Tax Incentives and Corruption: Evidence and Policy Implications

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Abstract

The provision of tax incentives to enhance investments, may lead to corruption. However, this well known claim has never been tested empirically. Based on unique large cross-section sample data and 2SLS analysis, it presents first empirical evidence in which countries with high levels of tax incentives will usually face high levels of corruption. Second, it helps to resolve the debate whether tax incentives enhance or deter investments. The policy implication is that a country that desires to enhance investments, should consider first the negative indirect effects of tax incentives, through corruption, on economic activity in general and investments in particular.

INTRODUCTION

<u>1.1 The role of tax incentives</u>

Tax incentives to enhance investment including FDI are widely used by many countries around the world. Zee, Stotsky and Ley (2002) define tax incentives as any tax provision granted to a qualified investment project that represents a favorable deviation from the

provisions applicable to investment projects in general. For a general discussion on various types of tax incentives, see Annex A.

Tax incentives share two main characteristics. First, they are usually directed at narrow targets, usually specific industries or economic sectors, rather than broad classes of business. Second, governments use tax incentives to influence the direction of the economy.

Tax incentives reduce the tax burden of the recipient and are intended by governments to induce some kinds of economic behavior, compensate investors for deficiencies in the tax system and achieve a variety of different objectives, such as reducing unemployment, promoting specific economic sectors, addressing regional development needs or attracting FDI.

The role of tax incentives in enhancing investments has been the subject of many studies. One theme of research focused on whether taxes had an impact on investment. The empirical literature on the relationship between taxes and investment has generally found that taxes have significant effects on investment. Devereux and Griffith (1998) and Hines (1999) assert that investors are sensitive to tax incentives in their location decisions. A meta- study by De Mooij and Ederveen (2003) concluded that, on average, a 1 percentage point increase in the tax rate reduced FDI by 3.3 percent.

1.2 The distorting effect of tax incentives

Another growing body of literature discusses the likely effects of tax incentives. Empirical research on the effect of tax incentives on FDI has been inconclusive. Some studies (e.g. Axarloglou 2005; Blomstrom and Kokko 2003; Bora 2002) have found that under certain conditions, tax incentives may have positive effects and increase investment, whereas others (e.g., Wells and Morisset 2001; Morisset and Pirnia 2000) demonstrated that tax incentives are often ineffective and inefficient.

Zee, Stotsky, and Ley (2002), summarize four types of undesirable consequences from the use of tax incentives: (1) distortions between investments granted incentives and those without incentives; (2) forgone revenue (on the assumption that the government operates under a revenue constraint, so that the lost revenue would have to be compensated for by alternative

distort taxes); (3) administrative resources required to administer them; and (4) the social costs of or rent-seeking activities connected with abuse of tax incentive provisions.

Tanzi and Zee (2000) list additional shortcomings: (1) by exempting profits irrespective of their amount, tax holidays tend to benefit investors who expect high profits and would have made the investment even if there were no such incentives; (2) tax holidays provide a strong incentive for tax avoidance, as taxed enterprises can enter into economic relationships with exempt ones to shift their profits through transfer pricing; (3) the duration of the tax holiday, even if formally time-bound, is prone to abuse and extension by investors through creative re-designation of existing investment as new investment; (4) time-bound tax holidays tend to attract short-run projects, which typically are not so beneficial to the economy as longer-term ones; (5) the revenue cost to the budget is seldom transparent.

Due to these undesirable consequences, international bodies advising on tax policy matters criticize the use of such incentives by governments. One example is the UNCTAD (2003) in its world investment report, that criticizes governments' use of FDI incentives, suggesting that there is an emerging consensus that countries should try to attract FDI not by offering incentives, but by building genuine economic advantages and offering stable, low, and transparent tax rates.

1.3 Why do countries continue to use tax incentives?

Assuming that tax incentives to enhance investments are generally costly to host countries, why do countries, nevertheless, continue to provide such incentives? Ellis and Rogers (2000) argue that there may be several explanations for this apparent anomaly, such as the use of incentives to achieve political goals, the lack of other alternatives to attract investment and the miscalculation of costs and benefits.

We suggest another line of explanation in which tax incentives allow politicians to take action in favor of certain firms in exchange for rents. Thus, in theory, tax incentives may lead to corruption.

The idea that selectivity in providing incentives may lead to corruption is acknowledged in the literature. Bhagwati (2001) suggests that selectivity, in combination with lack of transparency, increases the risk for rent-seeking and corruption. Moran (1998) and Oman (2000) indicate that FDI incentives often cause rent-seeking behaviors in host countries where governments usually design and operate these programs through behind-the-door negotiations. Foreign investors may bribe or conspire with government officials and influence domestic politics of the host country to secure tax incentives for their investments.

In this regard, most of the empirical research focuses on the influence of corruption on investment and not vise versa. Wei (2000) found that high corruption levels in host countries significantly reduce FDI inflows. However, few studies addressed the influence of FDI on corruption and none the influence of tax incentives on corruption.

1.4 Tax, incentives and corruption: theory and empirical research

There are, however, few papers that research the relation between taxation and corruption. Tanzi (1998) suggests that there is a clear link between taxes and corruption. According to Tanzi, taxes based on clear laws and not requiring contacts between taxpayers and tax inspectors are much less likely to lead to acts of corruption. Tanzi further asserts that corruption is likely to be a major problem in tax and customs administrations where tax administrators have discretion over important decisions, such as those related to the provision of tax incentives. In addition, Besley and McLaren (1993), explore the link between tax administration and corruption. They propose a model which evaluates alternative payment schemes for tax inspectors in the presence of corruption.

Li (2006) offers a theory that explains how political regime type influences tax incentive policy in a cross-national setting, and confirms the theory with a statistical analysis of 52 developing countries. Li finds that countries with better rule of law offer lower levels of tax incentives, and also that in democracies, FDI inflows are negatively associated with the level of incentives.

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Ades and Di Tella (1997) offer a theoretical model of investment where active industrial policy promotes both corruption and investment. They find evidence suggesting that corruption is indeed higher in countries pursuing active industrial policies.

Empirical research in this field has inherent problems due to the scarcity of data on tax incentives, in addition to statistical problems, mainly simultaneity between tax incentives and corruption. These difficulties may explain the fact that no comprehensive research has been carried out, so far, to study the correlation between tax incentives and corruption.

Our paper makes two important contributions to the research of investment incentives. First, it proposes unique empirical evidence supporting the supposition that countries with high levels of tax incentives will usually face high levels of corruption. Second, and maybe even more importantly, it helps resolve the debate as to whether tax incentives enhance or deter investments. Another important contribution of our findings is to the general literature on causes of corruption, since our estimation is performed, to the best of our knowledge, under the largest sample by far ever reported in the literature. The paper is organized as follows. Section 2 discusses the factors that influence corruption and the consequences of corruption. Section 3 analyzes the data and addresses the statistical problems facing the analysis. Section 4 presents our empirical results. Section 5 concludes and presents policy implications.

2.   CORRUPTION

The research of public sector corruption has received growing attention in recent years. Macrae (1982) defines corruption as an arrangement that involves a private exchange between two parties, which (1) has an influence on the allocation of resources either immediately or in the future, and (2) involves the use or abuse of public or collective responsibility for private ends (see also Bardhan, 1997). Corruption exists in all countries, both developed and developing.

Corruption in public institutions is generally perceived to have become structured and well-established, involving well-organized networks. Rose-Ackerman (1999) explains that corruption is usually carried out in networks where trust and reciprocity is found between its

members. From an economic perspective, network ties reduce transaction costs and can be helpful in facilitating corrupt transactions.

2.1 The causes of corruption

The scope of this article is confined to corruption in relation to the granting of tax incentives by government officials to entice investment. Since government officials have the authority to redistribute resources, such as tax incentives to specific sectors, this authority can be exploited for personal gains. According to Rose-Ackerman the motivation for corruption exists whenever an official has discretion over the distribution of a "good" or the avoidance of a "bad" to the private sector. In theory, the greater the amount of discretion which is given to government officials, the more opportunities there will be for them to demand a bribe in exchange for offering favorable treatment.

Numerous studies of corruption have been concerned with the causes of corruption. Three studies, all by Ades and Di Tella, focus on the causes of corruption. In the first one, Ades and Di Tella (1997a) conclude that corruption is higher in countries with an active industrial policy. In the second study, Ades and Di Tella (1997b) find that increases in market competition and judicial autonomy reduce corruption. In the third study Ades and Di Tella (1999) find that countries where firms enjoy higher rents tend to have higher corruption levels. In addition, they find that corruption is higher in countries where domestic firms are sheltered from foreign competition by natural or policy induced barriers to trade, with economies dominated by a few number of firms, or where antitrust regulations are not effective in preventing anticompetitive practices.

An empirical study by Gurgur and Shah (2005) identifies various causes of corruption and concludes that the major causes of corruption are a lack of service orientation in the public sector, weak democratic institutions, economic isolation (closed economy), colonial past, internal bureaucratic controls, and centralized decision-making. In essence, the higher the quality of the bureaucracy, the lower corruption will be. Serra (2006) notes the negative influence of the Protestant religion on corruption.

Lambsdorff (1999) provides a review of empirical research on the causes of corruption that was carried out during the mid-1990s. He states that the freedom of press and the

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independence of the judiciary are important factors that may influence corruption. In addition, he stresses that the studies of causes of corruption also conclude that a high level of corruption goes along with an abundance of natural resources and a low percentage of women in the labor force and the parliament. Further, cultural dimensions were determined to be important; in particular, a mentality of accepting hierarchies was found to increase corruption. Other studies demonstrated that the size of the public sector within an economy (Tanzi, 1998; Treisman, 2000), or the level of remuneration in the public sector (Van Rijckeghem and Weder, 1997), have a direct impact on the levels of corruption within a country.

According to Acemoglu and Verdier (2000), corruption is by and large a byproduct of government interventions. Examples include favorite industrial policies (such as tax incentives), trade restrictions (such as tariffs) and price controls. Similarly, Treisman (2000) points out that government intervention and restrictions in the market raise the potential for government corruption. The ability to intervene in the market gives government officials a unique opportunity to extract bribes from those affected by laws and regulations.

2.2 The consequences of corruption

Several other studies have been concerned with the consequences of corruption. There is a consensus that the cost (tangible and intangible) of corruption to society may be tremendously high. Tangible costs include, for example, administrative efficiency and an impact on trade and investments. Tanzi and Davoodi (1997) present evidence that corrupted government officials direct public investment towards large projects, probably at the expense of basis expenditures such as education and health. Intangible costs include, for example, the loss of trust in democracy, in leaders and in government bodies. Murphy, Shleifer, and Vishny (1991) argue that corrupt societies stimulate the most talented people to earn their income through bribing rather than in more productive activities. In another article, Shleifer and Vishny (1993) assert that weak governments which do not control their agencies lead to ultra-high corruption levels.

Theoretically, the payment of bribes to corrupt government bureaucrats to receive "favors" such as tax incentives add to the costs and uncertainty of doing business in a country. It requires firms to devote resources to manage bribes, while these resources could be invested

more profitably otherwise. In addition, since bribery is illegal, potential investors cannot be certain that government promises will be fulfilled. This means that corruption can decrease the expected profitability of investment projects, and therefore may reduce the total investment in such a country.

This theoretical reasoning has been tested by several empirical analyses. Mauro (1995) uses cross-country measures of corruption to show that corruption is negatively associated with private investment and growth. Similarly, Habib and Zurawicki (2002) provide evidence that corruption deters FDI. They find the impact of corruption on FDI to be larger than on local investment. Cuervo-Cazurra's (2006) analysis of FDI inflows into 106 host economies found that corruption has a negative influence on FDI, and that investors from countries that have signed the OECD Convention on Combating Bribery of Foreign Public Officials in International Transactions are more deterred by corruption than investors from countries with high levels of corruption (see also: Gyimah-Brempong, 2002; Keefer and Knack, 1997; Li et al., 2000).

3.   THE EMPIRICAL ESTIMATION AND THE DATABASE

The basic equation is derived from the literature and includes all the variables claimed or found to have an effect on corruption. However, this specification creates a possible simultaneity between corruption and some of the dependent variables. Therefore, consideration should be given to whether the dependent variable is itself an explanatory variable. For example, in analyzing the question of whether tax incentives increase corruption, the issue arises of whether corruption is what led to the decision on tax incentives in the first place. In order to neutralize the risk of simultaneity with regard to these variables several statistical methods were implemented including 2SLS and the use of dummy variables.

In order to capture the effect of corruption, $Corp$, we employed the TI index of the corruption level following Tanzi and Davoodi (1997), Lambsdorff (1999) and many others. In fact, there is a consensus in the literature that the TI indexes are the most suitable data bases for measuring corruption and therefore the most frequently used. They are by far the largest data bases for corruption (and in 2008 covered 180 countries), based on aggregate indicators and different sources (citizens, risk analysts, experts and some other corruption data base

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including the International Country Risk Guide index). Moreover, in any case the TI indexes are highly correlated with many other corruption data bases (including the World Bank index), see Serra (2006). It should also be mentioned that the TI indexes tend to be related to one another (resulting in multi co-linearity) and therefore an examination should be made of their weighted average, as reflected in the final score and rank.

In parallel to corruption, we demonstrate the level of tax incentives to entice investments. Yet, unlike for corruption, there is no systematic data that provides information about the level of tax incentives in 180 countries. We suggest, therefore, making use of the World Bank Group's Paying Taxes study (as part of the Doing Business Project) in order to capture the required information of tax incentives level, Inc. The Paying Taxes study looks at the tax systems in 183 countries (by combining the World Bank Group's Paying Taxes sample with the TI sample we were left with 170 countries while the rest are micro island states or failed states like North Korea), by using a consistent set of assumptions, to assess how they apply to and affect a standardized business. The study provides various indicators. The indicators cover the cost of taxes borne by the standardized business and the administrative burden of tax compliance. They are measured using three sub-indicators: the total tax rate (the cost of all taxes borne), the time needed to comply with the major taxes (profit taxes, labor taxes and mandatory contributions, and consumption taxes) and the number of tax payments.

There is a strong link between the level of the sub-indicators of a country and its tax incentive policies. Countries with high scores of the sub-indicators will normally have unattractive tax systems. Such countries, therefore, will need to provide tax incentives for investments, in order to compensate investors for deficiencies in their tax system. On the contrary, countries with low levels of the sub-indicators, will normally have attractive tax systems, and will not need to provide tax incentives.

In the first stage of the 2SLS estimation the tax incentives level, Inc, will be estimated using the following instrumental variables that potentially influence the need to decide on tax incentives but do not influence the second stage of the 2SLS: The level of urbanization, U, the rate of urbanization, $URate$, and the level of population density, $Dens$, are expected to negatively effect tax incentives since they negatively effect the need to attract peripheral investments; the level of young population (ages 0-14), $YoungP$, is expected to positively

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effect tax incentives in order to attract investments that will create new jobs for the newcomers into the work force; the country's current account balance, $Current$, is expected to negatively effect tax incentives since positive balance negatively effects the need to attract FDI . Hence, the following equation for tax incentives was estimated:

(1)

$$\ln Inc = A + a_1 \ln U + a_2 \ln URate + a_3 Dens + a_4 \ln YoungP + a_5 \ln Current + \varepsilon_t$$

where:

A - the constant variable.

ε_t - the error term.

In the second stage of the 2SLS estimation, the level of corruption, $Corp$, will be estimated using the variables that appeared in the literature as potential causes of corruption: Inc, using the tax incentives estimated in the first stage; the strength of the democratic institutions (in direct representation of GDP per capita which can't be included in the specification because of simultaneity with corruption) including the freedom of press and the independence of the judiciary system, $Demo$, using the democracy rank published by World Audit (an international not-for-profit company, registered in England by the registered charity, World Concern); colonial past including the identity of colonial power, Col ; the size of the public sector, its level of fiscal decentralization and its involvement in the economy (including remuneration of the public sector), G , using the level of government total expenditures to product; the participation of women in the labor force and the parliament, W , using female literacy (another direct representation of GDP per capita); level of economic isolation, I , using a dummy variable for membership in the OECD; the level of the economy competitiveness (as measured by the index of economic freedom published by the Fraser Institute), $Comp$; cultural dimensions, C , using school life expectancy and the level of education expenditures to product; and religion, R .

Hence, the following equation for corruption was estimated:

(2)

$$\ln Corp = A + a_1 \ln Inc + a_2 \ln Demo + a_3 \ln Col + a_4 G + a_5 \ln W + a_6 \ln I + a_7 \ln Comp + a_8 \ln C + \\ + a_9 \ln R + \varepsilon_t$$

4. RESULTS

The estimation results for the equation explaining corruption appear in Table 1. The best-fitting equation in the case of 2SLS estimation was version A-3 in Table 1 (for the results of the first stage of the 2SLS estimating tax incentives see Table 2) with $\bar{R}^2 = 0.761$ ($R^2 = 0.775$) and SE=0.223 and DW=1.909 (which indicate the absence of serial correlation). It should be mentioned in this context that cross-section data is being used rather than time series data and therefore the DW statistic has only minor significance. Nonetheless, it does provide an indication that the regression has not omitted any major explanatory variable that is common to the whole sample and provides evidence that the unexplained residuals from the estimations are in fact the result of a random walk and are not correlated as a result of an important missing variable. In parallel the best-fitting equation in the case of OLS estimation was version A-6 in Table 1 with $\bar{R}^2 = 0.759$ ($R^2 = 0.772$) and SE=0.236 and DW=1.878 (which indicate the absence of serial correlation). The most important variables were found to be significant, stable and robust and to have the expected signs. In addition, the estimates had relatively low variances.

In general, the use of 2SLS estimation improved the results in terms of significance and elasticity. Moreover, while the differences between the 2SLS and OLS coefficients were negligible for most of the variables the difference for the tax incentives was significant and indicated the simultaneity problem of using OLS estimation.

The tax incentives variable was found to be negative (meaning that as the tax incentives increase the score for corruption decreases which means increase in the level of corruption) and its elasticity reached a level of -0.157 (see version A-3 in Table 1), and only -0.052 in the OLS estimation (see version A-6 in Table 2), as expected. This result was found to be characterized by stability across the various versions and over numerous controls and alternative specification (see below in details).

It should be stressed that the total tax rate is an essential part of the tax incentive variable since the basic reason to have incentives is to avoid paying the general tax rates. The higher the tax rates, the stronger the reason to decide on incentives (resulting in multi co-linearity of presenting two independent variables in a specification). However, it is important to

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understand whether the high general tax rates per se or their correlation with incentives are the most important cause of corruption. The insignificance, see below, under all versions and specifications, of the level of government total expenditures to product or alternative variables (which are correlated to the government income and therefore allow very good proxy for the general tax rates) strongly supports the latter over the former.

The strength of the democratic institutions was found to be negative (meaning that as the democratic rank increases, the level of democracy decreases and the score for corruption decreases which means the level of corruption increases), significant in all the versions and its elasticity reached a level of -0.254 (see version A-3 in Table 1).

The colonial legacy was represented in most of the versions by some of the colonial powers: The Soviet Union, Spain and The Netherlands. All the respective dummy variables were found to be negative (meaning contributing to corruption) and their elasticities reached the level of -0.270, -0.167 and -0.241 (see version A-3 in Table 1). The dummy variables for the two major colonial powers, the UK and France, were not found to be significant. These results are not surprising since the literature regarding colonial legacy describes the significant differences between positive contributions of the UK and France to building institutions and investing in human capital and the general negative involvement of colonial powers'.

The participation of women in the economy, using the level of female literacy as a proxy, was found to be positive (meaning contributes negatively to corruption) and significant in all the versions and its elasticity reached a level of 0.109 (see version A-3 in Table 1).

The cultural dimension, using the level of education expenditure to product, was found to be positive (meaning contributes negatively to corruption) and significant in all the 2SLS versions and its elasticity reached a level of 0.130 (see version A-3 in Table 1).

The level of the economy competitiveness, as measured by the index of economic freedom published by the Fraser Institute, was found to be negative (meaning contributing to corruption) and significant in all the versions and its elasticity reached a level of -0.166 (see version A-3 in Table 1).

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The religion variables were represented in all the versions only by the share of the Protestants in the population which was found to be negative (meaning contributing to corruption) and its elasticity reached a level of -0.160 (see version A-3 in Table 1), although with a low rate of significance (90%). It should be stressed that the evidence in the literature regarding the role of the Protestant religion on corruption is mixed. Our results may support the view (see Adsera et al., 2003) that the Protestant religion is indeed contributing to corruption and also to Baumol's (1990) theory of productive and unproductive rent-seeking entrepreneurship. Baumol claimed that entrepreneurs have a choice whether to engage in value creating opportunities or rent-seeking unproductive activities through the political and legal arena (e.g., lobbying and lawsuits). This decision is influenced by the corresponding rates of return of these activities, which in turn are shaped by the quality of the country social, culture, political and legal institutions. Zelekha et al. (2011) affirmed empirically that the Protestant religion contributes significantly to entrepreneurship.

The variable for the size of the public sector and the dummy variable for economic isolation were not found to be significant in all the versions.

In order to examine the robustness of the results, various control variables were added to the estimation that may be important in the determination of corruption and in addition an alternative specification was also estimated.

The first type of control variable was poverty since it may be connected with corruption. Thus, a variable for the level of population below the poverty line, *Pov*, was added but found not to be significant.

The second type of control variable was a variable for the population growth rate, since it may influence negatively the ability of the government to implement effective policy and therefore effect corruption. Thus, a variable for the population growth rate, *Pop*, was added and found to be significant, negative (meaning contributes to corruption) and its elasticity reached the level of -4.663 (see version A-3 in Table 1). However, its inclusion in the estimation did not change the results significantly.

The third type of control variable was a dummy for geographic effect, representing possible additional cultural effects. Thus, a dummy variable for each continent was added but all were found not to be significant.

The fourth type of control variable was a variable for the level of social expenditure to product, representing possible effects of subsidies (negative taxes) on rent-seeking corruptive activities. However, similar to the variable for the size of the public sector, it was not found to be significant in all the versions.

The fifth type of control variable was an alternative measure for corruption. As mentioned, the two most commonly used measures after the TI indexes themselves are the International Country Risk Guide Index and the World Bank Index. Since the TI indexes are based among other sources on the International Country Risk Guide Index we preferred to use the World Bank Index as an alternative specification (see version A-4 in Table 1). The alternative specification supported and even strengthened the robustness of the findings and the stability of the tax incentive variable.

We also tested for the relative economic importance of some of the variables by calculating their adjusted coefficient of correlation (beta variable), which is the product of a variable's estimated elasticity and its standard deviation divided by the dependent variable's standard deviation (see Table 3). These adjusted coefficients convert the estimated elasticities into units of standard deviation in a manner that enables the comparison of their relative economic importance. Table 3 shows that a change of one unit of standard deviation in the tax incentives variable brings about a change of -10.0 percent in the corruption variable as compared to 46.9 percent for the strength of the democratic institutions variable, -10.1 percent for the population growth rate variable, -28.2 percent for the level of the economy competitiveness variable, 10.1 percent for the participation of women in the labor force and the parliament variable, 13.0 percent for the level of education expenditures to product variable and so on. These results indicate that the tax incentives variable is similar in importance to major well known causes of corruption.

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5.   SUMMARY AND CONCLUSIONS

Tax incentives to enhance investment are widely used by many countries around the world. However, the provision of these incentives may lead to rent-seeking activities and corruption. In some countries, investors may easily bribe or conspire with the government officials and influence domestic politics of the host country to secure tax incentives for their investments. Due to these undesirable consequences, international bodies advising on tax policy matters criticize the use of such incentives by governments. One example is the UNCTAD (2003) in its world investment report, that criticizes governments' use of FDI incentives, suggesting that there is an emerging consensus that countries should try to attract FDI not by offering incentives, but by building genuine economic advantages and offering stable, low, and transparent tax rates.

The role of tax incentives in enhancing investments has been the subject of many studies. In contrast, the well known claim that tax incentives may be a cause for corruption has never been tested empirically, because of numerous data and statistical problems.

In this paper we take an empirical approach and move beyond the theory. The novelty of our research, therefore, is that it analyzes for the first time in the literature the effects of tax incentives by employing a unique, large, cross-section sample data and 2SLS analysis, thereby establishing that tax incentives are a significant cause of corruption.

Our paper makes some important contributions to the research of investment incentives. First, it proposes empirical evidence in which countries with high levels of tax incentives will usually face high levels of corruption. Second, and maybe even more importantly, it helps to resolve the debate whether tax incentives enhance or deter investments. The third contribution is to the general literature on the causes of corruption, since our estimation is performed, to the best of our knowledge, under the largest sample by far ever reported in the literature.

The policy implication is that a country that desires to enhance investments should strongly consider, as should the international bodies advising, the negative indirect effects of tax incentives, through corruption, on economic activity in general and on investments in particular.

Table 1: Estimation of equations explaining corruption *

Variable	Coefficients of version A-1	Coefficients of version A-2	Coefficients of version A-3	Coefficients of version A-4	Coefficients of version A-5	Coefficients of version A-6
Estimation method	2SLS	2SLS	2SLS	2SLS	OLS	OLS
Constant	4.413 (13.735)	4.335 (13.445)	4.194 (12.719)	3.473 (12.367)	3.700 (21.701)	3.670 (21.834)
Inc	-0.240 (-3.306)	-0.189 (-2.417)	-0.157 (-1.966)	-0.206 (-3.020)	-0.046 (-1.868)	-0.052 (-2.141)
$Demo$	0.251- (-8.337)	0.269- (-8.491)	0.251- (-7.545)	0.153- (-5.425)	0.293- (-9.232)	0.264- (-7.965)
Soviet Col Union	0.257- (-3.749)	0.270- (-3.943)	0.313- (-4.337)	0.243- (-3.986)	0.246- (-3.432)	0.297- (-4.057)
Spain Col	0.157- (-2.598)	0.167- (-2.772)	-0.158 (-2.621)	-	-0.136 (-2.127)	-0.116 (-1.840)
The Col Netherlands	-0.722)	-0.241 (-1.731)	-0.233 (-1.683)	-	-	-
W	0.138 (2.641)	0.157 (2.963)	0.109 (1.846)	0.075 (1.538)	0.194 (3.887)	0.113 (1.941)
C	0.130 (3.064)	0.140 (3.275)	0.130 (3.058)	0.056 (1.568)	0.115 (2.644)	0.103 (2.387)
$Comp$	-0.150 (-4.602)	-0.152 (-4.682)	-0.166 (-4.999_	-0.092 (-3.249)_	-0.137 (-3.710)_	-0.148 (-4.046)
$Rshare$ $protes\tan ts$	-	-0.162 (-1.725)	-0.160 (-1.711)	-0.192 (-2.416)	-0.244 (-2.759)	-0.219 (-2.501)
Pop	-	-	-4.663 (-1.790)	-5.914 (-2.668)	-	-6.512 (-2.546)
R^2	0.766	0.770	0.775	0.684	0.763	0.772
$\bar{R}^2$	0.754	0.757	0.761	0.668	0.751	0.759
S.E.	0.239	0.237	0.236	0.201	0.240	0.236
D.W.	1.899	1.858	1.909	2.018	1.797	1.878

* The equations are in log-linear form and therefore variables are expressed in natural logarithms, except for the dummy variables (*Col* Soviet Union, *Col* Spain, *Col* The Netherlands) and for the population growth rate, *Pop* and *Rshare* $protes\tan ts$. t-values appear in parentheses.

Table 2: Estimation of equations explaining tax incentives *

Variable	Beta coefficient
Estimation method	OLS
Constant	3.520
	(4.767)
U	-0.384
	(-2.425)
$URate$	-3.469
	(-2.322)
$Dens$	-0.101
	(-1.840)
$YoungP$	0.268
	(1.303)_
$Current$	-0.007
	(-1.497)
R^2	0.106
$\overline{R}^2$	0.079
S.E.	0.915
D.W.	2.131

* The equations are in log-linear form and therefore variables are expressed in natural logarithms, except for the dummy variable *URate* and *Current*. t-values appear in parentheses.

Table 3: Relative economic importance of the variables*

Variable	Coefficients of version A-1
Inc	-10.0%
Demo	-46.9%
Soviet *Col* Union	-18.5%
Spain *Col*	-10.6%
The *Col* Netherlands	-6.4%
W	10.1%
C	13.0%
Pop	10.1%-
Rshare	-7.9%
protes tan*ts*	
Comp	-28.2%

* The equations are in log-linear form and therefore variables are expressed in natural logarithms, except for the dummy variables (*Col* Soviet Union, *Col* Spain and *Col* The Netherlands) and for the population growth rate, *Pop* and *Rshareprotes* tan*ts* .

* The relative economic importance of the variables was calculated using the Beta coefficient, based on A-3.

Annex A: Main Tax Incentives

Tax holiday: This is apparently the most common form of tax incentive for investment. Under a tax holiday, qualifying firms are not required to pay corporate income tax for a specified time period, with the goal of encouraging investment. Sometimes, the grace period is extended to a subsequent period. This incentive is often provided to new firms.

Reduced corporate income tax rate: A country may provide a reduction in the (statutory) corporate income tax rate to qualifying investments under certain conditions. Some countries provide a reduced rate of tax for certain types of investment (e.g., manufacturing). Other countries provide reduced tax rates for investment in particular locations or regions, to enhance development. This incentive differs from tax holidays, because the tax liability is not entirely eliminated.

Accelerated depreciation: This incentive refers to any depreciation scheme that provides for writing off the cost of an asset, for tax purposes, at a rate faster than the true or statutory economic depreciation. Accelerated depreciation rules are mostly important for large and capital-intensive firms. Some countries provide taxpayers with some amount of discretion in selecting the applicable depreciation methods, while others employ excessive administrative involvement.

Special zones: Geographically limited areas in which qualifying firms can locate and thus benefit from exemption of varying scope of taxes not granted in other parts of the host country. Some countries provide only duty-free zones, enjoying exemption from customs duties (and usually from VAT). Zones are often aimed at exporters and located close to a port. These special "zones" are designated to attract investment.

Deduction for qualifying expenses: Countries tend to encourage certain types of investment by providing favorable rules for deducting certain types of expenses. These include rules that allow partial or full deduction of certain qualifying expenses (such as R&D expenses).

Reduced withholding taxes: Some countries provide reduced or zero rates of withholding tax as an incentive for foreign investment. Exemption from withholding tax is usually provided in the case of payments of interest, dividends or royalties, making it possible for foreign investors to extract income free of tax.

Exemptions from various taxes other than CIT: Exemption from certain taxes, often those collected at the border such as tariffs, excises, sale taxes and VAT on imported inputs. Some countries provide exemption from, or reduction of, property taxes.

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