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NUANCES OF CORRUPTION AND FOREIGN DIRECT INVESTMENT

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**A Thesis
In
the John Molson School of Business**

**Presented in Partial Fulfilment of the Requirements
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ABSTRACT

Nuances of Corruption and Foreign Direct Investment

Nathalie Benguigui

In this study, we expand our understanding of the determinants of foreign Direct Investment by developing more nuanced versions of corruption as well as conducting our research both at the individual and group source country level. We breakdown down corruption into four indices. First, corruption is defined as either predictable or unpredictable. Second, corrupt politicians can take a short or long-term approach to bribery. Third, corruption can be either organized or disorganized. Finally, we examine if a lower corruption rating of a host country, relative to neighboring potential recipients of foreign Direct Investment, influences foreign investors. Empirical results show support for some of our indices but not for others. Conclusions from this study point to the need for further research and public debate in order to better understand the relationship between corruption and foreign Direct Investment.

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I. Introduction

Corruption, it seems, is an important World Bank concern. In 1996, an internal report sent to the Bank's board of directors was one of the first indications of a sea of change (Euromoney, September 1996). For the first time ever, the Bank's operations evaluation department (OED) used the word "corruption", citing two projects – the Sixth Highway Project in Haiti and the Natural Gas Technical Assistance Project in Nigeria. These projects, the OED explains in its April report, are among the many which are severely hampered by spurious accounting practices, lack of transparency, and non-compliance with Bank procurement rules.

Empirical research about corruption is quite a new undertaking. The general consensus is that corruption is the doing of real people and groups that trade in influence with a particular climate of opportunities, resources, and constraints (Johnston, 1997). Among the most prominent areas of research, is its association to investment, government expenditures, international trade, and public sector salaries.

The first systematic attempt at investigating its impact on investment and growth is undertaken by Mauro (1995) who, for a sample of 67 countries, finds that corruption lowers investment and thereby reduces growth. For a sample of 41 countries, the results of a private sector survey also indicate that corruption affects growth by reducing the investment GDP-ratio (Brunetti, Kisunko, and Weder, 1998).

The evidence on the distortion of public expenditures is no less rigorous. Similar to Mauro (1996), Kaufmann (1997) finds that corruption lowers expenditures on education, arguing that other expenditures offer better possibilities to collect bribes.

Tanzi and Davoodi (1997) suggest that corruption is often tied to capital projects, thus likely to increase the number of projects undertaken in a country and to change the design of these projects by enlarging their sizes and their complexity. They find that higher corruption is associated with higher public investment, lower government revenues, lower operation and maintenance expenditures, and a lower quality of public infrastructure.

In the first inquiry on international trade, Beck, Maher, and Tschoegl (1991) find a small but significant impact of corruption on the export competitiveness of the U.S. as a result of the Foreign Corrupt Practices Act. While investigating bilateral trade data between 1992 and 1995 for the leading 18 exporting and 87 importing countries, Lambsdorff (1997) suggests that competitive advantages or disadvantages in countries perceived to be corrupt should be explained by the different propensities of exporters to offer bribes.

Finally, the impact of public servant salaries on corruption is investigated by Van Rijckeghem and Weder (1997). They argue that low salaries force public servants to supplement their incomes illicitly while high salaries impose higher losses when getting caught. In a sample of 25 countries, they find that increasing the relative wage of government wages relative to manufacturing wages, from 100 to 200 percent, will improve the corruption index on the order of 1 point of the index. Since the manufacturing sector has the advantage of being relatively comparable across countries in terms of skill content, it is used as a consistent benchmark to compare civil service wages.

This paper contributes to the on-going research on corruption by further defining the types of corruption that affect Foreign Direct Investment. In an early attempt

researching the effects on foreign investment, Wheeler and Mody (1992) find no empirical evidence on a negative correlation between corruption and foreign direct investment (FDI). Their study of U.S. firms' foreign investment fails to find a significant correlation between the size of FDI and a host country's risk factor, a composite measure that includes perception of corruption as one of its components.

We propose to test a model of foreign direct investment that includes several dimensions of corruption as independent variables. Given the growing opportunities for international business, corruption is of utmost relevance to foreign investors who have to deal with corrupt regimes as the playing field is thus tilted toward unscrupulous but less efficient firms that would not fare as well in an honest system. This issue is particularly relevant to multinational firms who face a "prisoner's dilemma" when they deal with corrupt regimes. Each believes it needs to pay bribes in order to do business, while it knows that all firms would be better off if none of them paid.

This research therefore contributes in three areas. For foreign investors, it will improve our understanding of what creates risks for their investments. Specifically, corruption increases the risk of doing business in a foreign country because it may not be a transparent act between a briber and a bribee and does not always carry an implied promise of strong enforcement of an agreement. It therefore embeds arbitrariness and creates uncertainty. From the perspective of public policy, it helps us understand how corruption affects a country's economic well being through its ability to attract foreign capital. Finally, this research also considers the cross-sectional behavior of foreign investors at the individual and group level.

The paper is organized as follows. The following section reviews some of the research on corruption and economic growth. Section III reviews the measures and determinants of foreign direct investment and Section IV develops the hypotheses. Section V describes the data and methodology while empirical results are presented and discussed in Section VI. Section VII presents the caveats associated with measuring corruption. Finally, section VIII concludes with recommendations for institutional reform.

II. Corruption and Economic Growth

A. Development of Corruption

Ever since the early dawn of time, the ancient nature of corruption was regarded as corrosive to the development of the state. As Kautilya, chief minister to the king in ancient India, forewarned, it would be impossible for one dealing with government funds “not to taste, at least a little bit, of the king’s wealth”¹.

In more recent times, corruption continues to affect efficiency, fairness, and legitimacy of state activities. Examples that illustrate the risk of tolerating moderate amounts of corruption abound. An in-depth study of an irrigation district in India determined that 20 to 50 percent of the funds provided by the government were wasted in malfeasance (Wade, 1984). Similarly, in Pakistan, work by experts on irrigation indicated that illegal water outlets were purchased from the state, imposing severe costs on downstream farmers.

¹ *The Arthashastra*, by Kautilya, circa 300 B.C. – 150 A.D., in Daniel Kaufmann (1997). “Corruption: The Facts”, *Foreign Policy*, no.107 (Summer), p.114.

In Korea, bribery of building inspectors purportedly led to the substandard construction of a department store that subsequently collapsed, killing several people (Park, 1995). Under President Fernando Collor de Mello, the rake-off on public contracts in Brazil allegedly increased from 10 to 15 percent to 30 to 50 percent (Manzetti and Blake, 1996).

The Ukrainian experience is also depressing. Money that could be used to get the economy on its feet is often hidden beneath mattresses and buried in gardens because registering a business risks drawing the attention of government officials (The Economist, June 1997). Cronyism has captured the few profitable industries while Soviet-era bureaucrats feel free to impose arbitrary taxes on private businesses.

As Buckberg observes (1997), the Russian system is in general cumbersome and distortionary. An uneven application of tax laws, varying tax rates, tax preferences, and ill-defined terminology give tax inspectors a large margin of discretion. In this environment, a firm's total tax obligation is often viewed as a negotiated settlement between a business and its tax inspector; inspectors will typically exploit ambiguities in the code to adjust a firm's assessment and extract bribes. Furthermore, contradictory interpretations and rulings that often rely on the prejudices of an individual judge prevail in Russia's legal minefield. Many laws are badly worded and personal contacts are often more valuable than legal documents.

In Mexico, corruption is systemic. The whole Mexican system, particularly the bureaucracy, functions around *camarillas* – networks of personal loyalties among different groups (Gillis, 1998). In Bombardier's case, the company lost a \$500-million

subway car contract in August 1997, after the Mexican government approved its technical bid and then suddenly reversed the decision (Gillis, 1998).

As a final example of the tentacles of corruption, consider the Bre-X scandal in Indonesia. An elaborate pattern of high-level payoffs was unearthed after the gold find was declared a fraud. For \$40 million, Bre-X had hired Indonesian President Suharto's eldest son as a consultant. Even now, Suharto's son may still gain approximately \$2.8 million from the company's bankruptcy settlement (Gillis, 1998).

The above illustrations suggest that global corruption is burgeoning. A recent World Bank survey of 3,600 businesses discloses that 40 percent are paying bribes in 69 countries. It is also estimated that bribery accounts for 10 to 20 percent of contract amounts worldwide, costing companies billions of dollars (Gillis, 1998).

B. Corruption and its Role in Rent Seeking

For half a century, the state has been the dominant force in most of the world's poorer countries. It owned factories, built protectionist barriers, allocated foreign exchange, and wove intricate webs of regulatory red tape. Today, the policy debate still centers on how malfunctioning government institutions constitute a severe obstacle to investment, entrepreneurship, and innovation. In many market-oriented economies, government restrictions upon economic activity remain pervasive facts of life. These restrictions often give rise to rents of a variety of forms, such as licenses, import quotas, and permits.

At the apex of the discussion on rent seeking, meaning any activity by which asset owners attempt to increase the value of their assets, is how the politicization of economic

life is an easy vehicle for corruption. The widespread political control of economic activity can be thought of as the exercise by politicians of control rights over business. Such rights may include the ability to regulate and restrict entry, control over the use of land and real estate, control over international trade and foreign exchange transactions, and the determination and collection of taxes (Johnson, Kaufmann, and Shleifer, 1997)

Typically, politicians use these rights to pursue their own interests such as supporting politically friendly entrepreneurs and subsidizing their allies. However, corruption becomes relevant when politicians also use these rights to enrich themselves by offering firms relief from regulation in exchange for bribes. Therefore, corruption in the form of rent seeking reflects payments to evade government control.

The research on the effects of rent seeking on investment and innovation, and thus on economic development and growth, is particularly fervent. Though the proper link between government intervention and the private sector is a delicate one, economic analysis nevertheless suggests that the creation and pursuit of rent seeking activities endanger economic development.

The consequences of rent seeking are investigated by Krueger (1974). With a particular focus on import licensing, the author suggests that several mechanisms create sub-optimal efficiencies. First, when licenses are allocated in proportion to firms' capacities, investment in additional plant confers upon the investor a higher expected receipt of import licenses. Thus, even with initial excess capacity, a rational entrepreneur may choose to expand if the expected gains from the additional licenses received, divided by the investment cost, equal the returns on investment in other activities.

Another sort of mechanism allocates licenses in proportion to their application from import-wholesalers. The result is a larger-than optimal number of firms operating on the downward sloping portion of their cost curves while earning a “normal” rate of return. In this case, competition for rents occurs through entry into the industry with smaller-than-optimally sized firms, and resources are used such that the same volume of imports could be efficiently distributed with fewer inputs if firms were of optimal size.

The association between rent seeking and development is also discussed by Murphy, Shleifer, and Vishny (1991). In their paper, they investigate how and when rent seeking determines the allocation of talent and the ensuing affect on growth. The attractiveness of an occupation to talent is threefold. First, the size of the market is crucial; being a superstar in a large market pays more than being one in a small market, and therefore draws general talent.

Second, attractive activities have weak diminishing returns to scale. An individual would want to spread his or her ability advantage over as large a share of the market as possible, but is limited by time constraints, physical ability, and the size of the firm to manage. Therefore, the faster returns to scale in an activity diminish, the less attractive it becomes to a person of high ability.

Finally, the compensation contract – or how much of the rents to their talent superstars can capture – determines the sector’s attractiveness to talent. The general idea is that talent goes into activities with the highest private returns, which need not have the highest social returns.

When a country’s markets are large and individuals can easily organize firms and keep their profits, many talented people become entrepreneurs for two reasons. First,

because their output and revenues rise with their ability but their costs do not, they can earn more than proportionately higher profits for a fixed size of the firm. Second, the abler expand the size of the firm so that they can spread their ability advantage over a larger scale.

In contrast, other talented people in countries with large markets join rent seeking activities, such as government bureaucracy and organized religion, because these sectors offer the highest prizes. In Mandarin China and many African countries in this century, government service – with its attendant ability to solicit bribes and dispose of tax revenue for the benefit of family and friends – is the principal career in society. In Latin America, the most talented individuals often join the army as a means to access the resources from their own countries (Murphy, Shleifer, and Vishny, 1991). Thus, when talent is shifted to rent seeking, most of the private returns come from redistribution of wealth from others and not from wealth creation.

In socialist countries, rents create welfare losses when buyers are willing to stand in line, lobby the firm and the ministry, and pay bribes for goods (Shleifer and Vishny, 1992). To the extent that people waste time queuing for goods and lobbying, buyers do not benefit the economy. According to the authors, pervasive shortages under socialism are a result of the rational choice made by key decision-makers that collect the rents resulting from shortages.

The self-interested behavior of ministry bureaucrats leads them to intentionally plan shortages in order to invite bribes from rationed customers. If markets cleared, firms could earn profits, most of which would accrue to the state treasury and not to the managers or ministries. By creating shortages, bribes tend to be much larger than the

share of official profits that bureaucrats and managers are allowed to keep. Moreover, since the bribes are not official transactions, they do not go to the treasury.

Schleifer and Vishny (1992) further suggest that, although the idea that bureaucrats collect bribes by creating artificial barriers to public transactions is not just a phenomenon of socialist regimes, bribery through the creation of shortages is especially relevant in socialist economies because public ownership of firms and the resulting expropriation of official profits is endemic to some types of countries. In contrast, since under capitalism firms and their profits are privately owned, capitalist producers would always choose to collect official profits by charging higher official prices.

A different opinion is voiced by Bardhan (1993). It seems reasonable to expect that the seeds of capitalism and free enterprise are often cultivated in a democratic society. However, it is unclear if the demands for spreading the spoils of the system secure growth-fostering capitalist property rights better than dictatorships. Democracy, with its slow empowerment of the less wealthy, electoral arithmetic, and exigencies of group mobilization, often sharpens parochial and primordial loyalties which block the ability to move toward economic progress.

When the developmental process of civic norms can be quite independent of the process of economic development, Bardhan (1993) offers other factors that may be more relevant to long-run expansion goals. Purposive collective action on economic arrangements, such as in South Korea, Japan, and Taiwan, has been greatly helped by the relative social homogeneity of the population and by a more egalitarian wealth distribution. A tightly knit party organization or a dense, institutionalized network of

connections between public officials and private capitalists should facilitate resolution of collective action problems and foster quick flexibility in decision making.

Foreign investment, like any other economic activity, is negatively affected by rent seeking when a public official has discretionary power over the distribution of a benefit or cost arising from international investment transactions. Because the demand for these benefits and costs is disproportionate to the supply by government, competition for rents naturally creates incentives for bribery, compelling investors to use up resources for payoffs rather than for entrepreneurship.

C. Importance of Corruption

As a measure of the overall level of corruption in recipient countries of foreign investment, we make use of either the Transparency International (TI) or the Business International (BI) index of corruption. Both agencies rely on the survey-based rankings of relevant groups, such as businessmen and risk analysts, in order to assign an index score. Beyond the facilitating role of the above agencies in quantifying corruption, a necessary component of the research on corruption is the ability to determine why and where it occurs. In this respect, a multitude of reasons explains the phenomenon.

For some, the literature on corruption centers on the basic and recurrent assumption that the more involved is the government in economic activity and decisions, the greater is the potential scope for corruption (Tanzi, 1995 and 1998, Lui, 1996, and Hanke, 1996). As the role and relative wealth of the state increases, public officials and civil servants are easily tempted to use its instruments to favor particular groups in addition to themselves.

Thus, paying to get a government benefit is a strong temptation for businesspeople. As the government buys and sells goods and services, organizes the privatization of state firms, distributes subsidies, and provides concessions, public officials frequently have a monopoly of valuable information. These activities all create incentives for corruption, most commonly in the form of bribes (Rose-Ackerman, 1997).

First, when the government is a buyer or contractor, a firm may pay to be included in the list of qualified bidders. It may also pay to have officials structure bidding specifications so that the corrupt firm is the only qualified supplier and, once selected, pays to get inflated prices or skimp on quality. Since governments often sell goods and services at below-market prices, firms will bribe officials for access to below-market state supplies. In China, for example, where payoffs are common (Johnston and Hao, 1995), many raw materials are sold at both state subsidized prices and on the free market.

Another area where corruption can fester is the supply of credit and the rate of interest. When these activities are controlled by the state, payoffs are offered for access to credit. In Lebanon, a survey of businesspeople reveals that loans are not available without the payment of bribes (Yabrak and Webster, 1995).

According to Hanke (1996), the data on government involvement support this logic. As the Economic Freedom of the World (1996) attests, there is less corruption in countries where the power of the state is lower and economic freedom is higher. For example, on an A through F grading scale, New Zealand received an A for economic freedom and Nigeria an F.

Another determinant of the degree of corruption is the level of public sector salaries (Buckberg, 1997, Tanzi, 1998, and Lambsdorff, 1998). Van Rijckeghem and

Weder (1997) argue that low salaries force public servants to supplement their incomes illicitly which, as Buckberg (1997) suggests, is in the form of high fees for services and demand for bribes.

In 35 developing countries, the impact of merit based recruitment on corruption is investigated by Evans and Rauch (1996). Higher values of the merit based recruitment index are associated with a greater proportion of higher-level officials in the core economic agencies entering the civil service through a formal examination system. While controlling for income, this index was negatively associated with corruption.

Some inconclusiveness nevertheless remains. In their empirical study of the effects of low wages in the civil service on corruption, Van Rijckeghem and Weder (1997) reveal that an increase in the ratio of civil service to manufacturing pay from 100 to 200 percent is associated with an improvement in the corruption index (which ranges from 0 to 6) on the order of one point in the cross-country regressions for a sample of 25 developing countries.

By itself, the relative wage is a highly significant explanatory variable with a t-statistic of 5. Over time and with a t-statistic of -0.74 , relative pay, however, has no significant effect on corruption in “within country” regressions, indicating that higher pay does not lead to reduced corruption over time within individual countries.

The resource allocation system, and the bureaucratic burden, expense, and delays of playing by the rules are other factors that influence the level of corruption (Lui, 1996, and Buckberg, 1997). If there is no monopoly on the allocation of services and commodities, the incentive to pay the corrupt official for the provision of such goods ceases to exist. Furthermore, in such economies as in Russia, that warrant a large number

of approvals required for legitimacy – each involving extensive documentation, fees, and logs for approval – many businesses prefer to either operate underground or to circumvent administrative processes by paying bribes.

The extent to which the laws and regulations of a country are transparent and clear also contributes to the degree of corruption (Tanzi, 1998). The less transparent and clear they are, the greater is the discretion of government officials in interpreting and applying them. In Russia, Buckberg (1997) observes that the lack of clear, published requirements for operating a business also facilitates malfeasance because applicants cannot independently verify the requirements for approval.

Based on a survey of 55 small shops in Moscow, Frye and Shleifer (1997) find that in 1995 the average shop submits to over 18 different inspections, conducted by three or four different agencies; 83 percent of shops are fined by at least one inspector.

Russia's tax burden is a particularly acute issue. Due to the simultaneous taxation of turnover, profits, capital and wage costs, the total tax burden is excessive, such that full compliance may leave almost no after-tax profit. The tax system is further regarded as unfair because of the distortionary proliferation of tax preferences and rates, distortionary rules, and the uneven application of the code by tax inspectors.

Another determinant offered by Tanzi and Davoodi (1997), is the philosophy of influential economists which some politicians internalize and exploit. Many personalities such as Harrod, Domar, and Rostow argue that countries need capital to grow and that there is an almost mechanical relation between increased capital spending and increased growth.

This pro-investment bias, exploited by public officials, increases the investment budget. Since obtaining a contract to execute a project - especially a large one – can be very profitable, enterprises are sometimes willing to pay a commission to the government officials that help them win the contract. When the commissions paid are related to the project's costs, an incentive is created for larger public investment projects. As a result, some projects are completed but never used. Others are much larger and more complex than necessary, while others still are of such low quality that they require continuous repairs and maintenance.

Finally, the level of corruption is also a function of the riskiness of corrupt deals and the relative bargaining power of briber and bribee (Rose-Ackerman, 1997). The higher the probability of detection and punishment, the lower the effective benefits available. Since the expected cost of bribery is the probability of being caught times the probability of being convicted times the punishment levied, a risk-neutral briber compares this expected cost with the expected benefit and is corrupt only if the balance is positive. In contrast, a risk-averse official must also be compensated for the uncertainty involved in corrupt transactions.

Moreover, bribery seldom occurs under competitive market conditions. Instead, a bargaining framework is often appropriate. Thus, the division of gains is largely determined by whether or not firms can resist corrupt demands if they have other options. First, the potential briber may be able to obtain the same benefits by relocating to another jurisdiction or country. Second, the firm can resist corrupt demands if it has some bargaining power such as having access to specialized technology not available

elsewhere. Third, it can have the option of following legal procedures at some additional costs. These are only a few of the alternatives available.

D. Effects of Corruption

Corruption affects and distorts what should be unbiased relationships between government officials and private sector individuals. Through the payment of bribes, some individuals succeed in obtaining a favorable treatment from public officials in their economic activities.

Contrary to the general consensus, some suggest that corruption is economically desirable and fosters the following positive outcomes. A beneficial treatment can either reduce the costs for these activities or it can create new opportunities that are not available to others.

Another sophisticated economic variation of the “grease-is-positive” argument, which is suggested by Lui (1996), is the idea that bribe money pays some expenses that the government otherwise would pay. If the government permits bribery, it does not have to pay bribe collectors a salary. Thus, the money saved may be used for government functions not involving paying salaries to officials.

A final practical effect is that bribery allows supply and demand to operate. Under competitive bidding for a government procurement contract, this view maintains that the highest briber will win and the lowest-cost firm will be able to afford the highest bribe (Kaufmann, 1997). A further mechanism that fosters efficiency through bribery is that government employees who are allowed to levy bribes would work harder, especially when bribes act as a piece rate.

The problem with these arguments is that they assume that economic activity is damaged by the existence of unchanging rules so that the bypassing of these rules, motivation of public officials, and lower salary expenses - obtained through the payment of bribes – actually remove obstacles to growth without doing any harm (Tanzi, 1998). Unfortunately, there is great difficulty in limiting corruption to areas in which it might be economically desirable. Like gangrene, it starts in one area until most government activities and decisions become affected (Mauro, 1995, Rose-Ackerman, 1997, and Tanzi, 1998).

Besides running the risk of sinking into a downward spiral, arguments favoring the payment of bribes are refuted on the basis of several other considerations (Kaufmann, 1997). First, the problem with the “speed money” argument of enhancing efficiency by cutting the considerable time needed to process paperwork, lies in the presumption that all involved will actually commit to the deal, without any further demand for bribes. Furthermore, given the multiple bureaucrats often involved in a process, a single civil servant cannot process paperwork and approvals any faster than usual.

Third, the grease-the-wheels notion fails to take into account that corruption represents a theft of public resources. Bribes end up being diverted from treasury revenues, which impairs macroeconomic stability. To avoid close scrutiny, the recipient of the bribe may try to siphon these funds into overseas accounts, obstructing any productive use of such funds in the country.

Another fallacious assumption is that the highest bidding capability stems from cost-efficiency. Most often, it is associated with sub-standard quality. Moreover,

politicians rarely subject the object of an illegal payoff to competitive bidding; instead, given the need for secrecy, potential bribers are carefully and discreetly selected.

Kaufmann (1997) also objects to viewing bribes as a mechanism for equalizing supply and demand because it ignores the fact that many public goods should not be allocated to the highest bidder. Many social and antipoverty programs are designed to allocate resources according to the needs of recipients. This goal is suppressed when bribes function as an allocating mechanism, since corruption impairs the provision of social programs to the intended population segments.

Rent seeking and bribery also exact a considerable economic cost. Talent is misallocated, since the jobs associated with lucrative graft attract individuals who would otherwise accept the more modest rewards of truly productive occupations. The allocation of economic benefits is also distorted. Favoring the haves over the have-nots, corruption leads to a less equitable income distribution (Rose-Ackerman, 1997).

Complex and expensive capital-extensive projects, that facilitate the skimming of large sums, are favored by corrupt bureaucrats, resulting in poor technological decisions. Tanzi and Davoodi (1997) find that through higher public investment, higher corruption is indeed associated with large capital spending. Using cross-country data and regression analysis, the evidence also shows that while corruption increases public investment, it reduces its productivity, resulting in a capital budget that is highly distorted; the country is left with shouldering projects that are either quite costly, larger than necessary, or of inferior quality.

Beyond the objections against corruption's beneficial effects, there exists a plethora of reasons that warn against its widespread development. By far, the most

recurring damaging effect of corruption is on growth (Lui, 1996, Rose-Ackerman, 1997, Tanzi and Davoodi, 1997, and Tanzi, 1998).

In an environment full of restrictions, obtaining goods or services often requires soliciting approval from many bureaucratic layers. As each layer becomes an independent monopoly, there is no assurance that a project will get clearance from all layers. Therefore, it is the uncertainty of the approval process that discourages investment and innovation.

The negative relationship between corruption and growth is explained by Tanzi and Davoodi (1997). In their study, the authors posit that there are many channels through which higher corruption reduces economic growth. First, the latter is hindered because grand corruption encourages increased public spending while reducing its productivity.

Second, corruption can retard growth by increasing public spending but holding back on recurrent current expenditure – namely, adequate non-wage operation and maintenance spending. The evidence shows that higher corruption is also associated with higher total expenditures on wages and salaries. This item is a large component of government consumption, and high government consumption is unambiguously associated with lower growth.

Third, corruption can delay growth by reducing the quality of the existing infrastructure. By creating congestions, delays, break-downs of machinery and so on, a deteriorating infrastructure increases the cost of doing business for both government and private sector, leading to lower output and growth. Finally, corruption can also reduce growth by lowering government revenue needed to finance productive spending.

By distorting the allocation, distribution, and stabilization role of government, corruption in the public finances also reduces the ability for the government to pursue its basic public functions (Tanzi, 1998).

As previously discussed, the effect on the allocation of resources is obvious. The role of government is justified in terms of the need for government action and initiative to correct for market failures. However, corruption distorts markets because of the differential treatment that individuals receive when some bribe public officials while others do not. For example, in India and Pakistan, corruption in irrigation systems suggests that those at the bottom of the system may obtain much less water than they need even for subsistence farming (Rose-Ackerman, 1997).

The distortion of the distributional role is also alluded to in the discussion on the misappropriation of economic benefits. Whether they are corrupters or corrupted, those who benefit from malfeasance – especially high level corruption – are often better placed and better connected than those who do not. Corruption therefore allows them to increase their real incomes.

The stabilization role is incapacitated because corruption tends to decrease government revenue and to increase government spending, contributing to larger fiscal deficits. With respect to reductions in government revenue, they occur when corruption contaminates the tax and customs administrations, resulting in the direct loss of revenue from each individual collusive arrangement between a taxpayer and a tax customs official.

Corruption also retards growth by affecting economic efficiency. The effect can be observed in many indirect ways (Tanzi, 1998). Incompetent officials replace more

competent ones; public projects are completed in a sloppy way; less efficient producers drive out more efficient but honest ones; and unproductive investment replaces more productive investment even when the total is not changed.

Moreover, Rose-Ackerman observes (1997) that when pervasive corruption exists, economic development increases the rents available for distribution. Those seeking wealth may become rent seekers, using resources to shift benefits from others to themselves without generating any value added.

Tax evasion is another common occurrence (Buckberg, 1997, and Tanzi, 1998). Examples of corrupt practices include the provision of certificates of tax exemptions to persons who would not otherwise qualify, the creation of multiple false taxpayer identifications to facilitate tax fraud, the deletion or removal of a taxpayer's records from the tax administration's registration and accounting systems, and the write-off of a tax debt without justification.

Tanzi (1998) suggests that the imposition of foreign trade taxes and the provision of tax incentives are among the most prominent areas affected by corruption. In Morocco, Brazil, and Argentina, serious cases of malfeasance in customs have been reported in the past couple of years. The head of the customs administration in Morocco was jailed for major cases of smuggling. In Brazil, smuggling by navy personnel, using military ships, was uncovered. In Argentina, the existence of a parallel customs administration was reported. In yet other countries, corruption involved collusion in the faking of invoices to get rebates on non-existing exports.

Regarding the provision of tax incentives, the decision often depends on subjective considerations, such as whether or not the investment is in the national interest

or is necessary. Therefore, some officials naturally have considerable decision-making authority when determining whether the investment meets the often vague criteria.

In Russia, the imprecise drafting and ill-defined terminology of tax laws give tax inspectors a large margin of discretion (Buckberg, 1997). Tax burdens are so excessive and complex that Russian firms evade taxes in increasingly sophisticated ways; they falsify their returns, reduce reported profits, conceal income by overstating expenses, and underinvoice exports while overinvoicing imports. Compliance and collection is further undermined by tax inspectors who exploit ambiguities in the code to extract bribes.

III. Foreign Direct Investment

A. Determinants of Foreign Direct Investment

As stated in the introductory remarks, this paper contributes to the research on corruption by further defining the types of corruption that affect Foreign Direct Investment. Foreign Direct Investment (FDI) is generally defined as the transfer of resources across national boundaries. The decision to transfer resources is motivated by a higher expected profitability as compared to alternative investment possibilities at home (Schneider and Frey, 1985), and there is a tendency for capital, technical, and managerial resources to flow towards the location that maximizes expected returns (Eckaus, 1987).

The more restrictive balance sheet definition of FDI defines it as a firm's ownership of ten percent or more of the equity of a foreign firm (Lessard, 1987). However, this definition, much like the first, sheds little light on the interwoven

complexities that differentiate one FDI decision from another. The existing literature, however, does provide much insight into the intra-regional flows of investment.

Most of the theoretical basis of intra-regional flows of investment is founded on the principle of comparative advantage. Firm specific differences in technology and managerial efficiency are necessary conditions for outward FDI, the sufficient condition being that external markets do not work well enough to allow these elements to be exploited by licensing and exports (Maskus and Webster, 1995). This view therefore sees FDI as the international transfer of certain specific and mobile factors of production, such as know-how and finance, to locations where the local costs of immobile factors of production, including natural resources, human capital and machinery, are most advantageous.

Turning to empirical research, an early study investigating the determinants of FDI is conducted by Root and Ahmed (1979). Using discriminant analysis and based on variables found in previous studies, the authors find that per capita GNP, the growth rate of GDP, the degree of economic integration, extent of urbanization, and development of infrastructure in host countries are significant economic variables influencing the inflow of FDI in seventy developing countries for 1966-1970. The only significant political variable, used as a proxy for political stability, is the number of regular constitutional changes in government leadership within the host country. An obvious shortcoming of this study relates to the very short sample period examined which may not reveal the extent to which these and other variables affect FDI flows.

A more extensive analysis on the factors affecting FDI is led by Schneider and Frey (1985), who find a joint influence of economic and political factors. According to

the authors, the simultaneous effects of politics and economics upon FDI, which is the motivating factor of their study, are not sufficiently explored in the existing literature. Even if present economic conditions seem satisfactory and suggest good prospects for the future, it is entirely realistic that they will not materialize due to unfavorable political conditions.

Using ordinary least squares regressions on data from 54 developing countries for 1976, 1979, and 1980 to test their political-economic model of total FDI, Schneider and Frey (1985) document that real GNP per capita, the growth of real GNP, rate of inflation, balance of payments deficit, wage costs, and the education level in host countries are significant economic variables. Statistically significant political variables are internal political stability, foreign aid received from communist countries, foreign aid received from Western countries, and multilateral aid received. One limitation of the study is that there is little theoretical justification for the inclusion of the foreign aid variables.

Another study, by Guisinger and Associates (1985), examining 74 investment projects in both developed and developing countries in four industries – automobile, computers, food products, and petrochemicals – reveals that investment decisions are mainly driven by economic and long-term strategic considerations concerning inputs, production costs, and markets.

According to the OECD (1989), the Guisinger (1985) study reports high factor effects because of the methodology employed. Specifically, the study takes the form of examining whether there would be changes to investment decisions concerning a host country on the assumption that the country removes *all* of its investment incentives while others keep theirs. Less dramatic results are revealed if, when comparing the difference

between actual events and a hypothetical situation, more realistic and limited *changes* in policies were to occur.

Several survey sources (Gold, 1991 and UNCTC, 1991) also suggest that, with respect to FDI-specific regimes, freedom of entry and establishment, national treatment, and rules regarding the repatriation of funds also influence FDI location choices.

Another study, by Wheeler and Mody (1992), specifies a capital expenditure function, which incorporates measures of agglomeration benefit, risk, and classical location factors. The results reveal that agglomeration benefits, such as infrastructure quality and degree of industrialization, and classical factors, including labor costs and corporate taxes, are the dominant determinants of FDI.

Specifically, U.S. investors give almost all the decision weight for host countries that have high infrastructure quality (transportation, communications, and energy), and a high degree of specialized support services (degree of industrialization).

For the classical-related factors that follow, the level of corporate taxation is eclipsed by labor cost and market size considerations. Surprisingly, the openness of the market and the composite index for relevant socio-political conditions (“RISK”) are weak determinants of FDI. To determine manufacturing investments by U.S. multinationals, the authors use a translog specification to allow for possible non-linearity of the variables, and draw from a panel of 42 countries, for the period 1982-1988.

Wei (1997a), however, questions the results obtained for the latter regressor on the basis of the noise-to-signal ratio inherent in the variable. Specifically, he suggests that because the regressor “RISK” is formed from 12 other indicators, the noise-to-signal ratio may be too high to show up significantly in the regressions.

In the spirit of Schneider and Frey (1985), Summary and Summary (1995) find some cross-sectional and time-series evidence of the simultaneous effects of politics and economics. They apply ordinary least squares to combined cross-section, time-series data incorporating both economic and political determinants of U.S. FDI to 54 developing countries in Latin America, Africa, and Asia from 1978 through 1986. The use of combined cross-section, time series data is designed to allow examination of the influence of both factor types across countries and over time rather than an analysis of host countries on a case study basis.

The results reveal that market size, as measured by GNP per capita in the host country, has a positive effect on FDI flows and that labor costs has a negative impact on FDI. Furthermore, the number of foreign registrants of the host country is the only significant political variable, which also has the expected sign. Its significance suggests that the presence of foreign registrants of the host country in the United States increase FDI (most probably) through lobbying efforts

Another study, which is less statistically oriented (and perhaps less conclusive), is a survey response of foreign investors. A 1995 survey of Central and East European countries suggests that investors first consider features such as the political stability of a host country, currency convertibility and repatriation profits, the cost and skill levels of labor, and potential markets. Moreover, the general features of the tax systems, such as the treatment of business expenses, tax rates, and the administration of the tax system, are more important determinants than tax incentives in the decision to invest (OECD, 1995).

B. Foreign Direct Investment and Corruption

The effect of corruption on FDI is well documented. First, we briefly discuss the relationship between corruption and investment in general. One of the first systematic attempts, investigating the impact of corruption on investment, is undertaken by Mauro (1995). Using a Bureaucratic Efficiency (BE) index as a 1980-1983 average of BI indices of corruption, red tape and the judiciary system, an integer between 0 (poor institutions) and 10 (good institutions) is assigned to each country. Mauro (1995) finds a positive correlation coefficient of 0.46 with the investment rate for 67 countries.

A criticism of these results is voiced by Wedeman (1996). While the correlation between corruption and the investment GDP ratio might be strong for countries with little corruption, it loses power for those with higher levels of corruption. He therefore concludes that different kinds of corruption might be more decisive to investment than the overall level of corruption as such.

Following the aggregation of businessmen's responses to the credibility of government into an overall index, the World Bank's results reveal that countries with higher credibility rankings enjoy higher investment and faster economic growth (The Economist, June 1997). Two factors alone, per-capita income and government credibility, explain approximately 70 percent of the variation in investment rates from one country to another.

Another World Bank study (World Development Report, 1997) examines how FDI is influenced by subtle variations of corruption. Defining an index of "predictability" of corruption as the extent to which corruption is transparent and pre-announced (obtained from a private sector survey), the study found that, for a sample of 39 industrial

and developing countries, countries with more predictable corruption have higher investment rates (see also Wei, 1997b). By not releasing any individual country data, the problem related to such an observation is that it limits the credibility of the results (Lambsdorff, 1998).

In the Czech Republic, the most galling factor deterring investment is the almost unbridled power of the ubiquitous investment funds, which control - and some say corrupt - a vast array of the republic's corporations (De Lion, 1997). The unhealthy relationship between the country's banks and companies is a major part of the problem. The four largest banks, who own most of the republic's investment funds and which regulate the Czech corporate sector, are still controlled by the state.

With so many layers of officials and state-appointed directors in between, it is hardly surprising that average productivity at Czech-owned companies is almost 70 percent lower than those under foreign control. Foreign companies' experience, however, has been soured by this attitude to business, such that they are turning away in droves. Bass, the British brewing company, was faced with a considerable hurdle when it tried to gain control of Pivovar Radegast, the country's second largest brewery.

As is typical in the Czech Republic, an agreement was forged at the time of Radegast's privatization, between the banking group IPB, holder of 34 percent of the brewery's stock, and the Czech investment company KIS, which owned a 30 percent stake in Radegast, such that KIS could only negotiate with Bass subject to IPB's approval. As long as the republic continues to be dominated by a group of big institutional domestic shareholders and investment funds, foreign buyers will remain excluded unless they pay a higher premium.

A closer look at the association between corruption and FDI reveals that data and research showing the deleterious effects of corruption is mounting (Mauro, 1995, Doro, 1997, and Kaufmann, 1997). To give a sense of scale of the significance of corruption in international business dealings, if just 5 percent of the \$90 billion of FDI in the developing world in 1995 were paid as bribes, the total would be \$4.5 billion annually (Rose-Ackerman, 1997). If a similar value of merchandise imports were diverted into payoffs, the combined total would be almost \$80 billion.

An earlier attempt, however, was unsuccessful at finding a significant relationship between FDI and corruption levels in host countries. Using a host country's risk factor as a composite measure that includes perception of corruption as one of its components, Wheeler and Mody (1992) find no significant effect on U.S. multinational investment.

Wei (1997a) suggests that this finding is elusive because corruption is measured together with 12 other indicators that form one regressor. Other indicators include "government support for private business activity" and "attitude of opposition groups towards FDI", which may not be overwhelmingly correlated with government corruption or may not be as relevant to FDI as the authors suggest. As a result, the noise-to-signal ratio for the composite measure (RISK) may be too high to show up significantly in the regressions.

Despite these findings, corruption is shown to discourage foreign investment because, unlike tax, it tends neither to be transparent nor pre-announced, and carries problems of enforcement between a briber and a bribee (Wei, 1997b). Thus, corruption embeds arbitrariness and creates uncertainty. Also of particular concern is that the

limited experience and exposure foreign investors have vis-à-vis a host country's payoff process, makes them more vulnerable to corruption than local investors.

Focusing on bilateral flows between 14 source and 45 host countries, Wei's (1997a) research shows that corruption does depress inward FDI in a way that is statistically significant and quantitatively large.

Even after controlling for the host country's GDP, the distance between the host and source countries, and a possible linguistic connection between the two, the corruption variable produces a negative coefficient significant at the 5 percent level. When labor cost variables and political stability are added to the modified Tobit regressions, the corruption coefficient changes only slightly and survives the extension.

As a further development, Wei (1997b) investigates the importance of uncertainty in bribes on foreign investment. Using unpublished individual responses of rankings from a survey conducted for the 1997 Global Competitiveness Report, uncertainty is measured as the dispersion of individual ratings of host countries' corruption level. As a benchmark for comparison, a specification without the uncertainty indicator is estimated.

Even without factoring in uncertainty, corruption has a statistically significant coefficient. The effect on FDI is even more pronounced. When, in addition to corruption, we examine the effect of corruption-induced uncertainty, uncertainty is high enough (greater than 0.86) and foreign investors significantly reduce their investment activities.

For further fortification of these results, Wei (1997b) conducts a series of sensitivity tests to ensure that the effect of corruption-induced uncertainty is robust. As a possible missing variable, political stability in a host country may promote inward FDI.

When a government is politically unstable, it can cause bureaucrats at all levels to try to grab rents whenever and wherever possible. Conversely, a very corrupt and uncertain government can breed public discontent and lead to political instability.

Ex-ante, it is therefore possible that the estimated effect of uncertainty on FDI is a disguised effect of political instability. When political stability is added to the regressions, it has a positive but statistically insignificant point estimate at the 10 percent level. Thus, the results do not diminish the estimated effect of uncertainty on FDI.

Another possible missing regressor is the degree of red tape. It seems reasonable to expect that more red tape would provide bureaucratic agencies more opportunity to impose independent bribes on foreign investors. A good illustration of this problem is foreign investment in post-Communist Russia.

To invest in a Russian economy, a foreigner must bribe every agency involved in foreign investment, including the foreign investment office, the finance and relevant industrial ministry, the executive branch of the local government, the central bank, the state property bureau and so on (Shleifer and Vishny, 1993). The obvious result of such competing bureaucracies, each of which can stop a project from proceeding, is that foreigners hardly invest in Russia.

When added to the regression, the red tape variable produces a negative but statistically insignificant coefficient. Once again, the effect of uncertainty on FDI is virtually unchanged.

To summarize, Wei's study (1997b) concludes that the prominent determinants of FDI flows are the tax rate on multinational firms, the corruption level in the host governments, corruption-induced uncertainty, a common linguistic tie and geographic

proximity between the source and host countries. As predicted, the first two factors have an adverse effect on FDI while the latter variables, consistent with the importance of networks, are associated with a sizable increase in the bilateral FDI flow. There is also some support for the labor cost hypothesis of FDI for non-OECD host countries, which suggests an inverse relationship between low wages and FDI flow.

Some doubt, however, has been cast on the robustness of the results. By focusing on bilateral FDI flows, Lambsdorff (1998) suggests that any measurement error in either inward or outward direct investment can not be easily detected when both are agglomerated into a single measure representing the dependent variable.

C. Measuring Foreign Direct Investment

The literature on FDI offers various ways by which FDI is observed and measured. An early source of FDI is provided by Richardson (1971). Direct investment flows are more than just plant and equipment expenditures; they represent the investor's share of the change in the book value of all foreign assets, including inventory and financial capital (such as bank deposits and short-term reserves). Furthermore, direct investment flows include takeovers and sales of existing foreign operations (Richardson, 1971 and McCulloch in Froot, 1993), in which no new capital formation is involved.

The problem related to this form of FDI stock involves the book value estimations of the direct investment position. Quijano (1990) cautions that because these estimates reflect prices at the time of investment rather than prices of the current period, the FDI position may be understated in relation to current value. Nevertheless, book value is still used mainly since historical cost is the accepted basis for company accounting records in

many countries (Quijano, 1990). Thus, with few exceptions, book values are the only ones readily available to companies and researchers when FDI data is compiled.

Moreover, for those companies that do have current value estimates, the problem encountered is one of standardization since the estimates differ from company to company. For example, estimates may represent an 'exit' or sale value, which can be based on an independent appraisal of an affiliate or on offers by potential buyers (Quijano, 1990).

As a desirable means of acquiring external flows, another possibility is that FDI is financed through debt. An OECD-sponsored survey of 68 projects, in which new capital is raised by direct foreign investors in the pre-banking boom period, finds that almost half of the new capital is composed of debt rather than equity issues (OECD, 1983).

In 1994, the latest year for which a complete breakdown is available, the United Nations Center for Trade and Development (UNCTAD) reports that most of foreign affiliates' assets are financed by debt instruments; of the \$2009.1 billion of U.S. affiliates' total assets, approximately 30 percent (\$611.5 billion) is financed by financial institutions located in the host country of the foreign affiliate (UNCTAD, 1997).

However, debt, as FDI flows, excludes the short and long-term borrowing between the parent company and its foreign affiliates. Based on the above 1997 UNCTAD report, parent firms financed slightly more than one-third of the value of their affiliates' total assets. When using intra-firm loans as a form of FDI, Barrell and Pain (1997) nevertheless caution against this measurement because such FDI stock could just reflect the effects of manipulation of transfer prices rather than real claims.

A third but related measurement of FDI, FDI through transfer of new funds, includes increases in equity and inter-company loans (Young, 1988, and Quijano, 1990). In the U.S., this type of FDI has only become important in recent years. For the first time, it exceeded \$5 billion in 1978 and reached a new peak of \$26 billion in 1986 (Young, 1988). Since this form of FDI aggregates both equity capital and intra-firm loans into a single category of FDI stock, and both of these measures were previously treated separately, dual accounting should be avoided during the compilation and coverage of this type of FDI data.

Oman (1989) discusses other more recent forms of FDI. The growth of FDI is part of the broader process of internationalization driven by heightened international competition. Firms supply goods and services to foreign markets through trade. They invest abroad for the same reason, as well as to obtain access to factors of production. More broadly, they undertake and organize international production by employing a wide variety of modalities of international transactions. The newer forms encompass licensing, turnkey agreements, franchising, management contracts, and subcontracting.

Through licensing, investors in the host country are supplied by a foreign enterprise with technology or technical skills at an agreeable fee such as a percentage of sales, portion of future profits, or the purchase of products at prices inferior than the market. A turnkey agreement provides services and products such as feasibility studies, supply of technology and technical skills, implementation and supervision of plans, engineering and construction, and the supply of basic production equipment.

Management contracts involve the development and formation of local personnel, enabling them to assume the responsibilities of managing and operating a local enterprise

within a limited time frame. Unlike licensing, which is usually employed by well established firms, management contracts mostly characterize new projects.

Under subcontracting, the company's owner(s) entrusts an entrepreneur with certain responsibilities. In most cases, the owner maintains control on a project and the entrepreneur assumes no risks other than those related to the eventual insolvency of the firm.

A fifth manner in which FDI is measured involves group investments. Buckley (1990) suggests that this is one of the characteristics that define Japanese foreign investment. Often with the help from government agencies, a number of Japanese firms, usually trading companies, participate jointly as a common form of foreign investment.

This form is also one of the main features by which Chinese statistical authorities categorize China's FDI projects into equity joint ventures, wholly foreign-owned enterprises, cooperative operations, joint development, and other foreign investment (Broadman and Sun, 1997). Furthermore, Helleiner (1990) posits that group investments, or most notably joint ventures, were considered as one of the 'new forms' of investment in developing countries during the 1960s and 1970s.

Another possibility is equity capital, whereby, according to the International Monetary Fund (IMF), an investment is normally counted as FDI when it involves an equity capital stake exceeding 10 percent of the total value of the foreign enterprise's voting shares (IMF, 1993).

Despite the precision of the above requirement, a major concern is that the ownership threshold obscures the distinction between FDI and Foreign Portfolio Equity Investment (FPEI) (United Nations, 1997, and Barrell and Pain, 1997). In the latter,

portfolio equity investors usually provide only financial capital by purchasing shares of a foreign company without any involvement in the company's management. Therefore, FPEI is usually distinguished from FDI by the degree of management control that foreign investors exercise in a venture. An equity stake of less than 10 percent is normally categorized as foreign portfolio equity investment.

The confusion, however, is that minority-share purchases can in some circumstances involve direct management participation, whereas in other instances, lasting management control can take place with less than a 10 percent equity stake (United Nations, 1997). For example, Japanese firms sometimes own less than 10 percent of the shares of foreign suppliers of raw materials, but still have representation on the foreign company's board of directors.

As yet another means to channel FDI, is through retained earnings. This method involves the reinvestment of retained profits by the affiliate in its own operations. Barrell and Pain (1997) suggest that the proportion of reinvested earnings in long established investment stocks, such as those for the U.S. and the U.K., can represent up to 60 percent.

As a source of FDI, retained earnings will also be determined by the decision and level of dividend payments to equity holders. In the recessionary year of 1982, for example, dividend payments to equity holders exceeded total earnings, causing FDI in the U.S. through retained earnings to become negative (Young, 1988).

By far, the most extensive coverage of (American) FDI is compiled by the Bureau of Economic Analysis (Quijano, 1990). The data collected is threefold: the balance of payments and direct investment position data track the transactions and positions of both new and existing U.S. affiliates with their foreign parents; the financial and operating data

provide a picture of the overall activities of U.S. affiliates; and the acquisition and establishment data track new direct investments regardless of whether the invested funds are raised in the U.S. or abroad. Since the country source of investment is not established, the distinction between local and foreign investment may be obscured.

In the first data set, the major items included in the U.S. balance of payments are *direct investment capital flows, direct investment income, and royalties and licensing fees*. Similar to Young's (1988) description of the transfer of new funds, *direct investment capital flows* consist of equity and intercompany debt flows between U.S. affiliates and their foreign parent groups (FPG), and the foreign parents' share of the reinvested earnings of their U.S. affiliates. As financing supplied to an affiliate, capital flows can occur between the U.S. affiliate and the foreign parent, the ultimate beneficial owner (UBO), or other members of the FPG.

To distinguish between the various participants in a global network of corporate affiliations, an affiliate's foreign parent is the first entity outside the United States in the U.S. affiliate's ownership chain that has a direct investment interest in the affiliate. Its ultimate beneficial owner is the entity, proceeding up the affiliate's ownership chain, beginning with and including the foreign parent, that is not owned more than 50 percent by another entity.

The foreign parent group consists of the foreign parent, any foreign person proceeding up the foreign parent's ownership chain that owns more than 50 percent of the entity below it, up to and including the UBO, and any foreign person proceeding down the ownership chain of each of these members, that is owned more than 50 percent by the entity above it.

Interestingly, a U.S. affiliate's dividend payments to its foreign parent is treated as a direct investment income payment between the United States and the home country in the U.S. balance of payments because the dividends are paid directly to the foreign parent. However, if the foreign parent then passes on the dividend to the UBO, the transaction is not a U.S.-to-foreign transaction; it is a foreign-to-foreign transaction, which is not recorded in the U.S. balance of payments. It would, however, be recorded in the balance of payments accounts of the foreign parent and the UBO.

The *direct investment position* is the cumulative book value of net capital inflows from foreign direct investors. It represents the yearend book value of the FPG's equity (including retained earnings) in, and net outstanding loans to, their U.S. affiliates. *Direct investment income* involves the foreign parent's shares of the U.S. affiliate's earnings, net of U.S. withholding taxes on distributed earnings, and interest on intercompany debt of U.S. affiliates with their FPGs.

Finally, *royalties and licensing fees* are payments by U.S. affiliates to, less receipts by U.S. affiliates from, their foreign parents and other members of the FPGs of fees for the use or purchase of intangible property or rights, such as patents, trademarks, copyrights, and franchises.

The primary focus of the second data set is on the overall operations of the U.S. affiliate, including its transactions with the FPG. Among other things, the data cover U.S. affiliates' balance sheets and income statements, merchandise trade, and sources of external financing. However, they cover only nonbank U.S. affiliates.

The last data set, on acquisitions and establishments, comprise data on existing U.S. business enterprises in which foreign direct investors acquire, directly or through

their U.S. affiliates, at least a 10 percent ownership interest and covers new U.S. business enterprises established by foreign direct investors. Data is also provided on investment outlays (how much foreign investors spend in a given year to acquire or establish new U.S. affiliates), includes the number and type of investments and investors, as well as selected operating items such as the total assets, sales, and net income for the new U.S. affiliate

The data, however, excludes the acquisition of additional equity in an existing U.S. affiliate by the foreign parent, the acquisition of an existing U.S. affiliate from a different foreign investor, or plant expansions by an existing U.S. affiliate. Since these transactions involve either a transfer or an expansion of an ongoing investment by foreign investors, they are not considered as new investment activities. In contrast, with respect to equity increases and plant expansion, Lawrence (in Froot, 1993) treats both as a method of foreign investment into the United States and makes no distinction between new and recurring investment activities.

When comparing the data sets, several distinctions are apparent. The acquisition and establishment data cover the actual outlays to establish or acquire new U.S. affiliates, regardless of how or by whom the investment is financed. Thus, the outlays may be made by either the foreign parent or an existing U.S. affiliate, and the source of financing may be other than the FPG, such as local borrowing.

In contrast, the balance of payments data cover only transactions between FPGs and U.S. affiliates. Another difference is that direct investment capital flows finance any of the various operations of existing as well as new U.S. affiliates, whereas investment outlays only finance acquisitions and establishments of new affiliates.

A third and final distinction is that the two sets of data are presented differently. The balance of payments data are presented by country of foreign parent and by industry of affiliate. The acquisition and establishment data are presented by country of UBO and by industry of the U.S. business enterprise acquired or established.

When financial and operating data are compared to balance of payments data, the two data sets provide different measures of the size of FDI in the United States. The measures differ mainly because the former covers the overall activities of U.S. affiliates and are not adjusted for percentage of foreign ownership. On the other hand, the latter focuses exclusively on the FPG's investment in the affiliate.

Finally, similar to the acquisition and establishment data, the financial and operating data publishes primarily by country of UBO because the country of the entity that ultimately controls, and derives the benefits from owning or controlling, the U.S. affiliate is considered the most important in analyzing these data sets.

As a final comment on the BEA's coverage of FDI data, the constraint on data accessibility is examined. The BEA does not publish all the disaggregated data it collects; the data are published at much more aggregate levels (Erdilek, 1985). According to the BEA, the primary reasons for this lack of publication are space constraints and disclosure requirements, which protect the confidentiality of reporters. Appendix A discusses in greater detail the data problems that handicap estimates of FDI stocks and flows.

D. Measurement of Corruption and Alternative Solutions

The World Bank estimates of bribery as a percentage of contract amounts worldwide are considerable. Bribery, however, is only one aspect of corruption. Since the term is applied to a wide range of phenomena, of which the most common forms are improper use and waste of public funds, misuse of political power, and bribery of public officials (Jain, 2001a), the problem encountered is one of measurement.

Collecting reliable quantitative information on corruption is therefore somewhat problematic (Kaufmann, 1998). There are several limitations. First, corruption is generally regarded as illegal, implying that in many cases, corrupt activities have to be kept secret (Lui, 1996, Doro, 1997, and Kaufmann, 1998). In the second instance, the measurement of corruption is complicated by the chosen definition of a corrupt act (Johnston, 1997, and Van Rijckeghem and Weder, 1997).

For example, whereas Shleifer and Vishny (1993) define government corruption as the sale of government property by government officials for personal gain (see also Jain, 2001a, Johnston, 1997 and 2001). Lambsdorff (1998) describes it more generally as the achievement of private benefits through the misuse of public power.

The third impediment relates to the subjective interpretation of what it means to be corrupt (Johnston, 1997). What many outsiders consider a bribe, international businesspeople consider giving gifts and sponsorships as a normal part of doing business. As a further distinction in the corruption typology, facilitating payments are also perceived as a legitimate conduit for business activities.

General Electric Canada Inc., for example, prohibits the paying of bribes but tolerates facilitating payments, once they are reviewed by senior management or a legal

counsel (Gillis, 1998). Due to the small-scale nature of the payments, the company does not consider them as grand corruption since the “million dollars under the table or into the bank account”² are not involved. The distinction, however, is a fine line.

The fourth and final complication involves the pervasiveness and level of corruption that vary within individual countries. The uneven distribution of corruption throughout industries and government departments makes it nigh impossible to get reliable data on the magnitude of corruption across countries (Rose-Ackerman, 1997).

Despite the difficulties associated with estimating corruption, several sources are nevertheless available. Since they focus on responses from businesspeople and risk analysts who are usually exposed to actual incidences of corruption and who can adequately recognize corruption when they see it, these sources are regarded as the market’s choice for an indicator of corruption (Lambsdorff, 1998).

Each year, Transparency International (TI), a Berlin-based non-government organization that promotes ethics in business and combats commercial crimes, assigns an index score between 0 (highly corrupt) and 10 (clean). The country scores relate to the perceptions of the degree of corruption as determined by businessmen, risk analysts, and the general public³.

For a country to be included in the index, the number of surveys required and used will vary from year to year. In the 1997 index, seven surveys were used and at least four surveys were required for a country to be included. Since surveys are based on

² Gillis, Alex (1998). “Grease”, in *The Globe and Mail Report on Business*, (March): p.62.

³ What follows is based on information derived from Transparency International’s website at <http://www.transparency.de/press/1997.31.7.cpi.html>.

perceptions, TI also provides the variance, which indicates differences in the values of the sources for the index; the greater the variance, the greater the differences of perceptions of a country among the sources.

Another useful vehicle, also drawn from perceptions of respondents, is based on surveys conducted and organized by Business International (BI) – now a subsidiary of the Economist Intelligence Unit. BI reports a number of survey-based rankings of country risk factors, in which corruption is included. According to “the degree to which business transactions involve corruption or questionable payments”⁴, the corruption measure is an integer from one (most corrupt) to ten (least corrupt).

In his research on the effect of corruption on international direct investment, Wei (1997a) finds that the TI and BI indices are highly correlated with a coefficient equal to 0.89. Thus, estimation results using one of these indices can be easily extended to either the BI or TI index.

The third instrument for measuring corruption is the International Country Risk Guide (ICRG). Unlike the BI index, the ICRG index is annual. It covers the 1982-95 period and, depending on the year, is available for 42 to 95 countries (Tanzi and Davoodi, 1997). Furthermore, while both indices are assessments of the degree of corruption in a country by informed observers, the latter is uniquely based on the response of foreign investors. Using whether or not “high government officials are likely to demand special payments” and “illegal payments are generally expected throughout lower levels of government” through “bribes connected with import and export licenses, exchange

⁴ Wei, Shang-Jin (1997). “How Taxing is Corruption on International Investors?”, *National Bureau of Economic Research, Working Paper 6030* (May): p.8.

controls, tax assessment, police protection, or loans”⁵ as indicators of higher corruption, the ICRG index ranges from 0 (most corrupt) to 6 (least corrupt).

The final source is the Global Competitiveness Report (GCR). Sponsored by the World Economic Forum, a Europe-based consortium with a large membership of multinational firms, the GCR contains an average of corruption ratings from a survey of its members about various aspects of “competitiveness” of the host country where a responding firm invests in (Wei, 1997b).

IV. Proposed Research and Hypotheses

In this study, we propose to expand the research on corruption by testing a model of FDI that includes several dimensions of corruption as independent variables. Our contribution is threefold. For foreign investors, it will enhance our understanding of what creates risks for their investments. From a public policy perspective, it helps us understand how corruption affects a country’s well being through its ability to attract foreign capital. Finally, we conduct our research both at the individual and group source country level.

To study the effect of corruption on FDI, a number of dimensions are relevant. It can be argued that variations in how corruption is practiced might be more important to empirical analysis than a simple index that attempts to measure the overall extent of corruption in a country. Therefore, we identify several characteristics and forms that corruption may take and investigate their role in influencing FDI.

⁵ Tanzi, Vito, and Hamid Davoodi (1997). “Corruption Public Investment and Growth”, *International Monetary Fund*, Working Paper 97/139 (October): p.10.

First, corruption may be predictable or unpredictable. A corrupt system may be considered predictable to the extent that the bribee understands that a payment of a bribe will be required and the payment implies a strong commitment of delivery of promised services by the bribe-receiver. Since the absence of predictability lacks any of these characteristics, it is reasonable to assume that an unpredictable corruption process dissuades investment because it embeds arbitrariness and creates uncertainty.

For a foreigner, the problem of unpredictability is a serious issue not only because the outcome is uncertain but also because the investor is a stranger to the usual proceedings of the corrupt process within the host country and hence, can only assess the probability of implementation of the corrupt agreement with uncertainty. In order to overcome their ignorance, foreign investors could seek joint ventures with local businesspeople that are familiar with the (local) payoff process. Foreign investors would thus favor predictability because they can treat payoffs like a known tax and incorporate it within the cost of doing business. Though this is a separate testable hypothesis, it is not the focus of our research.

By decomposing overall corruption into a predictable or unpredictable form, we do not find any contradiction with Wei's conclusion (1997a) that corruption does indeed discourage FDI because it is not pre-announced and transparent. Whereas Wei's study (1997a) relies on a single measure of corruption that encompasses many nuances, we attempt to develop finer indices that measure different aspects of corruption.

By including variability of perception, we are investigating whether or not the variance of the 1995 TI index of corruption has some econometric value with respect to the localization of foreign investment.

Hypothesis 1: Predictable corruption is less of a deterrent for cross-country FDI than unpredictable corruption. Because the payoff process is uncertain, unpredictable corruption is harmful to foreign investment and results in lower FDI levels.

Second, there should be an association between corruption at the highest levels of the political system in a country and the flows of FDI. To prevent exposure and interference, corruption at the highest levels of government is usually accompanied either by the repression (usually observed in developing countries) or manipulation of (usually common in developed countries) of political and economic freedom, freedom of the press and of the judiciary system. In a developed country, corruption at the highest levels of government is likely perpetuated by controlling (through bribes or threats) rather than repressing the political arena, the judicial system and the media. In an extreme case, a corrupt political leader will attempt to acquire full control of the economy and may be seen as working as a dictator. However, since this scenario is observed only infrequently, host countries can only be categorized as more or less despotic.

When dealing with foreigners, a corrupt leader of a developing or developed host country, has to balance two competing interests; one is the possibility in the short-run to extract the highest rent from a foreign investor who comes to the country and the other is to charge a low rent from an investor in order to maximize the number of investors coming to the country in the long-term. Thus, the revenue of the leader, which may be measured as $P * F$, where P is the percentage of rent charged per investor and F is the amount of total foreign investment in the country, is a function of P . The leader therefore has to set P such that $P * F$ is maximized.

Assuming that a recipient country has the sufficient and necessary conditions to attract FDI to begin with, the effect on FDI is twofold. When the political leader chooses to maximize P by extracting the highest rent from foreigners already investing in the country (F^{Existing}), additional FDI from new investors (F^{New}) is less forthcoming because of the oppressive payoffs imposed on their predecessors (P^{High}). However, if the leader charges a low rent (P^{Low}) from F^{Existing} in order to maximize the number of new investors coming into the country, FDI levels will increase because the payoffs are not excessive. This relationship is not unlike the price elasticity of demand.

The incentive to either maximize $P^{\text{High}} * F^{\text{Existing}}$ or $P^{\text{Low}} * F^{\text{Total}}$ is determined by the level of political stability in the country. When political stability exists, the leader's power and position are not likely to be seriously challenged so that there is no urgency to "squeeze out" as much as possible from existing foreign investors. In the absence of stability, the leader and his authority is often being challenged, causing the corrupt leader to want to quickly optimize on their position by extracting the highest rents possible in the near future.

Hypothesis 2: Political stability becomes an indicator of whether or not foreign investment or a political leader can take a long-term approach. Political stability is expected to increase FDI levels because investors can expect to be protected from the arbitrary expropriation of property (because of unpredictable corruption) and the loss of financial, capital, and human resources that may accompany instability.

Thirdly, we differentiate between organized or disorganized corruption. By organized corruption, the provision of goods or services is almost guaranteed when they have been paid for. One such example is the family and territorial protection offered by

the Mafia. In contrast, a disorganized corrupt system does not guarantee protection or the delivery of goods and services since the country is full of petty thieves competing for the same geographical territory. Due to the conflict occurring within a disorganized corrupt system, and the lack of contractual enforcement it generates, foreign investors turn away from host countries that exhibit disorganized corruption.

Organized corruption is different from predictable corruption in that it most likely requires a strong degree of predictability in the delivery of promised goods or services if the controlling individual or group is to achieve credibility. In contrast, predictable corruption does not need to be organized in order to carry a strong enforcement of an agreement between an individual briber and a bribee.

Hypothesis 3: Disorganized corruption discourages FDI because different groups are competing to expand their share of corruption activities. This competition will lead different groups to create an environment of uncertainty.

Finally, we investigate the effect of a country's corruption rating relative to its neighboring countries. *Ceterus paribus*, when several neighboring countries charge different "payoff rates" to establish a multinational firm or another form of foreign operations, foreign investors have some bargaining power as to where they will operate when neighboring host countries share similar forms of attractive investment vehicles. Since this flexibility is valuable leverage to investors, they will favor recipient countries imposing lower payoff rates (for similar goods and services) relative to the average corruption rating of the region.

Hypothesis 4: Competitive corruption, reflecting a lower corruption rating of a single host country relative to neighboring potential recipients of foreign Direct Investment, is more amenable to FDI.

V. Data and Methodology

A. Data

In this research, we extend the past work on FDI analysis by expanding the list of independent variables to include the effect of different components of corruption on FDI. Our model and methodology also follow those of past studies in terms of investigating the relationship between FDI flows and a host country's tax rate, labor costs, level of skilled labor, and market size.

Where possible, and with the exception of the TI index, we use for all independent variables figures available before or during the time frame for which FDI flows are estimated since investors can only make investment decisions based on information that is currently available to them. When more recent yearly figures are used, the decision to use them is motivated by availability constraints. The TI index is retained in our regression model because levels of corruption are likely to change, even if gradually.

Foreign Direct Investment

The key dependent variable is the two-year bilateral FDI flows over 1990-91 (*fi9189*) and the seven-year bilateral flow over 1989-95 (*fi9589*) divided by the GDP of the host country for the last year of the FDI flow (that is, 1991 for *fi9189* and 1995 for *fi9589*). FDI flows were calculated as the difference between the end-of-year outward

stock data in 1989 and 1991, or the difference between 1989 and 1995 outward stock data. Two types of flows are estimated; one flow representing FDI levels originating from each source country and the other designating the sum of flows across all thirteen source countries. The data are from the *OECD's International Foreign Direct Investment Statistics Yearbook 1997* and cover thirteen source countries and forty-three host countries. A source country is defined as a country with a net *outward* flow of FDI and a host country is defined as a net *recipient* of FDI.

Originally, we begin our analysis with fourteen source countries in our sample, but Poland is removed as a source country because it remains a communist state up until the 1980s, thus making it impossible for individuals to freely invest elsewhere. When a source country becomes a net recipient of FDI (i.e. a host country), the number of source countries is reduced to twelve. Conversely, when a recipient country becomes a net source of FDI (i.e. a source country), the number of host countries is reduced to forty-two. (A list of country and variable name codes is available in Appendix B.)

Though many OECD member countries report both inward and outward FDI, outward FDI is selected on the basis that it is more likely consistent in definition for a given source country (Wei, 1997a) because each source country is recording outward FDI into different host countries using the same measurement standards. Furthermore, two-year flows are chosen rather than one-year data in order to reduce the impact of year-to-year idiosyncratic shocks (Wei, 1997a).

Tax Rate

For host countries' tax rates, the 1994 corporate tax rate (*mtrd94*) comes from Price Waterhouse Coopers, with the kind assistance of Ms. Karen Bleakly.

Labor Costs

The labor costs data (*hccb89*) are the host countries' 1989 hourly compensation costs for manufacturing workers (including wages and benefits) from several editions of the World Economic Forum's *World Competitiveness Report* (WCR).

Adult Literacy

The data on 1990 adult literacy ratio are defined as one minus 1990 adult illiteracy ratio for each host country (*alra90*). 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 a footnote specifies that according to UNESCO, "illiteracy is less than 5 percent". For these countries, a 2.5 percent illiteracy rate is assigned.

Level of Skilled Labor

The information on a host country's 1990 total secondary school enrollment (*ssea90*) comes from Table 28 of the World Bank's *World Development Report 1993*. The technical notes to the table indicate that 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, and 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.

Market Size

Host countries’ market size data (*miblog*) are the 1989 energy consumption per capita (kilograms of oil equivalent) from several editions of the World Bank's *World Development Report*. This variable was selected as a proxy for the level of production on the premise that a country’s production can not exist without energy consumption (think, for example, of the textiles industry).

Predictable/Unpredictable Corruption

The “unpredictability” of corruption is measured as the cross-sectional variability of a host country’s ranking (*vpti95*) within the 1995 Transparency International (TI) index (*ciab95*). In our preliminary regression model, we also consider the temporal variability across the 1995 and 1996 years of the TI index (*vpwaa*), as well as across the 1980-1983 Business International (BI) index (*cib80*) and the 1995 TI index and (*vpai3*). These two measures of variability are subsequently dropped from the final regression model because they do not explain FDI flows.

We introduce two measures of unpredictability of corruption. First, we measure the cross-sectional variance of corruption as the variance of ratings given to a host country by different respondents in the 1995 TI survey. This variance is provided by TI itself. Second, a temporal variability in the TI index, for each country but across different years, is measured as the standard deviation between the 1995 and 1996 ratings. The

temporal variability across the TI and BI indices is measured by the standard deviation between the TI 1995 corruption rating and the BI 1980-83 rating. The TI index is once again retained here because it is instrumental in providing a proxy for cross-sectional uncertainty.

The cross-sectional and temporal variance of corruption rankings within and across indices is an appropriate measure of unpredictability because it indicates whether or not there exists differences of perception among the rankers of corruption. The greater the variance, the greater the difference of opinion that a host country's corruption system is transparent and carries a strong enforcement of an agreement between a bribee and a briber.

TI, an agency dedicated to fighting corruption worldwide, scales its index 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. We use the 1995 to 1997 TI index, since there is no earlier Index publication available.

Based on surveys conducted and organized during 1980-83, BI reports a number of survey-based rankings of country risk factors, one of which is corruption. 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 are found in Paolo Mauro (1995).

Since the TI and BI indices are based on different scales, the indices are first made comparable by multiplying the TI index by ten and dividing the product by nine.

These indices are selected on the basis that they represent the market's choice for an indicator of corruption. To reiterate, the greater the difference of opinion is within or

across these indices, the greater is the variability in the perception of corruption. We thus explicitly assume a predictable corruption process to exhibit less cross-sectional or temporal variability.

For example, the United Kingdom (UK) is assigned by TI (1995) and BI a corruption ranking of 9.52 and 9.25 respectively, with an index of 10 being least corrupt. The variance of 0.17 obtained for the 1995 TI corruption score for the UK is quite low compared to the variance for other countries, measured in a similar manner.

For example, TI (1995) and BI each assign a corruption score of 3.00 and 5.75 respectively to Brazil. The variance of 3.11 obtained for the 1995 TI score for this country is high compared to that of the UK. The corresponding temporal variance between the above TI and BI corruption ranking for the UK is 0.19. Using our earlier hypothesis of predictable vs. unpredictable corruption, we categorize corruption in the UK as predictable because, based on their own individual experience with UK public officials, there is general consensus among the groups who surveyed corruption in the UK that the country is at the lower end of the corruption spectrum. Note however, that because the corruption scales are closed, there is more scope for variability in the middle of the sample size than at the extremes.

One concern with measuring the variability across these two indices is that the surveys are not conducted for the same time period and it may therefore be inappropriate to compile a variability measure based on a dissimilar time frame. Another concern is that the ratings on individual countries are derived from different surveys, potentially introducing inconsistency in the cross-country ratings.

These objections, however, do not seem to affect our data. A correlation coefficient of 0.89 reveals that both indices are highly correlated. A high correlation coefficient further suggests the contemporaneous stability of corruption for the sample data. It does, however, also indicate that there remain small differences of opinions when some countries are rated. By testing for the cross-sectional and temporal variability of perception, we investigate whether or not this variation has some econometric value with respect to the localization of foreign investment.

Arbitrary Corruption at the Highest Levels of Government

Our estimates of corruption at the highest levels of government are based on the extent of economic liberties and political stability enjoyed by citizens in a host country. Since the violation of basic human rights and a greater restraint of the population are often a consequence of dictatorships or quasi-dictatorships, the variables proxying for corruption at the highest levels of government are the absence of economic freedom, protection of property rights and political stability.

These estimates are used as a means to assess the authority of the highest levels of government to enhance their own power by rewarding their supporters and repressing their detractors. The data for the 1990 index of economic freedom (*efra90*) is compiled by the Fraser Institute, which uses seventeen components allocated to four major areas; money and inflation, government operations and regulations, takings and discriminatory taxes, and international exchange.

Each component is assigned from a zero to ten rating, with a ten representing full independence and a zero the lowest level of independence. Since the index merely

reflects the aggregation of the component ratings, the higher the summary index rating, the greater the estimated degree of economic freedom.

For the purposes of this study, a summary index of economic freedom - based on a survey instrument designed to assign weights to the seventeen components of the index and distributed to participants of past conferences on Measurement of Economic Freedom - is used. This index is preferable because it reflects the views of a sample of people who have thought seriously about both economic freedom and the importance of various ingredients of that freedom⁶.

The data on 1996 protection of property rights (*ppra96*) comes from the same source. This index attempts to measure the degree to which private property is a guaranteed right and the extent to which government protects and enforces laws to protect private property. The probability that the state will expropriate private property is also examined. Scores range from one (very high protection) to five (nonexistent protection).

For a country's political stability (*psa8083*), Business International estimates for the 1980-1983 period are taken from Mauro (1995). Mauro cites BI's definition of political stability as the "conduct of political activity, both organized and individual, and the degree to which the orderly political process tends to disintegrate or become violent".

Organized/Disorganized Corruption

The World Competitiveness Report's (WCR) number of murders and violent or armed robberies reported per 100,000 inhabitants, for the 1987-89 period, is used to

⁶ For a detailed discussion of alternative methodologies, please refer to Gwartney, James, Robert Lawson, and Walter Block (1996). *Economic Freedom of the World: 1975-1995*, Chapter 1, Vancouver: Fraser Institute.

estimate organized and disorganized corruption in a host country (*nmvclog*). We assume that corruption will become disorganized when there is no equilibrium between competing groups and different factions that attempt to acquire control over sources of corrupt income resolve their differences and establish control through brute force. Given that there is no available information as to the nature of the WCR'S reported murders and violent robberies, it is reasonable to assume that these crimes involve all inhabitants - including the violence between competing criminal groups. Thus, a higher number in crime levels, as measured by the number of murders and violent or armed robberies, is an indication of more disorganized crime because of competing groups who use physical force to widen their access and control of sources of corrupt income.

When criminal factions use brute force to successfully eliminate competitors vying for the same benefits of criminal activity (including the payoffs derived from threatening foreign investors), this removes an element of uncertainty for foreign investors who can now deal with fewer groups to ensure the continuation of their business activities. The lack of contractual enforcement that existed previously is therefore minimized.

Competitive/Non-Competitive Regional Corruption

Finally, a host country's relative country corruption rating (*rccrb1*) is calculated using Business International's corruption rating as a basis. For missing data, we try to keep as many countries as possible in our sample by replacing the BI rating with the 1995 TI corruption rating. Though foreign investors can only use actual figures and future expectations of corruption ratings to influence their investment decisions, the use of any

of the TI indices is appropriate given the high correlation with its BI counterpart and the stability of corruption over time.

Compared to the region, a relative country corruption rating (RCCR) is estimated as:

$$RCCR = \frac{c_i - ACR}{|c_i - ACR|} * (c_i - ACR)^2$$

where $RCCR$ = country's relative corruption rating compared to the region
 c_i = country's corruption rating (using BI or TI index)
 ACR = average corruption rating for the region

In order to assign the positive or negative sign to this term, the first component is thus necessary.

The influence of the measured value of RCCR on FDI can be interpreted as follows. Since either a higher BI or TI rating signify less corruption, a negative RCCR is an indication of a country that charges higher corruption-related payoffs (for similar services and activities) than other members of the same region. In contrast, countries with a positive RCCR impose lower comparable payoff rates and become more attractive investment locations to foreigners.

B. Methodology

The methodology used to test our hypotheses and the other determinants of FDI is based on a Tobit estimation model. Tobit analysis is an econometric technique appropriate for modeling a dependent variable in which a large number of the values are

not observed and assigned a value of zero. This type of regression assumes the data to be censored above or below certain values.

Since a double-log linear specification is applied (taking the logarithm of FDI and some of the independent variables), there is a potential problem if not all countries receive direct investment from all source countries. These zero FDI observations are dropped from the sample and we encounter the classic censored problem of missing information for the dependent variable. Dropping these observations could lead to inconsistency since ordinary least-squares estimation of the censored regression model will generate biased and inconsistent parameter estimates.

There are three instances in which we assign a zero value to the logarithm of FDI flows. The first instance applies to cases for which the difference in end-of-year FDI stock is actually zero. Secondly, a zero FDI value is assigned to host countries that have missing data. Finally, countries for which FDI stock is confidential are also recorded as having zero FDI flows. By law, all firms are required to report FDI levels unless there are so few firms investing that this information becomes confidential because these firms can be easily identified. For these countries, the FDI levels are small enough that they can be treated as zero. Finally, in host countries for which FDI inflows were unavailable and our judgement was that the actual amount of foreign investment is either negligible or non-existent, the FDI flow was assigned a value of zero. Thus, for cases where 1991 or 1995 FDI stock was zero, unavailable or confidential, the resulting FDI levels are assigned a zero value (because the logarithm of zero or a negative number can not be calculated).

Let *FDI* equal the difference between the end-of-year outward FDI stock data in 1989 and 1991 (or in 1989 and 1995) for a given source country. In this specification, when *FDI* exceeds the threshold value of zero, there will be a positive flow of foreign investment; when *FDI* is below or equal to the threshold value, the realized level of foreign investment is zero.

Our analysis involves a total of 28 regressions (two regressions for each source country using 89-91 and 89-95 bilateral flows, totaling 26 regressions, and two regressions using the sum of source country flows for 89-91 and 89-95) and seeks to determine investor behavior on an individual country and group basis.

Some of the variables had to be transformed into logarithms to conform to the requirement of a regression model that the error term be homoskedastic. The variables requiring transformation are FDI flows (at the individual and group source country level), the 1989 market size indicator and the number of murders and violent or armed robberies reported for the 1987-89 period.

The basic regression specification is then

$$\log (FDI_{ij}) = \alpha + \beta_1 miblog_j + \beta_2 mtrd94_j + \beta_3 efra90_j + \beta_4 ppra96_j + \beta_5 corruption_i + \beta_6 vpti95_j + \beta_7 psa8083_j + \beta_8 nmvclog_j + \beta_9 rccrbl_j + \varepsilon_{ij}$$

		Expected coefficient signs	Reference in the literature this study
where	$\log (FDI_{ij}) =$ cumulative flows of FDI in logarithm during 1990-1991 or 1989-1995 from source country i to host country j per unit of GDP.	-	
	$miblog_j =$ logarithm of 1989 market size per capita	positive	Guisinger and associates (198 Wheeler and Mody (1992) Summary and Summary (1995 OECD (1995)
	$mtrd94_j =$ 1994 marginal tax rate	negative	Wheeler and Mody (1992) OECD (1995) Wei (1997a and 1997b)
	$efra90_j =$ 1990 level of economic freedom	positive	Gold (1991) UNCTC (1991)
	$ppra96_j =$ 1996 protection of property rights	positive	Gold (1991) OECD (1995)
	$corruption_i =$ 1980 BI corruption index or 1995 TI corruption index	positive (higher rating signifies less corruption)	Mauro (1995) World Bank – <i>WDR</i> (1997) Wei (1997a and 1997b) Doro (1997) Kaufmann (1997)
	$vpti95_j =$ variance of the 1995 TI corruption index (Hypothesis 1)	negative	Page 46 of this study
	$psa8083_j =$ 1980-1983 level of political stability (Hypothesis 2)	positive	Page 47 of this study
	$nmvclog_j =$ logarithm of the 1987-1989 number of murders and violent robberies per capita (Hypothesis 3)	negative	Page 48 of this study
	$rccrbl_j =$ host country relative corruption rating (Hypothesis 4)	positive (higher rating signifies more competitive relative payoff rates)	Page 49 of this study

VI. Analysis and Discussion

A. Preliminary Selection of Independent Variables

We begin with an analysis of the pooled sample of foreign investors. Due to the large number of independent variables, we elect to first classify as many of these

variables as possible into broad categories of social, economic, or political values and to then proceed with our analysis.

Though our study begins with a total of thirteen source countries, this number is reduced to ten for individual source country regressions because of sample size limitations. The number of final independent variables exceeds or is very close to the number of host countries for Australia, Austria (1990-1991 flow), Italy (1989-1995 flow), Japan (1989-1995 flow), Sweden, and Switzerland. These countries are subsequently removed either completely or partially from the study. Table 1 summarizes the sample limitations encountered.

Table 1.
Source Countries with Sample Size Limitations

Country	1989-1991 Sample Size Range	1989-1995 Sample Size Range	Removed		Retained
			Partially	Completely	
Australia	8 to 9	8 to 12		✓	none
Austria	8 to 11	24 to 37	✓		1989-1995 flow
Italy	24 to 35	10 to 12	✓		1989-1991 flow
Japan	24 to 31	n/a ¹	✓		1989-1991 flow
Sweden	4 to 6	10 to 12		✓	none
Switzerland ²	n/a	n/a		✓	none

¹ Logarithmic transformation could not be calculated because 1995 FDI stock is always zero.

² Logarithmic transformation could not be calculated because 1991 and 1995 FDI stock is always zero.

Given these sample size limitations, one concern was the reliability with which results could be interpreted. Another issue was that the interactive effect between some of the independent variables could also obscure the significance and interpretation of the obtained results.

In order to facilitate our investigation of interactive effects, we have elected to approach our preliminary analysis through a perusal of broad social, economic and political indicators. We also consider the effect of the overall level of corruption on FDI, as measured by TI and BI.

Indicators for Skills and Education

The relationship between hourly compensation costs, adult literacy ratio and secondary school enrollment is fairly straightforward. One's pay is usually commensurate to their level of education and work experience.

A positive correlation coefficient of 0.65, between hourly compensation cost (*hccb89*) and the adult literacy ratio (*alra90*), significant at the 0.01% level, confirms the existence of multicollinearity between one's pay and one's level of education as measured by *alra90*. The multicollinear effect between hourly compensation cost (*hccb89*) and secondary school enrollment (*ssea90*) is even more pronounced (a 0.76 correlation coefficient at a 0.01% level of significance). This being the case, we retain *hccb89* as a broader indicator of skilled labor because it encompasses both adult literacy and secondary school enrolment.

Indicators for Economic Size and Productivity

It is well known that market size is a major determinant of inward FDI. In addition to our market size variable (*miblog*), we want to examine if hourly compensation (*hccb89*) provides additional information about the economic size and growth of a host

country - because it also reflects productivity but through the education level of workers. If so, then the inclusion of both these two estimates of economic size could be justified.

To ascertain this, we first proceed to rank the hourly compensation cost of all 43 countries in the study to determine whether or not the labor costs are indeed comparable to each other. Table 2 shows the ranking of source countries according to hourly labor costs.

If *hccb89* is indeed a measure of economic size and growth, then we would expect it to be positively related to foreign investment. Recipient countries with high labor costs would receive more FDI flows from source countries with similar labor costs⁷. We test this using a univariate regression model. At the 10% level, Table 3 confirms a positive and significant relationship between 1989-1991 FDI flows and *hccb89* for 8 of the 9 source countries. Hourly compensation has no detectable positive effect on FDI outflows from the United Kingdom.

With respect to the effect on 1989-1995 FDI flows, hourly compensation has a positive effect on 6 of the 8 source countries. There is no detectable positive effect for Canada and the Netherlands.

The inconsistent effect of *hccb89*, on 1989-1991 and 1989-1995 FDI flows for the United Kingdom may be due to the changing sample size for these source countries. For two of the three source countries, for which there is no positive or significant association between the two variables, the host country sample size does not exceed 16 countries (Canada and the Netherlands).

⁷ Contrary to popular conception, the largest flows of FDI occur between industrialized countries. High per capita incomes, which imply high labor costs, actually act as attractions for FDI and not as a deterrent (United Nations, *World Investment Report*, 1995).

Table 2.
Source Countries Ranked by *hccb89*

Hccb89 (in \$ US)	Source Country Name Code	Ranking within the Entire Sample of Countries
10.44	UK	29
12.63	JP	30
12.72	FR	31
13.23	IT	32
13.59	AR	33
14.31	US	34
14.72	CA	34
15.54	NA	37
17.58	GE	40
18.73	NW	41

Table 3.
Relationship between FDI flows and hourly compensation costs
Individual Source Country Analysis

Dependent Variable: FDI flow from 1989 to 1991 and from 1989 to 1995

Independent Variable: 1989 hourly compensation cost (*hccb89*)

Source Country	No. of obs.	Regression Coefficient (1989-1991 flow)¹	No. of obs.	Regression Coefficient (1989-1995 flow)¹
Austria	2	2	25	0.1068 (0.0803)*
Canada	16	0.1871 (0.0502)**	16	0.0181 (0.8210)
France	22	0.1510 (0.0159)***	24	0.1220 (0.0147)***
Germany	25	0.1364 (0.0160)***	26	0.1006 (0.0234)**
Italy	24	0.1691 (0.0019)***	2	2
Japan	24	0.1450 (0.0124)***	-	n/a ³
Netherlands	13	0.1782 (0.0336)**	13	0.0474 (0.5789)
Norway	22	0.2377 (0.0002)***	22	0.1816 (0.0023)***
United Kingdom	15	0.0767 (0.1553)	24	0.1266 (0.0010)***
United States	26	0.0909 (0.0086)***	26	0.0883 (0.0171)***

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Due to sample size limitations, some source countries are either partially or completely removed from all analysis. Please refer to Table 1 for further details.

³ Logarithmic transformation of 1989 to 1995 FDI flow from Japan not available because 1995 FDI stock is always zero.

When we consider the effect of market size (*miblog*) on foreign investment, Table 4 shows that the regression coefficients are always positive even if they are not significant. At the 10% level, there is a positive and significant relationship between 1989-1991 FDI flows and *miblog* for 8 of the 9 source countries. Market size has no detectable positive effect on FDI outflows from the United States.

With respect to the effect on 1989-1995 FDI flows, market size has a positive effect on 6 of the 8 source countries. There is no positive effect for Canada.

For one of the two source countries for which there is no positive or significant association between market size and FDI flows, namely, Canada, the host country sample size does not exceed 19 observations.

The conclusion that hourly compensation (*hccb89*) is positively related to foreign investment naturally rests on the assumption that, like market size (*miblog*), hourly compensation (*hccb89*) is an indicator of economic size. A positive correlation value of 0.74, between these two independent variables, and significant at the 0.01% level, confirms the association between the variables.

The presence of a multicollinear effect is further studied by first regressing FDI against *hccb89* and *miblog* independently and then jointly. If both variables contain similar information about economic size, the outcome obtained in the independent regressions should be confounded in the multiple regression analysis. The results in Table 5 corroborate this.

The hourly compensation rate ceases to positively affect the 1989-1991 FDI flows from Canada, France, Japan, the Netherlands and the United States while market size is no longer a determinant of FDI flows from France, Germany, Italy, Norway, the United

Kingdom and the United States. With respect to the 1989-1995 FDI flows, hourly compensation no longer determines foreign investment from Austria, Canada, Germany, the Netherlands, the United Kingdom and the United States and market size has no positive affect on FDI flows from Austria, Canada, France, Germany, Norway, the United Kingdom and the United States.

With respect to *hccb89* and *miblog* both being an indicator of economic size, this seems to be the case. The formerly positive and significant results obtained for either of the variables independently for Austria, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, the United Kingdom and the United States, no longer applies in a multivariate regression against 1989-1991 or 1989-1995 FDI flows. The exclusion is Japan for which the logarithmic transformation of 1989-1995 FDI flow can not be because 1995 FDI stock is always zero.

As both the correlation coefficient and the regression results reveal a multicollinear effect, we believe that the inclusion for host countries of both the 1989 hourly compensation cost (*hccb89*) and the logarithm of the 1989 market size indicator (*miblog*) confounds each variable's effect on FDI flows from source countries. We therefore decide to retain *miblog* as the only direct measure of economic size and as an indirect measure of a host country workforce's level of education.

Table 4.
Relationship between FDI flows and market size
Individual Source Country Analysis

Dependent Variable: FDI flow from 1989 to 1991 and from 1989 to 1995

Independent Variable: logarithm of 1989 market size (*miblog*)

Source Country	No. of obs.	Regression Coefficient (1989-1991 flow) ¹	No. of obs.	Regression Coefficient (1989-1995 flow) ¹
Austria	- ²	- ²	37	1.0984 (0.0007)***
Canada	18	1.8008 (0.0006)***	19	0.4097 (0.4340)
France	32	0.9735 (0.0029)***	39	1.1477 (0.0010)***
Germany	34	0.8910 (0.0021)***	39	0.7626 (0.0038)***
Italy	35	0.9243 (0.0039)***	- ²	- ²
Japan	31	0.4967 (0.0797)*	-	n/a ³
Netherlands	13	2.3737 (0.0031)***	13	1.4493 (0.0412)**
Norway	28	1.3306 (0.0004)***	30	1.1783 (0.0004)***
United Kingdom	23	0.6094 (0.0781)*	38	0.7225 (0.0088)***
United States	38	0.3996 (0.1519)	40	0.4071 (0.0681)*

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Due to sample size limitations, some source countries are either partially or completely removed from all analysis. Please refer to Table 1 for further details.

³ Logarithmic transformation of 1989 to 1995 FDI flow from Japan not available because 1995 FDI stock is always zero.

Table 5.
Relationship between FDI flows, hourly compensation costs and market size
Individual Source Country Analysis

Dependent Variable: FDI flow from 1989 to 1991 and from 1989 to 1995
Independent Variables: 1989 hourly compensation cost (*hc*) and the logarithm of 1989 market size (*ms*)

	1989-1991 FDI Flow				1989-1995 FDI Flow		
Source Country	No of obs.	hc ¹	ms ¹	No of obs.	hc ¹	ms ¹	
Austria	- ²	- ²	- ²	25	0.0687 (0.4583)	0.3766 (0.5850)	
Canada	16	0.0167 (0.8823)	1.7287 (0.0257)**	16	-0.0115 (0.9209)	0.2986 (0.7245)	
France	22	0.0669 (0.4405)	0.8967 (0.1775)	24	0.1250 (0.0887)*	-0.0311 (0.9551)	
Germany	25	0.1371 (0.0930)*	-0.0072 (0.9904)	26	0.1038 (0.1162)	-0.0311 (0.9482)	
Italy	24	0.1969 (0.0122)***	-0.2799 (0.6251)	- ²	- ²	- ²	
Japan	24	0.0432 (0.5903)	0.9942 (0.0834)*	-	n/a ³	n/a ³	
Netherlands	13	-0.0047 (0.9706)	2.4142 (0.0765)*	13	-0.1035 (0.2901)	2.1096 (0.0222)*	
Norway	22	0.2060 (0.0273)**	0.3755 (0.6409)	22	0.1431 (0.0932)*	0.4691 (0.5304)	
United Kingdom	15	0.0416 (0.5555)	0.5703 (0.4508)	24	0.0656 (0.2246)	0.6230 (0.1236)	
United States	26	0.0707 (0.1598)	0.2094 (0.5823)	26	0.0451 (0.3935)	0.4473 (0.2637)	

hc: 1989 hourly compensation costs

ms: logarithm of 1989 market size.

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Due to sample size limitations, some source countries are either partially or completely removed from all analysis. Please refer to Table 1 for further details.

³ Logarithmic transformation of 1989 to 1995 FDI flow from Japan not available because 1995 FDI stock is always zero.

Indicator for Property Rights

With the inclusion of political variables, we wish to confirm whether or not the state of a government's political activity influences the behavior of foreign investors. For this purpose, the index of protection of property rights (*ppra96*) is retained as the single political variable since it directly measures the extent to which government protects and enforces laws to protect private property.

Overall Level of Corruption

As our main concern is with the influence of corruption on FDI flows, we first and foremost seek to study any visible effect by regressing FDI flows on the BI overall corruption index (*cib80*) or the TI overall corruption index (*cia95b*), to the exclusion of all other independent variables. The purpose is to establish the existence of a clear relationship whose impact might otherwise be obscured by sample size limitations or multicollinearity.

The pooled Tobit regressions⁸ summarized in Table 6, show that, for both indices of corruption, there exists a significant deterring effect on FDI at the 1% level. For individual country regressions, Table 7 and 8 confirm a similar phenomenon for the majority of source countries for either 1991 or 1995 FDI flows. For France, Germany, Norway, the United Kingdom and the United States, a higher corruption rating (meaning less perceived corruption) exhibits a consistent positive effect on the two periods of FDI

⁸ Pooled regressions do not include a source country effect that captures the differing behavior of foreign investors from different source countries. We have left this aspect of analysis for future research.

flows. With the exception of the United Kingdom, the number of observations used for the remaining four countries account for more than 50 % of the total sample size.

Tables 7 and 8 also indicate that the regression coefficients are always positive even when they are not significant.

For Canada and Italy, both corruption indices have explanatory value at the 5% level, but only with respect to 1991 FDI flows⁹. A similar observation is made for Austria, but with regards to 1995 FDI flows¹⁰. For FDI outflows from Japan, only the TI corruption index is a determinant of 1991 foreign investment; 1995 FDI flows are not available because the 1995 FDI stock is always zero. With respect to the Netherlands, only the BI index of corruption is significant across the two years of FDI flows at the 5% and 1% level, respectively. With the exception of Canada and the Netherlands, the number of observations used for the remaining three countries account for more than 50 % of the total sample size.

⁹ We do not run a regression for Italy on 1995 FDI flows because of sample size limitations. Please refer to Table 1.

¹⁰ We do not run a regression for Austria on 1991 FDI flows because of sample size limitations. Please refer to Table 1.

Table 6.
Relationship between 1991 or 1995 FDI flow and corruption
Pooled Country Analysis

Dependent Variable: 1991 FDI flow or 1995 FDI flow
Independent Variable: 1980 Business International corruption index (*cib80*) or
1995 Transparency International corruption index (*cia95b*)

FDI	No. of obs.	<i>cib80</i> ¹	No. of obs.	<i>cia95b</i> ¹
1991 flow	256	0.3357 (0.0001)***	262	0.2536 (0.0006)***
1995 flow	268	0.2967 (0.0001)***	265	0.1977 (0.0003)***

cib80: 1980-1983 Business International corruption index

cia95b: 1995 Transparency International corruption index

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

Table 7.
Relationship between 1991 FDI flow and corruption
Individual Source Country Analysis

Dependent Variable: FDI flow from 1989 to 1991
Independent Variable: 1980 Business International corruption index (*cib80*) or
1995 Transparency International corruption index (*cia95b*)

Source Country	No. of obs.	<i>cib80</i> ¹	No. of obs.	<i>cia95b</i> ¹
Austria	²	²	²	²
Canada	18	0.8224 (0.0011)***	18	0.4735 (0.0143)***
France	28	0.3745 (0.0038)***	29	0.3089 (0.0099)***
Germany	30	0.3330 (0.0092)***	32	0.1950 (0.0944)*
Italy	31	0.3464 (0.0098)***	31	0.2449 (0.0501)**
Japan	29	0.1687 (0.1877)	31	0.1991 (0.0660)*
Netherlands	13	0.5655 (0.0450)**	13	0.2492 (0.1779)
Norway	27	0.4771 (0.0007)***	27	0.4571 (0.0005)***
United Kingdom	20	0.2111 (0.0529)**	21	0.2214 (0.0411)**
United States	35	0.2151 (0.0187)***	34	0.1719 (0.0067)***

cib80: 1980-1983 Business International corruption index

cia95b: 1995 Transparency International corruption index

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Due to sample size limitations, some source countries are either partially or completely removed from all analysis. Please refer to Table 1 for further details.

Table 8.
Relationship between 1995 FDI flow and corruption
Individual Source Country Analysis

Dependent Variable: FDI flow from 1989 to 1995
Independent Variable: 1980 Business International corruption index (*cib80*) or
1995 Transparency International corruption index (*cia95b*)

Source Country	No. of obs.	<i>cib80</i> ¹	No. of obs.	<i>cia95b</i> ¹
Austria	33	0.3736 (0.0079)***	33	0.2389 (0.0679)*
Canada	19	0.2799 (0.1565)	18	0.1478 (0.3596)
France	35	0.5584 (0.0001)***	33	0.2755 (0.0116)***
Germany	35	0.3532 (0.0010)***	35	0.2269 (0.0073)***
Italy	- ²	- ²	- ²	- ²
Japan	-	n/a ³	-	n/a ³
Netherlands	13	0.6063 (0.0085)***	13	0.1377 (0.2993)
Norway	28	0.4540 (0.0037)***	29	0.4374 (0.0001)***
United Kingdom	34	0.4160 (0.0001)***	33	0.3252 (0.0001)***
United States	36	0.1995 (0.0106)***	35	0.1937 (0.0011)***

cib80: 1980-1983 Business International corruption index

cia95b: 1995 Transparency International corruption index

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Due to sample size limitations, some source countries are either partially or completely removed from all analysis. Please refer to Table 1 for further details.

³ Logarithmic transformation of 1989 to 1995 FDI flow from Japan not available because 1995 FDI stock is always zero.

To summarize, the purpose of development of this study through the grouping of independent variables, is thus twofold. First, classifying variables as social, economic, and political indicators can alleviate our concern with sample size limitations for individual country analysis by removing redundant variables. Second, the grouping of variables minimizes the interference that multicollinearity has on the true relationship between FDI flows and its predictor variables.

Hence, for single and pooled country regressions, FDI flows are regressed on the logarithm of 1989 market size (*miblog*), the 1994 marginal tax rate (*mtrd94*), the level of

economic freedom (*efra90*), protection of property rights (*ppra96*), the BI corruption index (*cib80*) or the TI corruption index (*cia95b*), the variance of the 1995 TI corruption index (*vpti95*), as well as a host country's relative corruption rating (*rccrb1*). Political stability (*psa8083*) and the logarithm of the numbers of murders and violent robberies (*nmvclog*) are also retained to measure the effect of corruption at the highest level of government and the extent to which corruption is organized.

B. Analysis of the Impact of Corruption

Pooled Regressions

For the pooled sample of source countries, Table 9 indicates that the different nuances of corruption have no explanatory value in determining FDI flows. Only the overall level of corruption (using the Business International Index), as well as economic freedom, predict investor behavior for the 1991 FDI flows. Economic freedom alone affects foreign investment decisions for the 1995 FDI flow.

Table 10 shows that when the Transparency International Index of corruption is used, economic freedom remains the only predictor variable of foreign investment for both the 1991 and 1995 FDI flows.

With respect to the more complex forms of corruption, the findings in Table 9 and Table 10 are presented here. An unpredictable corruption process, through more pronounced differences of perception of a host country among its ranking sources (*vpti95*), has no significant negative bearing on either year of FDI flows (Hypothesis 1). With respect to corrupt politicians taking on a longer-term approach to bribery, by not arbitrarily expropriating the property and income of foreign investors to maximize

revenues from rent-seeking, political stability (*psa8083*) actually has a significant deterrent effect (at the 5% level) on the 1991 FDI flows and no effect on 1995 FDI flows (Hypothesis 2). This suggests that foreign investors do not favor a long-term approach to investing abroad.

The lack of contractual enforcement in a disorganized corrupt system, where various groups compete for the same revenues from corruption by using physical force to eliminate adversaries (*nmvclog*), neither encourages nor discourages foreigners from investing in such host countries (Hypothesis 3). Furthermore, a host country's more competitive payoff rates, relative to other neighboring host countries (*rccrb1*), is not amenable to foreign investors (Hypothesis 4).

Table 9.
Multivariate Regressions
Pooled Country Analysis using the Business International Index of Corruption

Dependent Variable: 1991 FDI flow and 1995 FDI flow

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclog*), 1980 corruption rating (*cib80*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rccrb1*)

	1991 FDI flow ¹ (190 obs.)	1995 FDI flow ¹ (182 obs.)
<i>miblog</i>	0.8483 (0.2215)	0.0469 (0.9351)
<i>mtrd94</i>	-4.8859 (0.4993)	4.5113 (0.4395)
<i>efra90</i>	0.5997 (0.0090)***	0.3723 (0.0607)**
<i>ppra96</i>	0.5888 (0.2834)	0.0836 (0.8546)
<i>psa8083</i>	-1.4237 (0.0430)**	-0.4493 (0.4370)
<i>nmvclog</i>	-0.1307 (0.7442)	0.2922 (0.3749)
<i>cib80</i>	0.6185 (0.0926)*	0.3395 (0.2615)
<i>vpti95</i>	0.0389 (0.7687)	-0.0327 (0.7712)
<i>rccrb1</i>	-0.3393 (0.2786)	-0.2560 (0.3437)

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

Table 10.
Multivariate Regressions
Pooled Country Analysis using the Transparency International Index of Corruption

Dependent Variable: 1991 FDI flow and 1995 FDI flow

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclog*), 1995 corruption rating (*cia95b*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rccrb1*)

	1991 FDI flow ¹ (190 obs.)	1995 FDI flow ¹ (182 obs.)
<i>miblog</i>	0.9913 (0.1717)	-0.1458 (0.8081)
<i>mtrd94</i>	0.6250 (0.9176)	6.6968 (0.1590)
<i>efra90</i>	0.5372 (0.0210)**	0.3261 (0.0996)*
<i>ppra96</i>	0.4779 (0.4177)	0.2551 (0.5968)
<i>psa8083</i>	-0.7944 (0.1308)	-0.2427 (0.5751)
<i>nmvclog</i>	0.2006 (0.5211)	0.3895 (0.1260)
<i>cia95b</i>	0.3360 (0.2799)	0.3823 (0.1263)
<i>vpti95</i>	0.2689 (0.2422)	0.2197 (0.2549)
<i>rccrb1</i>	-0.4033 (0.1952)	-0.2440 (0.3624)

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

Single Country Regressions

For 1991 FDI flows, complete regression results are obtained for nine of the thirteen source countries. Although the results shown in Table 11 and 12 reveal that we are unable to consistently determine investor behavior at the individual country level, they also indicate that on a country-by-country basis, we obtain better results for our social, economic, political and corruption variables than we do at the pooled level. The differing results at the pooled and single source country level might be due to the inverse effect of an independent variable for two separate source countries, which cancels itself out in the aggregate.

With respect to 1995 FDI flows, complete results are obtained for eight of the thirteen source countries. Similar to 1991 foreign investment, and although Tables 13 and 14 suggest that we cannot systematically predict investor behavior on an individual country basis, we do obtain better overall results than we do for the pooled 1995 regressions.

We begin by first looking at the simple relationship between our social, economic and political variables with FDI, as well as the effect of overall corruption on foreign investment decisions. Subsequently, we investigate the contributory value of the more complex forms of corruption in determining FDI flows. Results are summarized in our concluding remarks (Table 16).

Social and Economic Variables

When the BI index is used as an overall measure of corruption (Table 11 and Table 13), a host country's market size (*miblog*) will have a positive effect on both the

1991 and 1995 FDI flow from Canada, the Netherlands, Norway and the United States at the 5% and 1% level respectively. Taxation rates (*mtrd94*) will pronouncedly dissuade 1991 FDI flows from Canada, the Netherlands and Norway. For 1995 flows, it has a negative effect only on Canada and the Netherlands. Contrary to expectations, it has a positive effect on both years of FDI flows from Germany (significant at the 1% level).

By far, the most prominent overall predictor variable is economic freedom (*efra90*). It positively affects, at the 5% level, the 1991 foreign investment flows from Canada, France, Germany, Italy, Japan, the Netherlands, and the United States. For 1995, it has a positive effect on FDI flows from Austria, Canada, Germany, the Netherlands, the United Kingdom and the United States.

Table 12 shows that when the TI index is used as an overall measure of corruption, a host country's market size (*miblog*) now becomes a determinant of Italian FDI flows for 1991 in addition to Canada, the Netherlands, Norway and the United States. For 1995, Table 14 suggests that market size remains a predictor of FDI flows from Canada, the Netherlands, Norway and the United States.

A higher marginal tax rate (*mtrd94*) continues to dissuade 1991 FDI flows from Canada, the Netherlands and Norway. It does, however, have a contrary effect on Germany and the United Kingdom. At the 1% level, a higher marginal tax rate is a determinant of foreign investment from these countries. For 1995 flows, it has a negative effect only on Canada and the Netherlands. Contrary to expectations, it is significant in predicting foreign investment decisions from Austria, France and Germany.

Economic freedom (*efra90*) remains the most prominent overall predictor variable of FDI flows even with TI as a measure of overall corruption. It positively affects, at the

1% level, the 1991 foreign investment flows from Canada, Germany, Italy, Japan, the Netherlands and the United States but no longer determines FDI flows from France. For 1995, it remains a predictor of FDI flows from Austria, Canada, Germany, the Netherlands, the United Kingdom and the United States.

Political Variables

The only political variable retained is the 1996 rating of protection of property rights (*ppra96*). Using BI as a measure of overall corruption, *ppra96* has a positive effect, at the 5% level, on 1991 foreign investment from France, Germany, the Netherlands and the United States. It is only useful in determining 1995 FDI flows from the United States and is shown to have a deterring effect on Canada and the Netherlands.

When the BI index is replaced by its TI counterpart, a higher *ppra96* rating will increase 1991 investment flows for Japan, the Netherlands and the United States. It is no longer relevant to France and Germany. With respect to its effect on 1995 FDI flows, the United States remains the only source country for which *ppra96* is significant and a decrease in the ranking of *ppra96* will still deter FDI from Canada and the Netherlands.

Overall Level of Corruption

In predicting the 1991 FDI flows, and as expected, a higher ranking of the Business International index of corruption (*cib80*) is positively significant (a higher value of *cib80* means less corruption), at the 5% level, for France and the United States. At the 10% level, it determines German FDI. For one source country, the Netherlands, a more favorable corruption ranking has a deterring effect on foreign investment. With respect to the 1995 data on FDI, France, Germany and the United States are now joined by the

Netherlands and Norway as source countries that are positively affected by a higher ranking of the BI index.

When the Business International index is replaced by the Transparency International index of corruption (*cia95b*), a higher value of the index (meaning a host country that is less corrupt) is a determinant of 1991 FDI from Canada, Japan, Norway, the United Kingdom and the United States. Contrary to expectations, it has a deterring effect on FDI flows from the Netherlands. When regressed on 1995 FDI flows, *cia95b* continues to positively determine foreign investment only for Norway, the United Kingdom and the United States and still remains a deterrent for the Netherlands.

Based on the above findings, we observe the following. As shown by the sporadic results obtained for all independent variables and across the two years of FDI flows, the overall level of corruption and its nuances are not easily captured and measured by individual composites.

Predictable/Unpredictable Corruption

We predict that the variance of perception within the TI index of corruption should have a negative bearing on FDI flows. The greater the variance, the greater the difference of opinion that a host country's corruption system is transparent and carries a strong enforcement of an agreement between contractual parties.

The variance of perception (*vpti95*) is a poor deterrent of both 1991 and 1995 FDI flows (Hypothesis 1). For the 1991 FDI data, and regardless of whether the BI or the TI corruption index is used, it only has a negative bearing on the Netherlands.

When the Business International index of corruption is employed (*cib80*), Norway is the only country for which *vpti95* has a negative effect when 1995 FDI flows is the dependent variable. Contrary to our predictions, a greater variance will encourage 1991 FDI from Italy and 1995 FDI from the Netherlands.

When the BI index is replaced by the TI corruption index (*cia95b*), the Netherlands remains the only negatively affected source country but only with respect to 1991 foreign investment. Furthermore, a greater variance has an unexpected encouraging effect on France, the United Kingdom and the United States. For 1995 foreign investment, the latter two countries are positively affected.

Arbitrary Corruption at the Highest Levels of Government

We expect foreigners to prefer to do business with corrupt politicians in a stable political regime because bribery takes on a longer-term approach, by not arbitrarily expropriating the property and income of foreign investors in order to maximize short-term revenues from rent-seeking (Hypothesis 2). However, Tables 11 to 14 show that, in all instances where political stability (*psa8083*) significantly affects FDI, it actually has a deterrent effect on source countries.

When the BI index is used in the 1991 multivariate regressions, political stability in a host country will deter investors from Canada, France, Japan, the Netherlands, Norway and the United States (at the 5% level). For the 1995 FDI data, *psa8083* has a negative bearing on Canada, the Netherlands, Norway and the United States.

The corresponding results when the TI corruption index is used are also lugubrious. Using 1991 FDI data, and with the exception of France, for which political

stability is no longer a significant deterrent, *psa8083* will deter foreign investors from Canada, Japan, the Netherlands, Norway and the United States. On 1995 FDI flows, political stability is shown to have a negative bearing on the same source countries, with the exception of Japan for which 1995 FDI is always zero.

Organized/Disorganized Corruption

The lack of contractual enforcement in a disorganized corrupt system, where various groups compete for the same revenues from corruption by using physical force to eliminate adversaries, appears to have some adverse effect on foreign investors (Hypothesis 3). The results are, at best, lukewarm.

Whether the BI or the TI index is used as a measure of overall corruption, disorganized corruption, as represented by the number of murders and violent robberies (*nmvclog*), will discourage 1991 foreign investment from Canada, the Netherlands and the United States. It does, however, positively influence German foreign investors with BI as the overall index of corruption. When the TI index is used, disorganized corruption has a positive influence on German and Italian foreign investors.

When the BI index is incorporated into the model, 1995 FDI flows from Canada and the United States remain significantly deterred by disorganized corruption while Germany, the Netherlands and Norway are positively affected.

The positive effect of disorganized corruption is even more widespread when the TI index of corruption is used instead of the BI index. Whereas Canadian foreign investors are the only ones for whom disorganized corruption is a deterrent, a host

country with a high number of violent crimes will attract FDI flows from Austria, France, Germany, the Netherlands and Norway.

Competitive Relative Corruption

Host countries that charge competitive rents, relative to their neighbors and for similar privileges and services to investors, will be more appealing to foreign investors who will favor countries with the lowest payoff rates (Hypothesis 4). Our results show that a higher competitive corruption rate (*rccrb1*) is a poor predictor of FDI.

Whether the BI or the TI index is used as a measure of overall corruption, the Netherlands is the only source country for which *rccrb1* has a positive effect on 1991 foreign investment decisions. Using 1995 FDI flows, the Netherlands remains the only country on which a competitive relative corruption rating has a positive predictive effect. However, this applies only when the TI index of corruption is used.

Contrary to expectations, and indeterminate of which index of overall corruption is used, *rccrb1* has a significant negative bearing on the 1991 foreign investment decisions for Germany, Italy, Japan and Norway. For 1995 FDI flows, the same result applies to Austria, Germany and the United States.

Table 11.
Multivariate Regressions
Individual Source Country Analysis using the Business International Index of Corruption

Dependent Variable: FDI flow from 1989 to 1991

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclog*), 1980 corruption rating (*cib80*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rcrb1*)

	Host Country ¹									
	Canada (14 obs.)	France (21 obs.)	Germany (22 obs.)	Italy (20 obs.)	Japan (20 obs.)	Nether. (12 obs.)	Norway (20 obs.)	UK (17 obs.)	US (23 obs.)	
<i>miblog</i>	4.0868 (0.0271)**	-0.1036 (0.8923)	0.3024 (0.4251)	0.6679 (0.4563)	0.8864 (0.1292)	11.7104 (0.0001)***	2.3901 (0.0007)***	0.0944 (0.8496)	0.9499 (0.0053)***	
<i>mtrd94</i>	-33.3515 (0.0307)**	-11.7418 (0.1430)	16.5184 (0.0001)***	6.0105 (0.4753)	-4.8707 (0.4473)	-31.2308 (0.0004)***	-19.5040 (0.0114)***	9.8036 (0.0929)*	-1.4691 (0.6829)	
<i>efra90</i>	1.2486 (0.0187)**	0.5652 (0.0323)**	0.4492 (0.0009)***	0.7794 (0.0014)***	1.4372 (0.0001)***	1.3370 (0.0001)***	0.2456 (0.2775)	0.1742 (0.4699)	0.9450 (0.0001)***	
<i>ppra96</i>	0.9875 (0.5688)	1.6875 (0.0069)***	0.5464 (0.0685)*	0.7446 (0.1841)	0.7557 (0.1078)	6.4953 (0.0001)***	-0.5277 (0.3097)	0.2128 (0.5722)	1.3200 (0.0001)***	
<i>psa8083</i>	-4.5795 (0.0089)***	-2.1215 (0.0070)***	-0.1997 (0.6151)	-0.2967 (0.7415)	-1.0846 (0.0697)*	-5.4871 (0.0001)***	-1.3420 (0.0548)**	-0.6671 (0.1753)	-1.5234 (0.0001)***	
<i>nmvclog</i>	-1.5772 (0.0402)**	-0.2659 (0.5680)	0.4649 (0.0429)**	0.1002 (0.8421)	0.1060 (0.7824)	-2.1501 (0.0001)***	0.6034 (0.1362)	0.1105 (0.7133)	-0.5216 (0.0111)**	
<i>cib80</i>	0.4328 (0.4173)	1.3834 (0.0010)***	0.3473 (0.0981)*	0.4397 (0.4054)	0.3123 (0.3158)	-0.5821 (0.0283)**	0.2620 (0.4514)	0.2777 (0.2727)	0.6053 (0.0013)***	
<i>vpti95</i>	-0.0972 (0.6988)	0.1507 (0.3604)	0.0929 (0.2599)	0.4911 (0.0513)**	-0.0618 (0.6363)	-0.8576 (0.0001)***	-0.1847 (0.1732)	0.0887 (0.3901)	-0.0220 (0.7630)	
<i>rcrb1</i>	-0.2892 (0.4361)	-0.4498 (0.2285)	-0.4484 (0.0181)**	-0.8516 (0.0227)**	-0.7982 (0.0039)*	14.2279 (0.0001)***	-0.9313 (0.0035)***	0.3278 (0.2008)	-0.2436 (0.1507)	
Total²	4	3	3	1	1	7	2	1	5	

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Refers to the total number of predictor variables.

Table 12.
Multivariate Regressions
Individual Source Country Analysis using the Transparency International Index of Corruption

Dependent Variable: FDI flow from 1989 to 1991

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclog*), 1995 corruption rating (*cra95b*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rcrbl*)

	Host Country ¹								
	Canada (14 obs.)	France (21 obs.)	Germany (22 obs.)	Italy (20 obs.)	Japan (20 obs.)	Nether. (12 obs.)	Norway (20 obs.)	UK (17 obs.)	US (23 obs.)
miblog	3.6860 (0.0304)**	0.3664 (0.7004)	0.5758 (0.1731)	1.9736 (0.0232)**	0.5294 (0.3446)	9.7707 (0.0001)***	1.6671 (0.0179)**	-0.2442 (0.6463)	0.8022 (0.0192)**
mtrd94	-36.0521 (0.0083)***	1.5068 (0.8452)	20.6019 (0.0001)***	10.5624 (0.1165)	-6.2966 (0.2307)	-26.7663 (0.0013)***	-17.3027 (0.0037)***	12.0801 (0.0106)***	2.7265 (0.3353)
efra90	1.1388 (0.0162)**	0.4175 (0.1812)	0.4336 (0.0028)***	0.8630 (0.0003)***	1.2927 (0.0001)***	1.1620 (0.0001)***	0.1635 (0.4267)	0.1434 (0.5232)	0.8603 (0.0001)***
ppra96	1.3986 (0.3553)	1.3391 (0.1094)	0.3059 (0.3735)	-0.0549 (0.9264)	1.2690 (0.0116)***	4.7199 (0.0001)***	0.0660 (0.8996)	0.4865 (0.2332)	1.4806 (0.0001)***
psa8083	-4.7345 (0.0017)***	-0.6543 (0.3475)	0.2685 (0.3830)	0.6528 (0.2155)	-1.1145 (0.0084)***	-4.31593 (0.0002)***	-1.3321 (0.0041)***	-0.5486 (0.1155)	-1.0485 (0.0001)**
nmvclog	-1.7331 (0.0066)***	0.5056 (0.2514)	0.7259 (0.0001)***	0.6134 (0.0542)**	0.1018 (0.7177)	-1.4663 (0.0119)***	0.4950 (0.1016)	0.2034 (0.3963)	-0.2844 (0.0605)*
cira95b	0.7408 (0.0629)*	0.6380 (0.1418)	0.0345 (0.8527)	-0.4979 (0.1573)	0.6155 (0.0280)**	-0.6873 (0.0063)***	0.6371 (0.0211)**	0.4134 (0.0720)*	0.5413 (0.0003)***
vpti95	0.3476 (0.2780)	0.6059 (0.0823)*	0.1283 (0.3855)	0.2831 (0.3533)	0.2874 (0.1379)	-1.1298 (0.0001)***	0.2155 (0.2992)	0.3461 (0.0359)**	0.3450 (0.0032)***
rcrbl	-0.2595 (0.4372)	-0.5853 (0.1785)	-0.5177 (0.0096)***	-1.1547 (0.0009)***	-0.7646 (0.0024)***	12.6758 (0.0001)***	-0.8168 (0.0046)***	0.3438 (0.1571)	-0.2528 (0.1180)
Total ²	5	0	1	2	3	7	3	1	5

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Refers to the total number of predictor variables.

Table 13.
Multivariate Regressions
Individual Source Country Analysis using the Business International Index of Corruption

Dependent Variable: FDI flow from 1989 to 1995

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclog*), 1980 corruption rating (*cib80*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rccrb1*)

	Host Country ¹							
	Austria (22 obs.)	Canada (14 obs.)	France (21 obs.)	Germany (22 obs.)	Nether. (12 obs.)	Norway (19 obs.)	UK (21 obs.)	US (23 obs.)
<i>miblog</i>	0.1566 (0.8628)	2.8192 (0.0002)***	0.2693 (0.6685)	-0.1840 (0.6609)	1.0325 (0.0001)***	3.0693 (0.0001)***	-0.5753 (0.2036)	0.7745 (0.0171)**
<i>mtrd94</i>	12.7954 (0.2361)	-26.2636 (0.0012)***	5.8941 (0.3640)	15.3373 (0.0009)***	-4.5427 (0.0516)**	-5.0729 (0.4161)	4.4380 (0.3562)	-3.9229 (0.2529)
<i>efra90</i>	0.6951 (0.0284)**	1.3836 (0.0001)***	0.3048 (0.1684)	0.5403 (0.0003)***	0.6459 (0.0001)***	0.0043 (0.9857)	0.4063 (0.0184)**	1.0830 (0.0001)***
<i>ppra96</i>	0.5070 (0.5479)	-3.0678 (0.0002)***	0.7410 (0.1570)	0.1797 (0.5883)	-0.7294 (0.0041)***	-0.4118 (0.5335)	-0.2507 (0.4891)	1.1541 (0.0001)***
<i>psa8083</i>	-0.1502 (0.8995)	-4.7930 (0.0001)***	-0.9233 (0.1522)	0.0038 (0.9930)	-0.3878 (0.0169)**	-1.4812 (0.0132)***	-0.1431 (0.7666)	-1.4453 (0.0001)***
<i>nmvclog</i>	0.6040 (0.3511)	-1.1428 (0.0016)***	0.1654 (0.6555)	0.4200 (0.0984)*	0.6995 (0.0001)***	0.9038 (0.0100)***	0.0743 (0.7867)	-0.4494 (0.0218)**
<i>cib80</i>	0.3985 (0.5229)	-0.1641 (0.6097)	0.7150 (0.0410)**	0.4068 (0.0801)*	0.5918 (0.0423)**	-0.1677 (0.5901)	0.5630 (0.0284)**	0.6747 (0.0002)***
<i>vpti95</i>	-0.0436 (0.8192)	0.1268 (0.2502)	0.1501 (0.2764)	0.0041 (0.9643)	0.0965 (0.0192)**	-0.3323 (0.0132)***	-0.0790 (0.4326)	-0.0826 (0.2365)
<i>rccrb1</i>	-0.9281 (0.0478)**	-0.2442 (0.3442)	-0.2231 (0.4682)	-0.5324 (0.0112)***	-1.8833 (0.5306)	-0.3397 (0.1955)	-0.2156 (0.3650)	-0.4410 (0.0064)***
Total²	1	4	1	2	4	2	2	5

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Refers to the total number of predictor variables.

Table 14.
Multivariate Regressions
Individual Source Country Analysis using the Transparency International Index of Corruption

Dependent Variable: FDI flow from 1989 to 1995

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclg*), 1995 corruption rating (*cia95b*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rccrb1*)

	Host Country ¹							
	Austria (22 obs.)	Canada (14 obs.)	France (21 obs.)	Germany (22 obs.)	Nether. (12 obs.)	Norway (19 obs.)	UK (21 obs.)	US (23 obs.)
<i>miblog</i>	-0.0689 (0.9408)	2.2476 (0.0051)***	0.4334 (0.5698)	-0.1980 (0.6592)	0.9437 (0.0001)***	1.8345 (0.0206)**	-0.8766 (0.0402)**	0.5743 (0.0636)*
<i>mtrd94</i>	14.9685 (0.0552)*	-26.7402 (0.0008)***	12.5577 (0.0267)**	18.4347 (0.0001)***	-5.2366 (0.0311)**	-7.8924 (0.1012)	7.6594 (0.0298)**	0.6012 (0.8141)
<i>efra90</i>	0.6303 (0.0401)**	1.3704 (0.0001)***	0.2074 (0.3922)	0.4870 (0.0016)***	0.6855 (0.0001)***	-0.0938 (0.6815)	0.2971 (0.0527)*	0.9858 (0.0001)***
<i>ppra96</i>	0.7411 (0.3810)	-2.5179 (0.0006)***	0.5390 (0.3850)	0.2048 (0.5748)	-0.4478 (0.0214)**	-0.0129 (0.9835)	0.0340 (0.9222)	1.3667 (0.0001)***
<i>psa8083</i>	0.0846 (0.9098)	-4.8728 (0.0001)***	-0.1444 (0.7758)	0.3713 (0.2560)	-0.6832 (0.0001)***	-1.6774 (0.0002)***	0.2153 (0.4939)	-0.9354 (0.0001)***
<i>nmvclg</i>	0.7128 (0.0989)*	-1.2515 (0.0003)***	0.5805 (0.0576)*	0.6083 (0.0022)***	0.6990 (0.0001)***	0.6049 (0.0211)**	0.2419 (0.1971)	-0.1974 (0.1493)
<i>ciab95</i>	0.4593 (0.3123)	0.1751 (0.5248)	0.3538 (0.3125)	0.2961 (0.1336)	-0.3261 (0.0350)**	0.4775 (0.0678)*	0.6158 (0.0009)***	0.6309 (0.0001)***
<i>vpti95</i>	0.2631 (0.4515)	0.2280 (0.2569)	0.3939 (0.1461)	0.2100 (0.1811)	-0.1513 (0.1435)	0.0038 (0.9865)	0.3392 (0.0195)**	0.3438 (0.0011)***
<i>rccrb1</i>	-0.9097 (0.0421)**	-0.2046 (0.4300)	-0.2913 (0.3730)	-0.5514 (0.0094)***	7.8459 (0.0001)***	-0.2275 (0.3511)	-0.1742 (0.4170)	-0.4452 (0.0023)**
Total²	1	4	1	1	4	2	2	4

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

¹ P-values are in parentheses.

² Refers to the total number of predictor variables.

Several observations can be drawn from the above tables. First, there are a greater number of predictive variables that affect foreign investment when the dependent variable is the 1991 FDI flows (Tables 11 and 12). Secondly, with the exception of economic freedom, the predicted outcomes for all other variables, including the different dimensions of corruption, will apply to a greater number of source countries when the 1995 Transparency International corruption index specifically is regressed on 1991 FDI flows.

Some of the above results may be sensitive to the multicollinear effect between corruption, political stability, number of murders and violent or armed robberies, and economic freedom. Though obscure and somewhat imprecise, the relationship between these variables should not be overlooked. Johnson, Kaufmann, and Shleifer (1997) put forward several propositions about how tax, regulatory policies, and corruption affect the quantity of public goods provided depending on the relative size of the unofficial economy. To the extent that politicians exercise control rights over businesses (for example, through their ability to regulate and restrict entry, as well as the determination and collection of taxes), politicians use these rights to enrich themselves by offering firms relief from regulation in exchange for bribes.

Political control thus stifles economic freedom by reducing the profitability of doing business, and adversely influencing entrepreneurial activity and economic growth. More precisely, when profits are expropriated from firms through regulation, high taxation, or corruption, entrepreneurs choose not to start firms or expand less rapidly than they might otherwise.

They can also decide to operate in an unofficial economy, in which firms can avoid taxes and regulations, though probably not bribes. Instead of registering their activities, managers prefer not to benefit from key publicly provided services (Johnson, Kaufmann, and Zoido-Lobaton, 1998). Ironically, corruption remains a part of the unofficial sector because firms use protection services supplied by private - including criminal - organizations. Therefore, corruption affects economic freedom and the right to free enterprise through politicians' ability to manipulate taxes and regulatory procedures.

The link between corruption, political stability, and (protection from) violence is less obvious. The quantity of public goods provided by government, such as police, courts, or administrative assistance, depends on its ability to derive revenue from tax collections in the official economy.

If we consider the fairness of the legal environment as a direct measure of public goods, this is obviously an area in which firms in the official sector derive the benefit of government services to a greater extent than do firms in the unofficial sector. By inducing some firms to conceal their business activities from the state officials, corruption deprives the unofficial sector - which almost never reports to the tax authorities - of the same access to legal rights and recourse.

Political repression can also be a vehicle of corruption. A government acting as a successful repressive monopolist would charge high taxes, collect substantial revenues, and yet provide few public goods, instead using the revenues to line its own pockets and fuel the machinery of repression (Johnson, Kaufmann, and Shleifer, 1997).

Broadly interpreted, the evidence thus suggests a number of implications. Countries characterized by low burdens from taxes, regulation, and corruption engender

less expropriation of company profits and small unofficial economies, which results in relatively high tax revenues and large quantities of public goods provided by the government.

Other countries would be portrayed by excessive burdens from taxes, regulation, and corruption, inducing a greater degree of expropriation and large unofficial sectors - resulting in low tax collections and small quantities of public goods provided. Using total electricity consumption to compare unofficial activity across countries¹¹, the regression results suggest that corruption increases the share of the unofficial economy and thus indirectly affects the supply of public goods (police services, legal assistance, economic freedom etc.). A point improvement in the Central European Economic Review's (CEER) index of crime and corruption - that is, a decrease in corruption - reduces the share of the unofficial economy by 5 to 6 percentage points.

We do however observe that tax fairness and regulation has an even greater affect on the unofficial sectors; fairer taxes imply a smaller share of the economy that is unofficial. A point increase in the CEER tax fairness index lowers the unofficial economy by 11 to 12 percentage points. As the Heritage Foundation's regulation index shows, a 1-point increase in this index lowers the unofficial economy share by 11 to 14 percentage points.

¹¹ Electricity consumption offers an approximate measure of overall economic activity; around the world, the short-run electricity-to-GDP elasticity is usually close to one. By definition, measured GDP captures only the official part of the economy, so that the difference between overall and measured GDP gives an estimate of the size of the unofficial economy.

Similar results are obtained by Johnson, Kaufmann, and Zoido-Lobaton (1998). Their study also shows that even when alternative corruption indices are used, such as Transparency International's measure of corruption, Political Risk Services' 1997 *International Country Risk Guide*, or the Global Competitiveness Survey measure of bribery, the relationship between the share of the unofficial economy, rule of law, and corruption remains strong and consistent.

The evidence thus suggests that the extent of regulatory and bureaucratic discretion is a key determinant of underground activity. Based on this literature, we therefore observe that when measures of public goods are included in our analysis, the affect of corruption on FDI may not be straightforward. Corruption can indirectly affect foreign investment decisions through politicians' ability to influence the provision of public goods, which ensure and protect the continuation of private-sector business investments.

Although we can not confirm the direction of the causal relationship between corruption, political stability, violence, and economic freedom - a task left to the burgeoning research on corruption, the literature reasonably ascertains that there is always the possibility that corruption is embedded in the allocation process of public goods. Lax regulations in settings with undisciplined bureaucracies and weak rule of law allow officials to decide individual cases without effective supervision. This, of course, creates conditions ripe for corruption (Johnson, Kaufmann, and Zoido-Lobaton, 1998, and Treisman, 2000).

We therefore conclude with a cautionary note. Given that sample size varies considerably and accounting for the above interactive effects, any comparable data

inevitably involves not only compromises but also produces results that are shaped by the assumptions of the researcher and readers. Since no more than 53 % of the sample size was retained for either the 1991 or 1995 FDI flow, the results at both the pooled and individual source country level should be interpreted with a measure of prudence.

Table 15.
Number of predictor variables using 1991 or 1995 FDI flow
Individual Source Country Analysis

Dependent Variable: 1991 FDI flow or 1995 FDI flow

Independent Variables: logarithm of 1989 market size, (*miblog*) 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclog*), 1980 or 1995 corruption rating (*cib80* or *cia95b*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rccrb1*)

	1991 FDI flow (maximum number of countries)	1995 FDI flow (maximum number of countries)
<i>miblog</i>	5 / 9 countries	4 / 8 countries
<i>mtrd94</i>	3 / 9 countries	3 / 8 countries
<i>efra90</i>	7 / 9 countries	6 / 8 countries
<i>ppra96</i>	0 / 9 countries	2 / 8 countries
<i>psa8083</i>	0 / 9 countries	0 / 8 countries
<i>nmvclog</i>	3 / 9 countries	5 / 8 countries
<i>cib80</i>	3 / 9 countries	4 / 8 countries
<i>cia95b</i>	5 / 9 countries	4 / 8 countries
<i>vpti95</i>	1 / 9 countries	1 / 8 countries
<i>rccrb1</i>	1 / 9 countries	1 / 8 countries

VII. The Caveats of Measuring Corruption

The burgeoning interest in corruption is both been welcome and long overdue. The growing phenomenon of globalization and international business encourages the development of a number of comparative corruption indices such as those proposed in our hypotheses.

In light of the lukewarm results that we obtain for our corruption indices, the ensuing discussion enlightens us as to why the intuitively distorting effect of corruption, on what should be unbiased relationships between government officials and private sector individuals, is often not easily captured by corruption indices.

The difficulty in testing any hypotheses on corruption and building comprehensive theories lies in the challenges associated with the measurement of corruption¹². In order for any measure to be meaningful, we must first be able to reach a consensus on how to define corruption. A nominal definition may be assigned to a range of events which themselves are difficult to identify.

Measurement is rendered all the more difficult when the very issue that we try to quantify is hidden. As the seriousness of corruption increases, there is often a lack of incentive to report the event. In such situations, reporting corruption becomes an exercise in risk exposure and futility.

Though relating to the use of the Transparency International corruption index, Johnston's (2001) concern with the existence of too few clear external standards can also apply to other corruption scales. The exercise of measurement is further impeded by the

¹² The ensuing discussion is based on Johnston (2001) in Jain (2001b).

existence of too few clear external standards to which corruption scales can be compared. At the very least, precision is difficult to evaluate when it is unclear what units of measurement any corruption scale should use.

As the discussion on the direction of the causal relationship between corruption, political stability, violence, and economic freedom illustrates, measurement is also exacerbated when problems of simultaneity make the causes and effects of corruption difficult to separate.

With respect to the specific use of the Transparency International index of corruption, Johnston (2001) raises some concerns. Though strong time-series correlations indicate some degree of consistency, the coefficients across the index years could also be *too* strong. Given that levels of corruption are likely to change over time, albeit gradually, a reliable index should reflect these trends.

Furthermore, since the 1999 index uses a similar methodology to the three years running (1997, 1998 and 1999), the effect may be to perpetuate and magnify biases in a particular survey method. The problem with this reasoning is that it is not absolute ; there may be a tradeoff between choosing a consistent index comparable over time or a reliable index that reflects changes in levels of corruption. The end result is that there is no way of confirming which methodology has more merit.

Third, by assigning each country a single number, the index – like all other corruption scales at the country level – becomes a simplification and obscures the variation that occurs *within* countries. Thus, it is unclear whether or not the number conveys a false sense of precision in overall comparisons.

A fourth concern relates to using perceptions as an operational measure of corruption. With corruption being a very real problem, perception ratings could only offer broad impressions about society in general and not so much an indication of corruption as such. They can thus only offer a limited knowledge of corruption.

One might also consider perception as a hindrance to any true measure of corruption because of its subjectivity. Often enough, perceptions are shaped by an individual's past (and most recent) experiences as well as by cultural prejudices which can not be easily surmounted when objectivity is required.

Finally, the exclusion of countries with scarce data can lead to erroneous and misleading conclusions. The omission of countries with fewer than three corruption surveys has the effect of eliminating many of the worst-governance cases.

VIII. Concluding Remarks

The advent of new corruption indicators paves the way for new perspectives and encourages an infusion of renewed attention and resources to the topic. In this study, we refine the concept of corruption by developing some nuances of corruption. These nuances are: predictable vs. unpredictable corruption, long term vs. short term approach to corruption, organized vs. disorganized corruption, and a host country's competitive relative corruption rating. FDI from some source countries to some host countries is found to be sensitive to these nuances.

From an analytical perspective, we develop corruption indices that are one form of evidence among many alternatives. We expect unpredictable corruption to have a negative bearing on FDI flows. The greater the variance of perception, the greater the

difference of opinion that a host country's corruption system is transparent and carries a strong enforcement of an agreement between contractual parties.

We also assume that foreigners prefer to do business with corrupt politicians in a stable political regime because bribery takes on a longer-term approach, by not arbitrarily expropriating the property and income of foreign investors in order to maximize short-term revenues from rent-seeking. Thirdly, we expect the lack of contractual enforcement in a disorganized corrupt system, where various groups compete for the same revenues from corruption by using physical force to eliminate adversaries, to have an adverse effect on foreign investors. Finally, we expect foreign investors to find host countries that charge competitive rents, relative to neighboring countries that offer similar privileges and services in exchange for bribes, more appealing because of lower payoffs. Our results are summarized in Table 16 and 17.

Despite the problematic of measuring corruption, the hypotheses proposed in this study prove useful for sparking new research and public debate. This study points to the importance of recognizing variations in corruption and for academic and policy research to become cognizant of the possibility that foreign investors may respond differently to different types of corruption. Therefore, this study points to a need to measure different types of corruption along with the general level of corruption which is currently measured by organizations like Transparency International.

Finally, from a statistical point of view, further work should be done to isolate source country effects. We need to determine if certain characteristics of source countries also affect the flow of foreign direct investment.

Table 16.
Summary of Multivariate Regressions
Individual Source Country Analysis

Dependent Variable: FDI flow from 1989 to 1991

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mir94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvlog*), 1980 or 1995 corruption rating (*cib80* or *cib95b*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rccrb1*)

	Business International Index of Corruption					Transparency International Index of Corruption				
	<u>Cib80</u>	<u>Ps8083</u>	<u>Nmvlog</u>	<u>Vpti95</u>	<u>Rccrb1</u>	<u>Cib95b</u>	<u>Ps8083</u>	<u>Nmvlog</u>	<u>Vpti95</u>	<u>Rccrb1</u>
expected significance	France*** Germany** US***		Canada** Netherlands*** US***	Netherlands***	Netherlands** .	Canada* Japan** Norway** UK* US***		Canada*** Netherlands*** US*	Netherlands***	Netherlands** .
contrary significance		Canada*** France*** Japan* Netherlands*** Norway** US***	Germany**	Italy**	Germany** Italy** Japan* ** Norway***	Netherlands***	Canada*** Japan*** Netherlands*** Norway*** US***	Germany*** Italy**	France* UK** US***	Germany*** Italy*** Japan*** Norway***
expected significance	Canada** Netherlands*** Norway*** US***		Canada** France** Germany*** Italy*** Japan*** Netherlands*** US***	France*** Germany* Netherlands*** US***		Canada*** Italy** Netherlands*** Norway** US**		Canada*** Germany*** Italy*** Japan*** Netherlands*** US***	Japan*** Netherlands*** US***	
contrary significance		Germany*** UK*								Germany*** UK***

*** Significant at the 1% level.
 ** Significant at the 5% level.
 * Significant at the 10% level.

Table 17.
Summary of Multivariate Regressions
Individual Source Country Analysis

Dependent Variable: FDI flow from 1989 to 1995

Independent Variables: logarithm of 1989 market size (*miblog*), 1994 marginal tax rate (*mtrd94*), 1990 level of economic freedom (*efra90*), 1996 protection of property rights rating (*ppra96*), 1980-83 level of political stability (*psa8083*), logarithm of the 1987-89 number of murders and violent robberies (*nmvclg*), 1980 or 1995 corruption rating (*cib80* or *cib95b*), variance of the 1995 TI corruption index (*vpti95*) and a host country's relative corruption rating (*rccrb1*)

	Business International Index of Corruption					Transparency International Index of Corruption				
	<u>Cib80</u>	<u>Psa8083</u>	<u>Nmvclg</u>	<u>Vpti95</u>	<u>Rccrb1</u>	<u>Cib95b</u>	<u>Psa8083</u>	<u>Nmvclg</u>	<u>Vpti95</u>	<u>Rccrb1</u>
expected significance	France** Germany* Netherlands** UK** US***		Canada*** US**	Norway**		Norway* UK*** US***		Canada***		Netherlands***
contrary significance		Canada*** Netherlands** Norway** US***	Germany* Netherlands*** Norway***	Netherlands**	Austria** Germany** US***	Netherlands**	Canada*** Netherlands*** Norway*** US***	Austria* France* Germany*** Netherlands*** Norway**	UK** US***	Austria** Germany*** US***
expected significance	<u>Miblog</u> Canada*** Netherlands*** Norway*** US**	<u>Mtrd94</u> Canada*** Netherlands*	<u>Efra90</u> Austria** Canada*** Germany*** Netherlands*** UK** US***	<u>Ppra96</u> US***		<u>Miblog</u> Canada* Netherlands* Norway** US***	<u>Mtrd94</u> Canada*** Netherlands**	<u>Efra90</u> Austria** Canada*** Germany*** Netherlands*** UK**	<u>Ppra96</u> US***	
contrary significance		Germany***		Canada*** Netherlands***		UK**	Austria** France** Germany*** UK**		Canada*** Netherlands**	

*** Significant at the 1% level.

** Significant at the 5% level.

* Significant at the 10% level.

As previously mentioned, our lukewarm results are partly explained by the difficulty in testing any hypotheses on corruption and building comprehensive theories because of the challenges associated with the measurement of corruption. Furthermore, until we can minimize the sample size variations and interactive effects inherent in our research, it is more prudent to say that these indices may be more useful for framing hypotheses than for providing definitive answers.

The future for the war against corruption is promising and can be fought on different fronts. Corruption often exists because government officials find that they can significantly influence the activities of some individuals. The demand and supply of corruption can be reduced with the shearing of the regulatory framework and process. Eliminating redundant and constrictive regulations, as well as creating more transparent ones, will create fewer opportunities for taking and offering. For a transparent regulatory process to be efficient, it should be accompanied by effective means to verify arbitrary state action, through an independent and strong judiciary system able to enforce judgement.

Increasing penalties and offering higher wages to the civil service (The Economist, 1997) can also lower corruption because of the higher opportunity cost of being caught. Though higher wages reduces the marginal value of the extra funds available from corruption, it does not, however, reduce the value to zero. It is thus a necessary, but not a sufficient requirement.

Furthermore, the penalties imposed must be commensurate to the marginal benefits of the payoffs received so that the penalty increases as the level of speculation

increases. In addition, the laws and penalties governing corruption should apply to both those who impose payoffs as well as to those who offer bribes.

Another possibility, albeit somewhat inefficient, is to introduce competitive bureaucratic jurisdictions within government. This solution limits the monopoly power that any one official can exert by offering clients alternative means to obtain the necessary requirements for their endeavors. The problem with competitive bureaucratic jurisdictions is that, though it may greatly reduce the size of the payoffs, it fosters bureaucratic inefficiency and overlap among different government employees who will be performing similar functions and responsibilities.

Multilateral lenders, such as the World Bank and the International Monetary Fund, can also pave the way for institutional reform by using their leverage on borrowers. A clear message from the international community would be sent if it withdrew or reduced financial support from corrupt countries.

The above recommendations are by no means exhaustive. Rather, they can help establish an orderly environment for business that is unhampered by the constraints of corruption.

We end with a final note of caution. When seeking realistic reform, it is important and necessary to realize that, like all illegal activity, the efficient level of corruption is not zero. Given that it is a costly activity to control, governments and foreign investors should not be fatalistic about corruption. Reforms should strive for the optimal theoretical level, where the marginal social cost equals the marginal social benefit of anticorruption strategies.

APPENDIX A

Estimation of FDI Stocks and Flows

During the discussion on the various forms of FDI, the reader should be aware of the general data problems that seriously handicap estimates of global FDI stocks and flows. The combination of the lack of data collection in some countries and significant differences in data collection methodologies in those countries that do have collection systems makes it difficult to examine FDI data.

Starting with the definition of FDI, most countries generally conform to the definition set out in the IMF/OECD Common Reporting System for Balance of Payments Statistics. FDIs are those investments made to create or expand some kind of controlling interest in an enterprise (IMF, 1997). As a basis for defining control, most countries have employed ownership percentage levels.

Despite this general tendency, there remain significant differences in the thresholds employed by the OECD countries. The threshold in the United States and Canada is 10 percent of voting shares; it is 20 percent in the United Kingdom and France; 25 percent in Japan and Australia; and 20-50 percent in Sweden (Erdilek, 1985).

Furthermore, the many different operational definitions of FDI all are designed to reflect a lasting interest in and a degree of influence over the management of a business enterprise in another country (McCulloch in Froot, 1993). Given this broad delineation of FDI, it is not surprising that there exists no standard way of measuring FDI. Moreover, some estimates are also subject to change.

For example, before 1974, the estimation of U.S. inward FDI using equity capital was much more stringent. Direct investment was formerly defined by the BEA as the

ownership by a single foreign person, or an associated group thereof, of at least 25 percent of the voting stock of an incorporated U.S. business enterprise or an equivalent interest in an unincorporated U.S. business enterprise (Young, 1988).

The scope and coverage of national statistics also differ substantially. Differences in reporting systems may result in significant variations in the composition of FDI data. Compared to cash-flow reporting, the company survey technique generally permits a more complete estimation of FDI.

Forms of equity other than cash, such as company loans and local borrowing, and reinvested earnings, which affect the net worth or debt of foreign affiliates, are often not covered by cash-flow systems (Erdilek, 1985). Hence, the application of different reporting systems can trigger a divergence in the reported levels of FDI among the countries that use them.

A third impediment involves the periodicity of published data (Erdilek, 1985). Countries collecting data on a cash-flow basis through the banking system usually publish data monthly (Japan and Sweden) or quarterly (Canada, Australia, and Germany). Survey data are collected at different intervals and are often reported with a considerable time lag. For example, annual surveys (United States, United Kingdom, and Canada) may have a delay of up to one year.

A final challenge to FDI estimation techniques is disaggregation. Most OECD countries publish statistics disaggregated by geographical area (country), sector, and type of transaction. However, the levels of disaggregation employed across countries are diverse.

Though geographical disaggregation at the country level is present in most reporting systems, its sectoral counterpart varies widely. For example, the United States collects data at the 3-digit U.S. Enterprise Standard Industrial Classification (ESIC) level (133 categories), but publishes it on a more aggregate level (20-59 countries, 11-13 sectors). On the other hand, Australia and France distinguish among 22 and 14 industrial sectors respectively (Erdilek, 1985).

APPENDIX B
Country Codes

Country	Code		Country	Code
Algeria	AE		Italy	IT
Argentina	AG		Japan	JP
Australia	AL		Malaysia	MA
Austria	AR		Mexico	MX
Belgium/Luxemburg	BL		Netherlands	NA
Brazil	BR		New Zealand	NE
Canada	CA		Norway	NW
Chile	CH		Panama	PM
China	CN		Philippines	PP
Columbia	CO		Poland	PQ
Denmark	DE		Portugal	PT
Egypt	EG		Romania	RO
France	FR		Singapore	SI
Germany	GE		Spain	SP
Greece	GR		Sweden	SW
Hong Kong	HK		Switzerland	SZ
Hungary	HU		Thailand	TH
India	ID		Turkey	TU
Indonesia	IE		United Kingdom	UK
Iran	IN		United States	US
Ireland	IR		Venezuela	VZ
Israel	IS			

Variable Name Codes

Variable Name	Code
Logarithm of 1991 FDI flow	fi9189
Logarithm of 1995 FDI flow	fi9589
1990 rating of adult literacy ratio	alra90
1989 hourly compensation cost	hccb89
1990 rating of secondary school enrollment	ssea90
Logarithm of 1989 market size indicator	miblog
1994 marginal tax rate	mtrd94
1990 rating of economic freedom	efra90
1996 rating of protection of property rights	ppra96
1980-83 rating of political stability	psa8083
1980 rating of Business International corruption index	cib80
1995 rating of Transparency International Index	ciab95
Variance of 1995 Transparency International corruption index	vpti95
Standard deviation between TI 1995 corruption rating and TI 1996 corruption rating	vpwaa
Standard deviation between 1995 TI corruption index and 1980 BI corruption index	vpai3
Country's corruption rating relative to its geographical region	rccrb1
Logarithm of the 1987-89 number of violent crimes and robberies per 100,000 citizens	nmvclog

REFERENCES

- Bardhan, Pranab (1993). "Symposium on Democracy and Development", *Journal of Economic Perspectives*, vol.7, no.3 (Summer), pp.45-49.
- Barrell, Ray and Nigel, Pain (1997). "The Growth of Foreign Direct Investment in Europe", *National Institute Economic Review*, vol.0, no.160 (April), pp.63-75.
- Broadman, Harry G. and Xiaolun Sun (1997). "The Distribution of Foreign Direct Investment in China", *The World Economy*, vol.20, no.3 (May), pp.339-361.
- Brunetti, Aymo, Gregory Kisunko, and Beatrice Weder (1998). "How Businesses See Government", *The World Bank and International Finance Corporation*, Discussion Paper Number 33.
- Buckberg, Elaine (1997). "Legal and Institutional Obstacles to Growth and Business in Russia", *International Monetary Fund*, Working Paper PPAA/97/8 (November).
- De Lion, Conor (1997). "Why Foreign Companies are Increasingly Turned Off by the Czechs", *Global Finance*, vol.11, no.2 (February), pp.56-58.
- Doro, A.M. (1997). "Les Affaires", *Across the Board*, vol.34, no.7 (August), pp.44-48.
- Eckaus, Richard S., "A Survey of the Theory of Direct Investment in Developing Countries", in Richard D. Robinson, (ed.), *Direct Foreign Investment*, New York: Praeger Publishers, 1987.
- Erdilek, Asim, *Multinationals as Mutual Invaders: Intra-Industry Direct Foreign Investment*, 1985, Sydney: Croom Helm.
- Euromoney (1996). "Share Hunger that Feeds on Scandal", no.329 (September), pp.335-338.
- _____, "The Search for the Smoking Gun", no.329 (September), pp.49-52.
- Evans, P.B. and J.E. Rauch (1996). "Bureaucratic Structures and Economic Performance in Less Developed Countries", mimeograph UC San Diego.
- Gillis, Alex (1998). "Grease", *The Globe and Mail Report on Business Magazine*, March, pp.59-68.
- Gold, David (1991). "The Determinants of FDI and their Implications for Host Developing Countries", *The CTC Reporter*, vol.31, pp.21-24.

Guisinger, Stephen E. and Associates, *Investment Incentives and Performance Requirements*, 1985, New York: Praeger Publishers.

Hanke, Steve H. (1996). "The Curse of Corruption", *Forbes*, July 29, p.103.

Hines, James R. Jr. (1995). "Forbidden Payment: Foreign Bribery and American Business After 1977", *National Bureau of Economic Research*, Working Paper 5266 (September).

Huntington, Samuel P., *Political Order in Changing Societies*, 1968, New Haven: Yale University Press.

Hymer, Stephen H., *The International Operations of National Firms: A Study of Direct Foreign Investment*, 1976, Cambridge: MIT Press.

International Monetary Fund (1997). "Corruption Linked to Capital Spending can Slow Growth", *IMF Survey*, vol.26, no.22 (December), pp.375-377.

Jain, Arvind K. (1998). "Models and Consequences of Corruption", in Arvind K. Jain, (ed.), *Economics of Corruption*, Kluwer Academic Press, 1998.

_____ (2001a). "Corruption: A Review", *Journal of Economics Survey*, vol.15, no.1(February), pp71-121.

_____ (2001b). *The Political Economy of Corruption*, London: Routledge, 2001.

Johnson, Simon, Daniel Kaufmann, and Pablo Zoido-Lobaton (1998). "Government in Transition: Regulatory Discretion and the Unofficial Economy", *AEA Papers and Proceedings*, vol.88, no.2 (May), pp.387-392.

Johnston, Michael, "The Political Economy of Corruption", in Kimberly Ann Elliot, (ed.), *Corruption and the Global Economy*. Washington DC: Institute for International Economics, 1997.

_____, "The Definitions Debate: Old Conflicts in New Guises", in Arvind K. Jain, (ed.), *The Political Economy of Corruption*, London: Routledge, 2001b.

Kaufmann, Daniel (1997). "Corruption: The Facts", *Foreign Policy*, no.107 (Summer), pp.114-131.

_____, "Research on Corruption: Critical Issues", in Arvind K. Jain, (ed.), *Economics of Corruption*, Kluwer Academic Press, 1998.

Kojima, Kiyoshi, *Direct Foreign Investment*, 1978, New York: Praeger Publishers.

Krueger, Anne O. (1974). "The Political Economy of the Rent-Seeking Society", *American Economic Review*, vol.64, no.3 (June), pp.291-303.

Lambsdorff, Johann Graf., "Corruption in Comparative Perception", in Arvind K. Jain, (ed.), *Economics of Corruption*, Kluwer Academic Press, 1998.

Lawrence, Robert Z., "Japan's Low Levels of Inward Investment: The Role of Inhibitions on Acquisitions", in Kenneth Froot, (ed.), *Foreign Direct Investment*, Chicago and London: University of Chicago Press, 1993.

Lessard, Donald R., "The Financial Component of Foreign Direct Investment: Implications for Developing Countries", in Richard D. Robinson, (ed.), *Direct Foreign Investment*, New York: Praeger Publishers, 1987.

Levis, Mario (1979). "Does Political Instability in Developing Countries Affect Foreign Investment Flow? An Empirical Examination", *Management International Review*, vol.19, no.3, pp.59-68.

Lui, Francis T. (1996). "Three Aspects of Corruption", *Contemporary Economic Policy*, vol.14, no.3 (July), pp.26-29.

Mauro, Paolo (1995). "Corruption and Growth", *Quarterly Journal of Economics*, vol.110, no.3 (August), pp.681-712.

Maskus, Keith E. and Allan Webster (1995). "Comparative Advantage and the Location of Inward Foreign Direct Investment: Evidence from the UK and South Korea", *World Economy*, vol. 18, no.2 (March), pp.315-328.

McCulloch, Rachel, "New Perspectives on Foreign Direct Investment", in Kenneth Froot, (ed.), *Foreign Direct Investment*, Chicago and London: University of Chicago Press, 1993.

Murphy, Keven M., Andrei Shleifer, and Robert W. Vishny (1993). "Why is Rent-Seeking so Costly to Growth?", *AEA Papers and Proceedings*, vol.83, no.2 (May), pp.409-414.

_____. (1991). "The Allocation of Talent: Implications for Growth", *Quarterly Journal of Economics*, vol.106, no.2 (May), pp.503-530.

Oman, Charles (1989). *Les Nouvelles Formes D'Investissement dans les Industries des Pays en Développement*, Paris: OECD, Centre de Développement.

Organization for Economic Co-operation and Development (OECD), *Taxation and Foreign Direct Investment: The Experience of the Economies in Transition*, Paris: OECD, 1995.

_____, *International Investment and Multinational Enterprises*, Paris: OECD, 1989.

Quijano, Alicia M. (1990). "A Guide to BEA Statistics on Foreign Direct Investment in the United States", *Survey of Current Business*, vol.70, no.2 (February), pp.29-39.

Richardson, David J. (1971). "Theoretical Considerations in the Analysis of Foreign Direct Investment", *Western Economic Journal*, vol.9, no.1 (March), pp.87-98.

Root, Franklin R., and Ahmed A. Ahmed (1979). "Empirical Determinants of Manufacturing Direct Foreign Investment in Developing Countries", *Economic Development and Cultural Change*, vol.27, no.4 (July), pp.751-767.

Rose-Ackerman, Susan, "The Political Economy of Corruption", in Kimberly Ann Elliot, (ed.) *Corruption and the Global Economy*. Washington DC: Institute for International Economics, 1997.

Schleifer, Andrei, and Robert W. Vishny (1993). "Corruption", *Quarterly Journal of Economics*, vol.108, no.3 (August), pp.599-617.

_____. (1992). "Pervasive Shortages under Socialism", *Rand Journal of Economics*, vol.23, no.2 (Summer), pp.237-246.

Schneider, Friedrich, and Bruno S. Frey (1985). "Economic and Political Determinants of Foreign Direct Investment", *World Development*, vol.13, no.2, pp.161-175.

Summary, Rebecca M., and Larry J. Summary (1995). "The Political Economy of United States Foreign Direct Investment in Developing Countries: An Empirical Analysis", *Quarterly Journal of Business and Economics*, vol.34, no.3 (Summer), pp.80-92.

Tanzi, Vito, "Corruption, Governmental Activities, and Markets", in Gianluca Fiorentini and Sam Petzman, (eds.), *The Economics of Organized Crime*, Cambridge: Cambridge University Press, 1995.

_____, "Corruption and the Budget: Problems and Solutions", in Arvind K. Jain, (ed.), *Economics of Corruption*, Kluwer Academic Press, 1998.

Tanzi, Vito, and Hamid Davoodi (1997). "Corruption, Public Investment and Growth", *International Monetary Fund*, Working Paper 97/139 (October).

The Economist (1997). "It's the Government, Stupid", (June 28), pp.71-73.

Treisman, Daniel (2000). "The Causes of Corruption: A Cross-National Study", *Journal of Public Economics*, vol.76, (June), pp.399-457.

Tullock, Gordon (1996). "Corruption Theory and Practice", *Contemporary Economic Policy*, vol.14, no.3 (July), pp.6-13.

UNCTAD-DTCI, *Incentives and Foreign Direct Investment*, 1996, Series A, No.30, Sales No. E.96.II.A.6., New York: United Nations.

UNCTC, *Government Policies and Foreign Direct Investment*, 1991, Series A, No. 17, Sales No.E.91.II.A.20.

United Nations, *World Investment Report*, 1997, Sales No. E.97.II.D.10.

_____, *World Investment Report*, 1995, Sales No. E.95.II.A.9.

Van Rijckeghem, Caroline and Beatrice Weder (1997). "Corruption and the Rate of Temptation: Do Low Wages in the Civil Service Cause Corruption?", *International Monetary Fund*, Working Paper WP/97/73 (June).

Walker, Martin (1997). "Investing in Russia: Not for the Weak at Heart", *Director Magazine*, vol.50, no.8 (March), pp.8-11.

Wei, Shang-Jin (1997). "How Taxing is Corruption on International Investors?", *National Bureau of Economic Research*, Working Paper 6030 (May).

_____ (1997). "Why is Corruption so much more Taxing than Tax? Arbitrariness Kills", *National Bureau of Economic Research*, Working Paper 6255 (November).

Wheeler, David, and Ashoka Mody (1992). "International Investment Location Decisions", *Journal of International Economics*, vol.33, pp.57-76.

World Bank, *World Development Report*, New York: Oxford University Press. 1987.

_____, *World Development Report*, New York: Oxford University Press. 1993.

_____, *World Development Report*, New York: Oxford University Press. 1995.

_____, *World Development Report*, New York: Oxford University Press. 1997.