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PRELIMINARY

BUREAUCRATIC CORRUPTION, MNEs AND FDI

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Abstract

In order to analyse the relationship between MNE operations in the form of FDI and corruption we develop a simple model that includes bureaucrats and MNEs and describes how bureaucratic corruption in a host-country gives rise to increased MNE costs of operating. The model provides insight into the incentives for engaging in corruption as well as suggestions of how to reduce the severity of corruption. The conclusions of the model are complemented by an empirical investigation that analyses whether host-country corruption reduces the amount of FDI inflows that the country receives. Preliminary regression results indicate a negative relationship between host-country corruption and FDI inflows.

1. INTRODUCTION

When a good or service changes ownership from one economic agent to another there is always a possibility that either part will try to benefit by breaking the contract between buyer and seller. Uncertainty regarding the true value and characteristics of the good that is exchanged along with problems of enforcement and surveillance of contracts creates a risk of one part trying to take advantage of the other. This kind of behaviour increases the cost of the exchange. What can be done to try to minimise the risk of such opportunistic behaviour? How can agents be restrained from trying to gain through breaking agreements? The developed economies have responded to this fundamental problem through developing complex institutional frameworks during a long historical process. North (1991) claims that “institutions are the humanly devised constraints that structure political, economic and social interaction”. Institutions in the form of property rights, codes of conduct, laws, traditions and the like have been devised in order to decrease the uncertainty of exchange and allow for individuals and organisations to interact efficiently. The transition and the developing economies have generally not come as far as the developed economies in building efficient market economy institutions. In this paper we argue that the existence of wide spread corruption in many of the developing economies is a result of the lack of functioning market economy institutions. Corruption is an informal institution that can develop when market economy institutions such as property rights are underdeveloped. While many sources point to the existence of corruption in developing economies, reliable figures for the extent of corruption are less common. However, it has been suggested that corruption and government inefficiency cost Bangladesh 450 million dollars a year, truly a tremendous amount of money for an economy that the UN has classified as one of the least developed, Transparency International (2004).

Multinational enterprises (MNEs) get into contact with host-country institutions as soon as they start activities in a foreign economy and institutions naturally have a large effect on the continuous operations of the MNE. An MNE that contemplates a foreign direct investment (FDI) has to take the characteristics of the host country institutions into account, including the existence of corruption. Corruption can come in many different forms but for this paper we are mainly concerned with corruption that affects the costs of business operations. We use the term *bureaucratic corruption* to describe a form of corruption where corrupt behaviour among government officials results in increased costs for MNE operations. Bureaucratic corruption results in high transaction costs that increase the MNE’s costs of doing business in the host country. An example of this could be that corrupt government officials demand side payments to provide an export license. Such expenses decrease the expected profitability of an MNE direct investment and tends to deter foreign investors from starting production in the host country. Host-country corruption should therefore have a negative effect on the size of FDI inflows.

Based on this reasoning it is straightforward to claim that the characteristics of host-country institutions should affect the entry decision of an MNE. On the other hand, could causality run in the other direction so that the actual operation of a foreign MNE affects the institutions in the host country? North (1990) suggests that organisations affect institutions. In what way could an MNE possibly affect host country institutions? If the MNE achieves a strong position in the host economy it is possible that the MNE could discipline the behaviour of local firms and government officials. Another link could come through business culture. Foreign MNEs potentially bring their own business culture to the host country. This culture can be assumed to differ from the one in a developing or transition economy. When links between the MNE and local firms are established there should be interaction between

differing types of business culture. Therefore a foreign MNE should potentially be able to affect the institutional framework. It is also possible that the home country government of the MNE could try to put pressure on the host-country. On the other hand, a possible counter argument could be that an MNE accept the rules of the game and thereby do not exercise a positive influence but rather enforces already existing structures.

1.1 The research problem

Is it true that a lack of host country market economy institutions create conditions for corruption? Can host-country corruption increase the MNE costs of doing business and therefore have a negative effect on the size of FDI inflows? Are MNEs that enter powerful enough to affect the host country's institutions?

1.2 Purpose

The aim of this paper is to analyse the relationship between MNE operations in the form of FDI inflows and host country bureaucratic corruption. The relationship is analysed in a model that describes the interaction between MNEs and host-country bureaucrats. Based on the model an empirical analysis is carried through where we try to determine whether host-country bureaucratic corruption tends to diminish the activities of MNEs in the form of FDI inflows.

1.3 Earlier studies

The most influential theoretical study of corruption is Shleifer and Vishny (1993). They construct a model where an official can restrict the quantity that is sold of a government produced good (such as a license). It is argued that the real cost of corruption arises in a situation where central government is weak and where bureaucrats and agencies therefore can collect bribes independently from each other. In this case corruption is decentralised and bribes are collected by several different agents who only take into account his or her own gain from the transaction. Centralised corruption, on the other hand, implies that only a single agent in the economy collect bribes. Shleifer and Vishny along with Easterly (2002) argue that decentralised corruption is normally more damaging for a country than centralised. The effect of corruption is sometimes compared to the effect of a tax but Shleifer and Vishny also show that corruption is in fact more distortionary due to the resources that have to be used to avoid detection and punishment.

Bardhan (1997) is a theoretical study of corruption. The study describes different definitions of corruption and the effect on efficiency, including the idea that corruption could actually improve efficiency. When a country suffers from a rigid bureaucracy, bribes can actually speed up the decision making which can lead to economic profits both for the country as well as the individual enterprise. If contracts go to the company which pays the largest bribe, the most efficient company will get the contract as it has the largest expected profit from the contract and therefore is willing to pay the highest bribe. Thus, according to Andersson (2002) corruption is not in a functional view necessarily a negative thing. However, Bardhan also claims that the assumptions in the theories dealing with corruption often are too loose to merit much attention to the theoretical results. For example, bureaucrats can just as well slow down decision making or create additional regulations to collect more bribes. Bardhan concludes that corruption makes rent-seeking more profitable relative to productive investments and that regulations create conditions for corruption. This is in line with the results that Kaufmann and Wei (1999) find, namely that firms that pay bribes actually spend more time with bureaucrats and face higher costs of capital. Bardhan claims that the extent of centralised versus decentralised corruption as discussed by Shleifer and Vishny determines the consequences of corruption.

There are a limited number of earlier empirical studies investigating corruption. Focus has been on the effect of corruption on economic growth and FDI. Ades and di Tella (1999) is an exception to this and tries to explain the existence of corruption. They claim that the level of rents and market structure determines the extent of corruption. They find that corruption is more severe in countries where firms enjoy higher rents due to lack of market competition.

Mauro (1995) studies how corruption and other institutional factors affect economic growth. Using several different indices of institutional quality and the extent of corruption he found that corruption and bureaucratic inefficiency has a negative effect on the rate of domestic investment. Corruption lowers the rate of investment and thereby undermines the potential for economic growth.

Ehrlich and Lui (1999) constructs two complementary models of endogenous growth where becoming a bureaucrat allows for collecting economic rents through corruption. An implication of these models is that corruption and per capita GDP are expected to be negatively correlated. The reason for this is that resources that could have been used for production instead are used to compete for the economic rents of corruption. Regression analysis shows that corruption indeed has an adverse effect on the level of per capita GDP.

Two of the earliest studies that included an analysis of the relationship between FDI and corruption, Mody and Wheeler (1992) and Hines (1995), failed to find a significant relationship between corruption and FDI. Wei (2000a) studies whether host-country corruption affects the ability to attract FDI. Using three different indices to measure corruption Wei finds that corruption has a significantly negative effect on FDI inflows. Wei also notes that the extent of corruption tends to be correlated with measures of institutional quality.

Wei (2000b) investigates the link between corruption and the composition of capital inflows. The study controls for host-country policies toward FDI and finds that corruption has a negative effect on FDI inflows. Corruption changes capital inflows away from FDI and toward bank loans. Wei (2000b) also investigates the apparent paradox of China. China is perceived as having a high level of corruption while at the same time receiving very large inflows of FDI. Establishing a benchmark model that takes the characteristics of the Chinese economy into account, Wei concludes that China is not receiving an unreasonably large amount of FDI inflows. Corruption is just as harmful as for other host-countries.

1.4 Outline

Section two provides the theoretical framework and a discussion of the relationship between MNEs and institutions as a fundament for the empirical work. Section three discusses problems of measuring corruption and presents corruption data for different regions and country groups. Section four presents the empirical analysis. Section five concludes.

2. CORRUPTION AND MNEs

2.1 Institutions and corruption

What is the link between institutions and corruption? The exchange of goods gives rise to transaction costs. Transaction costs come in many forms and include negotiation costs, search costs, surveillance costs and enforcement costs. The cost of information is fundamental for the existence of transaction costs. For example, an important part of transaction costs are the costs for acquiring information about the true characteristics of the good that is exchanged. North (1990) claims that the main function of institutions is to reduce the transaction costs in the economy. The advantage of institutions is that they put constraints on the behaviour of economic agents and reduce the risk of opportunistic behaviour. Institutions can be formal or informal. Formal institutions include laws and regulations that should help to reduce the costs of surveillance and enforcements of contracts as well as negotiation costs. Informal institutions are restrictions that economic agents put on their own behaviour and that have developed in order to structure human interaction. The business culture in an economy is an example of an informal institution. Both types of institutions are important for restricting the behaviour of agents. The concept of social capital as described in Putnam (1993) is related to institutions in that this type of capital also serves to reduce transaction costs. Social capital takes the form of trust and social norms and makes cooperation easier. According to Putnam, the existence or absence of social capital tends to be self-reinforcing, thus creating vicious and virtuous circles. This tends to distinguish social capital from institutions since both trust and networks on the one hand and distrust and isolation on the other seems to self-reinforce.

While North (1990) argues that the purpose of institutions is to reduce transaction costs he also notes that there are institutions that in fact cause transaction costs to increase. When a well-developed institutional framework is lacking, the void is instead filled by informal institutions. Following this line of reasoning we claim that corruption is an informal institution that arises as a result of a lack of functioning market economy institutions and that corruption affects the transaction costs in the economy. Corruption is a result of rather than a cause for an underdeveloped institutional framework. Using Putnam's reasoning it is possible to argue that a vicious circle could develop as corruption leads to distrust between economic agents and increases in exploitation and uncertainty.

Several different definitions of corruption are possible. In this paper we exclude political corruption where the gain of the corrupt behaviour is political power. As for example when specific groups are granted tax cuts before elections to secure their votes (see among others Khemani, 2003). Instead, we are primarily interested in corruption that affects the business activities of MNEs when they operate in a foreign economy. As organisations, MNEs need to interact with the host-country institutions, including the government and its bureaucracy. Government bureaucrats have the opportunity of trying to bend or even break rules and regulations for personal gain. They can use their bureaucratic influence to collect side-payments from individuals or firms. It is this type of corruption rather than political corruption that should have the strongest effect on MNE activities in the host-country. We claim that it is this form of corruption that primarily affects the operations of an MNE. For the purposes of this paper we name such behaviour *bureaucratic corruption* and define it as "bureaucratic behaviour in order to extract personal monetary gain resulting in an increase in the cost of government services that MNEs need to conduct business in the host-country". Bureaucratic corruption also creates uncertainty that tends to increase the cost of doing business. The fact that an MNE pays a bribe is not a guarantee that it actually receives the government service that it needs. For an MNE the result is that the cost of operating in the

foreign economy increases. We argue that when market economy institutions are underdeveloped they fail to fulfil their function of reducing uncertainty and arbitrariness and the existence of uncertainty increases the power of bureaucrats and the probability that they will engage in corrupt behaviour. Based on this reasoning it is obvious that there exists a strong link between the characteristics of the institutional framework and the existence of corruption.

How can opportunities for bureaucratic corruption be exemplified and explained? For example, the lack of developed formal institutions creates arbitrariness for the interaction between bureaucrats and MNEs. When formal institutions are underdeveloped or cannot be enforced the influence of government bureaucrats increases. When institutions fail to restrict the behaviour of bureaucrats these individuals have the opportunity to develop informal institutions that include corrupt behaviour. Arbitrariness in interpreting and enforcing laws and regulations creates an uncertainty that bureaucrats can take advantage of in order to extract monetary gains for themselves. Arbitrariness allows bureaucrats to interpret regulations and laws in a way that put MNEs as well as domestic firms at a disadvantage when interacting with bureaucrats. Opportunities for bureaucratic corruption might even be the very reason for establishing arbitrary and confusing regulations in the first place, an idea put forth by Bardhan (1997) as well as Rose-Ackerman (1978) and Tanzi (1998). Flatters and Macleod (1995) provides empirical evidence from Indonesia.

Furthermore, it can be argued that there are differences in how developed institutions relating to economic activity are between host-countries. Usually it is assumed that both developing and transition economies have institutions that are less market economy oriented than institutions in developed economies. Therefore, opportunities for bureaucratic corruption should be more common in these economies. The fact that many bureaucrats in developing economies have very low incomes would tend to worsen the problem for these economies. Bureaucratic corruption should therefore primarily be a problem for developing and transition economies. Section three presents data that support this argument.

2.2 Multinational operations and corruption

In the preceding section we argued that host-country bureaucratic corruption gives rise to increased costs of conducting business in the economy. What examples of costs caused by bureaucratic corruption can be found? A straightforward example is that MNEs have to pay money in order to receive government services such as export permits and various kinds of licenses that are necessary to conduct business.

Corruption affects economies in several different ways, but in this paper we are primarily interested in the effect of corruption on direct investments. Therefore, in order to further investigate this relationship we try to develop a theoretical model that focus on the effect of host-country bureaucratic corruption on MNEs will to invest. It is possible to compare corruption with a tax and thus analyse the costs. But there are a number of things that differentiate the cost of corruption for the cost of a tax. A first difference between the two is that the “rules” of corruption normally are assumed to be less transparent than tax laws and therefore also results in an extra cost due to uncertainty. Tax is not declared in advance and there is further no way to legally enforce the agreement between briber and bribed. The danger of corruption lies in its arbitrariness and the way it causes uncertainty. This level of uncertainty can probably differ on both an individual basis but perhaps more importantly on a country level. Especially the uncertainty of corruption seems to be damaging for the economy. The fact that even with high rates of corruption the East-Asian economies have managed to keep very high growth rates has been called The East Asian puzzle. The answer to

this might be that different types of corruption have different effects on growth. In a paper by Campos et al (1999) it is found that due to the predictability of corruption in the East Asian countries the negative effects of corruption on investments have been much smaller although still negative. Wei (1997) gets a similar result with the uncertainty being more damaging than the actual level of corruption for the inflow of direct investments.

Corruption also introduces the probability of being punished for breaking the law. There may also be a social stigma attached to corrupt behaviour¹. This social aversion against corruption probably differs between countries and thus firms from different countries may face different costs due to their cultural background.

Based on our earlier reasoning we try to model the existence and the resulting cost of corruption. Our model has two types of agents, bureaucrats and MNEs. We also assume that the bureaucrat has a monopoly in providing government services that the MNE needs in order to operate in the host-country. This can be done without personal costs for the government official. Equation 1 below simply states that there will only be corruption if the expected benefit is higher than the expected cost for both agents involved.

Equation 1

$$\begin{array}{ll} \text{Corruption if:} & \chi \geq c \\ \text{No corruption if:} & \chi < c \end{array} \quad (1)$$

Where χ is an agent's expected payoff from corruption and c is the expected cost. For corruption to take place $\chi \geq c$ for all involved agents.

Equation two below presents payoff functions for the two types of agents.

Equation 2

$$\begin{array}{ll} \text{Payoff for MNE} & \chi_{mne} = \beta\phi \\ \text{Payoff for bureaucrat} & \chi_{off} = \eta \end{array} \quad (2)$$

Where β is the probability that the bureaucrat indeed delivers the government service, ϕ signifies the value of that government service for the MNE and η signifies the size of the bribe.

The payoff of corruption is simply the monetary value an agent can earn by realising the action. For an MNE the payoff of engaging in corruption could for example be the future cash flow connected to a building contract granted by the bureaucrat. For a bureaucrat the payoff of corruption is simply the size of the bribe.

The probability variable β has been discussed by Shleifer and Vishny (1993) among others and can be used to distinguish bribes from taxes. As discussed earlier, Shleifer and Vishny

¹ This can include the fact that the public may perceive the company in a different way after they have been revealed as using corrupt practices.

(1993) distinguish between centralised corruption where a single agent (bureaucrat) collects the bribe. Decentralised corruption implies that several individual bureaucrats can demand bribes. Therefore, even when having paid a bribe there is still a possibility that the MNE does not get access to the government service that it wants. This would force the MNE to pay yet another bribe to get the demanded service. Under a decentralised system of corruption it is more likely that additional bureaucrats would put up demands for bribes. This is one example of how corruption introduces an element of uncertainty for the MNE. For an economy where centralised corruption dominates we would expect β to be close to one while decentralised corruption would imply a smaller value of β .

The cost of corruption for the bribed is normally the punishment that can be imposed on him if he is found guilty, while for the briber it is the expected cost of punishment as well as the size of the bribe that composes the cost.

The culture in the host-country can be assumed to influence the willingness of the agents to engage in corrupt practices. In economies where corruption is frowned upon there should, *ceteris paribus*, exist less corruption than in an economy that accepts corruption. The general cost function shown in equation 3 below tries to take all of the above into account.

Equation 3

$$\text{The general cost function} \quad c_j = ((\delta + \alpha)p) + \eta \quad (3)$$

Where c_j is the cost of the j :th bribe with j going from 1 to n , p signifies the perceived risk of being caught, the expected punishment is denoted δ , while α represents the “social cost” of being revealed as engaging in corrupt behaviour and η is the monetary value of the bribe.

For the bribed $\eta = 0$ while $\eta > 0$ for the briber. The social cost of corruption α goes from 0 to infinity where a low value signifies that corrupt behaviour is widely accepted and a high value signify a culture with a strong aversion against corruption. Similar cost components of corruption for the individuals can be found in Sen (2002, p. 369-372).

The risk of being caught is dependent on the effectiveness of the police as well as the legal system. La Porta et al (1999) argues that countries having common law are better protected against corruption since the legal system has stronger property rights. But the enforcement of the laws is of equal importance. Triesman (1999) finds that is perhaps not only the use of common law that decreases the amount of corruption but also whether or not a country has been under British rule, thus having had a strong influence on the legal culture not only the legal system. By taking the first derivative of equation 3 with respect to δ we get the sensitivity of punishment. As can be seen the punishment depicted in law is highly dependent on surveillance and enforcement to have a deterrent effect on corruption in a country. Many developing countries have all the laws and regulations demanded from the international society regarding corruption but suffer from a severe lack of enforcement of the laws. Thus those laws have little effect besides working as cosmetics for an ugly economy in need of aid and trade relations with developed countries.

The social cost of corruption may be lower in countries with more hierarchal religions as Islam and Catholicism since it is less accepted to challenge those above you in the hierarchy

than in religions such as Protestantism (Triesman, 1999). Furthermore, countries with hierarchical religions tend to have stronger family ties, than countries that practice Protestantism (Triesman, 1999) It can also be the case that in cultures where the distinction between the officials private and official power is less distinct bribery may have lower social costs. All these things tend to affect the social stigma attached to corruption thus increasing or decreasing the cost.

In order to develop the model we have to combine the cost and payoff functions described above in order to determine whether corruption takes place. We have rewritten equation 1 by incorporating equation 2 and 3 resulting in one set of equations for the MNE, Equation 4, and one set for the bureaucrat, Equation 5, below.

Equation 4

MNE

$$\text{No corruption if: } \beta\phi - ((\delta + \alpha)p) - \eta < 0 \quad (\text{i})$$

$$\text{Corruption if: } \beta\phi - ((\delta + \alpha)p) - \eta \geq 0 \quad (\text{ii})$$

$$\text{Expected profit: } \pi_{MNE} = \beta\phi - ((\delta + \alpha)p) - \eta \quad (\text{iii})$$

Equation 5

Bureaucrat

$$\text{No corruption if: } \eta - ((\delta + \alpha)p) < 0 \quad (\text{i})$$

$$\text{Corruption if: } \eta - ((\delta + \alpha)p) \geq 0 \quad (\text{ii})$$

$$\text{Expected profit: } \pi_{off} = \eta - ((\delta + \alpha)p) \quad (\text{iii})$$

Using 4.i and 5.i to solve for the expected profit of corruption for the MNE yields $\beta\phi = 2\eta$. This is only valid if we assume that all of the cost variables δ, α, p are identical for both the MNE and the bureaucrat. This is a strong assumption since both the fines as well as the social cost probably are higher for the MNE than for the bureaucrat. If we assume that the value of the bribe, η , is the reservation price for the bureaucrat due to the fact that the MNE has more bargaining power.

Equation 6 below show the total monetary value of the bribes paid in an economy. This could be seen as the actual cost for the economy when we disregard the uncertainty of corruption. This uncertainty comes in two shapes, the one of getting caught and the one of fulfilling ones obligation. If the service would have been delivered as a tax service equation 6 would equal the tax cost the MNE would have paid.

Equation 6

$$\text{Total monetary value of corruption } V = \sum_1^n v_j \quad (6)$$

Where v_j is the monetary value of the j:th bribe with j going from 1 to n, with n being the number of transactions where it may be possible to offer a bribe, $v_j = \eta_j$ if both $0 \leq \beta_j \phi_j - ((\delta_j + \alpha_j) * p_j) - \eta_j$ and $0 \leq \eta_j - (\delta_j + \alpha_j) * p_j$ for all other cases $v_j = 0$. In a developing economy n can be assumed to be higher under decentralised corruption than under centralised corruption since there are probably a greater number of different bureaucrats that demand bribes in the former case than in the latter.

Equation 7 below gives an account for the total cost of corruption that MNEs experience in a country. Here we include the cost of uncertainty unlike equation 6.

Equation 7

$$\text{Total corruption cost for the MNE} \quad C_{MNE} = \sum_1^n c_j \quad (7)$$

Where c_j is the expected cost of the j:th bribe with $c_j = (\delta_j + \alpha_j) * p_j + \eta_j$ if both $0 \leq \beta_j \phi_j - ((\delta_j + \alpha_j) * p_j) - \eta_j$ and $0 \leq \eta_j - (\delta_j + \alpha_j) * p_j$. If $0 \leq \beta_j \phi_j - ((\delta_j + \alpha_j) * p_j) - \eta_j$ but $0 > \eta_j - (\delta_j + \alpha_j) * p_j$ then $c_j = (\delta_j + \alpha_j) * p_j$ but for all other cases $c_j = 0$.

Cost of corruption for the MNE	IF $\chi_{off} \geq c_{off}$ then official chooses corruption	IF $\chi_{off} < c_{off}$ then official chooses no corruption
IF $\chi_{MNE} \geq c_{MNE}$ then MNE chooses corruption	$c_j = (\delta_j + \alpha_j) * p_j + \eta_j$	$c_j = (\delta_j + \alpha_j) * p_j$
IF $\chi_{MNE} < c_{MNE}$ then MNE chooses no corruption	0	0

It is evident from the above equations that $\sum_1^n c_j > \sum_1^n v_j$, i.e the actual cost of corruption for the MNE is greater than just the size of the bribe thus it would have been less costly for the MNE to invest in a country where the services would have been supplied as a tax service. Further corruption as opposed to a tax does not benefit the government but the individual bureaucrat. The tax income could, if used efficiently by the government, promote growth of direct investment through increasing the stock of human capital or improving market economy institutions. This tax income could also be used to combat corruption through the legal system or by raising the salaries of the government officials. But for taxes to be less damaging than corruption this does not have to be the case. The only necessary condition is that there is less uncertainty involved. Furthermore, companies seldom have the choice whether to pay tax or not so the corruption cost will be something that has to be paid in addition to taxes.

One could of course argue as functionalist that for some services one can either choose to obtain them legally through the bureaucracy, or by paying a bribe. This would lead to a payoff matrix as the one shown below. If the bureaucracy is too rigid and too many obscure rules yield a high degree of uncertainty as well as time loss it might actually be more efficient for the MNE to pay bribes than to use the legal system, thus making corruption economically more efficient than bureaucracy. But, in such a system the bureaucrats themselves have an incentive of increasing the amount of red tape to increase their income from bribes.

Net profit matrix

		Bureaucrat			
		Provides government service		No	
MNE		Acquires gov. ser.	Corruption	Legal	
			Corruption	$\beta\phi - ((\delta_{mne} + \alpha_{mne})p) - \eta$, $\eta - ((\delta_{off} + \alpha_{off})p) + \theta$	
Legal	$0 - \varepsilon,$ $-(\delta_{off} + \alpha_{off})p) + \theta$	$\phi - \varepsilon, \theta$			
No		$0, -(\delta_{off} + \alpha_{off})p) + \theta$	$0, \theta$		

where the MNE’s net profit is expressed before the comma and the bureaucrat’s net profit after the comma in each box, with ε being the MNE cost of using legal means to gain access to a service, and θ being the salary of the bureaucrat.

Subscripts have been used in order to underline the fact that the punishment and social stigma might be different for the two agents. The equilibrium (equilibria) reached in the model is determined by the different variables.

The resulting effect of host-country corruption is that the actual cost of conducting business activities in the country is higher than what could be expected based on observable costs such as wages or transport costs. Based on this reasoning, corruption gives rise to extra costs that the MNE has to operate in the host-economy.

If MNE presence does reduce corruption while corruption has a negative effect on FDI there might exist virtuous or vicious circles. If there is little FDI in a country the corruption stays high which discourages the MNE to invest, thus decreasing the FDI. Here we have a vicious circle but the opposite is also possible. If an MNE invests in a country the corruption decreases this further improves the incentives for future investments. If one also assumes that both FDI and low corruption encourages growth the country who finds itself in a virtuous

circle will have a much higher probability of development than one that finds itself in a vicious circle.

We now proceed to try to develop an expression that describes the effect of host country bureaucratic corruption on FDI inflows. We start by introducing a profit function for the MNE:

$$\pi(p, w, \eta) = \max[py - c(w, y, C_{MNE})]$$

where p indicates the world market price of the output y of the MNE, w is the cost of production factors and C_{MNE} represents the MNE cost of corruption as earlier

Use of the expression py implies that demand for the good in the host country is too small to have an effect on the price that the MNE receives for its output. This assumption is most suitable for an export-platform type of FDI as described in Ekholm et al (2003) where the MNE production in the host-country is exported to third country markets. This type of FDI is most likely to appear in developing economies where small domestic markets exclude market-seeking motivated FDI but with low labour costs. This implies that the profit function is most suitable for MNEs that operate in developing economies.

It might be argued that the MNE only starts production in the host country if the expected profit from doing so is larger than some minimum level of profits:

$$E(\pi) = [E(p)E(y) - c(E(w), E(y), E(C_{MNE})))] \geq E(\hat{\pi})$$

where $\hat{\pi}$ is the minimum profit necessary for entry

Therefore, a rise in C_{MNE} , the costs caused by corruption, should decrease the amount of FDI inflows that a host-country receives. It is also possible that MNEs that are already established in the host country decide to close down facilities if the costs of corruption become too high.

2.3 Reducing corruption

In order to improve the potential for FDI-inflows the host-country government could try to reduce the amount of bureaucratic corruption. Of the model variables, the easiest to affect should be the punishment variable, δ . By making the punishment more severe, the expected cost of engaging in corruption should increase and thereby reduce the amount of corruption. Further this does not bring about any additional costs for the home government. Efforts can also be made to increase the effectiveness of corruption investigations, i.e. increase the p variable in equation 3. If p should remain low while δ is increasing this might actually harm the fight against corruption since the increase in punishment can be seen as nothing but cosmetics. The culture variable can be seen as exogenous and therefore difficult to affect in the short run.

An explanation for the widespread existence of corruption in the developing economies can be the low wages of government officials. Since the utility of money is usually assumed to be inversely related to the actual amount earned a state employee with a low salary will benefit more from a given bribe than one with a higher salary. In South India the earnings connected to corruption for an executive engineer were as much as nine times his salary in the 1970s (Easterly, 2002 p.244). Increasing the salary of the employees would therefore reduce

corruption. Besides the current salary the length of time that a normal official could expect to keep the job and the possibilities of advancement in the hierarchy raises the expected future income and thus increases the expected costs of corruption if the official is fired after having engaged in corruption. As different activities have different perceived risks, corrupt bureaucrats will redirect investments and transactions from activities with a high perceived risk to activities with a low perceived risk (see Shleifer and Vishny, 1993 and Bardhan, 1997, p.1326).

Thus one can attack corruption either by lowering the expected relative increase in income, for example by raising the salaries of the government employees, or by increasing the expected costs through more thorough investigations and/or more severe punishments. Finally as can be seen in equation 4 the amount of corruption in a society is also dependent on the amount of possibilities, n , for corrupt practises. The number of opportunities for bureaucratic corruption can be affected by making the decision making process in the country more transparent and thereby limit the bureaucrat's opportunities to bypass the law. This would decrease the incentives for engaging in corruption.

Something that has been common in some developing countries is to keep the exchange rate fixed above the equilibrium level. A fixed exchange rate is believed to make investments in the country more interesting as well as decreasing the costs of input goods in the industries. To be able to maintain an artificially high exchange rate the regime must ration the possibilities to exchange the domestic currency for foreign currency. The rights to change will thus be valuable and a black market will come into existence. Here a possibility for bureaucratic corruption arise, by deregulating the exchange rate the opportunity for corruption disappears. Similar reasoning can be done for trade quotas (see Krueger, 1974, for a discussion on trade licences and corruption) or credit rationing. Trade quotas, fixed exchange rates or credit rationing all provides opportunities for corruption by government officials. An economy free from such regulations should have a lower level of corruption.

Democracy and freedom of speech might imply closer scrutiny of bureaucrats and power holders in the country. Sadly the financing of electoral campaigns might cause corruption to increase. If public funds are generally unavailable as in Africa, the campaign financing has to come from the candidates own pockets. This might induce future corruption as the candidate tries to recuperate his money while holding office. Or if the candidate is lacking funds, he might get them from private sponsors in exchange for future services.

2.4 MNE effects on bureaucratic corruption

The fact that the quality of host-country institutions should affect the entry decision of an MNE is a straightforward assumption. However, North (1990) also claims that organisations in the form of firms or political parties etc can affect institutions. Based on this argument, how could an MNE affect host-country institutions? How can MNEs' potential ability to affect host-country corruption be taken into account in the framework that we have constructed? We argue that an MNE can affect the severity of corruption both before and after it has entered the host-country.

The link for MNE effects on corruption before entering the host-country arises from the existence of FDI incentives and restrictions. Existence of corruption in the host-country is something that an MNE can point to while negotiating the conditions for investment. The host-country government can offer incentives such as tax holidays to try to compensate for the costs of corruption. The host-country government naturally has a large influence on the

potential activities of the MNE. The government has the power to dictate the conditions under which investment can take place. On the other hand, the MNE also has influence assuming that the host-country government regards the investment as something potentially beneficial for the host-country. The MNE can for example demand that formal business regulations have to be improved in order to try to decrease the severity of corruption. The MNE could also threaten to locate its production to another host-country. Wei (2000b) argues that restrictions of MNE operations in a host-country and corruption might be positively correlated. It is indeed possible that a complex and restrictive regulatory FDI framework increases the problems of bureaucratic corruption if such a framework is also characterised by arbitrariness. On the other hand, actual development has been towards host-country deregulation of FDI restrictions. The reason for this is that governments have a positive view of FDI and expect that the benefits from FDI outweigh possible disadvantages. The negotiation of investment deals is therefore a possible channel through which MNEs can affect host-country institutions and corruption even before entering the economy.

How can MNEs affect corruption after they have entered the host-country? The presence of multinational enterprises may reduce the amount of corruption in the host country. If the MNE has a hostile view towards corruption and the MNE has a certain size it may influence the government to adopt anti-corruption policies and thereby increase both the p and δ variables, reducing the total amount of corruption in the economy. Another possibility is that the MNE can affect the business culture and thereby increase the α variable. A hostile MNE attitude to bureaucratic corruption could possibly influence other firms to adopt a similar stance. If on the other hand the MNE regard corruption as something inevitable if they are to invest in the country they might increase corruption. As an MNE is likely to be more efficient than domestic firms, MNEs would be willing to pay higher bribes since its expected earnings are higher than for domestic firms. As bribes become higher more bureaucrats might become corrupt and/or the bureaucrats might try to create more red tape as to be able to extract more from the MNE.

If MNE presence does tend to reduce the existence of corruption while corruption has a negative effect on the size of FDI inflows there might exist virtuous and vicious circles. As long as the inward stock of FDI in a corrupt country remains small corruption remains high, *ceteris paribus*, discouraging MNEs to invest, thus keeping FDI inflows small and resulting in a vicious circle. However, if an MNE increases its production activities in the host-country it will achieve a growing influence on the economy. The MNE might therefore be more and more reluctant to accept corrupt behaviour. MNE interaction with local firms might influence the behaviour of these firms and make them question existing business practices. This implies that the value of α in equation 3 above would increase, making bureaucratic corruption less likely to occur. MNE investment could therefore result in a reduction of corruption which in turn decreases the MNE costs for operating in the economy, thereby improving the incentives for future foreign direct investment. If one also assumes that FDI-inflows and reduced corruption encourages economic growth this growth could further increase the size of future FDI inflows. The country who finds itself in a virtuous circle will therefore have a higher probability of development than one that finds itself in a vicious circle.

3.0 MEASURING THE EXISTENCE OF CORRUPTION

This section provides a short description of the problems of measuring corruption and describes the index that we have chosen as a proxy for corruption in this paper. Some indicative data that merits a more formal investigation of the relationship between FDI and corruption is also presented.

3.1 How to measure corruption: the Corruption Perceptions Index (CPI)

The fact that corruption is illegal in most economies makes it very difficult to find data that directly measures this phenomenon. Objective data such as the number of corruption convictions raise many questions about validity and could be misleading. For example, the fact that a country has few or no convictions of corruption could have several explanations. One is that corruption indeed is a minor problem. However, it can also be the case that the number of convictions is low due to an inefficient law administration or a forgiving attitude towards corruption. Therefore, in order to provide a more correct picture corruption has to be measured indirectly using subjective rather than objective data.

There are several indices of corruption available that rely on subjective perceptions-based evaluations of the business climate. Indices are based either on surveys of business people or on studies by country analysts or a combination of both. The advantage of surveying business people is that these individuals have a first-hand experience of how corruption affects actual business operations.

A potential problem of corruption measures is that these might rather work as indicators of general host-country institutional quality. However, as we have argued earlier there should indeed be a strong link between the lack of market economy institutions and the existence of corruption. We argue that underdeveloped market economy institutions provide opportunities for corruption.

In this paper we have chosen to use the Corruption Perceptions Index (CPI) constructed by Transparency International (TI)² as our measure of host-country corruption. The difficulties in measuring corruption discussed above merits a description of the CPI. The CPI has been reported since 1995 and the number of countries covered has gradually increased. In the 2003 survey, 133 countries were included. The CPI ranges from 0 to 10 where 10 equals a perfectly clean country while 0 indicates a country where business transactions are entirely dominated by corruption. The CPI is a composite index and is constructed from several different sources in the form of surveys of business people as well as assessments by country analysts. 17 different sources were used for the 2003 survey. Assessments from the three previous years are combined to reduce variations.

Definitions of corruption differ between the sources but we believe that the CPI is a reasonable proxy for the extent of bureaucratic corruption in a country. The inclusion of surveys of business people in the CPI should imply that corruption effects on business operations are taken into account. It is also important to remember that the CPI is a measure of *perceived* rather than real corruption. Transparency International and the University of Passau (2003) describes the construction of the CPI in detail.

² Transparency International is a non-governmental organisation with the aim of curbing corruption. It was founded in 1993 and has over ninety offices globally.

3.2 Existence of corruption

In the end of section 2.1 we argued that bureaucratic corruption should be more common in developing and transition economies due to these economies having institutions that are less market economy oriented. Table 1 below presents the ten economies that were perceived to be the most corrupt among the 133 countries that were included in the CPI 2003 survey.

Table 1 *The ten economies with the highest perceived corruption in the CPI 2003 survey*

Economy	CPI 2003
Bangladesh	1.3
Nigeria	1.4
Haiti	1.5
Paraguay	1.6
Myanmar	1.6
Tajikistan	1.8
Georgia	1.8
Cameroon	1.8
Azerbaijan	1.8
Angola	1.8

Source: Transparency International (2003)

According to the table, Bangladesh was perceived to be the most corrupt country among those included in the 2003 survey. Table 1 suggests that it is primarily developing economies that have the largest perceived corruption. However, it is also interesting to note that while developing economies dominate there are also three transition economies (Azerbaijan, Georgia and Tajikistan) included. As far as geographical regions are concerned Africa, Asia and Eastern Europe dominate. Only Haiti and Paraguay are located elsewhere.

While Table 1 provides some tentative indications it might be instructive to try to give a more general description of the extent of corruption in different regions. Table 2 below presents the CPI as well as the inward stock of FDI for regions and country groups. If our earlier reasoning has any truth to it and the indications of Table 1 are correct, developing economies and transition economies should score low on the CPI. Our reasoning also suggests that those regions that score low on the CPI should have little MNE activity in the form of FDI.

Table 2 *Corruption Perceptions Index*

Region / country	CPI score averages 2003	Inward stock of FDI per capita 2000
<i>Region</i>		
EU-north ^a	9.50	9 521
EU	7.26	5 927
Central and Eastern Europe ^b	4.40	1 200
South East Asia ^c	3.85	378
South America ^d	3.52	1 102
Africa ^e	2.81	219
CIS ^f	2.46	140
<i>Country groups</i>		
Developed ^g	7.97	4 675
Transition ^h	3.33	373
Developing ⁱ	3.26	426
Least developed ^j	2.54	24

Source: CPI score averages are based on Transparency International (2003), FDI stock from UNCTAD (2003) and population data from Penn World Tables.

Notes:

a: Denmark, Finland and Sweden.

- b: Includes Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.
c: Includes Bangladesh, China, Hong Kong, India, Indonesia, South Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka and Thailand.
d: Excluding Guyana and Suriname.
e: Includes Algeria, Cameroon, Egypt, Ethiopia, Gambia, Ghana, Ivory coast, Kenya, Madagascar, Malawi, Mali, Morocco, Mozambique, Nigeria, Senegal, South Africa, Tunisia, Uganda and Zimbabwe.
f: Includes Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russia, Tajikistan Ukraine and Uzbekistan.
g: Includes the countries in the EU group and Australia, Canada, Iceland, Israel, Japan, New Zealand, Norway, Switzerland and the US.
h: Includes the countries in the Central and Eastern Europe and CIS groups.
i: Includes the countries in the South East Asia, South America and Africa groups and the Dominican Republic, El Salvador, Guatemala, Honduras, Iran, Lebanon, Mexico, Nicaragua, Panama, Syria and Yemen.
j: Includes Bangladesh, Madagascar, Malawi, Mali, Mozambique, Senegal and Uganda.

According to Table 2, it is obvious that the more developed an economy is, the less severe the perceived corruption is expected to be. The developing, transition and least developed economies have a much higher perceived corruption than the developed economies according to the CPI. As far as regions are concerned, Table 2 suggests that corruption in Africa and the CIS is perceived to be higher than in Asia and South America. The inclusion of inward stocks of FDI in the table indicates an interesting potential relationship. Regions and country groups that have more severe problems of corruption also tend to have smaller stocks of inward FDI. This supports our argument from section 2.2 that corruption tends to deter FDI inflows due to increased costs of operation for MNEs. The data presented in Table 2 suggests that a more formal investigation might be in order to study the relationship between corruption and FDI inflows.

In section 2.4 we discussed the link between MNE business culture and bureaucratic corruption. We argued that the business culture differs between developed and developing economies. The potential for business culture to affect bureaucratic corruption depends on what types of economies that are responsible for the flows of FDI. Table 3 below tries to answer this question.

Table 3 *Inward and outward FDI stocks*

Country group	Inward stock 2002	Outward stock 2002
World total	7 122 506	6 866 362
Developed	4 594 850	5 987 746
Developing	2 339 632	849 464
Least developed	46 099	3 223

Source: UNCTAD (2003) Annex table B. 3 and B. 4

As can be observed from Table 3 the majority of total FDI flows between developed economies. The developing economies have a very limited share of the total outward stock of FDI, less than 15%. FDI inflows to both developed and developing economies are strongly dominated by MNEs located in developed economies. The inflows of FDI to developing economies are therefore strongly dominated by firms having a business culture that should be much more hostile towards corruption.

Since corruption is perceived to be less common in the developed economies the limited differences in the extent of corruption between these economies should have a weak effect on the amount of FDI inflows that they receive. This implies that the extent of corruption could not be used to explain the large amount of FDI inflows to developed economies but that it

should be an important factor for explaining the small amount of FDI inflows to a country such as Bangladesh or Mozambique.

The data presented in this section indicates that corruption is more widespread in economies having less market-economy oriented institutions. These economies also seem to have small inward stocks of FDI, possibly resulting from high MNE operation costs caused by corruption. In the following section we perform a more formal analysis of the link between host country corruption and FDI inflows.

4. ESTIMATING THE EFFECT OF CORRUPTION ON FDI **PRELIMINARY!!!!**

4.1 The regression equation

Since we are interested in determining what affects the size of FDI inflows we use FDI inflows to the host country as the dependent variable. Based on the reasoning in section two we conclude that the extent of host-country corruption should have a negative effect on the size of FDI inflows. We use the CPI as a proxy for corruption. The CPI is introduced as the explanatory variable CORRUPT to take the extent of host-country corruption into account. We transform the CPI so that high figures correspond to a large amount of corruption.

However, it is also necessary to control for other variables that are important for the amount of FDI inflows that a host-country receives. One important reason for MNEs to invest in foreign economies is *market-seeking*, trying to satisfy the local demand for goods through local production. Most empirical studies of FDI determinants have included explanatory variables trying to measure the local market demand in the host-country. GDP or population is normally used to proxy for host-country demand. Studies such as Culem (1988) and Brenton et al (1999) have found that the size of GDP or GDP per capita has a significant effect on the size of FDI inflows. We therefore include host-country GDP as an explanatory variable in our regression model.

It is also possible to argue that the degree of openness should affect MNEs decision to invest in a host-country. Openness is defined as exports and imports divided by GDP and measured in constant prices. Earlier studies such as Brenton et al (1999) have found that flows of trade and FDI are complements. We therefore introduce the explanatory variable OPEN as a measure of the openness of the host-country.

Based on this reasoning, the following regression equation has been constructed:

$$FDI_{it} = \beta_0 + \beta_1 CORRUPT_{it} + \beta_3 GDP_{it} + \beta_4 OPEN_{it} + \varepsilon_{it}$$

Table 3 below presents the signs that we expect the explanatory variables to have.

Table 3

Variable	Expected sign
CORRUPT	-
GDP	+
OPEN	+

4.2 Data

For the dependent variable we use annual inflows of FDI from UNCTAD (2003) for the years 1996 to 2000. GDP and the openness variable are collected from Penn World Tables. The CPI has already been described above.

...

4.3 Regression results

...

We run a preliminary OLS regression on the data.

Model	B	Std. error	t-value	Sig.
Constant	5519.373	4386.044	1.258	.209
CORRUPT	-2152.249	471.399	-4.566	.000
GDP	1.948E-05	.000	19.518	.000
OPEN	103.887	30.923	3.360	.001
Dependent variable = FDI-inflows		Adjusted R ² = 0.575		
Number of observations = 337				

These preliminary econometrics indicate that there seems to be a relationship that is worth examining using more appropriate panel-data techniques.

5. CONCLUSIONS (PRELIMINARY...)

This paper analyses the relationship between host-country corruption and FDI inflows. It is claimed that corruption arises as a result of a lack of functioning market economy institutions. A simple model including bureaucrats and MNEs describes how bureaucratic corruption tends to increase MNE costs for operating in the host-country. Among other things the model shows how the attitude towards corruption in the host-country affects a bureaucrat's incentives to engage in corruption.

Increasing costs caused by corruption would tend to discourage MNEs from entering, resulting in smaller inflows of FDI. The paper uses the Corruption Perceptions Index constructed by Transparency International in a regression analysis in order to find whether host-country corruption indeed discourage FDI inflows. Preliminary results indicate a negative relationship between host-country corruption and FDI inflows.

REFERENCES

- Ades, A. and Di Tella, R., (1999), Rents, competition and corruption, *The American Economic Review*, 89, 982-993
- Andersson, S., (2002), Corruption in Sweden, exploring danger zones and change, Dissertation, Umeå University
- Bardhan, P., (1997), Corruption and development: a review of issues, *Journal of Economic Literature*, XXXV, 1320-1346
- Brenton, P., Di Mauro, F., and Lucke, M., (1999), Economic integration and FDI: an empirical analysis of foreign investment in the EU and in Central and Eastern Europe, *Empirica*, 26, 95-121
- Campos, JE., Lien, D., and Pradhan, S., (1999), The impact of corruption on investment: predictability matters, *World Development*, 27(6), 1059-1067
- Culem, C.G., (1988), The locational determinants of direct investments among industrialised countries, *European Economic Review*, 32, 885-904
- Easterly, W., (2002); *The Elusive quest for Growth*, The MIT Press, Cambridge, Massachusetts
- Ehrlich, I., and Lui, F.T., (1999), Bureaucratic corruption and endogenous economic growth, *The Journal of Political Economy*, 107, 270-293
- Ekholm, K., Forslid, R. and Markusen, J.R., (2003), Export-platform foreign direct investment, Working Paper 9517, NBER
- Flatters, F. and Macleod, W.B., (1995), Administrative corruption and taxation, *International Tax and Public Finance*, 2, 397-417
- Hines, J.R., (1995), Forbidden payment: foreign bribery and American business after 1977, Working Paper 5266, NBER
- Kaufmann, D., and Wei, S-J., (1999), Does grease money speed up the wheels of commerce?, NBER Working Paper 7093, NBER
- Khemani, S., (2003), Political cycles in a developing economy: effect of elections in the Indian States, *Journal of Development Economics*, 73, 125-155
- Krueger, A., (1974) The political economy of the rent-seeking society, *American Economic Review*, 64, 291-303
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., (1998), Law and Finance, *The Journal of Political Economy*, 106, 1113-1155
- Mauro, P., (1995), Corruption and growth, *The Quarterly Journal of Economics*, 110, 681-712
- Mody, A., and Wheeler, D., (1992), International investment location decisions: The case of U.S. firms, *Journal of International Economics*, 33, 57-76
- North, D., (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Press
- North, D., (1991), Institutions, *Journal of Economic Perspectives*, 5, 97-112
- Putnam, R. D., (1993), *Making Democracy Work, Civic Traditions in Modern Italy*, Princeton University Press, New Jersey
- Rose-Ackerman, S., (1978), *Corruption A study in political economy*, Academic Press, London
- Sen, A., (2002), Utveckling som frihet, Daidalos, Göteborg
- Shleifer, A and Vishny, R (1993), Corruption, *The Quarterly Journal of Economics*, 108, 599-617
- Tanzi, V., (1998), Corruption around the world: causes, consequences, scope and cures, IMF Working Paper 98/63, IMF, Washington

- Transparency International (2003), Transparency International Corruption Perceptions Index 2003, 16 February 2004 [Online]
<http://www.transparency.org/pressreleases_archive/2002/2003.10.07.cpi.en.html>
- Transparency International and University of Passau (2003), Background paper to the 2003 Corruption Perceptions Index, 16 February 2004 [Online]
<<http://www.transparency.org/cpi/2003/dnld/framework.pdf>>
- Transparency International (2004), World Bank: corruption, inefficiency cost Bangladesh, 8 March 2004 [Online]
<<http://www.transparency.org/cgi-bin/dcn-read.pl?citID=105139>>
- Treisman, D., (1999), The cause of corruption, a cross-national study, SITE, Stockholm
- UNCTAD, (2003), *World Investment Report 2003*, United Nations, Geneva
- Wei, S-J., (1997), Why is corruption so much more taxing than tax? Arbitrariness kills, NBER Working Paper 6255, NBER
- Wei, S-J, (2000a), How taxing is corruption on international investors?, *The Review of Economics and Statistics*, 82, 1-11
- Wei, S-J, (2000b), Local corruption and global capital flows, *Brookings Papers on Economic Activity*, 2000 (2)