

Does Corruption Relieve Foreign Investors of the Burden of Taxes and Capital Controls?

Shang-Jin Wei

Other things being equal, countries with higher tax rates, more corruption, or more restrictions on capital account transactions attract less foreign investment. Taxes and capital controls hinder foreign investment, and bureaucratic corruption adds to those burdens rather than reducing them.



Summary findings

In a sample of 14 source countries making bilateral investments in 45 host countries, Wei finds that taxes, capital controls, and corruption all have large, statistically significant negative effects on foreign investment.

Moreover, there is no robust support in the data for the “efficient grease” hypothesis — that corruption helps attract foreign investment by reducing firms’ tax burden and the irritant of capital controls.

This paper — a product of Public Economics, Development Research Group — is part of a larger effort in the group to study effective anticorruption strategies. It will appear as a chapter in a book on taxation and foreign direct investment edited by James Hines Jr. and to be published by the University of Chicago Press for the National Bureau of Economic Research. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Hedy Sladovich, room MC2-609, telephone 202-473-7698, fax 202-522-1154, Internet address hsladovich@worldbank.org. Policy Research Working Papers are also posted on the Web at <http://wbln0018.worldbank.org/research/workpapers.nsf/policyresearch?openform>. The author may be contacted at swei@worldbank.org. October 1999. (13 pages)

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the view of the World Bank, its Executive Directors, or the countries they represent.

Does Corruption Relieve Foreign Investors of the Burden of Taxes and Capital Controls?

Shang-Jin Wei

Development Research Group
The World Bank
Room MC 2-615
1818 H Street, N.W.
Washington, DC 20433
swei@worldbank.edu

The author is an Advisor at the World Bank's Development Economics Research Group (Public Economics), Associate Professor of Public Policy at Harvard University's Kennedy School of Government (on leave), The New Century Chair in International Economics at the Brookings Institution and a Faculty Research Fellow at the National Bureau of Economic Research. I thank Jim Hines for providing intellectual stimulation on this project, Bernie Yeung, Joel Slemrod, and other participants of the NBER International Taxation Conference for very helpful comments, and Jungshik Kim and Greg Dorchak for very efficient research and editorial assistance

1. Introduction

This paper studies the effects of several irritants to foreign direct investment, including taxes, capital controls and corruption. Moreover, it investigates whether corruption provides international investors relief from taxes and capital controls they face in host countries.

There are a large number of excellent papers that study the effect of taxation on international direct investment (e.g., Altshuler, Grubert, Newlon, 1998; and papers in the book by Feldstein, Hines and Hubbard, 1995). Corruption has recently attracted increased attention not only from academics but also from international financial institutions, as exemplified by the International Monetary Fund's (IMF) decision to condition its loans to Kenya on the latter's effort to reduce corruption. Using data on outward investment from the United States, Hines (1995) found that American firms invest less in more corrupt host countries, and he interpreted it as the effect of the U.S. Foreign Corrupt Practices Act. Using a sample of bilateral investment from fourteen major source countries to 45 host countries, Wei (1997a, 1997b) found that all major source countries invest less in more corrupt countries. Later, Hines (1999) found that capital controls have a statistically significant and negative effect on inward foreign investment. These papers have studied the effects of corruption and capital controls in isolation, but not in an integrated framework.

Furthermore, a separate strand in the literature (e.g., Leff, 1964; Huntington, 1968; and Lui, 1985) sees virtue in corruption. In particular, in an environment with excessive tax, severe capital control, or numerous licensing requirements, bribery allows firms to circumvent these otherwise suffocating regulatory burdens. So, holding the level of tax and capital controls constant, more bribes may lead to more foreign (and domestic) investment. This argument may be characterized as a theory of "efficient grease payments." On the other hand, if regulatory burdens are endogenously chosen by the bureaucrats solely to extract rents, one may see more regulatory burdens in countries with more corruption (see Kaufmann and Wei, 1999, for a formal model and some firm-level evidence). Therefore, whether corruption in a host country with high tax rates and severe capital controls is responsible for more or less foreign investment is an open question, the answer to which depends on the degree to which taxes and capital controls are erected and maintained for rent-seeking purposes. Earlier papers have not investigated possible interactions between corruption and taxation, and between corruption and capital controls. This paper tries to fill this void.

Using data over a large number of source-host pairs, this study quantifies the importance of a number of economic and non-economic factors that may affect international direct investment. It compares these effects with that of corporate income taxation whenever possible. Most importantly, it examines whether bribery in countries with high tax rates and severe capitals control tends to encourage inward foreign direct investment.

The paper is organized as follows. Section 2 describes the data set. Section 3 discusses the statistical analyses and interpretations. Section 4 concludes.

2. Data

Bilateral International Direct Investment

The dependent variable is (a transformation of) bilateral stocks of foreign investment in 1991 from fourteen major source countries to 45 host countries. The list of source countries includes the seven largest in the world: Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The number of the host countries in the sample is constrained by the joint availability of data on tax rates, corruption levels and capital controls. The data come from the Organisation for Economic Co-operation and Development (OECD) database on international direct investment.

Tax

The host countries' tax rates are 1989 values. It is worth noting that tax rates do not change very much during 1989–91. The actual measure is the smaller of two numbers (whenever both are available): the statutory marginal tax rate on foreign corporations as reported by Price Waterhouse (1990), or the actual average tax rate paid by the foreign subsidiaries of American firms in that country. The data on 28 of the host countries are taken from Desai and Hines (1996, Appendix 2). The rest are obtained using the Price Waterhouse source with the able assistance of Mihir Desai.

Corruption

The empirical work in the paper utilizes two measures of corruption. The first is the Business International (BI) index, which is based on surveys during 1980–83, and ranks countries from one to ten, according to “the degree to which business transactions involve corruption or questionable payments.” The data was provided by Paolo Mauro and was used in his paper (1995) on corruption and economic growth. The second source is the index composed by Transparency International (TI)—an agency dedicated to fighting corruption worldwide. The TI index is an average of ten surveys by different agencies over a number of years. It has an advantage and a disadvantage relative to the BI-index. On the one hand, assuming measurement errors in different surveys are independent, the averaging process of the TI index may produce smaller measurement errors in the end. On the other hand, different surveys cover different sets of countries and may use different criteria, so the ratings on different countries in the TI index may be less comparable. Fortunately, the two indexes are highly correlated (with a correlation coefficient of 0.88). Which index to use makes no qualitative difference for subsequent discussions. Hence, later sections will only report results with the BI index.

In both original sources, the indexes are defined so that a high number means low corruption. To avoid awkwardness in interpretation, I have rescaled them so that a large number means more corruption.

Capital Controls

There are two capital control measures. The first is a survey-based measure from Business International, collected over 1980–83. In the original survey, a big number (say, ten) means less restriction on capital account. I have re-scaled them so that a large number means more restrictions. This measure is supposed to be on a one to ten scale. In the sample, the minimum and maximum are one and eight, respectively. This measure is used in Hines (1999). The second measure is a dummy based on IMF's *Exchange Arrangements and Exchange Restrictions*. The two measures have a correlation coefficient of 0.46. This version of the paper only reports the results using the BI measure.

Other Data

The GDP data comes from the International Monetary Fund's *International Financial Statistics* database. In a few cases where GDP data are not available, GNP data are used instead.

The bilateral distance data measures the "greater circle distance" between the economic centers in source-host pairs. The dummy variable measure of linguistic ties takes the value of one if the source and host share a common language (either English, French, Spanish, German, Arabic, Chinese, Japanese, Portuguese or Italian) and zero otherwise. Both data are taken from Frankel, Stein and Wei (1995).

Four additional potential irritants to foreign investment are: (1) restrictions on foreign firms' access to domestic capital markets, (2) restrictions on their abilities to set up joint ventures with domestic firms, (3) restrictions on their abilities to bid on public sector projects, and (4) restrictions on their corporate control rights. The paper uses four binary measures (dummies) for the four irritants. They are all survey responses of subjective perceptions from the *1997 Global Competitiveness Report*.

Table 1 reports summary statistics on some of the key variables. The average corruption level (BI-Index) is 3.70 (on a one-to-ten scale). The average degree of capital control (BI-Index) is 3.31 (on a one-to-ten scale). And the average tax rate in the sample is 34 percent.

Table 1: Summary Statistics

	<i>Mean</i>	<i>Std. dev.</i>	<i>Min.</i>	<i>Max.</i>	<i>Skewness</i>	<i>Kurtosis</i>	<i>Number of obs.</i>
<i>Corruption</i>							
BI-Index	3.70	2.49	1	10	0.75	-0.20	45
TI-Index	4.55	2.63	1	10	0.42	-1.02	42
Tax	0.34	0.12	0.02	0.55	-0.69	0.42	45
<i>Capital account restrictions</i>							
(BI index)	3.31	2.06	1	8	0.75	-0.49	44
(IMF index)	0.64	0.48	0	1	-0.61	-1.64	42
<i>Political</i>							
Stability	7.93	1.17	5	10	-0.56	-0.31	45
Red tape	4.34	2.30	1	9	0.15	-1.05	45
<i>Pairwise correlation matrix</i> (40 observations)							
	C(BI)	C(TI)	Tax	KA-res (BI)	KA-res (IMF)	Stability	
Corruption(BI)	1						
Corruption(TI)	0.88	1					
Tax		0.20	0.28	1			
KA-res(BI)	0.47	0.48	0.42	1			
KA-res(IMF)	0.23	0.22	0.18	0.46	1		
Political stability	-0.69	-0.65	-0.11	-0.46	-0.28	1	
Red tape	0.88	0.85	0.33	0.59	0.27		1

Corruption (BI-Index) = 11 – original BI-index score

Corruption (TI-Index) = 10 – original TI-index score

Capital controls (BI-Index) = 11 – original BI-index score

Red tape = 11 – original index from BI.

3. Statistical Analyses

One could run an Ordinary Least Square specification of the following sort

$$\ln(FDI_{i,j}) = X_{ij} \beta + u_{ij}$$

where FDI_{ij} is the stock of foreign investment from source country i to host country j , and X is a vector of regressors including the host country's GDP in logarithm and the distance between the source and host countries in logarithm. Experience indicates that, in analogy to the gravity specification on trade flows, the logarithmic transformation on both sides of the equation (of the dependent variable and of most of the regressors), called double-log linear specification, produces the best functional fit.

Many host countries receive no direct investment from some source countries. A serious drawback of the double-log linear specification is that zero FDI observations are dropped by this specification. It is natural to think about using a Tobit specification to replace the OLS.

The problem there is that the simple Tobit specification conflicts with the double-log transformation, as log of zero is not defined. To deal with this problem, I employ the

following specification in this paper:

$$\ln(FDI_{ij} + A) = X\beta + u_{ij} \quad \text{if } X\beta + u_{ij} > \ln(A)$$

$$= \ln(A) \quad \text{if } X\beta + u_{ij} \leq \ln(A)$$

where A is a threshold parameter to be estimated. u is an i.i.d. normal variate with mean zero and variance σ^2 . In this specification, if $X\beta + u$ exceeds a threshold value, $\ln(A)$, source country i accumulates a positive stock of investment in host country j ; otherwise, the realized foreign investment is zero (and the desired level could be negative).

This framework is modified in subsequent implementation to become a quasi-fixed effects specification: there are source country dummies, but no host country dummies. The source country dummies are intended to capture source-country-specific differences in the stock of bilateral direct investment. Such differences include the size and level of development of the source countries, and possibly different definitions of outward direct investment used by different source countries (under the assumption that the FDI amount under one definition is proportional to the amount under another definition plus an i.i.d. random error). Host country dummies are not included as there are no reliable measures of year-to-year variations in corruption and capital controls, which are key variables for this paper.

Empirical Results: Continuous Measures

To get some idea of quantitative importance of corruption levels and tax rates, I have implemented a very simple specification. The two key regressors are tax rate and average corruption level (BI index). In addition, the estimating equation includes source country dummies, host country's GDP in logarithm, distance between the source and host countries in logarithm, and a dummy indicating if the source and host countries share a common language. The last two regressors are motivated by recent emphasis on the importance of networks in trade and investment as in the work of Rauch (1996).

Table 1 presents the basic results. In Column 1 which has the most parsimonious specification, both tax rate and corruption measure have negative and statistically significant coefficients. A one step increase in corruption rating is associated with an increase in the tax rate by 4.69 percentage points.¹ For instance, an increase in corruption level from that of Singapore (with a BI corruption rating of 1) to that of Colombia (with a BI corruption rating of 6.5) is equivalent to raising the tax rate by 25.8 percentage points.² Similarly, an increase

¹ $0.09 / (0.01 \times 1.92) = 4.69$.

² $(6.5 - 1) \times 4.69 = 25.8$.

in the average corruption level from that of Singapore to that of Mexico (with a BI corruption rating of 7.25) is equivalent to raising the tax rate by 29.3 percentage points.³

We note that all three control variables have statistically significant coefficients and sensible signs. A host country with a larger GDP attracts more FDI than otherwise. A host country that is closer to the source country either geographically or linguistically (or historically related) also attracts more inward investment than otherwise.

A measure of severity of capital controls (by the BI-index) is added in Column 2. This variable has a negative sign and is statistically different from zero. Because countries that impose capital controls and those that have high taxes tend to be correlated (with a correlation coefficient of 0.40 according to Table 1), the coefficient on the tax variable declines a bit (from -1.92 to -1.62) but remains statistically significant. Taking the point estimates literally, a one-step increase in the severity of capital controls is equivalent to raising the marginal tax rate by 13.2 percentage points [$=0.14/(0.01 \times 1.06)$]. An increase in the severity of capital controls from the Singapore level (BI-index value of 1) to the Philippines level (BI-index level of 4) is equivalent to raising the marginal tax rate by 39.6 percent.

So far, we have considered the effects of tax, corruption and capital control in isolation. Again, a popular (and previously untested) argument is that bribes can sometimes function as “grease payments,” helping firms by effectively reducing tax burden or evading capital controls. If the “grease payment” effect works in reality, then, the same level of tax should be a lesser hindrance to foreign investment in countries with greater possibility of bribing officials.

Alternatively, the “grease payment” argument may have no merit. Kaufmann and Wei (1999) argue that regulatory burdens, such as those imposed by taxes and capital controls may well be endogenous, implemented by corruption-prone officials in order to extract bribes. In other words, bribes might reduce taxes only in a partial equilibrium story in which the tax rate is pre-determined. But in a general equilibrium, taxes may in fact be higher in corrupt countries so that firms there do not end up paying fewer taxes (or facing less severe capital controls).

We now check this possibility. We first add a new term to the regression, “Corruption x Tax-rate.” The efficient grease theory implies that the coefficient on this interactive term should be positive. Column 3 reports the regression with the new interactive term, “Corruption x tax-rate.” As it happens, the corresponding coefficient does not differ from zero statistically (though it is positive). Hence, there is no statistical support for the “grease payment” argument; foreign investors’ sensitivity to host tax rate does not seem to diminish as the host country gets more corrupt.

The “efficient grease” argument is equally applicable to capital controls, so one may ask: does greater corruption in a host country make the same degree of capital controls more tolerable to foreign investors? To investigate this question, we augment the specification in Column 2 with a different interactive term, “Corruption x Capital-Control.” The result is

³ $(7.25 - 1) \times 4.69 = 29.3$.

reported as Column 4 of Table 1. The coefficient turns out to be positive and statistically significant. This literally means that the sensitivity of FDI to the severity of capital controls is indeed less for more corrupt host countries. This seems to support the “grease payment” hypothesis as applied to capital controls.

On the other hand, this result does not imply that foreign investors would necessarily invest more in a more corrupt host country. Consider two host countries with identical capital controls (say, Capital Control Indexes = 4, approximately the mean in the sample, of which the Philippines and Ecuador would be examples). If country A is more corrupt than country B (say, the Corruption Indexes are 9 and 7 respectively), the net effect of this increment in corruption on FDI is still negative, since $(9-7)X(-0.12) + (9-7)X4X0.021 = -0.072$.

Empirics: Binary Measures of Corruption and Capital Controls

In the previous subsection, we measure capital controls and corruption on a one-to-ten scale. Since these measures come from survey of respondents’ impressions, small measurement errors can easily change the ranking of host countries. In this subsection, we eliminate the overly fine gradation of the capital control and corruption measures by constructing corresponding binary measures. Specifically, we define D(Corruption) as a dummy that takes the value of one if the Corruption Index exceeds six and zero otherwise.

Similarly, we define D(Cap-Control) to be a dummy for countries whose Capital Control Index exceeds six.⁴

Table 3 replicates all the regressions in Table 2, after replacing the ten-step measures of corruption and capital controls by their binary counterparts. In Columns 1 and 2, tax, corruption, and capital control, individually still have a negative and statistically significant effect on inward foreign investment. Other things being equal, foreign investors invest less in a country with higher tax, more corruption, or more severe capital controls.

The last three columns show the interactions between corruption and tax rates, and between corruption and capital controls. In Column 3 where only the former interaction is shown, the coefficient on the regressor, “D(Corruption) x Tax-rate,” is negative. As in the regressions reported in Table 2, this finding is contrary to the hypothesis that “grease-payments” make taxes less irritating to investors. In Column 4 where the interaction term “D(Corruption) x D(Cap-Control)” is added alone, the coefficient on the term is positive but not statistically different from zero at the ten percent level. In fact, even if one takes the point estimate as given, the estimates suggest that investors will unambiguously invest less in a more corrupt country whether it has tight or loose capital controls. This differs from the earlier observation in Table 2 that bribes may reduce the negative effect of capital controls on foreign investment. In other words, the earlier observation is not robust. In Column 5, both interactive terms are put together in the regression. The result is essentially the same

⁴ Other threshold values (5 and 7) were tried and did not make a qualitative difference for the subsequent discussion.

as before; there is no statistically significant support for the “grease-payment” argument on either the effect of tax or on that of capital controls.

Table 2: Tax, Capital Control, Corruption and FDI
(Modified Tobit, with continuously measured corruption and capital controls)

Dependent variable: log(stock of FDI from i to j in 1991 + A)					
Tax-rate	-1.92*	-1.06*	-1.16#	-0.74##	-0.60
	(0.47)	(0.46)	(0.70)	(0.47)	(0.78)
Corruption (BI-index)	-0.09*	-0.05*	-0.07	-0.12*	-0.11#
	(0.02)	(0.02)	(0.06)	(0.04)	(0.05)
Capital Control (BI-index)		-0.14*	-0.13*	-0.23*	-0.22*
		(0.03)	(0.03)	(0.07)	(0.07)
Corruption x tax-rate			0.05		-0.044
			(0.18)		(0.200)
Corruption x capital control				0.021*	0.020*
				(0.010)	(0.010)
log(GDP_j)	0.54*	0.50*	0.49*	0.46*	0.45*
	(0.10)	(0.10)	(0.09)	(0.09)	(0.09)
log(Distance_ij)	-0.28*	-0.30*	-0.29*	-0.29*	-0.29*
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Linguistic tie	0.70*	0.70*	0.67*	0.66*	0.64*
	(0.28)	(0.28)	(0.27)	(0.27)	(0.26)
Constant	1.6E+4*	1.6E+4*	1.6E+4*	1.6E+4*	1.6E+4*
	(3.0)	(4.4)	(2.6)	(2.8)	(2.4)
A	6.3E+9*	6.2E+9*	6.4E+9*	6.4E+9*	6.6E+9*
	(6.4E+6)	(2.2E+7)	(5.2E+6)	(9.0E+6)	(2.3E+6)
σ	1.16*	1.15*	1.11*	1.12*	1.10*
	(0.18)	(0.18)	(0.17)	(0.18)	(0.17)
Source					
Dummies?	yes	yes	yes	yes	yes
Number obs.	545	545	545	545	545
LogLikelihood	1,789.32	1,792.20	1,802.13	1,802.92	1,808.24

*, # and ## denote significantly different from zero at the five, ten and fifteen percent levels, respectively.

Note: 1. Eicker-White standard errors that are computed from analytic first and second derivatives are in parentheses. All reported coefficients and standard errors have been multiplied by 10^3 .

2. “Corruption” and “Capital Controls” equal to 11 minus the corresponding BI-indexes, so that larger numbers mean more corruption or more capital controls.

3. Each column represents the result of a regression that is based on the following modified Tobit specification:

$$\ln(FDI_{ij} + A) = X\beta + u_{ij} \quad \text{if } X\beta + u_{ij} > \ln(A) \quad = \ln(A) \quad \text{if } X\beta + u_{ij} \leq \ln(A)$$

where A is a threshold parameter to be estimated. u is an i.i.d. normal variate with mean zero and variance σ^2 .

Table 3: Binary Measures of Corruption and Capital Controls
(Modified Tobit)

Dependent variable: $\log(\text{stock of FDI from } i \text{ to } j \text{ in } 1991 + A)$					
Tax-rate	-2.12*	-1.01*	-0.95*	-0.91*	-0.84*
(0.43)	(0.39)	(0.40)	(0.39)	(0.40)	
D(Corruption)	-0.30*	-0.20*	0.33	-0.37*	0.13
	(0.11)	(0.10)	(0.65)	(0.18)	(0.06)
D(Cap-Control)		-0.13*	-0.14*	-0.14*	-0.14*
		(0.03)	(0.03)	(0.03)	(0.03)
D(Corruption) x tax rate			-1.61		-1.45
			(2.65)		(1.86)
D(Corruption) x D(Cap-Control)				0.044	0.041
				(0.044)	(0.042)
$\log(\text{GDP}_j)$	0.51*	0.44*	0.43*	0.42*	0.41*
	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)
$\log(\text{Distance}_{ij})$	-0.26*	-0.27*	-0.26*	-0.26*	-0.25*
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Linguistic tie	0.65*	0.61*	0.61*	0.59*	0.58*
	(0.25)	(0.28)	(0.24)	(0.23)	(0.23)
Constant	1.6E+4*	1.6E+4*	1.6E+4*	1.6E+4*	1.6E+4*
	(3.6)	(4.4)	(4.9)	(2.4)	(2.1)
A	7.1E+9*	7.3E+9*	7.4E+9*	7.5E+9*	7.7E+9*
	(1.9E+7)	(0.6E+7)	(3.3E+7)	(6.3E+6)	(2.1E+6)
σ	1.01*	0.99*	0.97*	0.97*	0.94*
	(0.16)	(0.16)	(0.15)	(0.15)	(0.15)
Source					
Dummies?	yes	yes	yes	yes	yes
Number obs.	545	545	545	545	545
LogLikelihood	1,829.38	1,847.23	1,849.34	1,854.82	1,859.62

Note: 1. See footnote to Table 2.

2. "D(Corruption)" and "D(Cap-Control)" are dummies for host countries that are highly corrupt, or with severe capital account restrictions, respectively. D(Corruption)=1 if BI-corruption Index > 6 and 0 otherwise. D(Cap-Control)=1 if BI-capital control Index > 6 and 0 otherwise.

Additional Controls

To check for robustness with regard to our inference on the validity of the "grease-payment" argument, I add some further control variables. The results are reported in Table 4.

The first column of Table 4 adds a measure of political stability in the host countries. Not surprisingly, more stable regimes attract more investment. Note that our conclusion on the interactions between corruption and tax, and between corruption and capital controls remains true; there is no support for the "grease-payment" argument.

The second column adds a measure of red tape or bureaucracy in the host countries. While the new variable has a negative sign, as consistent with one's intuition, it is not different from zero statistically.

The last column adds average hourly wage in host countries' manufacturing sectors as well as a dummy for OECD host countries. Because the wage data is available for a smaller number of countries, this change cuts down the sample size considerably. As it turns out, the OECD dummy is positive and significant: OECD hosts attract more FDI, other things

being equal. The wage variable has a negative and significant coefficient; countries with lower labor costs also attract more FDI. Controlling for these effects, there is still no support for the validity of the “grease-payment” hypothesis.

Table 4: More Robustness Checks

(Modified Tobit, Binary measures of corruption and capital controls)

Dependent variable: $\log(\text{stock of FDI from } i \text{ to } j \text{ in } 1991 + A)$			
Tax-rate	-0.77# (0.40)	-0.74# (0.41)	-1.07* (0.45)
D(Corruption)	0.76 (0.70)	0.74 (0.69)	1.11# (0.07)
D(Cap-Control)	-0.13* (0.03)	-0.12* (0.03)	-0.11* (0.04)
D(Corruption) x tax-rate	-3.00## (2.07)	-2.89 (2.03)	-3.63# (1.96)
D(Corruption) x D(Cap-Control)	0.056 (0.043)	0.053 (0.043)	0.044 (0.046)
Political stability	0.10*	0.09#	0.12*
Red tape		-0.01 (0.03)	-0.07# (0.04)
OECD dummy			0.37* (0.13)
Log(Wage_j)			-0.24* (0.08)
Log(GDP_j)	0.41* (0.08)	0.40* (0.08)	0.40* (0.08)
Log(Distance_ij)	-0.25* (0.05)	-0.25* (0.05)	-0.25* (0.06)
Linguistic tie	0.60* (0.23)	0.56* (0.28)	0.59* (0.22)
Constant	1.6E+4* (2.5)	1.6E+4* (2.5)	1.6E+4* (2.3)
A	7.6E+9* (5.7E+6)	7.7E+9* (6.2E+6)	8.5E+9* (4.5E+6)
σ	0.96* (0.15)	0.94* (0.15)	0.91* (0.15)
Source			
Dummies?	yes	yes	yes
Number obs.	545	545	450
LogLikelihood	1,860.02	1,867.71	1,627.73

Note: See notes to Table 3. “Red Tape” equal to 11 minus the corresponding BI-index, so that larger numbers mean more red tapes.

Subsequent regressions experiment with adding: (1) foreign firms’ access to domestic capital markets, (2) foreign firms’ ability to set up joint ventures with domestic firms, (3) foreign firms’ ability to bid on public sector projects, and (4) foreign firms’ ability to exert corporate control rights. The four dummies are all survey responses of subjective perceptions from the *1997 Global Competitiveness Report*. As it happens, the four dummies are highly correlated. If all four are put into the regression, none has a coefficient statistically different from zero. Moreover, the earlier conclusions regarding the effects on FDI of tax rates, corruption levels, and capital controls, as well as their interactions, remain the same. If one adds only one of the four dummies, say, foreign firms’ access to domestic

capital markets, this variable does have a statistically significant coefficient. Greater restrictions on access to domestic capital leads to less foreign investment. [The regression results not reported.]

Section 4: Concluding Remarks

This paper investigates the effects of corruption, tax rates and capital on the ability of host countries to attract foreign direct investment. It reaches two main conclusions. First, in isolation, each of the three factors has a negative effect on inward investment: Countries with higher tax rates, or more corruption, or more restrictions on capital account transactions, attract less foreign investment, other things being equal.

Second, the three factors could interact with each other and produce a complicated aggregate effect. In particular, it is sometimes argued that corruption may allow firms to evade excessive taxation and severe capital account restrictions (the “grease-payment” argument) and thereby actually encourage investment. In the data, there is no support for the view that taxation has a smaller negative effect on foreign investment in a more corrupt host country. With regard to capital controls, there is some support for the view that corruption may reduce the burden of severe capital controls when a 10-step measure of the control is used. However, this result is not robust to the use of dummy variables to separate high corruption from low corruption, and severe capital controls from mild capital controls. Hence, the data does not support the “efficient grease payments” argument.

In short, the evidence indicates that taxes and capital controls are hindrance to foreign investment. Bureaucratic corruption adds rather than relieves the burdens that they impose.

References

- Altshuler, Rosanne, Harry Grubert and T. Scott Newlon. 1999. “Has U.S. Investment Abroad Become More Sensitive to Tax Rates?” Rutgers University, Mimeo.
- Desai, Mihir, and James Hines, Jr. 1996. “‘Basket’ Cases: International Joint Ventures After the Tax Reform Act of 1986.” NBER Working Paper 5755, September.
- Feldstein, Marin, James R. Hines, Jr., and R. Glenn Hubbard. 1995. *The Effects of Taxation on Multinational Corporations*. Chicago and London: The University of Chicago Press.
- Frankel, Jeffrey, Ernesto Stein, and Shang-Jin Wei. 1995. “Trading Blocs and the Americas: The Natural, the Unnatural, and the Supernatural.” *Journal of Development Economics* 47 (June): 61-95.
- Hines, James. 1995. “Forbidden Payment: Foreign Bribery and American Business After 1977.” NBER Working Paper 5266, September.
- Hines, James. 1999. “Capital Controls and Foreign Direct Investment.” University of Michigan, Mimeo.
- Huntington, Samuel P. 1968. *Political Order in Changing Societies*. New Haven: Yale University Press.
- International Labor Organization. 1995. *International Labor Yearbook*. Geneva: International Labor Organization.

- Kaufmann, Daniel, and Shang-Jin Wei. 1999. "Does 'Grease Money' Speed Up the Wheels of Commerce?" NBER Working Paper 7093.
- Leff, Nathaniel H. 1964. "Economic Development Through Bureaucratic Corruption." *The American Behavior Scientist* 8(2, November): 8-14.
- Lui, Francis. 1985. "A Equilibrium Queuing Model of Bribery." *Journal of Political Economy* 93(4, August): 760-781.
- Mauro, Paolo. 1995. "Corruption and Growth." *Quarterly Journal of Economics* 110: 681-712.
- Price Waterhouse. 1990. Information Guides for various countries. Price Waterhouse World Firm.
- Rauch, James. 1996. "Networks versus Markets in International Trade." NBER Working Paper 5617, June.
- Wei, Shang-Jin. 1997a. "How Taxing is Corruption on International Investors?" NBER Working Paper, 6030, May. Forthcoming, *Review of Economics and Statistics*.

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2187	Who Determines Mexican Trade Policy?	Jean-Marie Grether Jaime de Melo	September 1999	L. Tabada 36896
WPS2188	Financial Liberalization and the Capital Account: Thailand, 1988–97	Pedro Alba Leonardo Hernandez Daniela Klingebiel	September 1999	R. Vo 33722
WPS2189	Alternative Frameworks for Providing Financial Services	Stijn Claessens Daniela Klingebiel	September 1999	R. Vo 33722
WPS2190	The Credit Channel at Work: Lessons from the Republic of Korea's Financial Crisis	Giovanni Ferri Tae Soo Kang	September 1999	K. Labrie 31001
WPS2191	Can No Antitrust Policy Be Better Than Some Antitrust Policy?	Aaditya Mattoo	September 1999	L. Tabada 36896
WPS2192	Districts, Spillovers, and Government Overspending	Reza Baqir	September 1999	S. Devadas 87891
WPS2193	Children's Growth and Poverty in Rural Guatemala	Michele Gagnolati	September 1999	M. Gagnolati 85287
WPS2194	Does Democracy Facilitate the Economic Transition? An Empirical Study of Central and Eastern Europe and the Former Soviet Union	Jean-Jacques Dethier Hafez Ghanem Edda Zoli	October 1999	H. Ghanem 85557
WPS2195	Aggregating Governance Indicators	Daniel Kaufmann Aart Kraay Pablo Zoido-Lobaton	October 1999	D. Bouvet 35818
WPS2196	Governance Matters	Daniel Kaufmann Aart Kraay Pablo Zoido-Lobaton	October 1999	D. Bouvet 35818
WPS2197	Production Sharing in East Asia: Who Does What for Whom, and Why?	Francis Ng Alexander Yeats	October 1999	L. Tabada 36896
WPS2198	How the Chinese System of Charges and Subsidies Affects Pollution Control Efforts by China's Top Industrial Polluters	Hua Wang Ming Chen	October 1999	H. Wang 33255
WPS2199	Managing Risks of Capital Mobility	Mansoor Dailami	October 1999	W. Nedrow 31585
WPS2200	The Role of Trust in Financial Sector Development	Biagio Bossone	October 1999	E. Mekhova 85984

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2201	Financial Development and Industrial Capital Accumulation	Biagio Bossone	October 1999	E. Mekhova 85984
WPS2202	Specialization without Regret: Transfer Rights, Agricultural Productivity, and Investment in an Industrializing Economy	Michael R. Carter Yang Yao	October 1999	M. Fernandez 33766
WPS2203	Market versus Administrative Reallocation of Agricultural Land in a Period of Rapid Industrialization	Michael R. Carter Yang Yao	October 1999	M. Fernandez 33766
WPS2204	Corruption under Moral Hazard	Gunnar S. Eskeland Henrik Thiele	October 1999	H. Sladovich 37698
WPS2205	Foreign-Owned Capital and Endogenous Tariffs	Marcelo Olarreaga	October 1999	L. Tabada 36896
WPS2206	Household Childcare Choices and Women's Work Behavior in Russia	Michael M. Lokshin	October 1999	P. Sader 33902
WPS2207	Jamaica's Food Stamp Program: Impacts on Poverty and Welfare	Kene Ezemenari Kalanidhi Subbarao	October 1999	G. Peralta 37405
WPS2208	Ethnic Partition as a Solution to Ethnic War: An Empirical Critique of the Theoretical Literature	Nicholas Sambanis	October 1999	H. Sladovich 37698

10/29