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### Do Companies View Bribes as a Tax? Evidence on the Trade-off between Corporate Taxes and Corruption in the Location of FDI

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# *Do Companies View Bribes as a Tax?*

## *Evidence on the Trade-off between Corporate Taxes and Corruption in the Location of FDI<sup>1</sup>*

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**Abstract:** There is a large literature documenting that high host-country corporate taxes deter foreign direct investment. However, some recent papers have questioned the robustness of this result in developing countries. In this paper we investigate one possible reason: the presence of a trade-off between taxes and good governance. We find that taxes and governance interact and that taxes and corruption are substitutes so that the impact of taxes alone on FDI will be lessened when corruption is also present. Bribes and weak tax enforcement tend to reduce formal tax payments by more than the bribe, and bribery becomes the more important cost for multinationals. Since corruption tends to be more prevalent and tax administration weaker in developing countries, this helps explain why in general corporate taxes are less relevant in explaining FDI location in the developing world. The substitutability result also suggests that when taxes are high, the impact of corruption on FDI location is lessened. The reason would seem to be that when there are excessive taxes, paying a bribe may allow a business to avoid the constraints imposed by excessive government, an argument suggested in the previous literature. This does not mean that such an economy is more efficient, however; as Shleifer and Vishny (1993) argue, bribe payments may be much more distortive and costly than taxation.

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## **I. INTRODUCTION**

A large literature has documented the fact that high host-country corporate taxes deter foreign direct investment. In a series of meta-studies De Mooij and Ederveen (2003, 2008) find that the average estimated tax elasticity of FDI is -3.3 percent. Moreover, Altshuler, Grubert and Newlon (2001) find the elasticity of investment with respect to after-tax host country rates of return for U.S. multinationals increased from 1.5 in 1984 to 2.8 in 1992, and Altshuler and Grubert (2004) find evidence of investment tax elasticities increasing over years 1992, 1998 and 2000. Summarizing much of the research on the taxation of multinationals, Gordon and Hines (2002) state that the “econometric work of the last fifteen years provides ample evidence of the sensitivity of the level and location of FDI to its tax treatment.”

Much of the previous work in this area has concentrated on developed countries. There are, however, some studies of developing countries, surveyed in Madies and Dethier (2010). They state (p. 20) “Most empirical studies ... conclude that FDI inflows into developing countries are sensitive, to various degrees, to corporate income taxation and fiscal incentives.” For instance, Hines (2001) finds some evidence that Japanese investment is higher when tax-sparing agreements relieve the usual tax that would be owed on profits generated in low-tax developing countries. Klemm and van Parys (2009) find that tax incentives help attract FDI in their sample of developing countries, but do not increase gross private fixed capital formation or growth.

Yet recent evidence suggests that there really is something different about the corporate tax-FDI relationship in developing countries. For instance, Goodspeed, Martinez-Vazquez, and Zhang (2010) find that high host-country corporate taxes negatively affect incoming FDI in host

countries that are developed, but not in host countries that are developing. Dharmapala and Hines (2009) find that taxes affect US FDI in well governed but not poorly governed tax havens. Fatica (2009) finds that the sensitivity of foreign investment to the tax rate varies with the level of host country institutional quality. Is there something different between developing and developed countries that affects the estimated tax elasticity? Are the results of previous studies that concentrate on developed countries, particularly the U.S., or have mixed together developing and developed countries, primarily due to the sampling of developed countries? If so, what exactly lies behind the lack of sensitivity of FDI to corporate tax in developing countries?

Our starting point is the result of Goodspeed, Martinez-Vazquez, and Zhang (2010) that FDI entering developing and developed countries reacts differently to corporate taxes. While there are several possible reasons that could explain this result, in this paper we investigate one of the possible reasons: a trade-off between taxes and good governance. Previous papers have found that corruption negatively affects FDI, the first careful studies being those of Wei (2000a, 2000b), and we also found this in our earlier paper cited above. Corruption effects may also interact with tax effects, however, so the relationship may not be as simple as it first appears. And almost no studies investigate the impact of the interaction of corruption and taxation on FDI.

One reason that good governance and taxation could interact is that corruption may be interpreted itself as a sort of tax on doing business. If tax administration in developing countries is weak, the more important “tax” in a developing country might be bribery payments or a lack of the rule of law. Formal tax payments to the government might go unpaid without consequence if tax administration is weak, while bribery payments may be less easily avoided. In principle, bribery payments and tax payments could be substitutes or complements. If they are



complements, bribery payments would be paid in addition to full tax payments. It seems more likely that they are substitutes, however, so that firms would have to pay less than the full tax on a combination of bribery and tax payments.

Consider now how this interaction of bribery and taxation affects FDI. The relationship between the two will affect how each alone affects FDI. If bribery and tax payments are substitutes, the impact of each alone on FDI will be lessened when both are present (while the impact of each alone on FDI would be strengthened if they are complements). Take for instance the impact of taxes on FDI. Many studies have found that taxes negatively affect FDI. But if corruption and taxes are substitutes, the presence of corruption should be expected to weaken the importance of formal taxation in determining FDI location. That is, the elasticity of FDI to taxes would be lower in the presence of corruption and in the extreme it should be zero. This is a question that has not been closely examined in the literature.

By the same token, the impact of corruption on FDI location would also be affected by the presence of taxation. If taxes and corruption are substitutes, the impact of corruption on FDI location would be most acute when taxes are low. Conversely, if taxes are high, the impact of corruption on FDI location would not be as important. The reason could be that in an excessively high tax environment, corruption allows multinationals to avoid excessive taxation. Interestingly, there is some literature that points in this direction, at least conceptually (e.g. Leff, 1964; Liu, 1985). The argument is that when there are excessive taxes, regulations, or bureaucratic red tape in setting up a business, paying a bribe may “grease the wheels” and allow a business to avoid the constraints imposed by excessive government. This does not necessarily mean that such an economy is more efficient however. For example, Shleifer and Vishny (1993) argue that bribe payments are actually much more distortive and costly to an economy than tax

payments. Almost no papers examine this relationship between corporate taxes and corruption empirically, Wei (2001) being the exception. He finds negative effects of both taxes and corruption on FDI but no evidence of an interaction.

Our findings indicate that there is a trade-off between taxes and good governance. We find that taxes and corruption are substitutes so that the impact of taxes alone on FDI will be lessened when corruption is also present. Bribes and weak tax enforcement tend to reduce formal tax payments by more than the bribe and bribery becomes the more important cost for multinationals. Since corruption tends to be more prevalent and tax administration weaker in developing countries, this helps explain why in general corporate taxes are less relevant in explaining FDI location in the developing world. The substitutability result also suggests that when taxes are high, the impact of corruption on FDI location is lessened. The reason would seem to be that when there are excessive taxes, paying a bribe may allow a business to avoid the constraints imposed by excessive government, an argument suggested in previous literature. This does not mean that such an economy is more efficient, however; as Shleifer and Vishny (1993) argue, bribe payments may be much more distortive and costly than taxation.

## **II. DATA DESCRIPTION**

Our main objective in this paper is to empirically explore a possible reason for our earlier finding that corporate taxes are important for FDI going to developed countries, but not developing countries. The explanation that we explore is that taxes and corruption are viewed as substitutes by multinationals. We will use a panel data set of 25 developing and 27 developed destination countries from 1985-2002. Source countries consist of OECD countries. For our

dependent variable we use the OECD bilateral data on the (log of) FDI stock of destination country  $i$  in year  $t$  coming from OECD source country  $j$ .

We follow the previous literature and include variables that have been consistently found in the past to be determinants of FDI for our control variables: distance, population, GDP, the unemployment rate, and exports; this last variable, exports, is lagged to try to correct for potential endogeneity. The distance between countries is suggested by the gravity equation as a determinant of FDI. The unemployment rate controls for business cycle effects. Population is a proxy for market size, which other things equal should attract more FDI. Exports control for the openness of an economy. Holding population constant, GDP is a measure of wealth and can be roughly interpreted as controlling for the return on investment or marginal product of capital. Generally, poorer countries lack capital and hence should be expected to have a higher return on investment than wealthier countries, other things equal, which implies an inverse relationship between GDP and FDI. We also include a source country dummy to control for any observable or unobservable source country factors that affect FDI and that do not vary over time.

Our corporate tax variable is computed as the minimum of: (i) the effective tax rate faced by US multinationals calculated using data from the Bureau of Economic Analysis (BEA), and (ii) the statutory tax rate from data from the Office of Tax Policy Research (OTPR). The idea of this variable is that the statutory tax rate may be too high because of depreciation allowances, tax holidays, and so forth that are granted by the host country. The effective tax rate we use – (i) above - is a simple measure of foreign taxes paid in the host country divided by profits; if it is lower than the statutory rate, we take this measure which helps to more accurately reflect the true tax burden. This measure is also used by Hines and Rice (1994) and Dharmapala and Hines (2009). We also lag our tax variable to try to correct for any endogeneity.

We use two different measures of good governance. The first is a measure of corruption, the “Corruption Perception Index” from Transparency International. This index is one that is commonly used (one of the measures used by Wei (2000a, 2000b) for instance) and is the measure that we can find that has the most coverage for the countries in our sample. This index ranges in value between 0 and 10. It uses a higher number for less corruption so in our empirical work we subtract the index from 10 in order to ease the interpretation.

Our second measure of good governance is the somewhat different “rule of law” index of Kaufmann, et al. (2009). This measure is designed to measure “perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.” (p. 6) This measure is somewhat different from pure corruption – it deals more with property rights. It is available only every two years during our sample period so that our sample size is smaller for this measure.

We should note that observations for the tax rate and the good governance measures are available for varying numbers of years and countries. In all, 52 (25 developing and 27 developed) countries are covered for the tax rate for the years 1985 to 2002. The time span is shorter for our other variables. The corruption index covers 47 countries from 1995 to 2002. The rule of law index covers all the 52 countries, but only for the years 1996, 1998, 2000 and 2002. We limit our regressions to include countries and years for which all relevant information is available. The list of the countries covered, their development status, the definition and sources of our variables, and summary statistics are presented in Tables A-1, A-2, and A-3 in the Appendix.

### III. EMPIRICAL ANALYSIS AND ESTIMATION RESULTS

Our primary purpose is to explore whether taxes and good governance are viewed as substitutes by multinationals in their foreign investment decisions. To do this, we investigate three specifications below. The first specification is designed to set the stage. Here we will allow the coefficient on the tax rate to vary between developed and developing countries:

$$(1) \quad \text{Log FDI}_{ijt} = \alpha_0 + \alpha_1 \text{Dev\_Dum}_i + \alpha_2 \text{Year\_Dum}_t + \alpha_3 \text{Source\_Dum}_j \\ + \alpha_4 \text{Tax}_{ijt} + \alpha_5 \text{Governance}_{ijt} + \alpha_6 \text{Tax} * \text{Dev\_Dum}_{ijt} + \sum \phi_n \text{Controls}_{nijt} + u_{ijt}$$

where  $\text{FDI}_{ijt}$  is the stock of FDI in destination country  $i$  coming from source country  $j$  in year  $t$ ,  $\text{Dev\_Dum}_i$  represents a developing/developed country dummy,  $\text{Year\_Dum}_t$  represents a year dummy,  $\text{Source\_Dum}_j$  represents a dummy for the source country,  $\text{Tax}_{ijt}$  represents the effective corporate tax rate,  $\text{Governance}$  is a measure of governance (either bad governance - the corruption perception index - or good governance - the rule of law index) and  $\text{Controls}_{nijt}$  represents control variable  $n$ .

A main finding from our first specification is that the marginal impact of taxes on the stock of FDI differs depending on whether the host country is developed or developing. Our second specification investigates one possible explanation. It allows for an interaction effect between governance and taxes, but does not allow the coefficients to vary between developed and developing countries. It is similar to (1) above, but has an interaction between governance and the effective corporate tax rate and does not have a developing country dummy:

$$(2) \quad \text{Log FDI}_{ijt} = \alpha_0 + \alpha_1 \text{Year\_Dum}_t + \alpha_2 \text{Source\_Dum}_j + \alpha_3 \text{Tax}_{ijt} + \alpha_4 \text{Governance}_{ijt} + \alpha_5 \text{Tax*Governance}_{ijt} + \sum \phi_n \text{Controls}_{nijt} + u_{ijt}$$

Our third specification investigates this further by asking whether any interaction between governance and taxes differs between developing and developed countries. The third specification adds a triple interaction of governance, the developing dummy, and the tax rate, adds each of these variables individually, and adds a full set of double interaction terms:

$$(3) \quad \text{Log FDI}_{ijt} = \alpha_0 + \alpha_1 \text{Dev\_Dum}_i + \alpha_2 \text{Year\_Dum}_t + \alpha_3 \text{Source\_Dum}_j + \alpha_4 \text{Tax}_{ijt} + \alpha_5 \text{Governance}_{ijt} + \alpha_6 \text{Tax*Governance}_{ijt} + \alpha_7 \text{Tax*Dev\_Dum}_{ijt} + \alpha_8 \text{Governance}_{ijt} * \text{Dev\_Dum}_{ijt} + \alpha_9 \text{Tax*Governance*Dev\_Dum}_{ijt} + \sum \phi_n \text{Controls}_{nijt} + u_{ijt}$$

In all specifications, the semi-log specification implies a non-linear, exponential relationship between the stock of FDI and the explanatory variables. The pooled nature of the data can create a downward bias in the standard errors due to repeated cross-sections (leading to unwarranted significance of coefficients). We therefore present clustered standard errors, which allows for an arbitrary correlation in the errors of the cluster (source-destination pair in our case) for all our regressions.

Tables 3.1 and 3.2 present our results. Table 3.1 presents results for our three specifications using the corruption perception index of Transparency International. Table 3.2 presents the results using the rule of law measure.

We begin with Table 3.1. The first column presents results with the tax rate, the corruption perception index, the tax rate interacted with the a dummy variable that takes the value of one for developing countries and zero for developed countries, and our control variables

(including the dummy for developed countries as an intercept shifter). Except for unemployment and the dummy for a developing country, all of our control variables are significant. Population has a positive sign, indicating that a larger market attracts FDI. GDP has a negative sign which we interpret as controlling for the marginal product of capital or return on investment. Exports, interpreted as controlling for openness, are positively related to FDI. Distance has a negative relation to FDI as suggested by the gravity equation.

The first thing to note is the highly significant and negative effect of taxes on FDI for developed countries, but not for developing countries. Note that the specification includes not only the tax rate, but also its interaction with a developing country dummy, which takes on the value one if a country is developing and zero if the country is developed. Thus, the coefficient on the tax rate is that for developed countries. Evaluating the coefficient of  $-.034$  at the sample mean tax rate of 31 percent yields an elasticity of FDI to the tax rate of about  $-1$  for developed countries. That is, a one percent rise in the tax rate decreases FDI by about one percent for developed countries. For developing countries the coefficient is much lower; adding the coefficient on the interaction term yields a coefficient for developing countries of only  $.012$ . Moreover, the standard error associated with this coefficient implies that the point estimate is not significantly different from zero for developing countries. Hence, these results reconfirm the findings of Goodspeed, Martinez-Vazquez, and Zhang (2010) that host country corporate taxes affect FDI going to developed but not developing countries.

The second thing to note about the column one results is the significant negative effect of host country corruption on incoming FDI. Evaluating the coefficient of  $-.111$  at the mean corruption value of 4.1 yields an elasticity of FDI with respect to the corruption measure of

-0.45. That is, a ten percent rise in the corruption index yields a fall in FDI of 4.5 percent. This implies that corruption deters FDI, and is consistent with the hypothesis that corruption itself is a type of tax.

There remains a question about why FDI entering developing countries seems to react less to host country corporate taxes. As noted above, one possibility is that taxes and corruption interact. If corruption is viewed by multinationals as a tax on doing business, and if tax administration in developing countries is weak, the more important “tax” in a developing country might be bribery payments. Moreover, Shleifer and Vishny (1993) argue that bribe payments are actually much more distortive and costly to an economy than tax payments.

Column 2 begins to assess this argument by interacting the tax rate with the corruption index instead of the developing country dummy. The result is a positive and significant coefficient, suggesting that companies that invest in foreign countries do in fact view corruption and bribery to some extent as substitutes. Host country corruption has a greater impact on FDI when taxes are low, and host country taxes have a greater impact on FDI when corruption is low. If taxes are zero, the corruption coefficient is  $-.206$  (doubling the elasticity implied by column one), while it is  $-.08$  evaluated at the mean tax rate of 31 in the sample (slightly reducing the elasticity implied by column one). If corruption is zero, the tax coefficient is  $-.042$ , somewhat higher than in column one, while if corruption is its maximum in the sample, the tax coefficient is close to zero.

Column two thus supports the proposition that taxes and corruption are substitutes. This suggests that the result that host corporate taxes do not affect FDI entering developing countries is due to corruption in developing countries, combined perhaps with weak tax administration.



However, there may be other reasons that developing countries are different. To test this, column three adds a triple interaction of corruption, the tax rate, and the developing country dummy, along with double interactions of the tax rate and corruption, the developing dummy and the tax rate, and the developing dummy and corruption.

We begin the discussion of column three by focusing on the tax rate. The interaction of corruption with the tax rate is insignificant in column three, so the coefficient on the tax rate of  $-.0364$  is that for developed countries. Moreover the coefficient is not significantly different from that of column one. The coefficient for developing countries involves several terms:  $-.0364 - .0989$  (from the tax rate-developing dummy interaction)  $+ .00117 * \text{corruption}$  (from the tax rate-corruption interaction)  $+ .0175 * \text{corruption}$  (from the triple interaction). Evaluating at the mean corruption value for developing countries of 6.5 and adding together yields a coefficient of  $-.014$  for developing countries. This is consistent with the findings of column one, but give a more nuanced picture: developing countries with low corruption may indeed find that taxes are an important factor in FDI location.

Turning to the coefficient on corruption in column three, the value for developed countries is  $-.149$  since the interaction of corruption and the tax rate is insignificant and the value for the developing country dummy is zero. This is somewhat higher than the estimate for column one. For developing countries, the estimate is  $-.149 - .336$  (from the corruption-developing dummy interaction)  $+ .00117 * \text{tax rate}$  (from the tax rate-corruption interaction)  $+ .0175 * \text{tax rate}$  (from the triple interaction). Adding together yields a coefficient of  $-.485 + .0187 * \text{tax rate}$  for developing countries. This is a striking result. If tax rates are low in the host country, then corruption indeed lowers host country FDI. However, as the tax rate rises, the impact of corruption becomes smaller. Indeed, if tax rates are very high, corruption actually

leads to higher FDI in developing countries. The explanation would appear to be that with excessive corporate taxation, corruption allows multinationals to avoid the high taxes, thus increasing FDI.

An alternative variable to the corruption perception index is the “rule of law” measure of Kaufmann et al. (2009). Table 3.2 presents these results, which by and large the results are similar to the results of Table 3.1, although the coefficients in the specification with the triple interaction have less statistical significance.

We begin by discussing the results for column one. All control variables have the same sign as in Table 3.1, and all are significant, including unemployment which was insignificant in the earlier table. The coefficient on the corporate tax rate is that for developed countries and is negative and significant, with a slightly higher coefficient of  $-.041$ , and a correspondingly higher elasticity estimate of about  $-1.25$ . The estimate for developing countries is  $.0171$  – a positive number that may at first be puzzling. However, considering the findings of columns two and three of Table 3.1 (that corruption and taxes in fact interact), this could reflect a similar phenomenon with respect to taxes and the rule of law. The coefficient on the rule of law is positive and significant – greater respect for property rights increases FDI. The elasticity of FDI with respect to the rule of law evaluated at the mean is close to 2.

Column two of Table 3.2 uses an interaction of the tax rate with the rule of law instead of column one’s interaction of the tax rate with a developing country dummy. As in Table 3.1, there is a significant interaction effect suggesting that the rule of law and corporate taxes are viewed as substitutes by multinational firms. When the rule of law is high, the corporate tax deters FDI, but at low rule of law levels, the corporate tax rate actually has a positive effect on

FDI. Evaluated at the mean rule of law value of developing countries, the coefficient on the corporate tax rate is very close to zero (.004). Evaluating at the mean rule of law value of developed countries, the coefficient on the corporate tax rate is -.038, close to the value estimated in column one of Table 3.2 as well as the estimates from Table 3.1. The results of column two thus support the result that FDI responds to corporate taxes in developed but not developing countries. The mechanism suggested by this column is that the rule of law interacts with the tax rate and when it is low (as it is generally in developing countries), the marginal impact of corporate taxes on FDI location is blunted.

The coefficient of the rule of law in column two is positive and significant, but its impact is reduced as the corporate tax rate rises. If the corporate tax rate were zero, the elasticity of FDI and the rule of law would be almost 3.4 evaluated at the mean value for the rule of law. However, as the corporate tax rate rises, the elasticity falls. The elasticity of FDI and the rule of law falls to 2.6 when the tax rate is at its mean in the sample (31.4 percent). This result is similar to the result of Table 3.1 with respect to corruption: when corporate taxes become excessively high, marginal improvements in property rights have less of an impact on FDI location.

The final column of Table 3.2 adds the triple interaction term as well as double interaction terms. The rule of law is positive and significant and the interaction of the rule of law and the tax rate is negative, but not significant. The rule of law interacted with the developing country dummy is negative and significant, but the triple interaction term is insignificant. As many of the interaction terms are insignificant, this column reveals less, but it suggests a high elasticity of FDI and the rule of law for developed countries (5.3), with a somewhat lower but

still relatively high elasticity for developing countries (1.5). These results seem to confirm the importance of the rule of law in both developed and developing countries.

#### **IV. CONCLUSION**

There is a large literature documenting that high host-country corporate taxes deter foreign direct investment. However, some recent papers have questioned the robustness of this result in developing countries. These include our own work (Goodspeed, Martinez-Vazquez, and Zhang, 2010) where we find that host country taxes affect FDI entering developed but not developing countries; Dharmapala and Hines (2009) who find that taxes affect US FDI in well governed but not poorly governed tax havens; and Fatica (2009) who finds that the sensitivity of foreign investment to the tax rate varies with the level of host country institutional quality.

In this paper we investigate one of the possible reasons for a weaker relationship between corporate taxes and FDI in developing countries: the presence of a trade-off between taxes and corruption. Although some previous papers have documented a negative impact of corruption on FDI, little work has been done on how governance may interact with taxes. In this paper we hypothesize that the presence of corruption weakens the impact of corporate taxes in determining FDI flows because bribes and weak tax enforcement tend to reduce formal tax payments, and bribery becomes the more important cost for multinationals. Since corruption tends to be more prevalent and tax administration weaker in developing countries, this helps explain why in general corporate taxes are less relevant in explaining FDI location in the developing world.

We explore the interaction of corporate taxes, governance, and developing countries using several empirical specifications. First, we allow the coefficient for the tax rate to vary between developed and developing countries; the second specification allows for an interaction

effect between governance and taxes, but does not allow the coefficients to vary between developed and developing countries; the third and final specification adds a triple interaction of governance, the developing dummy, and the corporate tax rate, in addition to including each of these variables individually and a full set of double interaction terms. We use two measures of governance in our specifications, one a corruption index and the other a rule of law measure.

In our estimations we find with the first specification a highly significant and negative effect of taxes on FDI for developed countries, but not for developing countries, and a separate individual significant negative effect of host country corruption and positive effect of the rule of law on incoming FDI. In the second specification, an interaction of the tax rate with corruption instead of the developing country dummy yields a positive and significant coefficient, suggesting that foreign investors view taxation and bribery to some extent as substitutes. Host country corruption has a greater impact on FDI when taxes are low, and host country taxes have a greater impact on FDI when corruption is low. This suggests that part of the explanation of our previous finding that host country corporate taxes do not affect FDI entering developing countries is that corporate taxes and corruption are acting as substitutes in developing countries. Our results with respect to the rule of law indicate that the same reasoning would explain the Dharmapala and Hines result that low taxes in tax havens affect FDI if the tax haven is well governed but not if the tax haven is poorly governed.

Since there may be other reasons for the response of FDI to corporate taxes in developing countries, in the third specification we add the triple interaction of corruption, the tax rate, and the developing country dummy, along with double interactions of the tax rate and corruption, the developing dummy and the tax rate, and the developing dummy and corruption. What we find is that if tax rates are low in the host country, then corruption indeed lowers host country FDI.

However, as the tax rate rises, the impact of corruption becomes smaller. Indeed, if tax rates are very high, corruption actually leads to higher FDI. The explanation would appear to be that with high levels of formal taxation, corruption allows foreign investment to avoid the excessively high taxes, thus increasing FDI. And this latter could only be true if one dollar of bribes “saved” more than one dollar of taxes. Corrupt practices in the developing world, but also in general, would seem to support this inference: corrupt tax officials generally are willing to accept a fraction of the due but otherwise forgone tax payment as the bribe. Given the potential legal risk associated with bribes, risk-averse foreign investors, acting at their own discretion, would accept the alternative of bribes over tax payments only if the price for the bribe option is highly discounted. But the result is likely to be more costly for the host economy along the lines argued by Shleifer and Vishny (1993).

From a political economy viewpoint our results may help explain why it is still common to find tax codes in developing countries with high statutory corporate tax rates. Keeping those rates high may protect the interests of corrupt tax officials in developing deals with foreign investors. However, some of those rents are likely diminished with the introduction of formal tax holidays and incentives.

**Table 3.1**

FDI, Taxes, and Corruption  
(Corruption perception index measure)

|                                       | (1)                                 | (2)                        | (3)                        |
|---------------------------------------|-------------------------------------|----------------------------|----------------------------|
|                                       | Dependent Variable: Log (FDI stock) |                            |                            |
| Corporate effective tax rate          | -0.0340***<br>(0.00619)             | -0.0421***<br>(0.00952)    | -0.0364***<br>(0.0106)     |
| Corruption                            | -0.111***<br>(0.0317)               | -0.206***<br>(0.0551)      | -0.149*<br>(0.0869)        |
| Corruption*tax rate                   |                                     | 0.00409**<br>(0.00199)     | 0.00117<br>(0.00310)       |
| Tax rate* developing dummy            | 0.0218**<br>(0.0105)                |                            | -0.0989**<br>(0.0503)      |
| Corruption* developing dummy          |                                     |                            | -0.336*<br>(0.188)         |
| Corruption* developing dummy*tax rate |                                     |                            | 0.0175**<br>(0.00789)      |
| Developing dummy                      | -0.476<br>(0.337)                   |                            | 1.876<br>(1.177)           |
| Unemployment                          | 0.0174<br>(0.0132)                  | 0.0150<br>(0.0129)         | 0.0167<br>(0.0132)         |
| Population                            | 4.26e-06*<br>(2.57e-06)             | 4.64e-06*<br>(2.50e-06)    | 4.90e-06*<br>(2.58e-06)    |
| GDP                                   | -3.05e-07***<br>(1.13e-07)          | -3.25e-07***<br>(1.11e-07) | -3.08e-07***<br>(1.13e-07) |
| Exports (lagged)                      | 6.38e-06***<br>(6.79e-07)           | 6.36e-06***<br>(6.73e-07)  | 6.39e-06***<br>(6.77e-07)  |
| Distance                              | -0.000114***<br>(1.52e-05)          | -0.000112***<br>(1.40e-05) | -0.000116***<br>(1.53e-05) |
| Constant                              | 10.58***<br>(0.246)                 | 10.78***<br>(0.281)        | 10.47***<br>(0.311)        |
| Year Dummy                            | Yes                                 | Yes                        | Yes                        |
| Source Dummy                          | Yes                                 | Yes                        | Yes                        |
| Observations                          | 4108                                | 4108                       | 4108                       |
| R-squared                             | 0.711                               | 0.709                      | 0.712                      |

Clustered and robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 3.2**

FDI, Taxes, and Rule of law

|   | (1)                                 | (2)                        | (3)                        |
|---|-------------------------------------|----------------------------|----------------------------|
|   | Dependent Variable: Log (FDI stock) |                            |                            |
| Corporate effective tax rate            | -0.0411***<br>(0.00605)             | 0.0656***<br>(0.0209)      | 0.0633<br>(0.0636)         |
| Rule of law                             | 0.609***<br>(0.129)                 | 1.064***<br>(0.161)        | 1.647***<br>(0.489)        |
| Rule of law* tax rate                   |                                     | -0.0258***<br>(0.00566)    | -0.0244<br>(0.0155)        |
| Tax rate* developing dummy              | 0.0582***<br>(0.0107)               |                            | -0.0380<br>(0.0751)        |
| Rule of law* developing dummy           |                                     |                            | -1.172*<br>(0.628)         |
| Rule of law* tax rate* developing dummy |                                     |                            | 0.0176<br>(0.0225)         |
| Developing dummy                        | -1.021***<br>(0.344)                |                            | 3.868*<br>(2.281)          |
| Unemployment                            | 0.0292**<br>(0.0140)                | 0.0245*<br>(0.0138)        | 0.0283*<br>(0.0145)        |
| Population                              | 8.71e-06***<br>(2.77e-06)           | 8.79e-06***<br>(2.77e-06)  | 7.53e-06***<br>(2.80e-06)  |
| GDP                                     | -3.23e-07***<br>(1.17e-07)          | -3.52e-07***<br>(1.16e-07) | -3.48e-07***<br>(1.17e-07) |
| Exports (lagged)                        | 6.51e-06***<br>(6.82e-07)           | 6.53e-06***<br>(6.74e-07)  | 6.73e-06***<br>(7.02e-07)  |
| Distance                                | -0.000110***<br>(1.44e-05)          | -0.000106***<br>(1.41e-05) | -0.000106***<br>(1.45e-05) |
| Constant                                | 7.809***<br>(0.614)                 | 5.924***<br>(0.694)        | 3.302<br>(2.094)           |
| Year Dummy                              | Yes                                 | Yes                        | Yes                        |
| Source Dummy                            | Yes                                 | Yes                        | Yes                        |
| Observations                            | 2186                                | 2186                       | 2186                       |
| R-squared                               | 0.712                               | 0.707                      | 0.712                      |

Notes: Clustered and robust standard errors in parentheses.



\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

**Appendix**  
**Table A-1**

Sample Countries (\* indicates developing)

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|    |                     |    |                      |
|----|---------------------|----|----------------------|
| 1  | *Argentina          | 27 | Italy                |
| 2  | Australia           | 28 | *Jamaica             |
| 3  | Austria             | 29 | Japan                |
| 4  | *Barbados           | 30 | Korea, Republic of   |
| 5  | Belgium             | 31 | Luxembourg           |
| 6  | *Brazil             | 32 | *Malaysia            |
| 7  | Canada              | 33 | *Mexico              |
| 8  | *Chile              | 34 | Netherlands          |
| 9  | *China              | 35 | New Zealand          |
| 10 | *Colombia           | 36 | Norway               |
| 11 | *Costa Rica         | 37 | *Panama              |
| 12 | Denmark             | 38 | *Peru                |
| 13 | *Dominican Republic | 39 | *Philippines         |
| 14 | *Ecuador            | 40 | Portugal             |
| 15 | *Egypt              | 41 | *Saudi Arabia        |
| 16 | Finland             | 42 | Singapore            |
| 17 | France              | 43 | Spain                |
| 18 | Germany             | 44 | Sweden               |
| 19 | Greece              | 45 | Switzerland          |
| 20 | *Guatemala          | 46 | *Thailand            |
| 21 | *Honduras           | 47 | *Trinidad and Tobago |
| 22 | Hong Kong           | 48 | *Turkey              |
| 23 | *India              | 49 | United Arab Emirates |
| 24 | *Indonesia          | 50 | United Kingdom       |
| 25 | Ireland             | 51 | United States        |
| 26 | Israel              | 52 | *Venezuela           |

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**Table A-2**

## Data Sources

| Variable                    | Further explanation   | Source  | Years  |
|-----------------------------|---|---|--|
| FDI                         | FDI stocks  | Bilateral OECD Data   | 1985-2002  |
| Population                  | In 10,000s  | World Development Indicator (WDI) 2006  | 1985-2002  |
| GDP                         | In Current Dollars  | World Development Indicator (WDI) 2006  | 1985-2002  |
| Exports                     | Goods and services  | World Bank  | 1985-2002  |
| Tax Rate                    | The minimum of the BEA tax rate and statutory tax rate, where BEA tax rate= foreign income taxes/(foreign income tax + net income) of all affiliates for U.S. firms operating abroad in each country and year | Calculated with data from Bureau of Economic Analysis (BEA) and OTPR for statutory rate                                   | 1985-2002  |
| Corruption Perception Index | Ranges from 0-10, with 10 denoting least corrupt, transformed by subtracting from 10 for ease of interpretation   | Transparency International  | 1995-2002  |
| Rule of Law                 | One of the six governance indicators from the Aggregate Governance Indicators 1996-2008. Ranges from -2.5 to 2.5, transformed to 0 to 5, with higher values corresponding to better governance outcomes.      | Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi, 2003-2009, Daniel Kaufmann, Aart Kraay and Pablo Zoido-Lobaton (1999). | Biannual data for 1996-2002, and annual data for 2003-2008 |
| Distance                    | Distance between capital cities of two countries  | CEPII   | Constant over years  |
| Unemployment Rate           | Total unemployment rate, % of total unemployed in total labor force   | World Development Indicator (WDI) 2006  | 1985-2002  |

Table A-3  
Summary of statistics

| Variable                    | Observations | Mean     | Std. Dev. |
|-----------------------------|--------------|----------|-----------|
| FDI Stock                   | 9254         | 4171.381 | 15060.85  |
| Tax Rate                    | 26136        | 31.3557  | 18.23711  |
| Corruption Perception Index | 9546         | 4.09793  | 2.533594  |
| Rule of Law                 | 5920         | 3.206807 | 0.957981  |
| Unemployment                | 23060        | 7.838019 | 4.780108  |
| Export                      | 22710        | 72579.22 | 105246.5  |
| Population                  | 26640        | 7465.116 | 20423.11  |
| GDP                         | 26640        | 432743.4 | 1136175   |
| Distance                    | 26640        | 7312.026 | 4729.527  |

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