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HOW TAXING IS CORRUPTION ON INTERNATIONAL INVESTORS?

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ABSTRACT

This paper studies the effect of corruption on foreign direct investment. The sample covers bilateral investment from fourteen source countries to forty-five host countries during 1990-91. There are three central findings. (1) A rise in either the tax rate on multinational firms or the corruption level in a host country reduces inward foreign direct investment (FDI). An increase in the corruption level from that of Singapore to that of Mexico is equivalent to raising the tax rate by over twenty percentage points. (2) There is no support for the hypothesis that corruption has a smaller effect on FDI into East Asian host countries. (3) American investors are averse to corruption in host countries, but not necessarily more so than average OECD investors, in spite of the U.S. Foreign Corrupt Practices Act of 1977. On the other hand, there is some weak support for the hypothesis that Japanese investors may be somewhat less sensitive to corruption. Neither American nor Japanese investors treat corruption in East Asia any differently from that in other parts of the world.

There are other interesting and sensible findings. For example, consistent with theories that emphasize the importance of networks in trade and investment, sharing a common linguistic tie between the source and host countries and geographic proximity between the two are associated with a sizable increase in the bilateral FDI flow.

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"We need to deal with the cancer of corruption....We can give advice, encouragement, and support to governments that wish to fight corruption - and *it is these governments that, over time, will attract the larger volume of investment.*" (Emphasis added).

James D. Wolfensohn[1]
President, The World Bank

Introduction

This paper studies three sets of questions regarding the effect of corruption on international direct investment. First, does corruption in host countries affect negatively their ability to attract foreign direct investment (FDI)? How big is the effect relative to the host governments' tax on foreign corporations? Second, is East Asia a special group of host countries? I will test the hypothesis that corruption has no or reduced effect on inward FDI in the region, possibly because corruption has been part of the culture or a way of life for a long time. Third, is the United States a special source country? I will test the hypothesis that the American investors are especially sensitive to host country corruption, possibly due to the deterrent effect of the U.S. Foreign Corrupt Practices Act. I will explain the three questions in turn.

This first question is partly motivated by the observation on China. China has rampant corruption according to various newspaper accounts as well as surveys of business executives[2]. Yet,

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[1]"Transition,"7(9-10),p.9,Sept/Oct.,1996.

[2] According to The Wall Street Journal ("Smugglers Stoke B.A.T.'s Cigarette Sales in China," December 18, 1996), the Chinese consume a huge quantity of foreign-made cigarettes ("one in every three cigarettes is smoked in China."), but 90% of the imports do not pay duty. The British American Tobacco (BAT) company is the largest supplier of foreign cigarettes in China. In 1995, the company sold 400 million cigarettes that were duty-paid, 3 billion in duty-free shop, 4 billion in special economic zones (SEZs), many of which transported illegally to other parts of China, and 38 billion to retailers who smuggled their way directly into China. Conversations with Hong Kong businessmen indicate that there is a well-developed fee-for-service business in Hong Kong to smuggle goods through the Chinese customs. There are at least four different ways to circumvent the Chinese tariffs, most of which involve paying bribery to Chinese customs officials. A business consultant who works for a major U.S.-owned consulting firm in Hong Kong indicated that 90% of foreign wine in the Chinese market was also smuggled into the country.

for every year in the last four, China has been the largest developing host of international investment. Even its FDI flow-to-GDP ratio has been among the highest among developing countries.

Empirical evidence on a negative correlation between corruption and inward FDI has so far been elusive. In a study of U.S. firms' foreign investment, Wheeler and Mody (1992) failed to find a significant correlation between size of FDI and host country's risk factor, a composite measure that includes perception of corruption as one of the components. The authors concluded (p70) that the importance of the risk factor should "be discounted, although it would not be impossible to assign it some small weight as a decision factor."

Similarly, more recently, using total inward FDI (as opposed to bilateral FDI used in this paper), Hines (1995) failed to find a negative correlation between total inward FDI and corruption level in host countries. Commenting on his Table A6, Hines remarked (footnote 24 on page 20), "while the equations fit poorly, it is noteworthy that local corruption has an insignificant effect on post-1977 growth of FDI..."[3]

On the other hand, popular press and policy circles seem to believe that corruption does reduce inward FDI, as suggested by the opening quote from James Wolfensohn, President of the World Bank. So why is the empirical evidence so elusive? Wheeler and Mody (1992) mixed the corruption measure together with 12 other indicators to form one regressor (what the authors called "RISK"). These other indicators include "attitude of opposition groups towards FDI," "government support for private business activity," and "overall living environment for expatriates," which may not be overwhelmingly correlated with government corruption, may not be precisely measured, or may not be as important for FDI as one imagines. As a result, the noise-to-signal ratio for the composite measure (RISK) may be too high to show up significantly in the regressions. In the part of the Hines' paper (1995) that deals with this question, the total inward FDI from the IMF's IFS database may also be too noisy.

The first objective of this paper is to reexamine the corruption effect on a broader panel of bilateral FDI data with a more comprehensive list of control variables. To reveal the "bottom line", I will report evidence that corruption in a host country does depress inward FDI in a way that is

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[3] Hines (1995) did find a significantly negative effect of corruption on U.S. FDI, and interpreted it as a result of the Foreign Corrupt Practices Act. I will return to this later.

statistically significant and quantitatively large.

The second motivation of the paper concerns East Asia as a host region. By popular account, many East Asian countries have a high level of corruption. Aside from the China example that was mentioned above, Indonesia is another apparent paradox. President Suharto is known as "Mr. Ten Percent," as foreign corporations doing business there are naturally expected to pay a relatively well-defined bribe to the President or members of his family. Yet, Indonesia is a popular destination of FDI, particularly those from Japan. To see the rapid influx of the FDI into the region, consider the observation by the United Nations' World Investment Directory 1992, Vol.1(p14)

"Since 1986, the Asia-Pacific region has become the largest recipient of FDI among developing countries, accounting for about half of all flows to the third world. In the late 1980s, FDI flows to Asia and the Pacific grew rapidly. Average annual investment flows into most Asian and Pacific countries increased faster between 1980-82 and 1986-88 than between 1975-77 and 1980-82. In the case of the newly industrializing economies and ASEAN member countries, those flows increased by a factor of 3 (a factor of 7 for the Republic of Korea) between 1980-82 and 1986-88 (with the exception of Singapore) and by a factor of 13 for China during the same periods."

One possible hypothesis is that corruption has been part of the culture in these economies for a long time. Countervailing institutions may have been developed to circumvent corruption so that its negative effect on FDI is minimized.

An alternative hypothesis is that East Asia is not special. The large volume of FDI into East Asia is a response to the region's higher than average growth rate. Within the East Asia region, foreign investment still prefers to go to less corrupt countries. In other words, had the corrupt countries in the region been less so, they would have attracted even more FDI. The second objective of the paper is to discriminate between the competing hypotheses. As far as I know, this paper presents the first piece of systematic evidence on this issue, one way or the other.

The third motivation of the paper comes from the U.S. government's concern that the Foreign Corrupt Practices Act (FCPA) of 1977 may have undermined the American firms' competitiveness in the overseas markets vis a vis firms from Europe, Japan and elsewhere. The

FCPA came as a by-product of the Watergate hearings in the early 1970s, where many American firms were discovered paying large bribes to foreign officials in addition to contributing to domestic political parties. As a sign of the mood of the day, the bill was passed unanimously in both the Senate and the House, and was signed into law by President Carter. At the time the law was enacted, it may have been hoped that other major source countries would follow suit. But that has not happened so far. The FCPA has made the United States the only source country in the world that penalizes its multinationals or their officers with fines or jail terms for bribing foreign government officials.

On a priori ground, the American multinationals may not necessarily dislike the law. Aside from the moral position of the corporate officers, the law may serve as a useful commitment device for them in the face of foreign corrupt official's demand for bribery. The law allows them to say something to the effect, "I would like to pay you. But I am sorry I can't. If I do, I will go to jail." This commitment device is not available to companies from other source countries. If the American firms have the one and the only kind of technology that the host country needs, the American firms may very well still capture the business but with a lower cost (because of no bribery). In this case, the FCPA would not hinder the U.S. investment. Alternatively, if the American firms can find a way to circumvent the law (e.g., by using a close substitute for outright bribery payment), their competitive position vis a vis other investors would not be affected either. Hence, the effect of the FCPA on the American competitiveness becomes an empirical one: Is it binding at the margin?

Using country dummies as a measure of corruption, Beck, Maher and Tschoegl (1991) found a statistically significant but quantitatively small effect of corruption on the U.S. export competitiveness. In the concluding chapter of J. David Richardson's book (1993), Sizing Up U.S. Export Disincentives, the author noted under the section titled "surprisingly small estimates" (p131) that, "across-the-board regulatory burdens, such as procedures mandated for all businesses by the Foreign Corrupt Practices Act, seemed generally unimportant." The best and the most recent evidence on U.S. FDI and exports was provided by James Hines, Jr. (1995). Controlling for the growth of the host country GDP, Hines found evidence that corruption negatively affects the growth of U.S.-controlled FDI during 1977-1982, their capital/labor ratio, incidence of joint ventures, and aircraft exports. He interpreted the findings as evidence that FCPA has undermined the American

firms' competitiveness relative to other countries.

There are some reasons to think that the Hines' interpretation may require some additional evidence. First, corruption may reduce FDI from non-U.S. investors to the extent that they feel morally obligated to avoid bribery. Second, American firms may be just as clever at finding covert substitutes for bribery payments as other investors[4]. Third, the degree of corruption in host countries tends to be highly correlated with many other dimensions of the government quality, such as extent of bureaucracy and red tape, or quality of legal system. These features are likely to affect non-U.S. investors as well. To attribute the U.S. FDI's negative correlation with corruption measure to the FCPA, we need to control for the response of all FDI to corruption[5].

I will also investigate whether Japan is a special source country in the sense that its investors may be less sensitive to corruption in host countries. Popular press accounts and anecdotes give one an impression that Japanese corporations have a higher propensity to bribe officials at home and that this propensity may carry over to cross-border business dealings. If this is true, it may give Japanese multinationals a competitive edge in corruption-prone host countries. According to the logic of Encarnation (1992), whatever helps the Japanese multinationals relative to the American ones also helps its global competitive position vis a vis the U.S.

The classical theoretical work on corruption includes Nye (1970), Rose-Ackerman (1975 and

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[4] Conversations with Chinese businessmen and officials suggests that outright financial payment is not the dominant bribery form in China (because bribe-taking officials can be prosecuted even in the Chinese court). Instead, sponsoring a "study trip" (read: expense-paid tours) for officials to a foreign country (particularly that of the home country of the multinational firm) and providing financial support for family members of the officials to study or work in a foreign country are popular and legal ways to curry favor with the corrupt officials. Anecdotal evidence suggests that American firms are just as creative and active in doing these as investors from any other country, if not more.

[5] Hines attempted to control for this with total inward FDI as one of the regressors. The data on total FDI are from the World Bank's World Tables, and were originally reported by host countries as part of their national income and product accounts. The definitions and calculation methods differ considerably among the countries. Consequently, the data may have large measurement errors. In addition, since total FDI is affected by many of the same factors as the U.S. FDI, it is likely to be correlated with the error term in regressions where the U.S. FDI is the dependent variable. This measure of total FDI is not statistically significant in any of his regressions (Hines, 1995, Table 2).

1978) and Shleifer and Vishny (1993). In light of the literature, let me be up front about the limitations of this paper. Susan Rose-Ackerman (1978) made a distinction between bribery (including campaign contribution) to erect or change the rules/laws to favor the payers, and bribery to deviate from an honest implementation of the exiting rules/laws. Shleifer and Vishny (1993) made a distinction between organized or efficient corruption (the payers can get things done after a relatively well-defined bribe), and disorganized or inefficient corruption (there is still a big residual uncertainty even after the bribe). The measures of corruption[6] used in this paper cannot capture this conceptual richness. I would suppose that the survey-based corruption measure refers mainly to the administration of rules/laws pertinent to foreign firms, and probably is weighted by efficiency level as perceived by those who were surveyed.

Corruption can have many other detrimental effects on the host countries. In economic sphere, corruption may reduce growth rate, possibly as a result of reduced domestic investment (Paulo Mauro, 1995; Knack and Keefer, 1995; Rodrik, 1996; and Kaufmann, 1996[7]). In political economy terms, corruption often contributes to an unfair income or wealth distribution. In political terms, corruption can breed political instability. These important aspects of corruption may interact with its effect on inward FDI. This paper does not explicitly study any of these effects.

The paper is organized as follows. Section 2 describes the data set. Section 3 reports the statistical results. And Section 4 provides concluding remarks.

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[6] A more detailed explanation is in the next section.

[7] Both Knack and Keefer (1995) and Rodrik (1996) employ a composite measure of institutional quality, which is composed of rule of law, repudiation of contracts by governments, expropriation risk, quality of bureaucracy, as well as corruption in the government. These indicators are highly correlated with each other. Kaufmann (1996, summary, page I) found, among participants in Harvard University's special mid-career programs and short-term workshops during the summer of 1996, a majority "consider corruption about the most important challenge for economic development and growth for their countries, and also many regard vested financial interest and corruption as a key reason for the lack of sufficient economic reform progress in recent times."

2. Data

The key explanatory variable is the two-year bilateral flows of foreign direct investment(FDI) over 1990-91. I calculate the FDI flows as the difference between the end-of-year stock data in 1989 and 1991. The FDI stock data comes from the OECD data base covering fourteen source countries including the seven the largest ones in the world: the United States, Japan, Germany, the United Kingdom, France, Canada and Italy. It covers forty-five host countries[8]. Many OECD member countries report both outward FDI and inward FDI. I choose the outward FDI as it is more likely to be consistent in definition for a given source country. I use two-year flows rather than one-year data in order to reduce the impact of year-to-year idiosyncratic shocks.

The data on 1989 host countries' tax rate on foreign corporations is the minimum of the following two measures: the statutory marginal tax on foreign corporations as reported by Price Waterhouse (1990), and tax payment to the host governments by the foreign subsidiaries of American firms divided by their total income in that country. The data on twenty eight of the host countries are taken from Hines and Desai (1996, Appendix Table 2). The rest (seventeen countries) are either obtained using the Price Waterhouse source with the kind assistance of Mihir Desai or calculated by me (for China).

I use two measures of corruption, both of which are based on surveys of respondents. The first one was based on surveys conducted and organized during 1980-83 by Business International (BI), now a subsidiary of the Economist Intelligence Unit. BI reports a number of survey-based rankings of country risk factors, of which "corruption" is one. The BI corruption measure is an integer from one (most corrupt) to ten (least corrupt) according to "the degree to which business transactions involve corruption or questionable payments." The data is kindly provided by Paolo Mauro, who collected them by hand from BI's archives. The second measure is compiled by Transparency International (TI), an agency dedicated to fighting corruption worldwide. The TI index is scaled from zero (most corrupt) to nine (least corrupt). The TI index itself is an average of ten survey results on corruption over a number of years. The averaging procedure used by the TI could

[8] The number of host countries is constrained by the availability of data on tax on foreign corporations and measure of corruption.

reduce measurement error if the errors in different surveys are independent. On the other hand, the ratings on different countries are derived from different surveys, potentially introducing inconsistency in the cross-country ratings. Fortunately, the BI and TI indices are highly correlated (with a correlation coefficient equal to 0.89). In the subsequent sections, I will report estimation results using both measures, while concentrating the discussion on results using the BI index.

To avoid awkwardness in interpreting the coefficient, I redefine "corruption" measure in this paper to be ten minus the two respective indices, so that zero for BI and one for TI indices indicate "no corruption," and nine for BI and ten for TI "the highest level of corruption."

The GDP and population data are from the International Monetary Fund's International Financial Statistics data base. In a few cases where GDP data are not available, GNP data are used instead. The wage and labor compensation data are from International Labor Organization, with the kind assistance of Xiaolun Sun.

Four other survey-based qualitative measures of barriers to investment come from The 1996 World Competitive Report. They are restrictions on cross-border ventures, on foreign investors' ability to exert corporate controls, on their eligibility to bid for public sector contracts, and on their ability to access host country's domestic capital markets.

The dummy on linguistic tie takes the value of one if the source and host countries share a common language, and zero otherwise. The data on distance measures the "greater circle distance" between the economic centers in the source-host pair. Both data have been used in Frankel, Stein and Wei (1995) and Wei (1996).

The data on 1990 adult literacy ratio is defined as one minus 1990 adult illiteracy ratio. Adult illiteracy ratio comes from Table 1 of the World Bank's World Development Report 1995, which cites the U.N. Educational, Scientific, and Cultural Organization (UNESCO) as the original source. The Report does not present illiteracy rate for high-income countries, but contains a footnote that reads "according to UNESCO, illiteracy is less than 5 percent." I assign 2.5 percent as the illiteracy rate for these high-income countries. According to the World Bank Report's technical notes (p231), "adult illiteracy is defined here as the proportion of the population over the age of fifteen who cannot, with understanding, read and write a short, simple statement on their everyday life."

The information on 1990 total secondary school enrollment comes from Table 28 of the same

World Bank Report. The technical notes to the Table (p241), the data are estimates of the ratio of children of all ages enrolled in secondary school to the country's population of secondary-school-age children. It notes that the definition of secondary school age "differs among countries," and "is most commonly considered to be 12 to 17 years." It further notes that "late entry of more mature students as well as repetition and the phenomenon of 'bunching' in final grades can influence these ratios."

Table 1 reports summary statistics on some of the key variables in this paper for the all host countries and for East Asia countries. We observe that East Asian countries on average are more corrupt than other countries in terms of either measure of corruption, and somewhat less stable politically, both of which in principle may discourage foreign investment. On the other hand, East Asian countries on average have lower tax rate and lower wage rate, both of which in principle may encourage foreign investment.

3. Statistical Estimation

Preliminary Double-log Linear Model

I will start with a preliminary linear model (after taking logarithm for both the dependent variable, FDI, and most of the independent variables, such as GDP and distance). The model will be estimated using the Ordinary Least Squares (OLS) method. The dependent variable is the cumulative flows of FDI in logarithm during 1990-91 from source country I to host country j. Use "tax_j" and "$corruption_j$" to denote host country j's tax rate on foreign corporations and its corruption level, respectively. Then, the basic regression specification is

$$\log(FDI_{ij}) = X_{ij}\beta + \gamma_1 \, tax_j + \gamma_2 \, corruption_j + e_{ij}$$

where X is a vector of control variables other than tax and corruption that are relevant for determining the bilateral FDI. β, γ_1 and γ_2 are parameters.

I will implement a quasi-fixed effects model. That is, the X-vector in all regressions will

include source country dummies[9]. The source country dummies are meant to capture all characteristics of the source countries that may be relevant to its size of outward FDI, including its GDP and level of development. In addition, differences in the definition of FDI across source countries can be controlled for by the dummies under the (somewhat audacious) assumption that these definitions are proportional to each other except for an additive error term uncorrelated with other regressors in the regression. I do not include host country dummies as doing so would eliminate the possibility of estimating all the interesting coefficients including the effects of tax and corruption.

Does Corruption Discourage FDI? The OLS Estimates

Table 2 presents the results of the basic regressions using the Business International (BI) index as a measure of corruption. In Column 1, I control for the size of the host country by its GDP and population, both in logarithm, the distance between the source and host countries, and a dummy for whether they share a common language. The coefficient on the marginal tax rate (on foreign investors) is negative and statistically significant at the five percent level. A one percentage point increase in the marginal tax rate reduces inward FDI by about five percent. The coefficient on the corruption measure is also negative and significant. The numerical effect is remarkably large. A one-grade increase in the corruption level is associated with a sixteen percent reduction in the flow of FDI[10], or approximately equivalent to a three percentage point increase in the marginal tax rate. In other words, **a worsening in host government's corruption level from that of Singapore (with a BI-rating of zero) to that of Mexico (with a BI-rating of 6.75) is equivalent to about 21**

[9] Because the 14 source countries covers a substantial fraction of the universe of all FDI flows in the world, a fixed effects regression may be more appropriate than a random effects model (Hsiao, 1986). All regressions in this paper will have a constant and seven source country dummies (the U.S., Japan, Germany, France, UK, Canada and Italy). FDI from other source countries are relatively sparse. In order to avoid singularity or near-singularity problems in the estimation, I merge all the remaining source country dummies into one constant.

[10] $\exp(-0.17)-1 = -0.156$.

percentage point[11] increase in the marginal tax rate on foreigners.

There are other interesting observations from the first regression. The coefficient on the distance variable is negative and statistically significant at the five percent level: a one percent increase in distance is associated with a 1.14 percent reduction in the FDI flow. Thus, international investment to some extent is a neighborhood event. On the other hand, the coefficient on the linguistic dummy is positive and significant at the fifteen percent level: sharing a common language or colonial history is associated with a sizable increase in bilateral FDI flow. Some authors (e.g., Rauch, 1996a and 1996b) have emphasized the importance of networks in business transactions. While it is difficulty to measure the strength of network precisely, distance and linguistic tie may capture part of it, and the evidence presented here is consistent with the network notion.

Because the log(population) term is not statistically different from zero, I drop this variable in other regressions reported in Table 2. One may worry about possible endogeneity of the GDP variable. Since population and GDP are highly correlated, I use log(population) as an instrumental variable for log(GDP). Column 2 reports such an IV regression. Both tax and corruption continue to show a negative effect on FDI. The point estimate of corruption gets substantially larger.

Many countries effectively exempt foreign source income from domestic taxation. So direct investment from these countries should be sensitive to foreign tax rates. The tax codes of the United States, United Kingdom and Japan allow their multinational firms to claim credit for taxes paid to foreign governments (up to the limit of what they would have to pay to the home governments if the foreign source income were derived domestically). This could makes direct investment from these source countries insensitive to foreign tax rate (up to a limit). On the other hand, foreign tax credit can be claimed only when profits are repatriated. Many multinational firms from U.S., UK and Japan choose to reinvest a substantial fraction of their foreign income in the plants in the host country (Hines and Hubbard, 1990). In this case, their firms may still be sensitive to host country tax rates. For this reason, to what extent FDI from these three source countries is sensitive to host countries' tax rate becomes an empirical question. To investigate this, I add to the regression an interactive term, "ftc_i*$tax\text{-}rate_j$," where ftc is a dummy variable taking the value of one if the source

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[11] (-0.156*6.75)/(-0.05) = 21.1.

country is either the U.S., UK or Japan. The result is in Column 3 of Table 2. The coefficient is -0.01 and not different from zero at the ten percent level. Hence, it appears that the FDIs from these three source countries are just as sensitive to the tax rate in host countries as FDIs from other source countries. More importantly, the estimated effects of tax and corruption on FDI are unaffected by the inclusion of this variable.

Column 4 adds the host country's wage level (in logarithm) to the list of regressors. This is motivated by the popular hypothesis that many FDIs chase low-cost labor in the host countries. This suggests a negative correlation between the size of inward FDI and host's wage level. Contrary to the expectation, the estimated coefficient for the wage variable is positive (0.50) and significant at the ten percent level. Though it is not consistent with the popular labor cost hypothesis, this finding echoes many other papers in the literature[12]. It is important to note that, for our purpose, the coefficients for the tax rate and corruption measures remain negative and statistically significant.

There is a reason to suspect that the specification in Column 4 may not be a fair test of the low labor cost hypothesis. We know that some of the FDIs move from developed countries to developing countries (primarily as part of vertically integrated firms), but many move from developed to developed countries (primarily in the form of horizontally integrated firms). Implicitly if not explicitly, the labor cost hypothesis is postulated only for the first type of FDIs. To account for this, I let the labor cost to play potentially different roles for the two types of the FDIs. Specifically, I create an OECD dummy for all host countries which are members of OECD up to 1990. I add an interactive term, "OECD*log(wage)," and the dummy itself, "OECD," to the list of regressors. The result is reported in Column 5. The coefficient for log(wage) term now is negative and statistically significant, consistent with the FDIs-chasing-low-labor-cost story. For a non-OECD host country, a one percent increase in the wage rate is associated with a 0.8 per cent reduction in inward FDIs.

The positive coefficient on the OECD dummy indicates that all OECD host countries tend to receive more FDIs than the sample average. A F-test indicates that the sum of the two coefficients for log(wage) and the interactive term (-0.78+1.28=0.5) is not different from zero. Hence, within

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[12] Wheeler and Mody (1992) reported a positive correlation between wage level and inward FDI, exactly opposite to the hypothesis of FDI chasing low labor costs.

the OECD host countries, there is no relationship between the size of inward FDIs and the host country's wage level. In sum, this demonstrates the need to separate the two types of FDIs when one investigates the effect of host country labor cost. To my knowledge, this empirical finding is new in the literature.

With the host country's labor cost taken into account in Column 5, the coefficients for tax rate and corruption measures have changed only slightly. So our basic qualitative results survive this extension.

Besides the labor cost story, one may conjecture that a host country's education level, or its endowment of skilled labor may play an important role in attracting inward FDI. This is a key feature of the new FDI theory of Markusen (1994) and Zhang(1996). As an extension, I ran three additional regressions (not reported to save space) adding three different measures of human capital in host countries, one at a time. They are literacy ratio, enrollment of secondary schools, and per capita GDP, respectively. Somewhat disappointingly, none of them is statistically significant. Again, the coefficients on tax rate and corruption remain largely unchanged. I have used labor compensation instead of wage rate in the regressions (not reported) with same qualitative answers. But the number of observations is substantially smaller for compensation than for wage data.

Modified Tobit Estimation

There is a potential problem with the double-log linear specification in the previous subsection. Not all countries receive direct investment from all source countries. These zero FDI observations are dropped from the sample when a double-log specification is implemented. If it is the case that the desired level of FDI based on the characteristics of the host country and host-source relation is zero or negative, we have the classic censored sample problem. Dropping these observations could lead to inconsistency. Unfortunately, it is not feasible to apply the Tobit specification while maintaining the double log structure on the two sides of the equation, as the logarithm of zero (FDI) is undefined.

In this section, I define a modified Tobit specification.

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

where A is a threshold parameter to be estimated. u is an i.i.d random variable with mean zero and variance σ^2. In this specification, when $X\beta+u$ exceeds a threshold value, lnA, there will be a positive flow of foreign investment; and when $X\beta+u$ is below the threshold value, the realized level of foreign investment is zero (and desired level could be negative). Eaton and Tamura (1996) pioneered a version of this specification.

I will implement the estimation with the maximum likelihood method (See an Appendix for a derivation of the MLE estimator).

The basic regression results are reported in Table 3. In Column 1, I have as control variables the host country's GDP, the distance between the host and source countries, and a possible linguistic/colonial connection between the two. The key variables are host countries' tax rate and corruption. Both variables produce negative coefficients that are statistically significant. Hence, when zero observations are taken into account, we still find that tax and corruption deter foreign direct investment.

In column 2, we add the log of population in the host country to the list of control variables. It has a coefficient (0.00013) and statistically significant. The point estimate for the tax effect gets somewhat smaller (to -0.00331 from -0.00440). And that for the corruption effect gets slightly larger (to -0.00012 from -0.00010).

Suppose β_1 and β_2 are coefficient estimates for tax rate and corruption, respectively. Given the specification, a $100/\beta_1$ percentage point change in tax rate and a $1/\beta_2$ change in the rating of corruption would produce the same amount of change in the FDI flow. Therefore, a one-step increase in the corruption measure is equivalent to $100\beta_2/\beta_1$ percentage points increase in the tax rate. Using the estimates in Column 2, a one-step increase in the corruption level is equivalent to

a rise in the tax rate by 3.6 percentage points, other things equal. **An increase in corruption level from that of Singapore (whose rating is zero) to that of Mexico (whose rating is 6.75) is equivalent to raising the tax rate by 24 percentage points.**

In Column 3, we add an interactive term between tax rate and a dummy indicating that the source countries offering foreign tax credit. The point estimate of the coefficient is positive (0.90), indicating that the FDI from the U.S., UK and Germany that grant foreign tax credits is somewhat less sensitive to host countries' tax rate. However, as with the OLS results, the coefficient variable is statistically not different from zero at the ten percent level.

One may speculate that political stability promotes foreign investment, and that corruption and political stability are negatively correlated. The causality on the corruption/stability nexus can go both ways: official corruption may breed public discontent, which may eventually topple the government; alternatively, instable political environment induces officials to have short horizons and to grab whatever rents available while they can. It may be useful to investigate the independent effect of corruption on FDI after controlling for political stability.

In the next regression reported in Column 4, I include a measure of political stability. The new variable produces a positive coefficient (0.085), which is consistent with the notion that stable political regime in a host country promotes inward foreign direct investment. On the other hand, the estimate is only marginally significant at the fifteen percent level. More importantly to our central discussion, the estimated effect of corruption on FDI is little affected by the inclusion of the measure of political stability. Using the estimates in Column 4, a one-step increase in corruption is equivalent to rasing tax rate by three percentage points. An increase in corruption from the Singapore level to Mexico level is similar to a rise in tax rate by 21 percentage points[13].

Column 5 controls for source countries offering foreign tax credits. This again does not change any result.

The labor cost variables appear to have contributed to explaining cross-country variations in FDI in the earlier OLS estimations. In Table 4, we add labor cost variables to the modified Tobit estimations. We again do this in two ways. First, we add a measure of hourly wage cost in the host

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[13] 100*(0.11/3.49)*6.75=21.28.

countries. Second, we allow for possibly different effects between labor cost in developing countries and that in OECD countries. The labor market variables turn out to be insignificant in the Tobit specification. The estimates on the effects of tax and corruption remain essentially intact.

I have conducted some additional robustness checks. One possible concern with the earlier estimates may be that the host country perceived level of corruption was rated based on the observed size of foreign investment. In other words, survey respondents may rate Country A less corrupt than Country B simply by observing a larger foreign capital flow into Country A. If this is true, the estimated negative correlation between corruption index and size of foreign investment would not necessarily reflect that corruption depresses foreign investment. To examine this possibility, I include the initial stock of foreign capital in the host country (in 1989) as a regressor.

Another possible concern is that foreign investment is partly motivated by the growth potential of the host country. Assuming that investor's projection of a host country's growth is based on its most recent past, I include the growth rate of the host country's GDP over 1980-89 as another regressor.

The specification now becomes

$$\begin{aligned} \ln(FDI_{ij}+A) &= X\beta + \gamma \ln(FDI89_{ij}+A_2) + u_{ij} \quad \text{if } X\beta + \gamma \ln(FDI89_{ij}+A_2) + u_{ij} > \ln(A) \\ &= \ln(A) \quad \text{if } X\beta + \gamma \ln(FDI89_{ij}+A_2)\ u_{ij} \le \ln(A) \end{aligned}$$

where FDI89 is the stock of FDI in 1989, and A and A_2 are two threshold parameters to be estimated.

The first column of Table 5 reports the regression result with the two additional regressors. The 1989 FDI stock is positive and statistically significant, indicating that the new flow of FDI tend to follow the old stock. This could reflect the importance of agglomeration for foreign investment decision. The growth rate variable, on the other hand, is not statistically significant. What is most important for the purpose of this paper is that the estimated effects of tax and corruption on FDI are essentially unchanged. In fact, both point estimates become somewhat larger.

The 10-step gradation (i.e., from zero to nine) in the corruption index may have imposed too

much linearity in the effect of corruption on FDI. To see if the negative effect of corruption is sensitive to this fine gradation, I also experiment with a more coarse partition of the host countries. I define a dummy that takes the value of one for more corrupt host countries (BI index>3) and zero otherwise (BI-index ≤ 3). The regression result with this binary measure of corruption is presented in the last column of Table 5. The qualitative picture is exactly like before: more corrupt host countries receive less foreign investment.

The myth of East Asian Exceptionalism

I now turn to the hypothesis that corruption has no or reduced effect on FDI into the East Asian countries. There are several possible reasons that corruption may have a reduced effect in East Asia. First, Confucianism, an influential quasi-religion in many East Asian countries explicitly condones certain social norms (i.e., taking care of family members and friends even at the expense of laws) that may be defined as corruption in other parts of the world. Second, because corruption may have been part of the culture for a long time, countervailing institutions may have been developed to minimize its negative effect. To see potential tolerance of corruption in East Asia, consider the following story reported in Germany newspaper, Der Tagesspiegel, on December 17, 1996[14],

- *"The Thai Deputy Minister of the Interior, Mr. Pairoj Lohsoonthorn, has publicly called on officials to accept bribes. He had ordered staff of the Land Sales Department of his Ministry to accept any money offered to them, he told 'Matichon' newspaper. However, civil servants were not allowed to ask for bribes or to circulate price lists. 'This is part of traditional Thai culture,' Mr. Pairoj said."*

Of course, the supposed social tolerance of corruption in East Asia could be just a myth deliberately encouraged by corruption-prone officials in order to glorify their behavior. As a perfect counter-example of the "traditional culture" argument of corruption, the Bangkok Post, (November

[14]The entire quote was taken on April 29, 1997, from the Transparency International Newsletter, March 1997, on the Internet (http://www.transparency.de).

9, 1996) reported[15],

- *"Results of a poll conducted by the Nakhon Ratchasima Rajabhat Institute late last year cast a dark light on Thai politics. Of the 2,038 respondents:*
- *100% believed that vote buying exits.*
- *96% stated that some politicians receive kick-backs from big projects.*
- *94% demanded that political reform should be begun immediately.*

As one can see from Table 1, East Asian countries as a group have lower tax rates and substantially lower labor cost than most other host countries. Hence, the fact that they receive lots of foreign investment need not be a proof that corruption in East Asia has a smaller effect on foreign investment.

I now turn to a statistical examination of the East Asian Exceptionalism hypothesis. To do this, I create an East Asia dummy, "EastAsia," for the eight developing host countries in the region that are part of the sample: The Philippines, Malaysia, Singapore, Thailand, Korea, Taiwan, China and Hong Kong. I add an interactive term, "EastAsia*Corruption," together with the dummy itself to the basic specification. The result is reported in Table 6.

There are several interesting findings. First, the positive coefficient on the EastAsia dummy indicates that the region has received more inward FDI than what can be predicted based on GDP, population, proximity, and linguistic tie to source countries. Second, controlling for the East Asia effect, the effects of tax and corruption on FDI are still negative. A one-step increase in the corruption measure is now equivalent to 5 percentage point increase in the tax rate[16]. Third, the coefficient on the interaction term between EastAsia dummy and the corruption measure is a small positive number, which could indicate that the effect of corruption in East Asia on FDI is slightly smaller than elsewhere. But the estimate is tiny in magnitude and not different from zero in a statistical sense (even at the fifteen percent level). Hence, **there is no support for the hypothesis**

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[15] Same source as in the last footnote.

[16] 100(0.16/2.91) = 5.49.

that corruption in East Asia has no or reduced effect on inward FDI. Within East Asia, foreign investors would still prefer to go to a less corrupt host country than a more corrupt one, just as they do elsewhere[17].

One may want to control for some possible outliers. In particular, Hong Kong and Singapore are two special economies in the region. Both have a reputation for having a clean government and predictable rule of law. On the other end of the spectrum, China is reported to have rampant corruption. It is possible that our earlier estimates are influenced by these observations. To investigate this, I also add to the regression three separate dummies for Hong Kong, Singapore and China as host countries. The results are reported in the Columns 3 and 4 of Table 6.

It is interesting to observe that the coefficients for the China dummy are negative (-0.81 and -0.89) and statistically significant. This means that China is actually an underachiever as a host of FDI from the major source countries in the sample[18]. This is reassuring for the purpose of this paper in that foreign investors from the major source countries did not show less sensitivity to China's rampant corruption. On the other hand, the low FDI into China during 1990-91 could be part of the after-effect of the Tiananmen Square Incident. In addition, the direct investment from overseas Chinese in Hong Kong, Taiwan and elsewhere, the largest source for China's inward FDI, could potentially behave differently from the investors included in this sample.

It is perhaps surprising that, once controlling for the fact that all East Asian countries receive lots of inward foreign investment, the coefficients for Singapore and Hong Kong dummies are also negative. Using the estimates in Column 4, the sum of the Singapore coefficient (-0.74) and the East Asia coefficient (0.77) is not significantly different from zero according to a F-test. The same is true for the Hong Kong effect. This means that Singapore and Hong Kong are very similar to other non-East Asian countries as hosts of FDI.

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[17] I should note that this paper does not examine whether domestic investment in East Asia may be less sensitive to domestic corruption than otherwise identical non-East Asian countries.

[18] Using data from a different source and a simpler model that controls for size, education level and distance from the source countries but not for the effects of tax and corruption, Wei (1996) reported that China is an underachiever as a host of direct investment from the U.S., UK, Germany and France.

The most important observation from Columns 3 and 4, from the viewpoint of the main question of this section, is that the effects of tax and corruption on FDI remain unchanged after the inclusion of the dummies for China, Singapore and Hong Kong. Foreign investors are still no less averse to corruption in East Asia than elsewhere.

A measure of political stability in host government is added to the regressions in Columns 5 and 6 with no noticeable change in terms of the main results.

Table 7 reports some additional robustness checks. In Column 1, a measure of initial stock of FDI in 1989, and the growth rate of host countries in the 1980s are added to the right hand side. With this modification, both tax rate and corruption still have negative and statistically significant coefficients. Both point estimates become somewhat larger. The coefficient on the "EastAsia*Corruption" interactive term is positive but insignificant. Hence, there is still no support that corruption in East Asia has a smaller effect on foreign investment.

In Column 2 of Table 7, I replace the ten-step measure of corruption by a binary measure. Again, one finds that more corrupt host countries receive less foreign investment in a way that is quantitatively and statistically significant. The coefficient on the interactive term, "EastAsia*Corruption," now is negative and statistically significant at the ten percent level. Interpreting literally, this would suggest that corruption in East Asia may even have a greater negative effect on inward foreign investment than elsewhere.

To check the sensitivity of the results to the choice of corruption measures, Table 8 replicates several key regressions in Table 6 using the TI index rather an the BI index. All the main qualitative results are unchanged. The estimated effect of corruption (and that of tax) on FDI is somewhat larger. Hence, we conclude that the main inference is not sensitive to the choice of the corruption measure.

Are American Investors More Sensitive to Corruption?

The Foreign Corrupt Practices Act makes the U.S. the only source country that provides an explicit penalty to its firms for bribing foreign government officials. In this section, I will examine whether or not American investors are more sensitive to corruption than those from other source countries. To accomplish this, I will add to the regression an interactive term, "US_i*$Corruption_j$,"

where "US_i" is a dummy variable taking the value of one if the source country is the United States and zero otherwise. There are three plausible hypotheses.

(Hypothesis I) Corruption discourages U.S. investors in the same way as non-U.S. investors. In this case, the interactive term will have a zero coefficient.

(Hypothesis 2) Corruption only discourages U.S. investors. Hence, the interactive term will have a negative coefficient, and the generic corruption measure will longer be negatively correlated with FDI.

(Hypothesis 3) Corruption discourages FDI from all investors, but it depresses that from the U.S. even more. In this case, the coefficients on both the corruption measure and the interactive term will be negative and significant.

The coefficient estimate on the newly added interactive term is -0.12, comparable in magnitude to the coefficient on the generic corruption measure. Thus, the point estimate could be consistent with Hypothesis 3 above. In fact, U.S. investors could be twice as sensitive to corruption as an average OECD investor. On the other hand, due to the large standard error, the coefficient is only statistically different from zero at the fifteen percent level, making it difficult to reject Hypothesis 1 above at the ten percent level, that U.S. investors are sensitive to corruption, but no more so than an average investor from other OECD countries.

There are several plausible, not mutually exclusive explanations for the possibility that the American investors are equally but not more averse to host country corruption relative to other investors. First, corruption is often an indicator for general weak enforcement of contracts by host governments, Byzantine bureaucracy and so on, that hurts every investor, regardless of whether the source country government forbids bribery payment by its companies. Second, to the extent that investors feel repulsive about corruption, they may be deterred by it just as much as the Americans, even without a formal law like the U.S. FCPA. Finally, when bribery becomes a necessary part of the business deal, the American firms are just as clever as other investors at finding covert means

to pay it in spite of the FCPA.

Using the same method, I also investigate the sensitivity of Japanese investors to host country corruption: I will augment the regression in Column 1 by an additional term, "$Japan_i$*$Corruption_j$," where "$Japan_i$" is a dummy variable taking the value of one if the source country is Japan and zero otherwise. The result is reported in Column 2 of Table 9. This coefficient is positive (0.07), consistent with the possibility that Japanese investors are somewhat less sensitive to corruption than other investors. But the estimate is statistically not different from zero.

It may be interesting to examine whether the U.S. and Japanese investments in East Asia are any different from those elsewhere. To this end, I add four new variables to the specification in Column 2. Two of the variables are meant to capture any special factor that may influence their investments in East Asia (but not elsewhere): US*EastAsia, and Japan*EastAsia. Two others are meant to measure if their sensitivity to corruption in East Asia is any different from that in other parts of the world: US*Corruption*EastAsia, and Japan*Corruption*EastAsia. The result is reported in Column 3. As it turns out, the four new variables do not produce coefficients that are different from zero at the ten percent level. Hence, these two major source countries' investments in East Asia, or their sensitivity to corruption in the region, are not unusual relative to the prediction of the overall model. On the other hand, once we have added these four variables, the coefficient on the interactive term, "$Japan_i$*$Corruption_j$," becomes larger (to 0.13) and statistically significant at the five percent level. Hence, there is now some support for the notion that Japanese investors are somewhat less sensitive to corruption.

In Column 4, a measure of political stability is added to the regression. Political stability is still found to promote inward foreign investment. Controlling for this, corruption still discourages foreign investment. U.S. investors do not behave differently from others in any statistically significant way. On the other hand, Japanese investors appear to be somewhat less sensitive to corruption. Investors from both U.S. and Japan appear to dislike corruption in East Asia exactly the same way as they do in other parts of the world.

Using the Transparency International's Index for corruption, Table 10 replicates some of the key regressions in Table 9 with broadly similarly results. Hence, the inferences derived from Table 9 do not depend on the particular choice of the corruption measure.

4. Concluding remarks

This paper studies the effect of taxation and corruption on international direct investment from fourteen source countries to forty-five host countries. There are three central findings. First, an increase in either the tax rate on multinational firms or corruption level in the host governments would reduce inward foreign direct investment. An increase in the corruption level from that of Singapore (a BI-rating of zero) to that of Mexico (a BI-rating of 6.75) is equivalent to raising the tax rate by 21-24 percentage points.

Second, there is no evidence that international investors are less sensitive to corruption in East Asia. It is appropriate to add some comments here on the FDI in China. Though the size of annual inflow is large, over 60% of it in each of the last ten years came from overseas Chinese, notably those in Hong Kong[19]. In other words, China is not a typical host country. FDI from the ten largest source countries in the world, all of them members of the OECD, accounts for a relatively small portion of total FDI going into China. In the estimation reported in this paper, China is in fact an underachiever as a host for FDI from the major source countries. This is consistent with the inference of this paper that investors from the major source countries prefer to go to less corrupt countries. What is intriguing is that the overseas Chinese are apparently less sensitive to corruption, possibly because they are better able to use personal connection to substitute for the rule of law, a subject awaiting fruitful future research.

Third, American investors are averse to host country corruption but not necessarily more so than other investors, in spite of its unique Foreign Corrupt Practices Act. There is also some weak evidence that Japanese investors are less sensitive to corruption, possibly correlated with the way business transactions are conducted in Japan.

There are other interesting findings. For example, there is some support for the labor cost

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[19] Part of the FDI from Hong Kong recorded by the official Chinese statistics is in fact disguised Chinese domestic capital in order to take advantage of preferential treatment (e.g., reduced taxes) the government accords to foreign firms. Another (smaller) part of the Hong Kong investment is likely to be U.S. or other western investment in disguise in order to take advantage of the network connections that Hong Kong partners may have in China. No exact estimates on these two categories are available.

hypothesis of FDI for non-OECD host countries. In the OLS estimations, I find a negative correlation between the wage level and the size of inward FDI for non-OECD hosts but zero correlation for OECD hosts. However, this result does not carry over to the modified Tobit estimation. Also, consistent with the importance of networks, sharing a common linguistic tie between the source and host countries and geographic proximity between the two are found to be associated with a sizable increase in the bilateral FDI flow.

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Appendix: Likelihood function for the modified Tobit model

Let y be the bilateral FDI flow (subscripts omitted to simplify the notations). The hypothesized model is

$$\ln(y+A) = \begin{cases} X\beta+u & \text{if } X\beta+u > lnA \\ lnA & \text{if } X\beta+u \le lnA \end{cases}$$

where A is a positive threshold parameter, and u is an i.i.d. normal variable with mean zero and variance σ^2. In this specification, when Xβ+u exceeds a threshold value, lnA, there will be a positive flow of foreign investment; and when Xβ+u is below the threshold value, the realized level of foreign investment is zero (and desired level could be negative).

Notice that

$$Prob(X\beta+u \le lnA) = Prob(u \le lnA - X\beta) = \Phi(\frac{lnA - X\beta}{\sigma})$$

where $\Phi(.)$ is the cumulative distribution function of a standard normal variate, and

$$Prob(X\beta+u > lnA) = 1 - Prob(X\beta+u \le lnA) = 1 - \Phi(\frac{lnA - X\beta}{\sigma})$$

Furthermore, the conditional density function

$$f(u \mid X\beta+u>lnA) = f[u=\ln(y+A)-X\beta \mid X\beta+u>lnA]$$

$$= \frac{\frac{1}{\sigma}\phi[\frac{\ln(y+A)-X\beta}{\sigma}]}{1-\Phi(\frac{lnA-X\beta}{\sigma})}$$

where $\phi(.)$ Is the density function of a standard normal variate.

Let d be a dummy variable indicating a positive realized foreign investment. That is, d=1 if $X\beta+u>\ln A$, and zero otherwise. The likelihood function for an individual observation is

$$f(u \mid X, y; \beta, A, \sigma)$$

$$= [f(u \mid X\beta+u>lnA)\ Prob(X\beta+u>lnA)]^d\ [Prob(X\beta+u\leq lnA)]^{1-d}$$

$$= \{\frac{1}{\sigma}\phi[\frac{\ln(y+A)-X\beta}{\sigma}]\}^d\ [\Phi(\frac{lnA-X\beta}{\sigma})]^{1-d}$$

The overall likelihood function is just the product of the individual likelihood functions over all observations.

Table 1: Summary Statistics and Correlation Matrix

	Mean	Std Dev	Minimum	Maximum	#Observation
All Countries					
Tax-rate	0.34	0.12	0.02	0.55	45
Corruption (BI)	2.70	2.49	0	9	45
Corruption (TI)	4.55	2.63	1	10	42
Political Stability	7.93	1.17	5	10	45
Hourly Wage ($)	6.82	5.22	0.18	16.15	35
East Asian Developing Countries					
Tax-rate	0.27	0.13	0.11	0.44	8
Corruption (BI)	4.56	3.06	0	9	8
Corruption (TI)	5.75	2.66	1	9	8
Political Stability	7.59	1.85	5	10	8
Hourly Wage ($)	2.29	1.91	0.21	5.01	7

Correlation Matrix

	Tax Rate	Corruption (BI Index)	Corruption (TI Index)	Political Stability	Hourly Wage
All Countries (33 countries)					
Tax-rate	1				
Corruption (BI)	0.17	1			
Corruption (TI)	0.23	0.89	1		
Political Stability	-0.03	-0.68	-0.63	1	
Hourly Wage ($)	0.002	-0.74	-0.77	0.58	1
East Asian Developing Countries (7 Countries)					
Tax-rate	1				
Corruption (BI)	0.47	1			
Corruption (TI)	0.60	0.77	1		
Political Stability	-0.51	-0.96	-0.82	1	
Hourly Wage ($)	-0.20	-0.77	-0.53	0.71	1

Table 2: Corruption & Foreign Investments
(OLS Estimation)

	OLS (1)	IV (2)	IV (3)	IV (4)	IV (5)
Tax-rate	-5.00*	-4.68*	-4.67*	-5.46*	-6.19*
	(1.61)	(1.62)	(2.10)	(2.09)	(1.75)
Corruption	-0.17#	-0.42*	-0.42*	-0.23*	-0.22*
	(0.10)	(0.07)	(0.07)	(0.11)	(0.11)
Tax-credit			-0.01	0.62	0.27
			(2.41)	(2.32)	(2.63)
log(GDP)	0.63*	1.26*	1.26*	1.31*	-0.54*
	(0.22)	(0.28)	(0.28)	(0.28)	(0.15)
log(population)	0.07				
	(0.23)				
log(distance)	-1.14*	-1.22*	-1.22*	-1.15*	-0.54*
	(0.15)	(0.15)	(0.15)	(0.16)	(0.15)
linguistic tie	0.93##	0.75	0.75	0.90##	1.36*
	(0.62)	(0.58)	(0.59)	(0.62)	(0.46)
OECD					1.15#
					(0.60)
log(wage)				0.50#	-0.78*
				(0.28)	(0.37)
OECD x log(wage)					1.28*
					(0.34)
c	-6.67#	-22.96	-22.96	-24.01*	-18.02*
	(3.53)	(7.19)	(7.20)	(7.19)	(6.38)
Source dummies	yes	yes	yes	yes	yes
#obs/R^2	266/.52	266/.51	266/.50	266/.51	266/.62
ser	2.52	2.55	2.55	2.54	2.23
log likelihood	-616.2	-619.3	-619.3	-617.8	-581.4

Notes: (1) Heteroskedasticity - consistent standard errors are in parentheses.
(2) *,#, ## denote significant at the 5%, 10% and 15% levels, respectively.
(3) All regressions include source country dummies whose estimates are not reported.

Table 3: Corruption and Foreign Investment
(Modified Tobit Estimation)

	(1)	(2)	(3)	(4)	(5)
Tax-rate	-4.40*	-3.31*	-3.57*	-3.49*	-3.70*
	(0.80)	(0.59)	(0.71)	(0.62)	(0.72)
Corruption	-0.10*	-0.12*	-0.12*	-0.11*	-0.10*
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Tax-Credit			0.90		0.87
			(0.83)		(0.82)
Political stability				0.085##	0.084##
				(0.057)	(0.069)
log(GDP_h)	0.62*	0.34*	0.34*	0.30*	0.30*
	(0.07)	(0.06)	(0.06)	(0.07)	(0.07)
log(pop)		0.13*	0.13*	0.18*	0.17*
		(0.06)	(0.06)	(0.07)	(0.04)
log(distance)	-0.63*	-0.46*	-0.46*	-0.47*	-0.47*
	(0.08)	(0.06)	(0.06)	(0.06)	(0.06)
linguistic tie	0.37##	0.23	0.24	0.20	0.20
	(0.23)	(0.17)	(0.17)	(0.17)	(0.17)
σ	1.30*	0.90*	0.90*	0.91*	0.90*
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
c	1.4E+4*	1.4E+4*	1.4E+4*	1.4E+4*	1.4E+4*
	(2.00)	(1.61)	(2.27)	(1.36)	(1.63)
A	1.6E+9*	1.6E+9*	1.6E+9*	1.6E+9*	1.6E+9*
	(9.7E+5)	(1.4E+6)	(2.8E+6)	(4.4E+5)	(1.6E+6)
Source dummies	yes	yes	yes	yes	yes
#obs	450	450	450	450	450
loglikelihood	1337.85	1430.30	1429.54	1425.96	1432.47

Notes: (1) Eicker-White standard errors based on analytic first and second derivatives are reported in the parentheses.

(2) All reported coefficients & standard errors have been multiplied by 1000. For example, the coefficient for tax-rate in Column 1 is -0.0044.

(3) *,#, ## denote significant at the 5%, 10% and 15% levels, respectively.

(4) Examples for notational convention: 1.1E+6 = 1.1×10^6 and 1.1E-6 = 1.1×10^{-6}.

(5) All regressions have source country dummies that are not reported here.

Table 4: Adding Labor Cost and Political Stability Measures
(Modified Tobit Estimation)

	(1)	(2)	(3)
Tax-rate	-3.34*	-3.38*	-3.68*
	(0.63	(0.64)	(0.70)
Corruption	-0.11*	-0.11*	-0.09*
	(0.03)	(0.03)	(0.03)
Political stability			0.108#
			(0.064)
log(GDP_h)	0.29*	0.27*	0.15
	(0.12)	(0.12)	(0.15)
log(pop)	0.18##	0.19##	0.32*
	(0.12)	(0.12)	(0.16)
log(dist)	-0.46*	-0.44*	-0.44*
	(0.06)	(0.06)	(0.06)
linguistic tie	0.23	0.25##	0.21
	(0.17)	(0.17)	(0.17)
OECD		0.24	0.24
		(0.18)	(0.18)
log(wage)	0.059	0.072	0.147
	(0.115)	(0.116)	(0.133)
OECD*log(wage)		-0.073	-0.061
		(0.084)	(0.087)
σ	0.89*	0.89*	0.90*
	(0.10)	(0.10)	(0.10)
c	1.4E+4*	1.4E+4*	1.4E+4*
	(3.36)	(2.13)	(1.71)
A	1.6E+9*	1.6E+9*	1.6E+9*
	(9.6E+6)	(2.3E+6)	(1.2E+6)
source dummies	yes	yes	yes
#obs	450	450	450
loglikelihood	1431.75	1434.01	1433.69

Please see the footnotes to Table 3.

Table 5: More Robustness Checks
(Modified Tobit Estimation, BI index for corruption)

	Adding Initial FDI stock	Coding "Corruption" as a Binary Variable
Tax-rate	-5.41*	-7.71*
	(1.30)	(1.89)
Corruption	-0.13*	-0.92*
	(0.06)	(0.35)
log(FDI 89)	1.34*	3.53*
	(0.15)	(0.41)
GDP Growth 80-89	-0.24	-0.78
	(0.44)	(0.48)
$\log(GDP_h)$	0.26*	0.85*
	(0.12)	(0.16)
log(pop)	0.27*	-0.26*
	(0.13)	(0.13)
log(distance)	-0.57*	-0.78*
	(0.12)	(0.16)
linguistic tie	-0.44	-0.53
	(0.41)	(0.50)
σ	2.01*	2.47*
	(0.23)	(0.31)
c	1.3E+4*	1.3E+4*
	(2.55)	(4.35)
A	5.8E+8*	4.4E+8*
	(4.5E+5)	(4.9E+5)
A2	9.9E+5*	1.2E+6*
	(3.9E+5)	(3.9E+5)
Source dummies	yes	yes
#obs	435	435
loglikelihood	1168.90	1109.09

Notes:

(1) In the last column, "corruption" is a binary dummy taking the value of 2 if BI-corruption>3 (i.e., between 3 and 9), and zero otherwise (i.e., between 0 and 3).

(2) Please also see the footnotes to Table 3.

Table 6: Is East Asia Special?
(Modified Tobit estimates, BI index for corruption)

	(1)	(2)	(3)	(4)	(5)	(6)
Tax-rate	-2.91*	-3.12*	-3.74*	-3.86*	-3.32	-4.28*
	(0.58)	(0.64)	(0.73)	(0.76)	(0.74)	(0.90)
Corruption	-0.16*	-0.17*	-0.16*	-0.18*	-0.16*	-0.16*
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)
EastAsia	0.04	0.03	0.01	0.02	0.07	0.04
*Corruption	(0.04)	(0.04)	(0.06)	(0.07)	(0.06)	(0.07)
EastAsia	0.59*	0.70*	0.63#	0.77*	0.87*	0.99*
	(0.27)	(0.32)	(0.33)	(0.39)	(0.04)	(0.40)
China			-0.81*	-0.89*		-0.90*
			(0.28)	(0.29)		(0.27)
Singapore			-0.63##	-0.74#		-0.89*
			(0.42)	(0.44)		(0.43)
Hong Kong			-0.95*	-1.07*		-1.22*
			(0.33)	(0.37)		(0.37)
Political Stability					0.11	0.17#
					(0.10)	(0.10)
log(GDP)	0.33*	0.20#	0.34*	0.41*	0.10	0.31*
	(0.06)	(0.12)	(0.07)	(0.13)	(0.16)	(0.15)
log(pop)	0.12*	0.29*	0.17*	0.12	0.37*	0.21
	(0.06)	(0.13)	(0.07)	(0.14)	(0.18)	(0.15)
log(Dist)	-0.47*	-0.46*	-0.48*	-0.47*	-0.45*	-0.46*
	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.06)
linguistic tie	0.18	0.19	0.18	0.22	0.17	0.17
	(0.17)	(0.18)	(0.17)	(0.18)	(0.17)	(0.17)
OECD		0.58*		0.49*	0.55*	0.42*
		(0.21)		(0.21)	(0.21)	(0.20)
log(wage)		0.16		-0.11	0.21##	-0.09
		(0.12)		(0.14)	(0.14)	(0.13)
OECD*log (wage)		-0.17#		-0.12	-0.18	-0.12
		(0.09)		(0.09)	(0.09)	(0.09)

(to be continued on the next page)

Table 6 (continued)

σ	0.89*	0.91*	0.89*	0.91*	0.88*	0.88*
	(0.10)	(0.10)	(0.10)	(0.10)	(0.09)	(0.10)
c	1.4E+4*	1.4E+4*	1.4E+4*	1.4E+4*	1.4E+4*	1.4E+4*
	(1.39)	(3.64)	(1.56)	(3.07)	(3.35)	(1.66)
A	1.6E+9*	1.6E+9*	1.6E+9*	1.6E+9*	1.6E+9*	1.6E+9*
	(6.3E+5)	(5.0E+6)	(1.1E+6	(3.8E+6)	(4.7E+6)	(5.3E+5)
Source dummies	yes	yes	yes	yes	yes	yes
#obs	450	450	450	450	450	450
loglikelihood	1435.25	1435.53	1437.63	1432.58	1439.78	1440.19

Please see the footnotes to Table 3.

Table 7: Is East Asia Special? Robustness Checks
(Modified Tobit estimates, BI index for corruption)

	Adding Initial FDI Stock	Coding "Corruption" as a Binary Variable
Tax-rate	-6.89*	-7.25*
	(1.64)	(1.70)
Corruption	-0.27*	-0.77*
	(0.14)	(0.32)
EastAsia	0.08	-0.11#
*Corruption	(0.14)	(0.06)
EastAsia	1.97*	0.25
	(1.09)	(0.49)
log (FDI Stock-89)	3.38*	3.26*
	(0.84)	(0.37)
GDP Growth 80-89	-1.44*	-1.65*
	(0.66)	(0.54)
log(GDP)	0.15	0.73*
	(0.34)	(0.15)
log(pop)	0.52	-0.16
	(0.37)	(0.14)
log(Dist)	-0.99*	-0.79*
	(0.18)	(0.16)
linguistic tie	-0.96#	-0.67
	(0.57)	(0.48)
σ	2.56*	2.30*
	(0.33)	(0.29)
c	1.3E+4*	1.3E+4*
	(0.03)	(3.99)
A	4.2E+8*	4.7E+8*
	(1.2E+7)	(4.2E+5)
A2	1.3E+6*	1.1E+6*
	(4.8E+5)	(4.1E+5)
Source dummies	yes	yes
#obs	435	435
loglikelihood	1110.53	1133.03

Please see the footnotes to Table 5.

Table 8: Is East Asia Speical?
(Modified Tobit, TI Index for Corruption)

	(1)	(2)	(3)	(4)
Tax-rate	-4.04*	-4.02*	-4.42*	-4.18*
	(0.73)	0.75)	(0.88)	(0.90)
Corruption	-0.20*	-0.23*	-0.18*	-0.22*
	(0.07)	(0.07)	(0.07)	(0.07)
Corruption *EastAsia	-0.09##	-0.05	-0.04	-0.03
	(0.06)	(0.07)	(0.07)	(0.08)
EastAsia	0.39##	0.59*	0.53#	0.66#
	(0.26)	(0.30)	(0.32)	(0.34)
Singapore	-1.26*	-1.28*	-1.27*	-1.27*
	(0.42)	(0.42)	(0.42)	(0.42)
Hong Kong	-1.08	-1.32*	-1.19*	-1.35*
	(0.29)	(0.30)	(0.32)	(0.32)
China	-2.18*	-2.44*	-1.99*	-2.27*
	(0.48)	(0.50)	(0.48)	(0.49)
Political stability			0.11	0.07
			(0.11)	(0.11)
log(GDP)	0.23*	0.52*	0.18#	0.47*
	(0.09)	(0.19)	(0.11)	(0.21)
log(pop)	0.33*	0.05	0.38*	0.08
	(0.12)	(0.21)	(0.14)	(0.23)
log(dist)	-0.49*	-0.47*	-0.49*	-0.46*
	(0.06)	(0.06)	(0.06)	(0.06)
linguistic tie	0.15	0.20	0.14	0.19
	(0.17)	(0.17)	(0.18)	(0.17)
OECD		0.24		0.23
		(0.22)		(0.22)
log(wage)		-0.42*		-0.39#
		(0.21)		(0.21)
OECD*log(wage)		-0.01		-0.02
		(0.09)		(0.09)

Table 8 (continued)

δ	0.89* (0.09)	0.90* (0.09)	0.90* (0.09)	0.89* (0.09)
c	1.4E+4* (1.87)	1.4E+4* (2.01)	1.4E+4* (2.51)	1.4E+4* (2.19)
A	1.6E+9* (2.0E+6)	1.6E+9* (1.0E+6)	1.6E+9* (3.1E+6)	1.6E+9* (1.6E+6)
Source dummies	y	y	y	y
#obs	435	435	435	435
loglikelihood	1441.16	1444.4	1438.39	1441.88

Please see the footnotes to Table 3.

Table 9: U.S. and Japan as Source Countries
(Modified Tobit, BI Index)

	(1)	(2)	(3)	(4)
Tax-rate	-3.44*	-3.41*	-3.47*	-3.73*
	(0.65)	(0.64)	(0.65)	(0.71)
Corruption	-0.10*	-0.11*	-0.11*	-0.10*
	(0.07)	(0.31)	(0.03)	(0.03)
US*Corruption	-0.12##	-0.11	-0.13	-0.14
	(0.08)	(0.08)	(0.13)	(0.13)
US*EastAsia			0.20	0.35
			(1.19)	(1.22)
US*Corruption			0.03	0.06
*EastAsia			(0.16)	(0.16)
Japan*Corruption		0.07	0.13*	0.12*
		(0.05)	(0.05)	(0.06)
Japan*EastAsia			-0.86##	-0.68
			(0.55)	(0.57)
Japan*Corruption			-0.10	-0.07
*EastAsia			(0.08)	(0.08)
Political Stability				0.11#
				(0.07)
log(GDP)	0.27*	0.26*	0.27*	0.15
	(0.11)	(0.12)	(0.12)	(0.15)
log(pop)	0.20*	0.20#	0.20#	0.33*
	(0.12)	(0.12)	(0.12)	(0.16)
log(dist)	-0.45*	-0.44*	-0.45*	-0.45*
	(0.06)	(0.06)	(0.06)	(0.06)
linguistic tie	0.24	0.23	0.23	0.20
	(0.17)	(0.16)	(0.17)	(0.18)
OECD	0.25	0.25	0.23	0.23
	(0.18)	(0.17)	(0.18)	(0.18)
log(wage)	0.08	0.07	0.08	0.15#
	(0.11)	(0.11)	(0.12)	(0.13)
OECD*log(wage)	-0.09	-0.08	-0.07	-0.06
	(0.08)	(0.08)	(0.09)	(0.09)

Table 9 (continued)

σ	0.90*	0.88*	0.89*	0.89*
	(0.10)	(0.09)	(0.10)	(0.09)
c	1.4E+4*	1.4E+4*	1.4E+4*	1.4E+4*
	(1.79)	(1.49)	(1.57)	(1.75)
A	1.6E+9*	1.6E+9*	1.6E+9*	1.6E+9*
	(1.5E+6)	(0.6E+6)	(8.1E+6)	(1.4E+6)
Source dummies	yes	yes	yes	yes
#obs	450	450	450	450
loglikelihood	1432.11	1433.37	1431.28	1435.70

Please see the footnotes to Table 3.

Table 10: U.S. and Japan as Source Countries
(Modified Tobit, Transparency International Index)

	(1)	(2)	(3)
Tax-rate	-3.15*	-3.10*	-3.16*
	(0.64)	(0.62)	(0.63)
Corruption	-0.05##	-0.06#	-0.06#
	(0.04)	(0.04)	(0.03)
US*Corruption	-0.11	-0.10	-0.11
	(0.08)	(0.08)	(0.12)
US*E.Asia			0.20
			(0.69)
US*Corruption			0.10
*East Asia			(0.13)
Japan*Corruption		0.10*	0.13*
		(0.04)	(0.05)
Japan*E.Asia			-0.57
			(0.41)
Japan*Corruption			-0.06
*E.Asia			(0.64)
log(GDP)	0.42*	0.41*	0.43*
	(0.14)	(0.14)	(0.15)
log(pop)	0.02	0.02	0.01
	(0.15)	(0.15)	(0.15)
log(dist)	-0.43*	-0.41*	-0.43*
	(0.06)	(0.06)	(0.07)
linguistic tie	0.27#	0.26##	0.28#
	(0.17)	(0.17)	(0.17)
OECD	0.20	0.20	0.17
	(0.18)	(0.18)	(0.18)
log(wage)	-0.01	-0.01	-0.04
	(0.16)	(0.16)	(0.16)
OECD*log(wage)	-0.05	-0.04	-0.04
	(0.10)	(0.09)	(0.09)

Table 10 (continued)

σ	0.90*	0.88*	0.89*
	(0.10)	(0.09)	(0.10)
c	1.4E+4*	1.4E+4*	1.4E+4*
	(1.73)	(3.55)	(1.64)
A	1.6E+9*	1.6E+9*	1.6E+9*
	(1.0E+6)	(5.0E+6)	(6.7E+6)
Source dummies	yes	yes	yes
#obs	435	435	435
loglikelihood	1432.92	1439.02	1435.12

Please see the footnotes to Table 3.