. Consequently, in contrast to the Danish case, our culture may make it more difficult to conduct government business with private entities at arm's-length and may contribute to corruption as defined earlier.

## Corruption Distorts Incentives

My experience with economic theory and the conduct of economic analysis has taught me that the best way to understand how a given event, phenomenon, or change in the economic environment affects the economy is to examine its effects on incentives. Among other benefits, this approach is useful for understanding how income taxation or changes in income tax rates affect the economy, how inflation affects economic performance, how a natural disaster such as a hurricane affects the economy, how changes in monetary and or fiscal policy affect the economy, and for our current purposes how corruption affects the economy.

Given the wide range of activities that may satisfy our definition of corruption, it is impossible for me to individually identify every type of corruption and its costs. Therefore, we need an organizing or guiding principle. Accordingly, I offer the following principle. Corruption imposes significant economic costs by altering or distorting economic incentives in ways that are inimical to the public good. In what is to follow, I will argue that corruption distorts incentives along a number of dimensions and that these distortions lead to inefficient allocation of resources that have debilitating effects on aggregate economic activity and prospects for economic growth.

## Corruption and Policy Effectiveness

As noted earlier, governments play an important corrective role in the economy. In particular, governments use their powers to tax and regulate to correct for market results that differ from what society deems desirable. Corruption frequently impedes well intentioned government regulations intended to improve social welfare and may thereby significantly reduce government effectiveness. To illustrate, consider the following scenario. The government of a developing country received a credible report from an international environmental organization. The report detailed substantial environmental and health risks associated with fumes being released from four oil refineries operating in the country. Upon investigation, the government found that all of the refineries were releasing a hazardous substance into the atmosphere at levels that exceed international standards. Since all of the refineries were operated by U.S. based multinational firms, the government also checked the standard that would apply in the U.S. and found that U.S. standards were even stricter than international standards. In accordance with its corrective role, the government passed legislation requiring firms to clean up the fumes being released in accordance with international standards and hired an environmental scientist to monitor compliance. In order to comply with this new legislation each of the refineries would have to incur costs that would reduce their profitability.

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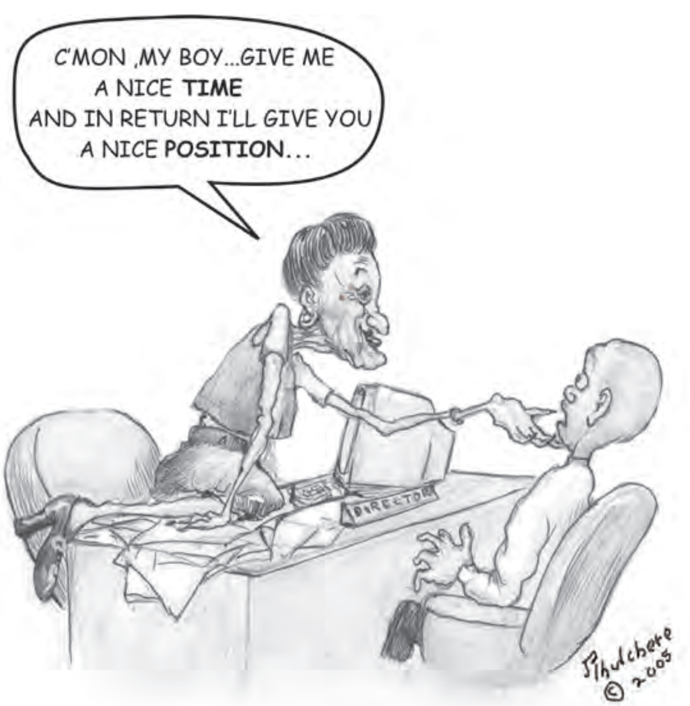
Three of the refineries (lets call them refineries R1, R2 and R3) made the necessary changes to their production processes, incurred the costs associated with the newly imposed standards, and given that the price of refined products are fixed by the government, were forced to accept lower profit margins due to their inability to pass the higher costs on to consumers. The fourth refinery (refinery R4), which was the least efficient of the four, immediately employed a "facilitator" who makes a living by helping expatriates navigate or in some cases circumvent the maze of government regulations to be satisfied in the ordinary conduct of business. The facilitator in question is a close personal friend of the environmental scientist charged with monitoring the refineries. Over an afternoon barbeque and with the help of a substantial monetary offer, the facilitator convinces his friend to falsify his compliance reports on refinery R4 to indicate compliance with regulations. Having arranged to circumvent the new regulations, refinery R4 made cosmetic changes at its plant and with the exception of regular payments to its facilitator and the environmental scientist, did not incur the additional costs incurred by the other refineries. As such, its profit margin was significantly higher than that of its competitors. Within three years of these events, under the weight of reduced profit margins and government refusal to allow increases in the price of refined products, refineries R1-R3 closed operations while refinery R4 expanded to fill the void. Given its new found monopoly power and its increased leverage with the government, refinery R4 was confident that it could coerce the government to increase the regulated prices of refined products. In addition, concerned that its failure to comply with regulations may be revealed in the future, refinery R4 decided to begin compliance with government regulations. To minimize its vulnerability to exposure, it appointed the environmental scientist to its newly created and lucrative position of chief compliance officer and put its facilitator on a long-term retainer contract. Within six months of beginning compliance, refinery R4 filed a petition with the government to have it increase the price of refined products. Given the fact that refinery R4 was now the only refinery in the country and rumors that it might close operations in the country if its request was not granted, the government acquiesced.

It should be clear that the scientist in the scenario described above used his governmental authority for private benefit and that his actions qualify as corruption as defined in this article. What are the costs of this corruption? I see several costs all of which are suggested by economic theory and consistent with empirical evidence on the costs of corruption. Firstly, despite the government's proper intention to protect the environment and citizenry from the pollution generated under unfettered markets, the corrupt actions of a government official allowed refinery R4 to circumvent the government policy and from the onset compromised the effectiveness of the attempt to force the industry to internalize the cost associated with its production. The scenario described above does not include corruption on the part of cabinet level government officials. This is significant because it highlights the fact that the enlightened policies of an honest cabinet are likely to be distorted and rendered ineffective by a corrupt bureaucracy. As such, a generally ineffective government may be a major cost of corruption.

## Corruption leads to white elephants, poorly constructed roads, bridges, and other infrastructure, and poorly maintained roads and government buildings.

The corruption described above allowed refinery R4 to buy access to a more permissive set of constraints relative to the set of constraints available to its competitors. In particular, by paying bribes, refinery R4 was able to buy significant cost advantages over its competition. This is a classic example of what I earlier referred to as the distortionary effects of corruption. By improving the incentives available to refinery R4 relative to that available to its competitors, corruption made it possible for the least efficient refinery to thrive and ultimately led to the demise of its more efficient competitors. Economic efficiency demands that the production of any good or service be undertaken by the most efficient firms, that any given job should be filled by the most qualified or productive applicant, that government contracts should be awarded to the best applicants, etc., However, in order to achieve this efficient outcome competitors in any given endeavor must compete on a level playing field, corruption gives some competitors (whether for a job, market share, government contract etc.) an unfair advantage over others and thereby hampers economic efficiency.




The preceding scenario provides an opportunity for us to elaborate on the effects of corruption on economic efficiency and social welfare. As noted, ultimately the only refinery in the country was refinery R4, as such it became a monopoly and was able to use this monopoly power to coerce the government into allowing an increase in the price of refined products. Consequently, consumers ended up paying higher prices for refined products and in effect refinery R4 was able to pass the costs of cleaning its fumes to consumers. It is well known that for most products or services monopoly production is inefficient relative to more competitive industrial or market structures. Monopolies tend to restrict output and increase price to maximize their profits. So despite the fact that refinery R4 ultimately complied with new regulations, the cost to consumers in the form of higher gas prices and to society at large due to reduction in efficiency and the increased market power of refinery R4 was higher than it would have been in the absence of corruption. The only beneficiaries were refinery R4, the facilitator, and the environmental scientist while everyone else was made worse off.

## Corruption: Public Investment, Health Care, and Education

In preparation for its annual budget debate, the cabinet of a small developing country meets to consider the amount and composition of its planned capital expenditures in the forthcoming year and its planned expenditures on health care and education. Among the proposals to be considered is a 19 million dollar shopping and entertainment complex in the downtown area of the prime minister's district. The prime minister has been under a lot of political pressure in his district due to the decline of the downtown area, and some political pundits have started to question his re-electability. The government hopes that the new complex will be instrumental in resuscitating the area and plans to rent space to private operators (mostly political cronies) at below market rates. However, despite the availability of a team of urban planners and economists with substantial experience in conducting impact studies, no formal study of the impact of the proposed shopping area has been commissioned or conducted.

In addition to the foregoing, a confidential report prepared by the country's public health service recently highlighted the appalling state of bathrooms (toilets) in schools and government offices throughout the country. The report notes that many schools have poorly functioning toilets that frequently overflow and that hand washing facilities are either non-existent or far from adequate. The health service has reported an alarming rise in reported illnesses and deaths from diseases that are usually associated with fecal matter. In addition, an epidemiologist and a health economist associated with the ministry of health have released a joint report in which they argue that sick students, teachers, and government employees transmit diseases to family members and other associates, who in turn transmit to others. In addition, family members who do not get sick miss work to take care of loved ones. They estimate that the loss of productivity associated with this cycle amounts to tens of millions of dollars per year. They conclude that refurbishing and/or upgrading toilets in all schools and government offices will reduce this cost by 80 percent. In light of the foregoing, the ministry has developed a plan to rectify the problem that will cost 20 million dollars.

The government can boost its capital expenditures budget by 19 million to build the shopping complex or it can boost its maintenance budget by 20 million to fix the toilets. However, given the budgetary constraints it faces the government can only come up with 20 million dollars. In making its decision, the cabinet carefully considers the available reports and the pros and cons of each project. Most prominent among the criteria employed are the political visibility of the project (i.e. the extent to which the party and the prime minister will be able to get political credit), the project's potential to reward supporters of the ruling party, and the opportunities the project provides for kickbacks to the ruling party's reelection fund. In the end the capital expenditures budget is boosted by 19 million dollars and the maintenance budget by 1 million dollars. Is this action by the cabinet an act of corruption?

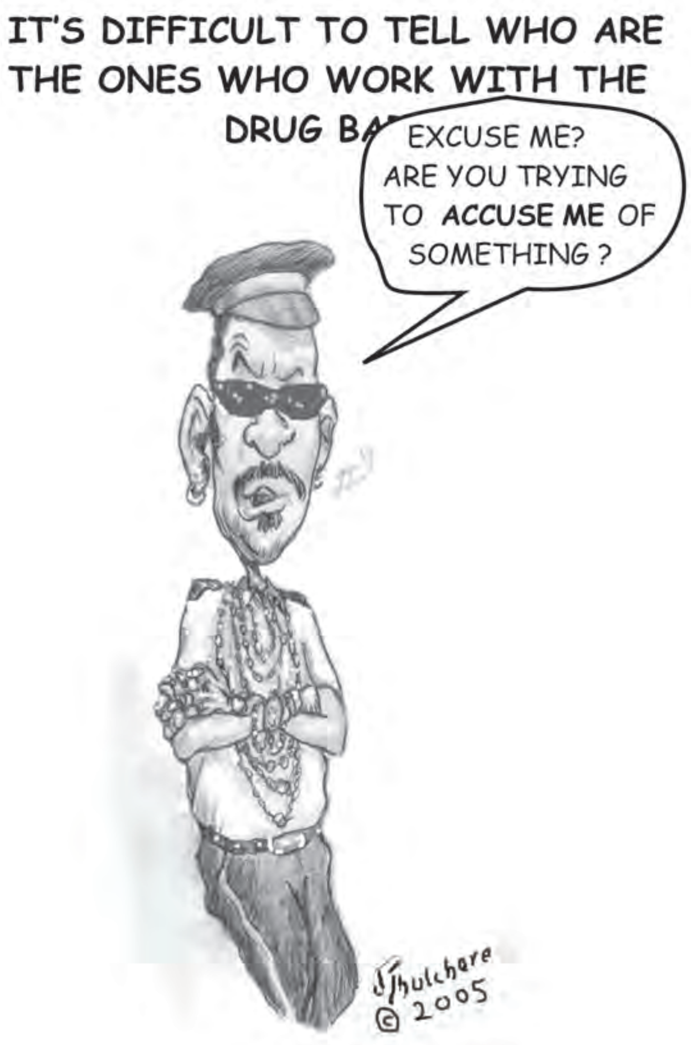
**High levels of corruption are associated with high primary school drop out rates, high infant mortality rates, high child mortality rates, and a higher percentage of low birth weight babies.**

Earlier we defined corruption as the abuse of public or governmental power for private gain. In determining whether the decision to fund the shopping mall is a case of corruption, consideration of the motivations of the cabinet is of utmost importance. As described, the cabinet gave relatively greater weight to the fortunes of the ruling political party. However, the interest of any political party including the ruling party is a private interest. Consequently, using private criteria such as the electoral fortunes of the ruling party to make public resource allocation decisions is fundamentally corrupt. What are the costs of corruption in this case and what do they teach us about the effects of corruption on society?

Governments are regularly faced with choices similar to that described in the preceding example. To the extent that criteria such as political visibility and the ease with which kickbacks can be extracted from projects, are the primary criteria used to rank projects, the playing field will be tilted in favor of certain types of projects. Most economists who are active in research on corruption suggest that large infrastructure projects and defense expenditures are more amenable to the arrangement of kickbacks than are projects in education, healthcare, and maintenance of infrastructure. Moreover, on average, infrastructure projects offer the greatest political visibility. Consequently, to the extent that corruption of this type exists in a country, its budgetary decisions will inefficiently favor large infrastructure projects over expenditures on healthcare, education, and maintenance. Consequently, this leads to excessive investment in projects that are amenable to corrupt exploitation at the expense of expenditures on healthcare, education, and maintenance. In addition, since kickbacks increase the cost of these projects, this kind of corruption increases government expenditures while reducing the rate of return society earns on these investments.

The famous Italian bribery scandal commonly referred to as tangentopoli (bribe city) provides a dramatic example. After the scandal broke and a large number of public officials were relieved of their governmental authority, capital spending fell dramatically to reflect a reduction in the number of projects being undertaken and in the costs of the typical project. Transparency International reported that within three years the cost of rail links in the city of Milan fell by 52 percent, the cost of a kilometer of subway fell by 57 percent, and the budget for a new airport terminal was reduced by 59 percent. Unfortunately, the costs of corruption cannot be measured simply in terms of increases in the costs of government or public investment. The volume titled Governance, Corruption, and Economic Performance edited by George T. Abed and Sanjeev Gupta and published by the International Monetary Fund (IMF) contains several chapters on the effects of corruption on economic performance. In the chapter titled Corruption, Public Investment, and Growth, Tanzi and Davoodi use data from a large cross-section of countries to demonstrate that high corruption is associated with high levels of government or public investment; low government revenue; low levels of operating and maintenance expenditures; and poor quality of infrastructure. In other words, corruption leads to white elephants, poorly constructed roads, bridges, and other infrastructure, and poorly maintained roads and government buildings.

Perhaps the most heartbreaking effect of this kind of corruption is its diversion of public expenditures away from education and health care in favor of public investments that are more suitable to corrupt exploitation. The role of education as a primary requirement for sustained economic growth is well understood as is the importance of adequate health care. It is impossible for an undereducated and sickly population to achieve its full potential. Consequently, the failure to adequately invest in health care and education is not only of concern for current societal welfare, but has important implications for the foreseeable future. These are not simply theoretical conclusions; they are supported by empirical evidence. For example, in chapter ten of the aforementioned IMF publication, Gupta, Davoodi, and Tiongson show that in a sample of more than 50 countries high levels of corruption are associated with low quality public health care provision and with high primary school drop out rates. Even more disturbing is their finding that high levels of corruption are associated with high




infant mortality rates; with high child mortality rates; and a higher percentage of low birth weight babies.

## Labor Market Effects of Corruption

There are two primary avenues via which corruption imposes economic consequences in labor markets. First, when hiring and promotion decisions emphasize criteria other than education, training, and experience it reduces the return to human capital (i.e. an applicant's accumulated education, training, and experience) and thereby, reduces the incentive for young people to invest in human capital. So for example, if hiring and promotion decisions are dominated by nepotism, family connections, and willingness to grant sexual favors, the returns to these characteristics rises relative to the return to human capital. As a consequence, rational economic agents will reduce investment in human capital and in favor of increasing investment in developing connections and other similar characteristics. For those who have already acquired human capital and those who do not have access to connections, alternatives such as emigration and criminal activity may beckon.

Within the class of government employees, corruption may distort incentives by increasing the defacto return to some occupations relative to others. For example, in some countries despite the fact that customs officers' legal salaries are relatively low, the demand for these positions outstrip that for other more fulfilling jobs. In fact, the most talented graduates end up working for the customs department. This phenomenon reflects the perception that customs officers can substantially augment their legal compensation by engaging in corruption. When these conditions prevail within a country's civil service, even if the overall level of education, training, and experience may be quite high, the distortion of incentives hampers attempts to match applicants with the jobs to which they are most suited and may result in an array of mismatches that make it almost impossible to achieve minimal efficiency in the delivery of government services.

Earlier, I highlighted the view that in cultures in which there is a relative absence of arm's-length relationships, corruption is more likely to thrive and that government officials may come to believe that they should receive special consideration to grant licenses, contracts, etc. to applicants with whom they have no special relationship. So, for example, government officials may deliberately increase the time it takes to grant a license and demand speed money from strangers or may find reasons to deny the applicant until a bribe is paid. Under these conditions,

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strangers find it more efficient to employ the services of facilitators who, because of their substantial prior investment in developing connections, are able to exploit the lack of arm's-length relationships to get things done. Several observers have noted that members of the class of facilitators are typically among a country's most gifted and innovative citizens and are lured away from other more productive endeavors by the fact that the return to facilitating is much higher than the return to other endeavors such as the professions, entrepreneurship, and public service. This skewing of the return to facilitating relative to other activities that from a societal point of view are more productive is another example of the distortionary effects of corruption.

## Implications of Corruption for Economic Growth and Development

So far, our examination of the economic costs of corruption suggests that corruption leads to low quality infrastructure that is poorly maintained. Macroeconomists have long recognized the potential for public investments in infrastructure and in research and development to enhance private productivity. For example, a well maintained system of feeder roads makes it easier for banana farmers to get their produce to market in good condition, reduces losses due to damage in transit, and thereby increases farmers' profits. Similar arguments can be made about projects that reduce transportation cost, improve telecommunications, or lower the costs of electricity. To the extent that corruption reduces the productivity of such public investments it also reduces private productivity and thereby hampers economic growth.

We also noted that corruption favors less productive infrastructure projects over expenditures on health care, education, and maintenance of infrastructure such as roads. Inadequate funding of healthcare and education leads to a sickly and undereducated workforce that is less productive and thereby leads to lower rates of economic growth. Poorly maintained roads increase the rate at which vehicles depreciate. Depreciation is a form of consumption (i.e. consumption of capital). As such, an increase in depreciation of vehicles implies an increase in capital consumption or a decrease in the savings rate. To put it differently, if the roads are poorly maintained, your car will require more frequent maintenance and replacement of parts and will have a shorter useful life. As a consequence, you will end up spending much more on transportation than you might if the roads were properly maintained. The extra resources you spend to fix or replace your car are resources that could be saved for a down payment on a new house, to finance your children's education, or to start a small business. To the extent that investment is dependent on savings, any reduction in the aggregate savings rate will lead to a reduction in private investment and to a reduction in capital and the rate of economic growth.

A substantial body of statistical evidence documents the negative effects of corruption on investment in physical capital by both local and foreign firms. For example, using a corruption perception index that ranks countries according to perceived levels of corruption, Professor Shang-Jin Wei of Havard University calculates that if the level of corruption in the Philippines could be lowered to that of Singapore which has relatively low levels of corruption, investment as a fraction of gross domestic product would be higher by 6.6 percent. Many developing countries attempt to increase the flow of investment from multinational firms by offering to reduce the rate at which their earnings are taxed or by granting tax holidays. Professor Wei estimates that reducing the level of corruption in India to that in Singapore would yield an increase in foreign investment equivalent to the increase that would be realized if the tax rate multinational corporations would have to pay on each additional dollar of profits was reduced by 22 percentage points. In other words, if multinational firms operating in India would ordinarily have to pay 40 cents of each additional dollar of profits to the government, it could avoid offering a tax break of 22 cents and still achieve the same increase in the flow of foreign investment by reducing the level of corruption in India to the Singaporean level. Virtually all theories of economic growth assign an important role to capital accumulation in the growth process. Since capital is accumulated by investing, investment in physical capital by both domestic and foreign firms is an important determinant of the rate of economic growth. Wei's results and that of many others clearly document that corruption has a negative effect on investment and ultimately on the rate of economic growth.

In most countries the adverse effects of corruption on small and medium sized business enterprises is more severe than its effects on large enterprises. This reflects the fact that in contrast to large enterprises, small and medium size firms are less likely to be "connected", have fewer resources with which to pay bribes or employ facilitators, and because of their smallness, are more susceptible to the corrupt whims of government officials.

I noted earlier that corruption distorts incentives in favor of those who are willing and able to pay bribes or otherwise secure special treatment. To the extent that large enterprises are better able to secure these favors, corruption enhances their fortunes to the detriment of small and medium sized firms. This is of particular concern to growth economists because it is now widely accepted that compared to large, well established firms, small and medium sized enterprises are more innovative and more active in the development of new products or services, and as such, are the primary drivers of economic growth in most countries. In addition, small and medium sized enterprises are relatively labor intensive which helps explain the well documented facts that small and medium sized firms account for the bulk of employment in most economies and that they create most of the new jobs. Consequently, to the extent that corruption allows large firms to gain a competitive advantage relative to small or medium size interprises, it discourages economic growth and job creation.

Corruption hampers economic growth. So what? Consider this. The World Bank reports that in 2002 gross domestic prod-

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uct (GDP) per capita was 4124 US$ in St. Lucia and 9423 US$ in Barbados. According to the International Monetary Fund's data, the average rate of growth of real GDP per capita between 1999 and 2003 for St. Lucia and Barbados were respectively, -1.14 percent and 0.18 percent. The negative rate of growth for St. Lucia captures the fact that real GDP per capita has been falling in St. Lucia. According to the World Bank, GDP per capita in Haiti in 2002 was 415 US$. I used well known algebraic techniques to answer the following question. How long will it take for real GDP per capita to fall to Haiti's level if St. Lucia maintains an average rate of growth of -1.14 percent? My answer: 201 years. If St. Lucia's average growth rate falls to -3.0 percent (it was -5.5 percent in 2001), its GDP per capita will reach Haitian levels within 77 years. Alternatively, and on a more positive note, if the average growth rate is 1 percent (the IMF estimates it was 0.9 percent in 2003), it will take 83 years for GDP per capita in St. Lucia to approach the current level in Barbados. Without accusing anyone of corruption, if we assume that a corruption reduction initiative in St. Lucia could increase the rate of growth from 1 percent to 2 percent it would take 41.5 years for GDP per capita to reach Barbados' level, and if a growth rate of 3 percent can be achieved, it would take 28 years. Finally, in addition to the obvious implications of slower growth for social welfare, consider the following observations. The IMF reports that there is one physician in St. Lucia for every 2533 persons. In Barbados that number is 749. There is one hospital bed per 136 persons in Barbados, that number is 292 for St. Lucia. Finally, according to the IMF, infant mortality per 1000 live births is 12 in Barbados and 16.8 in St. Lucia.