Corruption and FDI under Uncertainty

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Abstract

We analyse the effect of uncertainty about the level of corruption in the host country on an MNE’s choice between FDI and exporting and methods that can be adopted by the host government to induce FDI. We show that when the host government cannot credibly signal its type, the likelihood of a host government being corrupt and the level of corruption in the host government if corrupt both deter FDI into the country, whose government’s true type is unknown to the foreign investor. If the host government credibly can signal its type, an honest host government could induce FDI by reducing corruption in the country, under incomplete information. When the foreign firm can learn about the true type of the host government from its past investment experiences, it becomes easier for the honest host government to induce FDI.

1 Introduction

There has been increased awareness in recent years of the importance of corruption in a host country on FDI inflows to the country, with survey evidence and empirical studies both suggesting corruption is an important factor in firms’ decisions. However, a related issue that has received less attention is that of uncertainty over the level of corruption. Corruption tends, by its nature, to be accompanied by a lack of transparency that means that, even when a firm is aware that corruption exists in a country in which it is considering investing, the effect of the corruption on the costs faced by the firm will be uncertain. In this paper we address this gap in the literature, using a simple theoretical model to show how uncertainty over the level of corruption can deter investment and to investigate the conditions under which an honest government can successfully signal its type to attract FDI.

It has been argued by Rose-Ackerman (1999), Shleifer and Vishny (1993), Bliss and di Telia (1997), Tanzi (1998), Luis et al. (2003) and Aidt (2003) that due to the illegal nature of corruption, no corrupt deal can be enforced by the legal system, which provides an incentive for the

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host government to demand additional bribes after the initially agreed payment. This temptation is only restricted by a government’s concerns regarding its reputation for being corrupt. Because it is well known that different governments have different degrees of concern regarding their reputation, it is normal for different countries to have different levels of corruption.

What is more, it has been shown by Sheifer and Vishny (1993) that countries with unorganised or uncoordinated corruption, or with free entry to set up regulation, would have a tendency to introduce new regulation to induce bribes from businesses. As a result, firms operating in these countries would suffer from a much higher level of corruption. This implies that countries with different institutional structures would experience different levels of corruption.

Earlier work on corruption and FDI has assumed that the investing firm knows the exact characteristic of the host government when making its investment choice. However, in practice, it is normally impossible for a foreign firm to know a host government’s true attitude towards its reputation or its institutional structure before investment takes place, therefore even when it can easily observe whether corrupt practices exist or not in a market, information regarding their exact level is likely to be incomplete. As pointed out by Rodriguez et al. (2002), one of the main challenges facing MNEs is to know the exact corruption level in a foreign country. Hence to fully understand the impact of corruption on FDI, one should take this incomplete information into account.

Despite the potentially important effect of incomplete information regarding the level of corruption in the host country on MNEs’ investment choices, it has rarely been studied using formal models in the literature.\(^1\,^2\) Wei (1997) was the first to study this modelling the type of uncertainty regarding the level of corruption in the host country caused by different institutional structures by assuming corruption to be a random variable with a positive known distribution.\(^3\) He showed that a higher level of corruption and higher uncertainty about corruption could both deter FDI. This result was supported by empirical evidence, observed from a study of 2381 unpublished individual responses to the 1997 Global Competitiveness report survey on corruption. Unfortunately, in his study no detailed attention was paid to the possible channels through which the incomplete information could affect MNEs’ entry mode choice.

Other than Wei (1997), Luis et al. (2003) also briefly looked at this issue by assuming there

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\(^1\) There is some speculative discussion of this topic by international business scholars such as Rodriguez et al. (2002).

\(^2\) The broader theoretical literature on corruption and FDI is also limited, with Luis et al. (2003), Hakkala et al. (2008) and Kendall and Zhou (2008) among the few examples.

\(^3\) It is worth noting that in both Wei (1997) and this paper, uncertainty means a foreign firm has incomplete information regarding the level of corruption in the host country. While the foreign firm does not know the exact corruption level, it does know the distribution/probability of corruption in the host country. Our definition of uncertainty here is the same as Knight’s (1921) definition of risk, where the probabilities are well defined, rather than his definition of uncertainty, where the probabilities are imperfectly known or unknown.
is a positive probability that the corrupt deal between the host government and the foreign firm would fail. They showed that the more likely a corrupt deal is to fail, the less likely an investor would be to enter the market via FDI. Because the main objective of their study is to analyse the effects of different forms of anti-corruption policies on firms’ profitability, they did not provide any detailed explanation regarding the possible reasons why the negative effect of uncertainty on FDI may arise.

Unlike the two studies mentioned above, in this paper we will concentrate on the possible channels through which incomplete information regarding the level of corruption in the host country could affect the entry mode choice of the foreign firm. Furthermore, we will also study the possible interactions between the foreign firm and the host government and the possible actions the host government could take to induce FDI under incomplete information. This should provide us with some possible reasons why incomplete information over corruption in the host country can be so destructive to FDI, as well as possible ways in which a host government might be able to reduce its damage.

This paper will concentrate on the sort of uncertainty that is caused by the host government’s lack of commitment over the total bribes demanded, rather than the sort of uncertainty studied by Wei (1997), which is caused by variations in the institutional structure. Here the host government’s corruption characteristic represents the government’s attitude towards its reputation for being corrupt, not the structure of the host institutions. This is because, by assuming that non-discriminatory corruption takes the form of a lump-sum licence fee, we effectively assume that corruption in the host country is centralised. Therefore, the institutional structure of the host country is known.

The rest of this paper is organised as follows. Section 2 outlines a simple one period investment decision model that captures the interaction between a potential MNE and its host government, when the true type of the host government is uncertain for the monopolist. The model is solved under complete information and incomplete information in Sections 3 and 4, respectively. Next, in Section 5, we will look at possible signalling equilibria, where an honest host government can successfully separate itself from a corrupt government by imposing a cut in the lump-sum production licence fee. In section 6, an extension of the one period model to two periods will be investigated, where the monopolist can learn the true type of the host government through its past investment experiences. Finally, Section 7 concludes.
2 The Model

2.1 Assumptions regarding costs and market structure

We assume that the world economy consists of two countries. Country $A$ is the domestic country with inverse demand for a good that can be written as $P = A - Q$, while country $B$ is the foreign country containing a single firm.

Because our main objective is to understand how incomplete information affects the foreign firm’s entry mode choice and the interaction between the foreign firm and the host government, for analytical simplicity we assume that the foreign firm is the monopoly supplier in the market. This means there is no existing or potential domestic firm in country $A$.

The foreign firm has already established a production plant in country $B$. It produces at a constant marginal cost of $C$ per unit.$^4$ The foreign monopolist tries to decide its mode of entry into country $A$’s market. If it chooses to supply country $A$’s demand by exports, it would face a constant tariff of $S$ per unit of its exports, which is exogenous in this model. If instead it chooses to become an MNE and set up a production plant in country $A$, the MNE would be able to produce at the same marginal cost as in its home country $B$. However it needs to pay a fixed plant set-up cost $F$ and a lump-sum licence fee $T(\beta_i)$ to a host government with corruption type $\beta_i$. The level of licence fee is chosen by the government in country $A$, hence it is endogenously determined in this model.

We assume that the host government could implement either a high licence fee or a low licence fee, depending on its type. We assume that the host government in country $A$ has one of two potential types, represented by their different type/characteristic parameter $\beta_i > 0$, where $i = H$(honest) or $C$(corrupt). The host government’s objective function can be written as:

$$\Phi_i = \int_0^q (A - Q)dQ - (A - q)q + lSQ + (1 - l)T(\beta_i)$$

(1)

where $l = 1$ if the foreign monopolist chooses to enter country $A$ through exporting and $l = 0$ if the monopolist chooses to enter though FDI. $\beta_i$ represents the host government’s attitude towards the cost of imposing a particular level of licence fee $T(\beta_i)$. A lower value of $\beta_i$ indicates that the host government worries less about its reputation for being corrupt, which means that other things being equal, it would impose a higher licence fee. Because normally a corrupt government worries less about its reputation for being corrupt than an honest one, here a lower value of $\beta_i$ also indicates that the government is more corrupt, implying that $\frac{dT}{d\beta_i} < 0$, the lower the value of $\beta_i$ (the more corrupt the host government is), the higher will be the lump-sum licence fee imposed. There is a well defined production licence fee $T^*(\beta_i)$ that is determined

$^4$Here $C < A$, otherwise country $A$ would have zero supply of the good.
by the characteristic of the host government and maximises the objective function of the host government, which means that for any licence fee $T(\beta_i) \leq T^*(\beta_i)$, $\frac{\partial \Phi^H}{\partial T} > 0$ and $\frac{\partial^2 \Phi^H}{\partial T^2} < 0$.

Taking the market conditions and the foreign firm’s cost structure as given, we assume that when a host government is “honest” ($i = H$), its optimal licence fee enables the foreign firm to make higher profit by FDI than exporting, while the opposite is true when it is “corrupt” ($i = C$). Hence $\beta_H > \beta_C$ and $T^*(\beta_H) < T^*(\beta_C)$. This is assumed in order to capture the often observed fact that corruption increases the costs of FDI and make otherwise profitable investment projects unprofitable.\(^5\) For instance, the survey carried out by Control Risk and Simmons & Simmons revealed that a host country’s reputation for being corrupt could deter more than 35% of the MNEs surveyed from investing in otherwise profitable investments. Therefore, here we assume that a host government is relatively honest if, even with non-discriminatory corruption, the foreign firm would still choose to invest in the host country. On the other hand, the host government is relatively corrupt if the presence of non-discriminatory corruption deters otherwise profitable FDI.\(^6\)

To simplify our analysis, here we assume that the licence fee takes the form below:\(^7\)

$$T(\beta_i) = T - \beta_i T^2$$

Given this, the objective functions of the honest and corrupt types of host government can be written as:

$$\Phi_C = \int_0^q (A - Q) dQ - (A - q)q + lSQ + (1 - l)[T - \beta_C T^2]$$
$$\Phi_H = \int_0^q (A - Q) dQ - (A - q)q + lSQ + (1 - l)[T - \beta_H T^2]$$

Here $T$ represents the gain for the host government from imposing a higher level of licence fee, while $\beta_i T^2$ represents the cost to the host government of imposing a particular level of licence fee $T$. We can think of these respectively as a direct financial gain and a reputational cost to the host government of being seen as a “grabbing hand” towards private businesses, which could reduce its chance of being re-elected. Therefore, the host government needs to make a trade-off between the gain and loss from imposing a particular level of licence fee $T$ when choosing the level of non-discriminatory corruption in the host country.

Given the assumptions on production technology, market conditions and government actions, two additional assumptions are needed for our analysis of the possible market equilibrium and

\(^5\)Although Kendall and Zhou (2008) show that corruption can increase the profitability of FDI relative to exporting, such cases only arise when corruption affects market structure and prevents entry by a domestic firm. Our assumption in this paper of no domestic firm rules out such effects.

\(^6\)In order to obtain interesting results about the effects of increased corruption, we need the optimal entry mode to differ in the two cases.

\(^7\)Here a quadratic function is chosen to simplify our analysis, but it is not vital for our model’s conclusions. Any function with a maximum production licence fee ($T$) would generate qualitatively similar results.
the foreign firm’s entry mode choice. First, both the foreign monopolist and the different types of host government are risk neutral. This implies that they make their decisions based on expected values. Secondly, if the monopolist was indifferent between investing in country $A$ and not investing, it would invest in the country, while if either type of host government is indifferent between signaling correctly and incorrectly, it will always choose to signal correctly.\textsuperscript{8}

\section*{2.2 Description of the game}

The game we are going to(11,10),(992,986) study here is a Bayesian game, where there are 2 players, the foreign firm that tries to decide its mode of entry into country $A$ and the host government in country $A$. The foreign firm has one type, which is known by country $A$’s government, that is the government in country $A$ has perfect information regarding the cost structure of the foreign firm. On the other hand, the host government has two possible types represented by its characteristic parameter $\beta_i$. The exact type of the host government (whether the host government has $\beta_H$ or $\beta_C$) is not known by the foreign monopolist. Even though the foreign firm does not know the exact type of the host government when it makes its entry choice, it knows that the probability of the host government being corrupt is $\alpha$. This is assumed to characterise the fact that although it is normally impossible for the foreign firm to observe the underlying institutions and attitudes of the host government, with help from international organisations and private corporations such as the World Bank, IMF, Transparency International, World Economic Forum and Economist Intelligence Unit, the foreign firm can form an expectation about the probability of corruption in the host country.

The time line of the game between the foreign monopolist and the host government of country $A$ can be represented as follows: at $t = 0$, before the game starts, nature chooses a type for the host government in country $A$ randomly, then reveals it to the host government but not to the monopolist. However the monopolist knows the probability of the host government being corrupt. Next, at $t = 1$, the monopolist decides its mode of entry into country $A$ and the level of output it will supply. The government in country $A$ observes what has been chosen and chooses the level of licence fee it will impose. After this the game will end and the payoffs will be realised.

Here the equilibrium we are going to study is a pure strategy Bayesian Nash Equilibrium (hereforth called Bayesian NE for short). In our case a strategy profile will be a Bayesian NE if, given the foreign firm’s belief about the type of the host government, both the foreign firm and the two types of host government would maximise their own (expected) payoff by playing the given strategy, when the other player also adheres to its given strategy. For the given

\textsuperscript{8}These assumption are common in studies of incomplete information, and their relaxation would not affect our main results.
strategy profile to be a Bayesian NE, the belief of the foreign firm regarding the type of the
host government must be consistent with the given strategies of the corrupt and honest types
of host government and updated using Bayes’ rule. Under incomplete information, the belief of
the foreign firm regarding the true type of the host government is required for the foreign firm
to construct its expected profits and determine its optimal mode of entry into the host country,
conditioned on its expected profits. In the following sections we will discuss the foreign firm’s
beliefs in more detail.

In this game the strategies for the foreign monopolist are its choice of entry mode (either
exporting or FDI) and its output level. The strategy for each type of host government is its choice
of the level of production licence fee \( T(\beta_i) \), given its particular type parameter \( \beta_i = \beta_H, \beta_C \).
Here, because the foreign firm has only one type, which is known by the host government, the
payoff for the host government is certain and is represented by its objective function (3). On the
other hand, because the true type of the host government is unknown to the foreign firm but
its probability of being a specific type is known, the payoff for the foreign firm is its expected
profit.

3 Under complete information

As a benchmark, we will first study the entry choice of the foreign firm under complete infor-
mation. In this case the foreign firm knows the exact type of the host government \( (\beta_i) \) when
making its entry decision, which means that the foreign firm would have a belief that the host
government is honest with probability 1 if the host government is known to be honest, and it
would have a belief that the host government is corrupt with probability 1 otherwise. The payoff
for the foreign firm would be its profits instead of its expected profits.

Because in this case there is no asymmetric information regarding the exact type of the host
government, the foreign firm knows the exact level of licence fee that will be imposed by the
host government in country \( A \). Also, because here information is perfect, the equilibrium we are
going to study is the same as a normal NE and we can solve this game by backward induction.

At the final stage of the game, given that FDI has taken place and given its objective function
in (3), the payoff for the host government is:

\[
\Phi^F_H = \int_0^q (A - Q)dQ - (A - q)q + T - \beta_H T^2
\]  (4)

The best response for the honest type host government, given that the foreign firm chooses FDI
and quantity \( q \) can be found by differentiating its objective function with respect to the level of
licensure fee $T$, is given by:

$$\frac{\partial \Phi_H^F}{\partial T_H} = 1 - 2\beta_H T_H = 0$$

$$T_H^* = \frac{1}{2\beta_H}$$

(5)

Here it is worth noting that the best response of the honest type only depends on its own type parameter $\beta_H$ and not on the quantity chosen by the monopolist. This is a direct result of our assumption of the lump-sum nature of the production licence fee.

Similarly, when the foreign firm chooses to enter via FDI and chooses quantity $q$, the objective function for the corrupt type host government and its best response is:

$$\Phi_C^F = \int_0^q (A - Q)dQ - (A - q)q + T - \beta_C T^2$$

$$T_C^* = \frac{1}{2\beta_C}$$

(6)

Because it is assumed that an honest government worries about its reputation more than a corrupt government, $\beta_H > \beta_C$, we know that the optimal level of licence fee would be higher for the corrupt type, $T_H^* < T_C^*$. 

On the other hand, if the foreign monopolist chooses to enter country $A$ through exporting, then the strategy of the host government would be off the equilibrium path and non-binding. This means that any of its strategies, including choosing the licence fee $T^*(\beta_i)$, would be optimal in this case. As a result, let us assume that the honest and corrupt host governments would impose $T_H^*$ and $T_C^*$ even when FDI does not take place.  

The above discussion shows that, regardless of the strategy choice of the foreign firm, $T^*(\beta_H)$ would maximise the payoff for the honest type host government, while $T^*(\beta_C)$ would maximise the payoff for the corrupt type host government, therefore in any equilibrium it is optimal for the host government to choose its optimal licence fee. As a result, the rational foreign firm would know that the honest host government will always impose $T^*(\beta_H)$, while the corrupt host government will always impose $T^*(\beta_C)$.

Given the best responses of the honest and corrupt types of host government ($T_H^*$ and $T_C^*$ respectively), for the foreign firm to choose FDI as its mode of entry it is required that the profits generated from FDI must be at least as high as the profits generated from exporting,

$$\Pi_i^F \geq \Pi_i^E$$

9When the foreign firm chooses exporting as its mode of entry the level of production licence fee imposed by the host government would not affect its profits. Therefore a relaxation of this assumption regarding the host government’s optimal licence fee choice when the foreign firm supplies the country through exporting would not affect the results of our model.
where \( i = H, C \). If the foreign firm chooses FDI as its mode of entry, its payoff can be written as:

\[
\Pi^F_H = (A - Q)Q - CQ - F - T^*_H \\
\Pi^F_C = (A - Q)Q - CQ - F - T^*_C
\]

and the level of output it will choose to maximise its profits, given that it chooses FDI as its mode of entry, can be found by differentiating its profit functions above:

\[
\frac{d\Pi^F_H}{dQ} = A - 2Q - C = 0 \\
\hat{Q}^F_H = \frac{A - C}{2} = \hat{Q}^F \\
\frac{d\Pi^F_C}{dQ} = A - 2Q - C = 0 \\
\hat{Q}^F_C = \frac{A - C}{2} = \hat{Q}^F
\]

(7)

It is worth noting that under our assumption of a lump-sum licence fee, the level of output chosen by the monopolist is independent of the host government’s production licence choice (and hence the type of host government). This supports the prediction by Shleifer and Vishny (1993) that centralised corruption, which can be proxied by a lump-sum fee, has less effect on the economy at the margin than decentralised corruption.

This implies that, regardless of the level of licence fee a host government imposes, given that the foreign monopolist supplies the country through FDI, it will supply a quantity equal to \( \hat{Q}^F \), which means that, given the host government’s choice of optimal licence fee, the maximum level of profit a foreign FDI monopolist can earn equals:

\[
\hat{\Pi}^F_H = \left(\frac{A - C}{2}\right)^2 - F - \frac{1}{2\beta^H} \\
\hat{\Pi}^F_C = \left(\frac{A - C}{2}\right)^2 - F - \frac{1}{2\beta^C}
\]

(8)

On the other hand, if the monopolist chooses to supply country \( A \) through exporting, it will not pay the lump-sum licence fee and, because the level of tariff \( S \) is assumed independent of the type of host government, the type of the host government will not affect its profits. Its profit function can be written as:

\[
\Pi^E_H = \Pi^E_C = \Pi^E = (A - Q)Q - (C + S)Q
\]

The level of output that will maximise the monopolist’s profits, given that it chooses exporting as its mode of entry, can be found by differentiating its profit function. Its optimal output and

\[10\]
maximum profit can be written as:\(^{11}\)

\[
\frac{d\Pi^E}{dQ} = A - 2Q - S - C = 0
\]
\[
\hat{Q}^E = \frac{A-C-S}{2}
\]
\[
\hat{\Pi}^E = \left(\frac{A-C-S}{2}\right)^2
\] (9)

From our assumption about the characteristic of the host government, \(\beta_i\), we know that the optimal level of licence fee imposed by the honest host government would enable the foreign firm to make a higher profit by FDI than exporting, which means that under perfect information the monopolist will invest in country \(A\) if it has an honest government, while it will not invest if the host government is corrupt:

\[
\hat{\Pi}^F_H \geq \hat{\Pi}^E
\]
\[
\hat{\Pi}^F_C < \hat{\Pi}^E
\]

For these to be true, the conditions required for the host government’s costs associated with a higher licence (the value of \(\beta_i\)) can be written as:\(^{12}\)

\[
0 \leq \beta_C < \frac{S^2 - 2S(A - C) + 4F}{8} \leq \beta_H
\] (10)

Given that the licence fee the honest government imposes in equilibrium is \(T^*_H = \frac{1}{2\beta_H}\), the total profits for the foreign monopolist for different types of host government, under complete information, would be:

\[
\Pi = \begin{cases} 
\hat{\Pi}^F_H = \left(\frac{A-C}{2}\right)^2 - \frac{1}{2\beta_H} & \text{if the host government is honest} \\
\hat{\Pi}^E_C = \left(\frac{A-C-S}{2}\right)^2 & \text{if the host government is corrupt}
\end{cases}
\]

Because we know that when the host government is honest it is better for the foreign firm to choose FDI than exporting, and it will get same level of profit from exporting regardless of the type of the host government, \(\hat{\Pi}^F_H \geq \hat{\Pi}^E_H = \hat{\Pi}^E_C\). Thus we know that under complete information the foreign firm would be better off if the host government is honest. In this case, from condition (3), the payoffs for host governments of different types would be:

\[
\Phi_H = \Phi^F_H = \frac{(A-C)^2}{8} + \frac{1}{4\beta_H} \quad \text{if the host government is honest}
\]
\[
\Phi_C = \Phi^E_C = \frac{(A-C-S)^2}{8} + \frac{S(A-C-S)}{2} \quad \text{if the host government is corrupt}
\] (11)

\(^{11}\)Again here the second order condition has been satisfied, hence the output level \(\hat{Q}^E\) is profit maximising.

\(^{12}\)From the condition for the corrupt type we know that \(\frac{S^2 - 2S(A-C) + 4F}{8} > 0\).
In this case, the payoff for the honest host government could be higher than, lower than or equal to the payoff of the corrupt host government, depending on the relative sizes of the licence fee and the per unit trade cost $S$.

4 Incomplete information

In this section we are going to study the entry mode decision of the foreign monopolist, given the licence fee choices of these two different types of host government, under incomplete information. From earlier discussion of Bayesian NE, we know that to find the equilibrium in a Bayesian game, the belief of the foreign firm regarding the host government’s type is required. From the discussion of the game in the previous section we know that here the foreign monopolist is not sure about the true type of the host government, but it knows the probability of a host government being corrupt. The time line of the game means that here we do not allow the foreign firm to receive any signal regarding the true type of the host government. This means the foreign firm believes that any host government in country $A$ is corrupt with probability $\alpha$ and does not update this belief. In this case, the foreign firm would make its entry choice based on its expected profits.

Given the incomplete information and the foreign firm’s belief we observe that:

**Proposition 1** Under incomplete information, when the probability of the host government being corrupt is high ($\alpha > \frac{2\beta_C\beta_H}{\beta_H - \beta_C}$) and the fixed set-up cost is within the appropriate range, the corrupt government will crowd out the honest type, so no FDI will take place in country $A$.

**Proof.** The above proposition means that, given that the chance of a host government being corrupt is high, there will be a Bayesian NE where the foreign monopolist will choose exporting and output $\hat{Q}^E$ as its optimal strategy. From the earlier discussion, we know that if FDI takes place, the honest and corrupt types will choose their optimal licence fees that maximise their payoffs given by (5) and (6). Here, because the foreign monopolist is not sure about the type of the host government and is risk neutral, it will make its entry mode decision based on its expected profits. Given that the foreign firm knows the probability of a host government being corrupt equals $\alpha$, its expected payoff from FDI can be written as:

$$E(\Pi^F) = \alpha \Pi^F_C + (1 - \alpha) \Pi^F_H = (A - Q)Q - CQ - F - [\alpha T^*_C + (1 - \alpha) T^*_H]$$

(12)

Also, from condition (7), we know that when the foreign monopolist chooses to supply country $A$ through FDI, it will choose its level of output to be $\hat{Q}^F = \frac{A - C}{2}$, regardless of the type of the
host government. Hence if the foreign monopolist chooses FDI as its mode of entry, its expected profits can be written as:

$$E(\hat{\Pi}^F) = \left(\frac{A-C}{2}\right)^2 - F - \left[\frac{\alpha}{2\beta_C} \cdot \frac{1 - \alpha}{2\beta_H}\right]$$  \hspace{1cm} (13)

If instead the foreign monopolist chooses exporting as its mode of entry, its profit will not be affected by the different types of host government. From condition (9), we know it will at most get $$\hat{\Pi}^E = \left(\frac{A-C-S}{2}\right)^2$$. The foreign monopolist would choose exporting over FDI (so no FDI will take place in country A) if the expected profit from FDI is less than the profit from exporting. Given the foreign firm’s expected profits under FDI and exporting, represented by conditions (9) and (13), this condition can be written as:

$$E(\hat{\Pi}^F) < \hat{\Pi}^E$$  \hspace{1cm} (14)

As $$\alpha$$ represents the probability of the host government being corrupt, the above condition will be meaningful if and only if $$0 < \alpha^* < 1$$. This will be true if the fixed set-up cost satisfies the condition below:

$$S(A-C) \left(\frac{2\beta_C}{\beta_H - \beta_C}\right) < F < S(A-C) \left(\frac{2\beta_C}{\beta_H - \beta_C}\right)$$  \hspace{1cm} (15)

If the above conditions (14) and (15) hold, then the foreign monopolist will not invest in country A because exporting will generate a higher level of expected profit for the foreign monopolist than FDI. The discussion from the earlier section shows that the best responses for the honest and corrupt types of host government are $$T^*_H$$ and $$T^*_C$$. Therefore the strategy profile where the foreign firm chooses exporting and output equals $$\hat{Q}^*$$, while the honest host government chooses $$T^*_H$$ and the corrupt host government chooses $$T^*_C$$, is a Bayesian Nash Equilibrium where no FDI will take place.

The above discussion shows that when the probability of the host government being corrupt is sufficiently high, the foreign firm is unlikely to earn a higher profit under FDI than exporting. As a result, it would be better for the foreign firm to choose exporting instead. If this happens, the possibility of a corrupt host government would deter all FDI. On the other hand, when condition (14) fails, the foreign firm would choose FDI as its mode of entry, even though the true type of the host government is uncertain. This shows that incomplete information regarding the true type of the host government would induce inefficiency in resource allocation in the sense

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13 These are the best responses for the honest and corrupt host governments because when the foreign monopolist chooses to export, the strategy choice of production licence will be off the equilibrium path and become non-binding.
that it might prevent FDI inflows into a country with an honest host government, which would otherwise attract FDI, or lead to FDI into a country with a corrupt host government, which should not attract FDI.

From the above discussion, we can define the incentive for the foreign monopolist to invest in country $A$ as the expected excess profits from FDI over exporting, which can be represented as:

$$
\Delta = E(\hat{\Pi}^F) - \hat{\Pi}^E = \frac{S(A-C)}{2} - F - \frac{S^2}{4} - \left[ \frac{\alpha}{2\beta_C} + \frac{1-\alpha}{2\beta_H} \right] (16)
$$

The above reasoning can be shown in a different way, if we differentiate the Right-hand-side (RHS) of the above condition (16) with respect to the probability of a host government being corrupt $\alpha$, we can also observe the effect of the foreign firm’s perception of a host government being corrupt on its investment choice. We observe that:

$$
\frac{\partial \Delta}{\partial \alpha} = -\frac{1}{2\beta_C} + \frac{1}{2\beta_H} < 0 \quad (17)
$$

This implies that for the reason just discussed above, a higher probability of the host government being corrupt will reduce the incentive for a monopolist to invest in that country.

Also, if we differentiate the RHS of condition (16) with respect to the host government’s level of corruption aversion $\beta_i$, we can observe the effect of a host government’s attitude towards corruption on FDI.\footnote{Because we assume that $\beta_H > \beta_C$, we know that $\frac{\partial \Delta}{\partial \alpha} < 0$.} It can be show that:

$$
\frac{\partial \Delta}{\partial \beta_C} = \frac{\alpha}{2\beta_C} > 0 \\
\frac{\partial \Delta}{\partial \beta_H} = \frac{1-\alpha}{2\beta_H} > 0
$$

which shows that not only can a higher probability of a host government being corrupt reduce an investor’s incentive to invest in that country as shown above, but so can a lower level of corruption aversion of the host government, regardless of its type being corrupt or honest, when the true type of the host government is uncertain. This is because when a host government is less corruption averse, its costs of implementing a high licence fee would be lower. This implies that in equilibrium, the foreign firm would expect to face a higher licence fee, which would result in a lower expected profit from FDI. This would in turn reduce the excess profit from FDI over exporting and reduce the foreign firm’s incentive to invest in this country. The above discussion\footnote{Here a higher level of corruption aversion means the host government has a higher cost for a given level of licence fee and hence a higher value of $\beta$.}
shows that:

**Remark 1** When the information regarding the host government’s true attitude towards corruption is incomplete, not only can uncertainty itself deter FDI into a country whose government is actually honest, but so can a lower level of corruption aversion of the host government.

In this case, the expected payoff for the foreign firm would be:

$$E(\hat{\Pi}) = \begin{cases} E(\hat{\Pi}^F) = (\frac{A-C}{2})^2 - F - \left[\frac{\alpha}{2S^2C} + \frac{1-\alpha}{2\beta_H}\right] & \text{if } \alpha < \alpha^* \\ \hat{\Pi}^E = (\frac{A-C-S}{2})^2 & \text{if } \alpha \geq \alpha^* \end{cases}$$

From the earlier discussion we know that under complete information the foreign monopolist will only invest in the country with the honest government and the payoff for the honest and corrupt governments can be represented by condition (11). Combining this with the objective function of the host government (3) and the foreign firm’s optimal outputs supplied under FDI and exporting, represented by conditions (8) and (9), respectively, the honest host government would prefer FDI to take place in the host country to exporting if its payoff is higher under FDI, which means:

$$\Phi_F^H > \Phi_E^H$$
$$\beta_H < \frac{2}{2S(A-C)-3S^2}$$ (18)

If we combine the above condition (18) for the host government to prefer an FDI monopolist in the market with the condition required under perfect information for the foreign monopolist to invest in country $A$ only if the host government is honest given by (10), we can observe the condition that is required for FDI to be the optimal choice for both the honest host government and the foreign firm, which can be written as:

$$\frac{S^2 - 2S(A-C) + 4F}{8} \leq \beta_H < \frac{2}{2S(A-C)-3S^2}$$ (19)

Otherwise, either the host honest government or the foreign firm would prefer exporting to FDI. This shows that if the host government is very honest, (i.e. $\beta_i \geq \frac{2}{2S(A-C)-3S^2}$), it might prefer exporting to FDI, even though FDI would generate a higher level of output and consumer surplus. In other words, when a host government cares about its reputation excessively, its own objective might be different from that of the public (consumers in this case). This highlights that not only can a corrupt government have an objective different to that of society as a whole, but so can an honest government. As long as a government cares about things other than total social welfare, there could potentially be conflicts of interest between the government and the public.
At the same time, under complete information we know that the foreign monopolist will supply a country with a corrupt host government by exports. Given the objective function of the host government (3) and the foreign firm’s optimal output supplied via exporting given by condition (9), the payoff for the corrupt type is given by condition (11). In this case, because the foreign firm would never supply a country with a corrupt government by FDI, the corrupt government’s preference between FDI and exporting would not matter.

From the earlier discussion, we know that if the true type of a host government is uncertain and the probability of the host government being corrupt is high, such that condition (14) holds, then the foreign monopolist will not invest in the country. This means that under incomplete information the foreign monopolist would supply this country through exporting, even when the true type of the host government is honest. The payoff for both honest and corrupt governments would be the same and can be written as:

\[ \Phi^E_H = \Phi^E_C = \Phi^E = \int_0^{Q^E} (A - Q)dQ - (A - Q^E)Q^E + SQ^E \]

Comparing this condition (20) with the case of perfect information (11), where the foreign monopolist will invest in the honest host country, here no investment will take place, hence the existence of uncertainty in this case reduces the welfare of the honest government if conditions (14) and (19) hold.\(^{16}\) However, as under both uncertainty and perfect information no investment would take place in the corrupt host country, such uncertainty will not alter the total payoff for the corrupt government.

This shows that a lack of information regarding a host government’s type deters FDI that would otherwise takes place in an honest host country. This makes the honest type of government worse off if condition (19) holds, which might provide the honest government with enough incentive to develop a way of signaling its true type, in order to separate itself from the corrupt government and induce FDI inflow. In the following section, the possible strategies for the honest host government to induce FDI will be discussed.

5 Signaling by the host government

In this section it is assumed that the host government can signal its type to be honest or corrupt, by signing a binding contract with the foreign monopolist regarding the level of licence fee it will impose if the foreign firm chooses FDI as its mode of entry, before the foreign monopolist makes

\(^{16}\)Otherwise, either FDI would take place under incomplete information if (14) fails, or the honest host government prefers exporting to FDI if (19) fails.
its decision on its entry mode. This kind of binding contract between the foreign monopolist and the host government would need to be guaranteed and enforced by a third party, which could be an international organisation such as the IMF or World Bank. Breaching the contract could lead to a reduction in loans or fines to the country, making it costly for the host government to cheat, hence guaranteeing the credibility of the agreement.

For a third party to be willing to monitor such a contractual arrangement between a host government and a foreign firm, the host government needs to pay the costs for the third party to enforce and monitor these contractual arrangements. When the third party is an international organisation such as the World Bank or IMF, the host government normally does not pay them directly to enforce its effort to control corruption, however it is still costly for the host government to signal its type. To reveal its corruption level, advertising and/or promotion might be needed, for instance an FDI promoting agency might be needed to provide information regarding the nature of the host government, which is both time and resource consuming.

Because the optimal production licence fee for the host government is \( T^*_i \), where \( i = H, C \), if it imposes any licence fee that is higher than its optimal fee level \( T > T^*_i \), a lower payoff will be generated. Therefore, keeping other things constant, a government will not impose any licence fee that is higher than \( T^*_i \). For the corrupt type, \( T^*_C \) is its optimal choice and given that \( T^*_C > T^*_H \), it is rational to assume that the only host government that will impose a licence fee at \( T^*_C \) would be a corrupt type. This means that to signal \( T^*_C \) is equivalent to signaling its type to be corrupt, and it is assumed here that signaling its type to be corrupt is costless. As a result, we assume that it will cost a host government \( K(\beta_i) \) to promise any level of lump-sum licence fee that is below the licence fee \( T^*_C \). What is more, the more corrupt the host government is, the higher will be the costs involved in signaling its type \( \frac{dK}{d\beta_i} < 0 \). Because \( \beta_H > \beta_C \), it will be more costly for the corrupt type to promise a production licence fee that is below its optimal fee than an honest host government. Such extra costs can be viewed as the loss of utility from imposing a production licence fee that is below the optimal level for the corrupt type, or can be explained as the extra costs involved in “hiding” its true preference about its optimal production licence fee.

The time line of the game with signaling by the host government can be represented as follows: as before, at \( t = 0 \), before the game starts, nature chooses a type for the host government in

\footnote{It is worth noting that in practice, due to the illegality of corruption, it is hard for any contract regarding the level of corruption to be legally binding. However, the host government can signal its type by announcing its target for corruption control, for instance keeping its corruption at a certain score in corruption perception indices, and apply good practice to control corruption as suggested by international organisations.}

\footnote{Such an assumption can be justified by recent practice by the IMF’s decision to condition its loans to Kenya on its effort to reduce corruption. As here corruption is measured by the level of lump-sum licence fee imposed, it is rational in this model to assume that a third party can be used to guarantee the contract between a host government and foreign firm on the level of licence fee will be implemented.}
country $A$ randomly, then reveals it to the host government but not to the foreign monopolist, while the foreign monopolist knows the probability of a host government being corrupt equals $\alpha$. Next, at $t = 1$, before the foreign monopolist makes its decision on mode of entry and quantity to supply to country $A$, the host government can signal its true type by credibly promising the level of lump-sum licence fee it will impose after the foreign monopolist’s entry. After the foreign monopolist observes the level of production licence promised by the host government, it decides its mode of entry into country $A$ and the level of output accordingly. As the production licence promised by the host government is binding, after the foreign monopolist makes its choices the level of production licence fee promised earlier will be imposed. The game will end and the payoff will be realized.

The strategies in this case for the foreign monopolist are again its choice of entry mode (either exporting or FDI) and its output levels; and the strategies for the two types of host government are the levels of production licence they choose to signal before the foreign monopolist makes its decision. The payoff for the foreign monopolist equals its profits made from country $A$’s market ($\Pi^E_i$ or $\Pi^F_i$, where $i = H, C$). The payoff for the government equals the outcome from its objective function (3) less the signaling costs $K(\beta_i)$,

$$\bar{\Phi}_i^j = \Phi_i^j - K_i$$

where the superscript represents the entry mode choice of the foreign firm, $j = E, F$, and the subscript represents the type of the host government, $i = H, C$.

From the discussion of the time line above we know that here the signaling of the host government, by promising a binding licence fee, enables the foreign firm to update its belief regarding the true type of the host government. The belief would be updated according to Bayes’ rule and needs to be consistent with the equilibrium outcome that results. For instance, in the separating equilibria we are going to study in the following sections, the foreign firm believes that the different types of host government would separate themselves from each other by promising different levels of licence fee, specifically $T_H \leq T_C$. This belief would only be a Bayesian NE belief if, given this belief and the actions of the foreign firm and the two types of host governments, in the equilibrium that results the two types of host government implement different levels of licence fee, as believed by the foreign firm.

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19For notational simplicity $K(\beta_i)$ will be written as $K_i$, which represents the signaling cost for the host government of type $i$. 17
5.1 Self-revelation equilibrium

In this section, as a benchmark for equilibria in signaling games, a possible self-revelation equilibrium will be studied, where each type of host government will signal its type truthfully by promising their optimal licence fee and FDI takes place only in a country with an honest government.

From the discussion of Bayesian NE in the earlier section we know that to find an equilibrium in our game the specification of the foreign firm’s equilibrium belief is required. In a self-revelation equilibrium, one of the possible equilibrium beliefs for the foreign firm can be written as follow:

\[
P(H | T \leq T^*_H) = 1 \\
P(C | T > T^*_H) = 1
\]  

Condition (22) means that if any production licence fee that is equal to or below the optimal lump-sum licence fee of the honest type government was observed, the foreign monopolist would believe the government to be honest, otherwise the government would be believed to be corrupt. From our earlier discussion of the complete information case, we know that the foreign monopolist will invest if the host government is honest, while it will not invest if the host government is corrupt. Hence, given the equilibrium beliefs, the foreign monopolist will only invest if a host government is believed to be honest, which means the equilibrium strategy for the foreign firm would be to only invest if \( T \leq T^*_H \) was observed, and not to invest otherwise.

Given the foreign monopolist’s belief and strategy and the host government’s objective function (21), the expected payoff for the honest type host government from imposing any licence fee below its optimal level \( (T \leq T^*_H) \) can be written as:

\[
E(\tilde{\Phi}_H | T \leq T^*_H) = \frac{(A-C)^2}{8} + T - \beta_H T^2 - K_H \\
\leq \frac{(A-C)^2}{8} + T^*_H - \beta_H T^*_H - K_H
\]

Because \( T^*_H \) maximises the expected payoff of an honest type and \( \frac{\partial \Phi_H}{\partial T} > 0 \), therefore within the range of production licence fees such that \( T \leq T^*_H \), \( T^*_H \) would generate the highest payoff for the honest type. This implies that if the honest type chooses to signal its type correctly, its best choice would be to impose \( T^*_H \).

On the other hand, under the equilibrium beliefs given by (22) and the host government’s objective function (21), if a host government imposes any licence fee in excess of the optimal choice of the honest type, \( T > T^*_H \), it will be believed to be a corrupt government, and as a
result no FDI will take place. Its expected payoff would be:

$$\begin{align*}
E(\tilde{\Phi}_H^E | T_H^* < T) & = \Phi_H^E - K_H \text{ for } T_H^* < T < T_C^* \\
 & = \Phi_H^E \text{ for } T \geq T_C^* 
\end{align*}$$

(24)

From condition (24) above, it is clear that because $K_H > 0$, $\Phi_H^E - K_H < \Phi_H^E$. This means that if the honest type host government chooses to impose a production licence that is above its optimal licence fee but less than or equal to the optimal licence fee of the corrupt type host government, $T_H^* < T \leq T_C^*$, then it would be better off choosing $T_C^*$. Furthermore, because any level of licence fee that exceeds the optimal level of the corrupt host government, $T \geq T_C^*$, would lead to the same level of expected payoff for the honest host government, $\Phi_H^E$, therefore $E(\tilde{\Phi}_H | T_C^*) \geq E(\tilde{\Phi}_H | T > T_C^*)$. This implies that if the honest government chooses to impose a licence fee that is higher than its optimal level, it is optimal for it to choose $T_C^*$.

For the honest type host government to signal correctly, it is required that the honest host government would receive at least as high a payoff by signaling its type correctly (given by condition (23)) as otherwise (given by condition (24)), which can be written as the follows:

$$E(\tilde{\Phi}_H^E | T_H^*) \geq E(\tilde{\Phi}_H^F | T_C^*)$$

(25)

If the above condition (25) is satisfied, the honest type host government will choose to signal its type correctly by promising a licence fee equal to its optimal level, $T_H^*$.

Similarly, given the equilibrium belief represented by condition (22) above and the host government’s objective function (21), the corrupt type, if it chooses to signal its type incorrectly by imposing a production licence $T \leq T_H^* < T_C^*$, will be believed to be an honest government and FDI will take place. In the range of production licence fees $T \leq T_H^* < T_C^*$, it can be seen from the objective function of the corrupt type (condition (21)) that $\frac{\partial \Phi_C}{\partial T} > 0$, hence a higher licence fee would always be preferable. As a result in this case, if the corrupt type chooses to mimic the choice of the honest type, it will choose to promise a licence fee that equals $T_H^*$ and its expected payoff is:

$$E(\tilde{\Phi}_C^E | T_H^*) = \frac{(A-C)^2}{8} + T_H^* - \beta C T_H^* - K_C$$

(26)

On the other hand, if the corrupt type chooses to signal its type correctly by imposing a production licence that exceeds the optimal choice of the honest type, $T > T_H^*$, then it will be believed to be a corrupt type and no FDI will take place. By the same reasoning as for the honest type, the best response for the corrupt type would be to impose $T_C^*$ and its expected
payoff would be:

\[ E(\tilde{\Phi}_C \mid T_C^*) = \frac{S(A-C-S)}{2} + \frac{(A-C-S)^2}{8} \]  

(27)

For the corrupt type to signal correctly, it is required that the payoff for the corrupt type must be as least as high from signaling its type correctly (represented by condition (27)) as otherwise (represented by condition (26)), which can be written as:

\[
\begin{align*}
E(\tilde{\Phi}_C \mid T_C^*) &\geq E(\tilde{\Phi}_C \mid T_H^*) \\
K_C \geq &\frac{3\beta_H S^2 - 2S\beta_H^2(A-C) + 4\beta_H + 2\beta_C}{8\beta_H}
\end{align*}
\]

(28)

Given that the above condition (28) is satisfied, the corrupt type host government would choose to signal its type correctly by promising a licence fee equal to its optimal level, \( T_C^* \). If the two conditions above, (25) and (28), hold simultaneously, both the honest and corrupt type host governments would choose to signal their types correctly by imposing their own optimal licence fee. In other words, there would be a self-revelation equilibrium, where both types signal their type truthfully (the honest type imposes \( T_H^* \) and the corrupt type imposes \( T_C^* \)) and FDI will only take place in a country with an honest host government.

Under such a self-revelation equilibrium, the allocation of FDI is efficient in the sense that it is the same as under complete information. In particular, FDI takes place in the honest country, but not in the corrupt one. The corrupt host country would be supplied by exporting and from its objective function (21) we know that it would be as well off as under complete information. However, from its objective function (21), we know that the total payoff for the country with an honest government is lowered by the amount of signaling costs (\( K_H > 0 \)). This can be viewed as the costs of uncertainty for the honest type host government.

The payoff for the foreign monopolist would be the same as under complete information, which equals \( \hat{\Pi}^F \) if the host government is honest and \( \hat{\Pi}^E \) if the host government is corrupt. This indicates that in such a self-revelation equilibrium the honest type host government is the only player that suffers from the lack of information, while the other two players are as well off as before.

Here let us differentiate the RHS of condition (25) with respect to \( \beta_H \), the honest host government’s cost of having a reputation for being corrupt,

\[
\frac{\partial \text{RHS}(25)}{\beta_H} = -\frac{1}{4\beta_H} < 0
\]

(29)

Condition (29) shows that the more honest the honest host government is, the less likely it
will signal its type correctly. This might sounds counter-intuitive at first glance, the possible reason behind this might be that as a host government becomes more honest, the cost for it to have a reputation for being corrupt rises. This means that if FDI takes place, the host government’s gains from a higher production licence fee, \( T_H^* - \beta_H T_H^{*2} \), falls, so as a result, the total payoff for the host government from signaling its type correctly and inducing FDI, \( \Phi_H^F \), falls. On the other hand, the honest host government will always get \( \Phi_H^E \) regardless of the level of \( \beta_H \) if the foreign firm chooses exporting as its mode of entry. As a result, when the cost to the honest host government of having a reputation for being corrupt, \( \beta_H \), increases, the honest host government’s payoff will not be affected if it signals incorrectly and prevents FDI from taking place. This shows that if the honest host government becomes more honest, the expected gain for the honest host government from signaling correctly and inducing FDI over signaling incorrectly and inducing exporting would fall. Therefore, as \( \beta_H \) increases, the incentive for the honest type to distinguish itself from the corrupt type falls and the honest type will be less willing to signal its type truthfully when signaling is costly.

Similarly, for the corrupt type, if we differentiate the RHS of condition (28) with respect to the honest host government’s attitude towards its reputation for being corrupt, we observe that:

\[
\frac{dRHS(28)}{d\beta_H} = \frac{(6\beta_H S^2 - 4S\beta_H(A-C) + 4) - 3\beta_H^2 S^2 - 2S\beta_H^2(A-C) + 4\beta_H + 2\beta_C}{4\beta_H} \\ (30)
\]

The sign of the above equation (30) cannot be determined, even when combined with the condition for the characteristic parameter of the honest type, (19), as the precise characteristic of the corrupt type is unknown. This shows that the effects of the honest type becoming more honest on the incentive of the corrupt type to signal its type correctly cannot be determined.

This can be explained as follows. The more honest the honest type is, the lower would be the licence fee \( T_H^* = \frac{1}{2\beta_H} \) that separates the two types, which would directly reduce the benefits from cheating and hence reduce the incentive for the corrupt type to mimic the action of the honest type. Therefore on one hand we observe that the more honest the honest type is, the more likely it would be for the corrupt type to signal its type correctly. On the other hand, a lower production licence fee \( T_H^* \) would also mean a lower cost, \( \beta_C T_H^* \), involved in imposing a high level of licence fee, which would raise the benefit from cheating and increase the corrupt type’s incentive to mimic the action of the honest type. As a result, the overall effect of a more honest host government will not only depend on how the honest type’s characteristic parameter changes, but also on the characteristic parameter of the corrupt type itself (\( \beta_C \)).

Specifically, if we differentiate the RHS of the above condition (30) with respect to the characteristic of the corrupt type, we see that \( \frac{dL_2}{d\beta_H \beta_C} = -\frac{1}{2\beta_H} < 0 \) which indicates that the more corrupt the corrupt type is, the more likely it is that when the honest type becomes more honest,
it will cheat. This might be because the more corrupt a host government is, the less would be the costs associated with implementing a particular level of licence fee, as explained above, and the higher would be the gain from the licence fee and FDI, so as a result the corrupt type would be more likely to mimic the action of the honest type.

If we differentiate the RHS of condition (28) with respect to the characteristic parameter of the corrupt type ($\beta_C$), we can see how changes in the characteristic of the corrupt type affects its likelihood of signaling correctly. We observe that:

$$\frac{\partial \text{RHS}(28)}{\partial \beta_C} = \frac{1}{4\beta_H^2} > 0 \quad (31)$$

Condition (31) means that the more corrupt the corrupt type is, the less likely it would be to signal its type correctly. This is because as $\beta_C$ falls, the costs of imposing the same level of production licence would be reduced ($\beta_C T_H^2$ falls), which would provide the corrupt type with an even higher incentive to mimic the action of the honest host government.

### 5.2 Signaling Separating Equilibrium

From the above discussion we know that the corrupt type will only be willing to signal its type truthfully if its incentive constraint holds (condition (28) is satisfied), otherwise the corrupt type would mimic the action of the honest type, which makes the equilibrium belief in (22) inconsistent. In particular, the belief $P(H \mid T \leq T_H^*) = 1$ fails because when condition (28) fails the corrupt host government would mimic the action of the honest host government by promising a licence fee at $T_H^*$, which means the foreign firm would no longer be able to distinguish the two types of host government by the licence fee promised. If this happens, the self-revelation equilibrium discussed above would fail. Instead we observe that:

**Proposition 2** The honest host government can separate itself from the corrupt type and induce FDI by imposing a cut in licence fee.

**Proof.** We will show that there is a separating equilibrium where the honest government will promise a licence fee equal to

$$T^S = \frac{1 - \sqrt{2 - 2\beta_C (A - C) + 3\beta_C^2 S^2 + 8K_C}}{2\beta_C} < T_H^*$$

and the corrupt host government promises a licence fee equal to its optimal level. Under this separating equilibrium, FDI only takes place if the host government is believed to be honest. Under such a separating equilibrium, a possible equilibrium belief for the foreign firm regarding
to the true type of host government in the host country can be written as follows:

\[
P(H \mid T \leq T^S) = 1 \\
P(C \mid T > T^S) = 1
\]  

(32)

The above beliefs (32) and the host government’s objective function (21) imply that if \( T > T^S \) was promised, the foreign firm would believe the host government to be corrupt and would not invest in the country. As a result, if the corrupt type correctly signals its type by promising a licence fee in excess of the separating licence fee \( T^S \), then the foreign monopolist will believe it to be corrupt and use exporting as its mode of entry. In this case, the expected payoff for the corrupt host government would be:

\[
E(\tilde{\Phi}_C^E \mid T > T^S) = \Phi_C^E - K_C \text{ for } T^S < T < T_C^* \\
E(\tilde{\Phi}_C^E \mid T > T^S) = \Phi_C^E \text{ for } T \geq T_C^*
\]  

(33)

Because the cost of signaling \( K_C \) is positive and given that the foreign firm believes the host government to be corrupt, exporting will be used as its mode of entry, therefore promising \( T_C^* \) generates at least as high a payoff for the corrupt type as any other higher licence fee \( T > T_C^* \). It is hence clear that if \( T > T^S \) was imposed, the corrupt type would choose \( T_C^* \).

Given the beliefs (32) above, again the foreign monopolist will only invest if a licence fee less than or equal to the separating licence fee is observed, \( T \leq T^S \). The foreign monopolist believes the host government in this case is honest and invests in the country. If the corrupt type imposes a production licence that is less than the separating licence fee, \( T \leq T^S \), then it will be believed to be honest and given its objective function (21), its expected payoff in this case would be:

\[
E(\tilde{\Phi}_C^E \mid T \leq T^S) = \frac{(A-C)^2}{8} + T - \beta_CI^2 - K_C \\
\leq \frac{(A-C)^2}{8} + T^S - \beta_CT^S - K_C
\]  

(34)

Because \( T^S < T_H^* < T_C^* \), we know that within this range a higher level of licence fee would improve the corrupt host government’s payoff (i.e. \( \frac{\partial \Phi_C}{\partial T} > 0 \)), therefore if the corrupt type chooses to wrongly signal its type to be honest, its best choice would be to impose a licence fee equal \( T^S \). This means that the highest production licence fee that can be imposed by the honest type, without inducing the corrupt type to mimic its action, can be found where, for the given separating licence fee \( T^S \), the corrupt host government is indifferent between signaling correctly and incorrectly, given conditions (33) and (34), which can be written as the follows:

\footnote{It is worth noting that because \( T^S < T_H^* \) and \( T_H^* < T_C^* \) therefore, \( T^S < T_C^* \).}
\[ E(\tilde{\Phi}_C^E | T^*_C) = E(\tilde{\Phi}_C^E | T^S) \]

\[ T^S = 1 - \sqrt{\frac{2 - 2S\beta_C(A - C) + 3\beta_C S^2 - 8K_C}{2\beta_C}} \]

(35)

For the above separating licence fee represented in (35) to be meaningful, it is required that the variables in the square root are non-negative, hence

\[ K_C < \frac{2 + 3\beta_c S^2 - 2S\beta_C (A - C)}{8} \]

(36)

Given the beliefs of the foreign firm represented in (32), if the above condition (36) holds and condition (28) fails, then the licence fee \( T^S \) as shown in (35) would make the corrupt host government indifferent between signaling correctly and not.\(^{21}\)

Similarly, given the foreign firm’s beliefs in (32), if the honest host government chooses to signal its type correctly, as discussed earlier, for all licence fees in the range \( 0 < T < T^S \), it would be optimal for the honest host government to choose \( T^S \). In this case, given its objective function (21), its expected payoff would be:

\[ E(\tilde{\Phi}_H^F | T^S) = \frac{(A - C)^2}{8} + T^S - \beta_H (T^S)^2 - K_H \]

(38)

\(^{21}\)Here we implicitly assume that \( T^S < T^*_H \). For this to hold, it is required that \( \beta_H < \beta_C + \sqrt{\frac{2 - 2S\beta_C(A - C) + 3\beta_C S^2 - 8K_C}{2} \} \) to hold.

\(^{22}\)The conditions required for the corrupt host government to be indifferent between signaling correctly and incorrectly, as well as the possible solutions for the separating licence fee \( T^S \), can be found as follows:

\[ E(\tilde{\Phi}_C^E | T^*_H) = E(\tilde{\Phi}_C^E | T^S) \]

\[ \beta_C (T^S)^2 - T^S + \frac{2S\beta_C(A - C) - 3\beta_C S^2 + 8K_C}{8} = 0 \]

\[ T^*_1 = 1 + \sqrt{\frac{2 - 2S\beta_C(A - C) + 3\beta_C S^2 - 8K_C}{2\beta_C}} \]

\[ T^*_2 = 1 - \sqrt{\frac{2 - 2S\beta_C(A - C) + 3\beta_C S^2 - 8K_C}{2\beta_C}} \]

(37)

If the above condition (36) holds and condition (28) fails (i.e. the corrupt type would not signal truthfully) then the roots we derived earlier (\( T^*_1 \) and \( T^*_2 \)) are meaningful. However they are not both sensible under our current setting. Because \( 2 - 2S\beta_C(A - C) + 3\beta_C S^2 - 8K_C > 0 \), we know:

\[ 1 - \sqrt{\frac{2 - 2S\beta_C(A - C) + 3\beta_C S^2 - 8K_C}{2\beta_C}} < \frac{T^*_1}{2\beta_C} < \frac{T^*_2}{2\beta_C} \]

As we assumed that \( T^S < T^*_H < T^*_C \), we know that \( T^S = T^*_2 \).
On the other hand, given the foreign firm’s beliefs shown in (32), if the honest host government chooses to signal its type to be corrupt, for a similar reason as for the corrupt type, the honest type will also choose $T_C^*$. Given its objective in (21), its expected payoff would be:

$$E(\Phi_H^E | T_C^*) = \Phi_H^E = \frac{S(A-C-S)}{2} + \frac{(A-C-S)^2}{8}$$  \hfill (39)

Therefore, for the honest type to signal its type correctly, it is required that its payoff from signaling its type correctly, given by (38), should be at least as large as if it signals its type incorrectly, given by (39). This can be written as:

$$K_H \leq \frac{3S^2 - 2S(A-C)}{8} + \frac{E(\Phi_H^F | T_S^*)}{\beta^2} \geq E(\Phi_H^F | T_C^*) - \frac{\beta^2(1 - \sqrt{2 - 25S^2(A-C) + 3S^2A^2 - 8S^2C})}{4\beta^2}$$ \hfill (40)

Given the foreign firm’s equilibrium beliefs (32), if the above condition (40) for the honest type holds with condition (36), there will be a separating equilibrium at $T_S^*$. In this case, the honest host government will induce FDI into the country by promising its licence fee to be $T_S^*$, while the corrupt host government will choose to promise its optimal licence fee, and its market will be supplied by exporting. However, when either of these two conditions fails, the honest type will choose to mimic the action of the corrupt type. This shows that in this model, a separating equilibrium does not always exist.

**Remark 2** FDI can help to reduce the level of corruption in the host country.

From the above discussion, we know that when the foreign investor has incomplete information regarding the true type of the host government, it is possible for the honest host government to induce FDI into the country by credibly promising a reduction in its corruption level. If such a separating equilibrium exists then the honest host country would be more “honest”/less corrupt than under complete information, in the sense that it will impose a lower lump-sum licence fee (i.e. $T_H^* > T_C^*$). This means that FDI could help to reduce the level of corruption in the host country that it chooses to invest in, which is supported by a recent empirical study by Larrain and Tavares (2004).

On the other hand, the corrupt type would choose to signal its type correctly by imposing a licence fee equal to its optimal level $T_C^*$, which means that the level of non-discriminatory corruption in the corrupt host country would be the same. In other words, under a separating equilibrium like the one discussed above, FDI could help to reduce the level of corruption in the host country if FDI takes place, however it has no effect in the host country if FDI does not take place. This indicates a widening of corruption gap between honest and corrupt host governments.
Comparing the condition for the honest type of host government in this separating equilibrium, (40), with the condition for the honest type in the self-revelation case, (25), because $T^S < T^*_H$, we know that the RHS of (25) is strictly larger than the RHS of (40). In other words, the condition required for the separating equilibrium here to become an equilibrium is more restrictive than the condition in the self-revelation case. This can be explained as follows. To separate itself from the corrupt type, the honest type needs to impose a licence fee $T^S$ that is so low that it would deter the corrupt type from cheating. At the same time, as the licence fee $T^S$ falls, the total payoff for the honest type falls, which also means a fall in the benefit from inducing FDI. Therefore, to induce the honest type to signal correctly, the signaling cost needs to be lowered.

In this case, the total payoff for the corrupt type is the same as under perfect information, which equals $\Phi^E$. Meanwhile, because $T^S < T^*_H$ and the cost of signaling $K_H$ is positive, the payoff for the honest type is not only lower than under perfect information, but also lower than in the self-revelation case ($E(\Phi^F_H \mid T^S) < E(\Phi^F_H \mid T^*_H) < \Phi^F_H$). On the other hand in this case, as the foreign monopolist pays a lower lump-sum licence fee than under perfect information ($T^S < T^*_H$), the total payoff for the foreign monopolist is higher under incomplete information with a separating equilibrium. This shows that in such a separating equilibrium, again the honest type is the only player who loses from the lack of information regarding the true type of the host government.

6 Two-period Game

In this section an extended model will be considered, where instead of making investment decisions once, the foreign monopolist needs to make its investment decision twice in the host country. This provides the foreign firm with a chance to learn about the true type of the host government from its past experience.

This game will be played as follows. Similarly to the one-period model, at $t = 0$ nature chooses the host government’s type then reveals it to the host government but not to the foreign monopolist. At $t = 1$ the host government signals its type by promising a lump-sum production licence that is binding. Then the foreign monopolist decides if it will invest in country $A$, as well as the quantity it will produce and the host government imposes the lump-sum production licence promised. In the next period, at $t = 2$, if the foreign monopolist has invested in country $A$ at $t = 1$ the producer learns the type of its host government, while it does not know the type with certainty otherwise. The firm decides whether to invest in country $A$ again. If it decides to invest in another plant in country $A$, it needs to pay the fixed cost $F$ again. The game will end and payoffs will be realised.
In this case the payoff for the foreign firm will equal the total profits it will make in the two periods,

$$\bar{\Pi}^j_i = \Pi^1_i + \Pi^2_i$$

while the payoff for the host government equals its total payoff in these two periods less the initial signaling costs,

$$\bar{\Phi}^j_i = \Phi^1_i + \Phi^2_i - K_i$$

where $j$ represents the entry mode choice of the foreign firm ($F$ for FDI or $E$ for exporting) and $i$ represents the type of the host government, $H$ or $C$.

From the discussion of time line above, we know that, similarly to the one-period game discussed in the previous section, here at $t = 1$ the foreign firm could update its belief regarding the true type of the host government in country $A$ based on the licence fee promised by the host government. What is more, in this two-period game, the foreign firm also can update its belief regarding the type of the host government at $t = 2$ if it invested in the host country before, but cannot update its belief otherwise. The foreign firm’s ability to update its belief in the second period if investment was present in the first period highlights the effect of learning from past experience.

Form the earlier analysis we know that if the probability of the host government being corrupt is sufficiently high to prevent the foreign firm from investing in the host country under uncertainty (given by condition (14)), the foreign firm would only invest in the host country in the first period ($t = 1$) if a separating equilibrium exists and the foreign firm believes the host government is honest, while the foreign firm would not invest in the first period otherwise. Given this and from the description of the game, we know that in the last period the type of host government will be known if investment has taken place at $t = 1$. If the foreign firm invested in the host country in the first period and found out that the host government is honest ($\beta_i = \beta_H$), then from the earlier analysis we know that the foreign firm knows that the licence fee the host government will impose will be $T_H^* = \frac{1}{2\beta_H}$, which leads to a higher profit for the foreign firm from FDI over exporting ($\Pi^{2F}_H \geq \Pi^{2E}$). In this case, the foreign firm would again choose FDI as its mode of entry into the host country.

However, if the foreign firm invested in the host country in the first period and found out that the host government is corrupt ($\beta_i = \beta_C$), then from the earlier analysis we know that the foreign firm knows the host government will impose a licence fee equal to $T_C^* = \frac{1}{2\beta_C}$, which leads to a lower profit from FDI over exporting ($\Pi^{2F}_C \leq \Pi^{2E}$). In this case, the foreign firm would

---

23For instance $\Pi^1_i$ represents the level of profit the foreign firm would make in its first investment period if it chooses $j$ as its entry mode and the host government is of type $i$. Similarly, $\Phi^1_i$ represents the level of payoff the host government of type $i$ would make in the first period if the foreign firm chooses $j$ as its mode of entry.
switch its mode of entry to exporting. As a result, if the foreign firm invested in the host country in the first period, it will only invest in the host country in the last period if the government is known to be honest.

On the other hand, if the foreign firm did not invest in the host country in the first period, then in the last period the type of the host government is again uncertain and we know that the probability of the host government being corrupt is sufficiently high to prevent the foreign firm from investing in the host country under uncertainty (condition (14) holds). This means that in the second period the foreign firm would be in exactly the same situation as in the first period, therefore it would again find exporting more profitable than FDI and would choose the strategy it chose in the first period. This shows that if the foreign firm did not invest in the first period, no investment would take place in the host country in the second period.

Given the discussion above, in the next section we will study a possible separating equilibrium where both the honest and corrupt governments signal correctly and FDI takes place in the honest host country in both periods.

### 6.1 Possible separating equilibrium

Similarly to the one period investment case we studied earlier, if the cost of signaling for the corrupt type is low, the corrupt type will find it is more beneficial to mimic the action of the honest type, therefore there will not be a self-revelation equilibrium at \( T^*_H \). Here we are trying to establish a possible separating equilibrium where the honest government tries to distinguish itself from the corrupt type by imposing a cut in the lump-sum licence fee.

First let us assume that there is a separating equilibrium at \( T^{SS} \) in the 2-period investment game, where both types signal correctly. The honest host government needs to impose a cut in its licence fee \( (T^{SS} < T^*_H) \) to induce investment into the country. Because it is a separating equilibrium, which means that in both periods the foreign firm knows the type of the host government, the following beliefs would arise:

\[
\begin{align*}
P(H|T \leq T^{SS}) &= 1 \\
P(C|T > T^{SS}) &= 1
\end{align*}
\]  

The above conditions (43) mean that, similarly to in the one period investment case studied above, if a licence fee that is less than or equal to the given separating licence fee, \( T \leq T^{SS} \), was promised by the host country, the foreign monopolist would believe the host government to be honest and invest in the first period.\textsuperscript{24} On the other hand, if a licence fee that exceeds

\textsuperscript{24}The foreign firm would invest in the host country in the second period if it finds out that the host government is indeed honest in the first period, and would not invest in the second period otherwise.
the separating licence fee, \( T > T^{SS} \), was promised by the host country, the foreign monopolist would believe the host government to be corrupt and not invest in either period.

Given the foreign firm’s beliefs (43) above, if the corrupt host government signals its type correctly, from our earlier analysis we know that its payoff will be maximised at \( T^*_C \).\(^{25}\) The foreign firm will not invest in the host country in either period, given its objective function (42), which means that the total payoff for the corrupt host government in these two periods would equal:\(^{26}\)

\[
\Phi^E_C = 2\Phi^E_C
\]  

(44)

On the other hand, if the corrupt host government chooses to signal its type incorrectly, then its best choice will be to promise a licence fee equal to \( T^{SS} \). In this case, given the beliefs of the foreign firm in (43), FDI will take place in the first period, but in the second period the foreign firm discovers the true type of the host government and no FDI will take place. As a result, given the objective function of the host government in (42), the total payoff for the corrupt host government in these two periods would equal:

\[
\Phi^F_C = \Phi^1_F - K_C + \Phi^2_E
\]  

(45)

From the earlier discussion, we know that for any licence fee that is below the optimal level of the host government, a higher licence fee increases the payoff for the host government (\( \frac{\partial \Phi_i}{\partial T_i} > 0 \), therefore \( \frac{\partial \Phi_i}{\partial T_i} > 0 \)). This means the highest level of licence fee \( T^{SS} \) that an honest government could impose without encouraging the corrupt type to mimic its action can be found where corrupt host government is indifferent between signaling correctly and incorrectly. Given conditions (44) and (45) above, it can be written as:

\[
E(\tilde{\Phi}^E_C | T > T^{SS}) = E(\tilde{\Phi}^E_C | T \leq T^{SS})
\]

\[
2\Phi^E_C = \Phi^1_F - K_C + \Phi^2_E
\]

(46)

\[
\Phi^E_C = \Phi^E_C - K_C
\]

\[
E(\tilde{\Phi}^E_C | T^*_C) = E(\tilde{\Phi}^E_C | T^S)
\]

The above condition (46) is exactly the same as the condition required in the one period investment game, (35), which indicates that the separating licence fee in the two period investment game is the same as in the one period investment game, \( T^{SS} = T^S \). This shows that when the foreign firm can learn about the true type of the host government from its past investment

\(^{25}\)See section 4.1 for a detailed explanation.

\(^{26}\)Because the corrupt government signals its type to be corrupt by promising its optimal licence fee, there will not be signaling costs involved.
experience, the maximum level of licence fee $T^{SS}$ that can be promised by the honest host government to prevent the corrupt type from mimicking its action is the same as in the case where the foreign firm only invests in the host country once. 27 Potentially there is an extra incentive for the corrupt type to cheat in order to induce FDI in the later period, however, because under the current setting the foreign firm learns about the host government’s true type from past investment experience and no investment will take place in the later period if the government is corrupt, this learning effect would act as a counter effect to reduce the incentive for the corrupt government to cheat. As a result, the separating licence fee required for the corrupt government to signal correctly in this two period investment game is the same as when the investors only make their investment decision once.

Given the maximum level of licence fee the host government can promise without inducing the corrupt host government to mimic its action (given by (46)) and the host government’s objective function (42), we know that if the host government signals correctly, its best choice would be to choose $T^{SS}$ and its payoff can be written as: 28

$$E(\Phi^F_H | T^{SS}) = 2\Phi^F_H - K_H$$ (47)

From the discussion in the previous sections, we know that if the host government chooses to signal incorrectly by promising a licence fee that exceeds the separating licence fee $T^{SS}$, its optimal choice would be to promise $T^*_C$. Given its objective function (42) and the foreign firm’s beliefs (condition (43)), its expected payoff can be written as:

$$E(\Phi^E_H | T^*_C) = 2\Phi^E_H$$ (48)

For an honest government to signal its type correctly the payoff from signaling correctly, as shown by (47), must be at least as high as that from signaling incorrectly, as shown by (48), hence

$$E(\Phi^F_H | T^{SS}) \geq E(\Phi^E_H | T^*_C)$$

$$K_H \leq 2(\Phi_H - \Phi^F_H)$$

$$K_H \leq 2\left(\frac{3\beta S^2 - 2S(A-C)}{8} + 1 - \sqrt{\frac{2 - 2\beta S(A-C) + 3\beta S^2 - 8K_C}{2\beta C}} - \beta H(1 - \sqrt{\frac{2 - 2\beta S(A-C) + 3\beta S^2 - 8K_C}{2\beta C}})^2\right)$$ (49)

If the above condition (49) is satisfied, there will a separating equilibrium where the honest type host government signals its type correctly by promising a licence fee that is below its optimal

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27 It is worth noting that again for the separating licence fee to be meaningful condition (36) need to be satisfied. See section 5.5.2 and footnote 29 and 30 on p.227 for details.

28 See the last section for a detailed discussion of why $T^{SS}$ is its optimal choice.
level \((T^{SS} < T^H)\), the corrupt type also signals its type correctly by promising its optimal licence fee and the foreign firm will invest if the host government is honest. Similarly to the one period investment case, here the honest host country would impose a lower lump-sum licence fee than under complete information \((T^H > T^{SS})\), therefore becoming less corrupt. This again shows the corruption-reducing effect of FDI in the host government. It is worth noting that because the same level of licence fee will be imposed here by the honest host government as in the one period investment case, therefore in the current setting, multi-period investment by MNEs would not reduce the level of corruption in the host country more than a single period investment.

In addition to the above, we can also observe that:

**Proposition 3** The opportunity of learning about the true type of a host government from past investment experience would encourage an honest government to spend more on signaling in order to induce investment from overseas.

**Proof.** Condition (40), required for the honest host government to signal correctly under the separating equilibrium of a one period investment game studied in the previous section, and condition (49), required for the honest host government to signal correctly under a two period investment game, are rewritten as follows:

\[
K_H \leq \frac{3S^2 - 2S(A-C)}{8} + 1 - \sqrt{\frac{2 - 2S\beta_c(A-C) + 3\beta_c S^2 - 8K_C}{2\beta_C}} - \beta_H (1 - \sqrt{\frac{2 - 2S\beta_c(A-C) + 3\beta_c S^2 - 8K_C}{2\beta_C}})^2
\]

under a one period investment game (condition (40))

\[
K_H \leq 2\left(\frac{3S^2 - 2S(A-C)}{8} + 1 - \sqrt{\frac{2 - 2S\beta_c(A-C) + 3\beta_c S^2 - 8K_C}{2\beta_C}}\right) - \beta_H (1 - \sqrt{\frac{2 - 2S\beta_c(A-C) + 3\beta_c S^2 - 8K_C}{2\beta_C}})^2
\]

under a two period investment game (condition (49))

It can be seen that the RHS of condition (40) is twice the size of that of condition (49), which indicates that potentially the honest host government would be willing to spend twice as much on signaling under the two period investment game. In other words, when the foreign monopolist can learn from its past experience, the honest host government would be willing to pay more to signal its true type in order to induce FDI. ■

This happens because, by separating itself from the corrupt type, the honest government can get a higher payoff in two periods now compared with one period in the previous case. The extra payoff obtained from the one extra period of investment would provide the host government with a higher incentive to pay more to reveal its type. Specifically, in this case the honest government would be willing to pay twice as much as before in signalling to attract FDI into the country.

**Remark 3** The ability of the foreign firm to learn about the host government’s true type from its past experience could improve resource allocation efficiency.
If we compare the above condition (49) with condition (40), we observe that as the incentive for the corrupt type to tell the truth is the same as in the one period case (as shown by condition (46)), while the incentive for the honest type to signal correctly is twice as high as in one period investment case, the overall existence of a separating equilibrium induced by a cut in licence fee becomes more likely when the foreign monopolist can learn from its past experience. In other words, this makes FDI more likely to flow into a country which it would flow under complete information (an honest host country). Therefore, here the learning process, combined with the honest government’s willingness to reduce corruption, can help the honest type host government to achieve a more efficient resource allocation by inducing inflows of FDI, when compared with the case where learning was not possible.

In this case, the total payoff for the corrupt type is the same as under perfect information, which equals $2\Phi^E$. Meanwhile, because $T^{SS} < T^*_H$ and the cost of signaling $K_H$ is positive, the payoff for the honest type host government is lower than under perfect information ($E(\Phi^E_H | T^{SS}) < 2\Phi^F_H$). On the other hand, in this case, as the foreign monopolist pays a lower lump-sum licence fee than under perfect information ($T^{SS} < T^*_H$), the total payoff for the foreign monopolist is higher under incomplete information with the separating equilibrium. This shows that in such a separating equilibrium, again the honest type is the only player who loses from the lack of information regarding the true type of the host government.

7 Conclusion

In this paper, using a simple model, it has first been shown that incomplete information regarding the true type of a host government being honest or corrupt could deter FDI, if the probability of the host government being corrupt is sufficiently high. What is more, not only can a high probability of a host government being corrupt deter FDI inflow into the honest country under incomplete information, but so can a relatively high level of corruption in the corrupt country. This can be viewed as an externality problem caused by the corrupt type in the market, where the existence of a corrupt type might “crowd-out” investment into an honest type country.

To prevent itself from being “crowded-out” by the corrupt type, an honest type can distinguish itself from the corrupt type and induce FDI by signaling. A self-revelation equilibrium can exist if the signaling cost is sufficiently low for the honest type, but sufficiently high for the corrupt type host government. However, compared to the case with perfect information, the honest type actually “pays” for the lack of information, as its total payoff under this case would be lower than under perfect information. As both the corrupt type and the foreign monopolist’s total payoffs would be the same in this case as under perfect information, neither of them “pays” for the lack of information.
When the signaling cost of the corrupt type is sufficiently low, the corrupt type will mimic the action of the honest type, hence the self-revelation separating equilibrium would fail. If this happens, the honest type can induce FDI by imposing a cut in the licence fee demanded. Such a cut in the production licence fee represents the honest government’s willingness to reduce corruption in the host country, which would induce FDI. In other words, FDI can reduce the level of corruption in the host country when a separating equilibrium exist. However, this reduction in corruption would reduce the payoff for the honest government directly, so as a result, to motivate the honest host government to signal its type correctly in this case, the signaling costs involved need to be lower than under the self-revelation case. Again, in this case the honest type will be the only one that “pays” for the incomplete information, while the payoff of the corrupt type will be the same as under perfect information. Furthermore, due to the lower lump-sum licence fee demanded by the honest host government, the foreign monopolist actually gets a higher payoff compared to under perfect information.

When the foreign monopolist can learn about the true type of the host government from its past investment experience, this will provide an extra incentive for the honest host government to pay more on signalling, in order to distinguish itself from the corrupt type and induce FDI. In this case, because the foreign monopolist can obtain complete information regarding the host government’s true type from its past experience if it invested in the host country in the past, there is no extra incentive for the corrupt type to mimic the action of the honest type. This means that in this case the overall existence of a separating equilibrium induced by a production licence cut would be more likely compared to when learning is not possible. What is more, it also shows that the foreign firm’s ability to learn from its past investment could improve resource allocation under incomplete information.

References


