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## Preface

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The Economic Issues series aims to make available to a broad readership of nonspecialists some of the economic research being produced in the International Monetary Fund on topical issues. The raw material of the series is mainly IMF Working Papers, technical papers produced by IMF staff members and visiting scholars, as well as policy-related research papers. This material is edited and partly redrafted for a general readership.

This Economic Issues pamphlet draws on material originally contained in IMF Working Paper 97/139, "Corruption, Public Investment, and Growth," by Vito Tanzi and Hamid Davoodi. David Driscoll prepared the current version. Readers interested in the original Working Paper may obtain a copy from IMF Publication Services (\$7.00) or view the full text on the IMF's Internet site at <http://www.imf.org>.



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Ribbon-cutting ceremonies marking the opening of investment projects—such as roads, dams, irrigation canals, power plants, ports, airports, schools, and hospitals—are every politician’s dream. These occasions present splendid photo opportunities, while the very act of cutting the ribbon seems to identify the shear-wielding politician as a contributor to the future growth of the economy. In some countries, however, corrupt politicians appear to choose investment projects not on the basis of their intrinsic economic worth, but on the opportunity for bribes and kickbacks these projects present.

This paper contends that such corruption increases the number of capital projects undertaken and tends to enlarge their size and complexity. The result is that, paradoxically, some public investment can end up *reducing* a country’s growth because, even though the share of public investment in gross domestic product (the total of all goods and services produced in a country in a given year) may have risen, the average productivity of that investment has dropped.

This conclusion runs counter to the bias of many economists. The conventional wisdom of the economics profession is that countries need capital to grow and, more important, that a direct relation exists between capital spending and growth. In other words, if a

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country engages in capital spending, growth is likely to follow. As a consequence of this belief, the economics profession has been strongly biased in favor of capital spending by governments. When economists evaluate the allocation of public money between *current* spending (for recurring, day-to-day expenses) and *capital* spending in government budgets, they tend to be critical of countries that allot a large share of government expenditure to current spending, but to applaud countries that refuse to stint on capital spending.

This bias is enshrined in the “golden rule” often advocated by economists. The rule states simply that only current expenditure needs to be balanced by ordinary revenue, but that a country can—within limits—safely run a fiscal deficit (an amount it must borrow from domestic or foreign investors) equal to the capital spending of the government. You should cover the current budget with government revenues, but borrow whatever you can for the capital budget. Thus, it is all right to borrow to finance the building of new roads but not to finance the repair of existing roads, or to borrow for building a new hospital but not for hiring doctors or nurses or for buying medicines. This rule continues to be evoked as a good guide to policy even in the face of much evidence that some current expenditure—such as on operation and maintenance that keeps existing infrastructure in good condition or that contributes to the accumulation of human capital—can promote growth more effectively than capital expenditure.

Politicians have been quick to internalize this bias and have sensibly learned to exploit it. This pro-investment bias bloats the investment budget.



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## A Wealth of Opportunity and Vice Versa

Because most current spending by governments reflects entitlements or previous commitments—such as pensions, interest payments on public debt, salaries, and subsidies—politicians have, in the short run, limited discretion to influence it. Individual politicians generally lack the power or will to change the salaries or pensions of specific public employees or to alter subsidies to individuals. In contrast, there is nothing routine about the capital (investment) budget and its composition: capital spending is highly discretionary. In formulating the capital budget, senior political figures must make the basic decisions. These decisions determine the size of the total public investment budget, the general composition of that budget (the broad allocation among different categories of capital spending), the choice of specific projects and their geographical location, and even the design of each project. Senior officials may have complete discretion over these decisions, especially when a country's controlling or auditing institutions are not well developed and institutional controls are weak.

### *Who Benefits?*

Public investment projects tend to be large and, sometimes, very large. Since their execution is generally contracted out to domestic or foreign enterprises, the first step is choosing a firm to undertake the project. For a private enterprise, getting a contract to execute a project, especially a large one, can be very profitable. Therefore, managers of these enterprises may be willing to offer a “commission” to politicians who help them win the contract. Conversely, in many cases the act of bribery may not start with the enterprise but with the officials who control the decisions—in some countries it is apparently impossible to win a government contract without first paying a bribe. The payment of such a bribe is illegal in very few countries. In fact, the laws of certain major industrial countries regard commissions paid by domestic enterprises to foreign politicians as not only legal but also tax deductible, although this is changing, as discussed below.



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A commission of even a few percentage points on a project that costs millions or even hundreds of millions of dollars can be a large sum, one large enough to exceed the temptation price for many otherwise reputable individuals. When commissions are calculated as a percentage of project costs, the politicians or public officials who receive payment for helping the enterprise win the bid will have a vested interest in increasing the scope or the size of the project so they can get larger commissions. A commission of 2 percent of the cost of a four-lane road is understandably more tempting than 2 percent of the cost of a two-lane road.

The process of approving an investment project can be an irresistible temptation for the unscrupulous. For example, a civil construction project (a road, building, or port) requires decisions related to specification and design issues, issue of tender (limited to a single firm or open to all), tender scrutiny, tender negotiations, and tender approval and contracting process. The completion of the project will require verification that the work has been done according to the contract. It will also require some arbitration about points of disagreement. The writing of contracts for complex projects is difficult and inevitably many areas of uncertainty and eventual disagreement will need to be resolved through negotiation.

In some of these phases, a strategically placed high-level official can manipulate the process to select a particular project. He can also tailor the specifications of the design to favor a given enterprise by, for example, providing inside information to that enterprise at the time of issuance of tender.

### *Who Pays?*

The enterprise that pays the commission rarely suffers from the payment of the bribe, since it is usually fairly simple to recover that cost. First, if it is assured by corrupt officials of winning the bidding competition, the enterprise can include the cost of the commission in its bid. Second, it can reach an understanding with the influential official that the initial low bid can be adjusted upward along the way, presumably to reflect modifications to the basic design. Third, it can reduce its spending on the project by the amount of the bribe

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by skimping on the quality of the work performed and the materials used. Fourth, if the contract is stipulated in a cost-plus fashion, the enterprise can recover the cost of the commission by overpricing.

In all these alternatives that require the collaboration of a corrupt politician or official, the taxpayers will end up with either a more costly project—or a bigger or more complex project than necessary—or a project of inferior quality that will require costly upkeep and repair. Experience with public sector projects, especially in developing countries, is replete with stories about roads that are pocked with potholes soon after completion, power plants that experience regular blackouts, and sewer systems that don't work.



## So What?

Why does it matter when this happens? It matters because the productivity of capital spending is reduced, which in turn lowers the growth rate of the country. When corrupt politicians influence the approval of an investment project, the rate of return as calculated by cost-benefit analysis (a method of determining just how much each dollar invested will increase output) ceases to be the criterion for project selection. Corruption distorts decisions about the investment budget. When corruption plays a large role in the selection of projects and contractors, some projects are completed but never used. Others are so poorly built that they will need continuous repair and their output capacity will disappoint. In these circumstances, it is not surprising that capital spending often fails to generate the growth economists expect.

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### *Side Effects*

Widespread corruption in the investment budget will not only reduce the rate of return to *new* investment in a country, but will also affect the rate of return the country gets from its existing infrastructure. To the extent that corruption has been around for some time, the existing infrastructure has also been contaminated because *past* investments were also misdirected or distorted by corruption. Moreover, higher spending on capital projects will reduce the resources available for other spending. Of the other spending categories, one not protected by entitlements or implicit commitments is operation and maintenance—the current public spending required to keep the existing physical infrastructure in good working order. Too often, new projects are undertaken while the existing infrastructure is left to deteriorate. In cases of extreme corruption, operation and maintenance on the physical infrastructure of a country are intentionally neglected so that some infrastructure will need to be rebuilt, thus allowing corrupt officials the opportunity to extract additional commissions from new investment projects.

A country can squeeze more output out of existing infrastructure by keeping it in good working order. It is easy to think of situations in which the deterioration of infrastructure retards growth more than new capital projects add to growth. In addition, when generalized corruption in a country reduces resources because corrupt tax administrators skim off or fail to turn in tax revenues, operation and maintenance will be reduced far more than public investment because of the intellectual bias that supports borrowing for capital projects but not for current expenditure.



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## Empirical Analysis

Is the discussion so far merely theoretical or anecdotal? Unhappily, enough information has been gathered on corruption not only to justify the above observations but also to allow the formulation of several hypotheses about a symbiosis between high-level corruption and specific aspects of public spending and revenue collection. A principal source of assessments of the degree of corruption in various countries is Business International and Political Risk Services, Inc., which publishes an annual index, *International Country Risk Guide*, covering the 1982–95 period for 42 to 128 countries, depending on the year. In this index higher corruption indicates that “high government officials are likely to demand special payments” and “illegal payments are generally expected throughout lower levels of government” in the form of “bribes connected with import and export licenses, exchange controls, tax assessment, police protection, or loans.” Data on specific aspects of government spending and revenue collection, meanwhile, may be drawn from the IMF’s *Government Financial Statistics*.

An examination of the data from these two sources suggests the formulation of several clear hypotheses concerning the relationship between corruption on the one hand and (1) public investment, (2) government revenue, (3) operation and maintenance expenditures, and (4) the quality of infrastructure on the other. The authors test the hypotheses against statistical evidence, analyzing cross-country data through the use of a statistical tool called regression analysis to estimate the strength of the relationship between corruption and these four variables. In guarding against spurious regression results, and depending on the regression, the researchers controlled for other variables, such as real per capita GDP, the ratio of government revenue to GDP, and the ratio of public investment to GDP. Their hypotheses follow.

### *Corruption and Government Investment*

Hypothesis 1. *Other things being equal, high corruption is associated with high public investment.*

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The governments of most countries are honest and responsible, but in some countries the government is not above suspicion of serious corruption. For these latter countries, regression analysis shows that the above hypothesis cannot be rejected. (“Cannot be rejected” is a somewhat off-putting term of art in regression analysis indicating a high correlation between variables: where you have one, you probably have the other.) The data also suggest the unfortunate corollary that corruption reduces private capital investment by more than it increases public capital investment.

### *Corruption and Government Revenue*

Corruption can reduce government revenue if it contributes to tax evasion, improper tax exemptions, or weak tax administration. This leads to a second hypothesis.

*Hypothesis 2. Other things being equal, high corruption is associated with low government revenue.*

The analysis indicates that this hypothesis cannot be rejected either.

### *Corruption and Operation and Maintenance Spending*

Since corruption and bribery are more effectively related to (that is, it is easier to extract bribes from) new investments (as opposed to infrastructure already in place), corruption may result in lower operation and maintenance expenditure on existing investments. This observation leads to a third hypothesis.

*Hypothesis 3. Other things being equal, high corruption is associated with low operation and maintenance expenditures.*

Since direct cross-country data on operation and maintenance expenditures are not available, the analysis uses two statistical proxies: (1) IMF *Government Financial Statistics* “expenditures on other goods and services,” which include operation and maintenance expenditures, and (2) wages and salaries expressed as a fraction of current expenditure, because governments tend to cut operation and maintenance expenditures when they award salary increases.

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Hence, increases in wages and salaries can be interpreted as cuts in operation and maintenance expenses.

The analysis shows that high corruption is indeed associated with low operation and maintenance expenditures. Although the first proxy (expenditure on other goods and services) does not support this correlation, the second shows a positive correlation: countries with high corruption do tend to have a high ratio of wages and salaries to current expenditure. (Note that this result does not mean that the level of salaries of government officials in corrupt countries is higher.)

### *Corruption and the Quality of Public Investment*

It has been known for some time that corruption is most prevalent in infrastructure projects, usually large civil engineering projects. Current evidence, however, has linked corruption only to the *quantity* of investment and not its *quality*. It was argued above that high-level corruption induces countries to increase the quantity of infrastructure because of the bribery potential of new infrastructure investment. In addition, the quality of existing infrastructure will tend to deteriorate if corruption leads to cutbacks on operation and maintenance expenditure. These observations lead to a fourth hypothesis.

*Hypothesis 4. Other things being equal, high corruption is associated with poor quality of infrastructure.*

The data analyzed in this hypothesis (referred to as performance indicators of infrastructure) are measured from the perspective of both infrastructure providers and users. They cover a large number of countries and have many characteristics that make them the responsibility of governments. These data are taken from the International Telecommunications Union and the World Bank's World Development Indicators database. The analysis shows that this hypothesis cannot be rejected: countries with high corruption do tend to have poor-quality infrastructure. The impact of corruption is statistically strongest on the quality of roads (paved roads in good condition), power outages, and railway diesels in use. An important implication of the results is that the costs of corruption

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should also be measured in terms of deterioration in the quality of existing infrastructure, since these costs can severely inhibit economic growth.



## Reprise

Evidence presented in this paper supports four arguments.

1. Corruption can reduce growth by increasing public investment *while reducing its productivity*.

2. Corruption can reduce growth by increasing public investment that is not adequately supported by nonwage expenditure on operation and maintenance. Evidence also shows that higher corruption is associated with higher total expenditure on wages and salaries. Wages and salaries are a large component of government consumption, and higher government consumption has been shown to be unambiguously associated with lower growth.

3. Corruption can reduce growth by reducing the quality of the existing infrastructure. A deteriorating infrastructure increases the cost of doing business for both government and the private sector (congestion, power outages, accidents) and thus leads to lower output and growth.

4. Corruption can reduce growth by decreasing the government revenue needed to finance productive spending.

In sum, economists should be more restrained in their praise of high public sector investment spending, especially in countries where high-level corruption is a problem. Although this paper focuses on the problem of corruption and not on its solutions, concern about the issues discussed here appears to be gaining currency.

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On December 17, 1997, for example, ministers of 34 countries—of which 29 are members of the Organization for Economic Cooperation and Development (OECD)—signed an agreement aimed at eradicating bribery of foreign officials. The agreement encourages its signatory countries to introduce legislation making payments of bribes to foreign officials no longer tax deductible, and criminalizing the payment of bribes to foreign government officials. The agreement is limited, however, as it does not apply to the payment of bribes to foreign political parties or to private individuals. Moreover, it must be ratified by the legislative bodies of each signatory country. The initiative represents, however, an encouraging start in eliminating the corruption of political leaders.



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