# Governance and foreign direct investment: is there a two-way relationship?

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**Abstract:** The issue of economic governance is highly discussed pertaining to the question of industrialisation of a country, yet the literature on international trade and foreign direct investment (FDI) hardly pays attention to this aspect. We show that higher investment in economic governance attracts FDI. However, whether the possibility of FDI induces more investment in governance is not immediate, and depends on the factors such as the marginal cost difference between the firms, the international transportation cost and the cost of FDI. Our results suggest that we may expect a two-way relationship between investment in economic governance and inward FDI in more technologically backward domestic countries. However, a less technologically backward domestic country may have a strategic reason for relatively poor economic governance in order to prevent FDI, if we control for other benefits from FDI, such as knowledge spillover and domestic employment generation.

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#### 1. Introduction

Better economic governance<sup>1</sup> for improving the investment climate is an important objective of many developing countries, and is getting significant attention in both academic and policy circles. As mentioned in the World Development Report (2005), "A good investment climate provides opportunities and incentives for firms – from micro-enterprises to multinationals – to invest productively, create jobs, and expand." There are several factors, such as policy uncertainty, macro instability, corruption, cost and access to finance, crime, regulation and tax administration, courts and legal system, electricity, labour regulations, transportation, access to land and telecommunications, affecting investment climates (World Development Report, 2005), and many (if not all) of which can be improved through better economic governance.

The implications of economic governance are getting more attention in the economics literature (see, Kaufmann and Kraay, 2003, Dixit, 2007 and Rodrik, 2008), yet the literature on international trade and foreign direct investment (FDI) did not pay much attention to this aspect. Due to the favourable effects of governance on the

<sup>&</sup>lt;sup>1</sup> According to the World Bank, there are six indicators of governance - voice and accountability, political stability and the absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption. The World Bank report (2010) on *Doing Business* considers 10 indicators – starting a business, dealing with construction permits, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. The interpretation of governance by the UK's Department for International Development (DFID) broadens and suggests that: "Good governance requires three things: State capability – the extent to which leaders and governments are able to get things done. Responsiveness – whether public policies and institutions respond to the needs of citizens and uphold their rights. Accountability – the ability of citizens, civil society and the private sector to scrutinise public institutions and governments and hold them to account" (DFID, 2006).

investment climate and the significant flows of FDIs in recent years<sup>2</sup>, it is natural to examine the relationship between governance and FDI, which we do in this paper.

There are some empirical papers which show that economic governance and FDI are positively correlated (Sin and Leung, 2001, Globerman and Shapiro, 2002, Gani, 2007 and Fan et al., 2007). However, correlation does not imply causality. Moreover, opposite views also prevail in the literature. Chang (2007) points out that the performances of some countries with weak governance are better than their counterparts with strong governance. Weller and Ulmer (2008) mention that "... China has attracted significant foreign investment despite notoriously persistent corruption". Hence, the effects of economic governance on international trade, investment and welfare may not be trivial, and it is due to the fact that real-world economies operate in a second-best environment because of multiple distortions of reform policies (Rodrik, 2008).

We develop a simple model to show how the causality between governance and FDI runs. Using a simple model with a technologically superior foreign (developed-country) firm and a technologically inferior domestic (developing-country) firm, we show that if the marginal cost difference between the firms is large compared to international transportation cost, there is a two-way relationship between investment in economic governance and FDI, if the cost of FDI is moderate; otherwise, even if higher investment in governance attracts FDI, the amount of investment in governance does not depend on the possibility of FDI.

However, if the marginal cost difference between the firms is small compared to international transportation cost, we find that, although higher investment in governance attracts FDI, the possibility of FDI (compared to no possibility of FDI) reduces investment in governance, if the cost of FDI is small; otherwise, even if

<sup>&</sup>lt;sup>2</sup> As mentioned in UNCTAD (2006), FDI dominates international trade in recent years.

higher investment in governance attracts FDI, the amount of investment in governance does not depend on the possibility of FDI.

Our results suggest that we may expect a two-way relationship between investment in economic governance and inward FDI in more technologically backward domestic countries. However, a less technologically backward domestic country may have a strategic reason for relatively poor economic governance in order to prevent FDI, if we control for other benefits from FDI, such as knowledge spillover and domestic employment generation. Thus, our analysis provides explanations for the mixed empirical evidences on economic governance and FDI.

In an interesting paper, Banerjee (1997) argues why government bureaucracies are often associated with red tape, corruption, and lack of incentives. He shows that the presence of asymmetric information may create the rationale for mis-governance by a benevolent government. We point out a different reason for poor economic governance. The presence of foreign competition may create a strategic reason for underinvestment in economic governance, which may justify the findings in Chang (2007) and Weller and Ulmer (2008).

The remainder of the paper is organised as follows. Section 2 shows the model and derives the results. Section 3 concludes.

#### 2. The model and the results

Assume that there are two countries, called domestic country and foreign country. There is a firm in each country. Assume that firm 1 is in the domestic country and firm 2 is in the foreign country. These firms compete in the domestic country like Cournot duopolists with homogeneous goods. However, firm 2 can serve the domestic country either by export or by FDI. Assume that the firms' marginal costs consist of the costs of production, marketing and distribution. We assume that the marginal cost of firm 1 is  $c_1$ . Firm 2's marginal cost is  $c_2 < c_1$ , under both export and FDI. The higher marginal cost of firm 1 to that of firm 2 may represent the technical superiority of firm 2 compared to firm 1. However, if firm 2 exports to the domestic country, it incurs an additional per-unit transportation cost, *t*. On the other hand, if firm 2 undertakes FDI, it needs to set up its production plant in the domestic country, and therefore, needs to incur a fixed investment cost *F*.

As already mentioned, better economic governance improves several aspects of the economy and creates a better investment climate, which, in turn, increases efficiency and profitability of the firms. For our modelling purpose, we assume that better economic governance in the domestic country helps to reduce the marginal cost by improving productivity of the firms. We assume that the above-mentioned marginal costs are under minimal (or no) economic governance in the domestic country. However, *g* amount of investment by the domestic government to improve economic governance reduce firm 1's marginal cost to  $(c_1 - g)$  and firm 2's marginal cost to  $(c_2 - g)$  by reducing corruption and red-tapism, improving infrastructural facilities, transportation, legal system and labour regulations, to name a few. We assume that the domestic government's cost of investment in improving economic

governance is  $C(g) = \frac{hg^2}{2}$ .

Few remarks deserve attention at this point. First, for simplicity, we have assumed that economic governance affects the marginal costs of firm 2 under export and under FDI in the same way. This is appropriate for situations where economic governance in the domestic country improves infrastructure and transportation facilities, thus reducing the marginal costs related to the non-production activities such as marketing and distribution, which often play important role in affecting a firm's decision on foreign market entry (Nocke and Yeaple, 2007, Qiu, 2009 and Ishikawa, et al. 2010). We acknowledge that a more general model will consider that economic governance in the domestic country will reduce firm 2's marginal costs under export and under FDI differently. However, we assume away this possibility, since it will only complicate our analysis without adding much new insights to our purpose. It is trivial to understand that if the foreign firm's benefit from better economic governance in the domestic country is higher under FDI compared to export, it increases the foreign firm's incentive for FDI compared to our analysis.

Second, there may be other benefits of economic governance, say, reducing firm 2's cost of undertaking FDI. However, our assumption of the marginal cost reducing effect of economic governance helps us to consider similar effects of governance on both firms. It is trivial that if governance in the domestic country also reduces firm 2's cost of undertaking FDI, it will create further incentive for FDI compared to the one shown in our analysis.

Finally, our consideration of international transportation cost can be motivated by empirical evidences. Milner (2005) shows that even if the tariff barriers have been reduced in recent years, transportation costs are still significant and create sufficiently large trading costs. Similar conclusion can be found in Hummels (1991), according to whom transportation cost often represents a greater barrier to international trade than tariffs. Costs relating to transportation costs (excluding tariff costs), estimated by the World Bank (2010), are varying across countries and account for a relatively higher value even in OECD countries compared to some Latin American and East Asia countries.<sup>5</sup> The inclusion of tariff barrier will not affect our qualitative results on firm 2's decision on FDI and export, but the presence of tariff revenue will create higher domestic welfare under export by the foreign firm than shown in our analysis.

We assume that the inverse demand function in the domestic country is:

$$P = 1 - q, \tag{1}$$

where P is price and q is the total output.

We consider the following game. At stage 1, the domestic government invests in economic governance, i.e., determines *g*. At stage 2, firm 2 decides whether to undertake FDI or to export. At stage 3, the firms compete like Cournot duopolists, and the profits are realised. We solve the game through backward induction.

First, consider the game under export by firm 2 for a given investment by the domestic government. In this situation, firms 1 and 2 maximise the following expressions to determine their outputs:

$$Max_{q_1}(1 - q - c_1 + g)q_1$$
(2a)

$$\underset{q_{2}}{Max(1-q-c_{2}-t+g)q_{2}}.$$
(2b)

The equilibrium outputs of firms 1 and 2 can be found as  $q_1^x = \frac{1 - 2c_1 + c_2 + t + g}{3}$  and

 $q_2^x = \frac{1 - 2c_2 - 2t + c_1 + g}{3}$ , respectively. The equilibrium profits of firms 1 and 2 are

respectively

$$\pi_1^x = \frac{(1-2c_1+c_2+t+g)^2}{9}$$
 and  $\pi_2^x = \frac{(1-2c_2-2t+c_1+g)^2}{9}$ . (3)

<sup>&</sup>lt;sup>5</sup> Doing Business Survey by World Bank (2010) defines the transportation cost and measures the time and cost (excluding tariffs) associated with exporting and importing by ocean transport, and the number of documents necessary to complete the transaction. The indicators cover procedural requirements such as documentation requirements and procedures at customs and other regulatory agencies as well as at the port. They also cover trade logistics, including the time and cost of inland transport to the largest business city. These are key dimensions of the ease of trading—the more time consuming and costly it is to export or import, the more difficult it is for traders to be competitive and to reach international markets.

Now consider the game under FDI by firm 2 for a given investment by the domestic government. In this situation, firms 1 and 2 maximise the following expressions to determine their outputs:

$$Max_{q_{1}}(1-q-c_{1}+g)q_{1}$$
(4a)

$$\max_{q_2} (1 - q - c_2 + g)q_2 - F .$$
(4b)

The equilibrium outputs of firms 1 and 2 can be found as  $q_1^f = \frac{1 - 2c_1 + c_2 + g}{3}$  and

$$q_2^f = \frac{1 - 2c_2 + c_1 + g}{3}$$
, respectively. The equilibrium profits of firms 1 and 2 are

respectively

$$\pi_1^f = \frac{(1-2c_1+c_2+g)^2}{9}$$
 and  $\pi_2^f = \frac{(1-2c_2+c_1+g)^2}{9}$ . (5)

Now consider firm 2's incentive for export and FDI for a given investment by the domestic government. The comparison of the profits of firm 2 under export and under FDI (see (3) and (5)) shows that firm 2 undertakes FDI if

$$g > \frac{9F - 4t(1 - 2c_2 - t + c_1)}{4t} \equiv \overline{g} .$$
(6)

It follows from (6) that as F increases, we need a higher value of g to make FDI profitable compared to export by firm 2.

The following result follows immediately from (6).

**Proposition 1:** Ceteris paribus, higher investment by the domestic government in governance (i.e.,  $g > \overline{g}$ ) induces the foreign firm to undertake FDI.

The reason for the above result is as follows. Better governance reduces the marginal costs of both firms by the same amount, thus increasing firm 2's profit under

both FDI and export. However, since the transportation cost creates a distortion in firm 2's profit under export, firm 2's gain from better governance is higher under FDI than under export. Hence, better governance increases firm 2's incentive for FDI.

Now we determine the domestic government's investment in economic governance. The domestic government invests in governance to maximise domestic welfare, which is the sum of consumer surplus and the domestic profit.

If the domestic government anticipates that firm 2 will export, the domestic welfare is

$$w^{x} = \frac{2(1-2c_{1}+c_{2}+t+g)^{2}+(2-c_{1}-c_{2}-t+2g)^{2}}{18} - \frac{hg^{2}}{2}.$$
 (7)

Hence, the domestic government will maximise the following expression to determine investment in governance, if it anticipates export by firm 2:

$$M_{g} \frac{2(1-2c_{1}+c_{2}+t+g)^{2}+(2-c_{1}-c_{2}-t+2g)^{2}}{18}-\frac{hg^{2}}{2}.$$
(8)

The equilibrium investment by the domestic government, if it anticipates export by firm 2, is:

$$g^{x} = \frac{2(1-c_{1})}{3h-2}.$$
(9)

The second order condition for maximisation requires 3h > 2, which is assumed to hold.

Now consider the case where the domestic government anticipates that firm 2 will undertake FDI. In this situation, the domestic welfare is

$$w^{f} = \frac{2(a-2c_{1}+c_{2}+g)^{2}+(2-c_{1}-c_{2}+2g)^{2}}{18} - \frac{hg^{2}}{2}.$$
 (10)

Since (9) is not affected by *t*, and the difference in domestic welfare under export and under FDI by firm 2 is created by *t*, it is immediate that the equilibrium investment by 2(1 - a)

the domestic country, while anticipating FDI by firm 2, is  $g^{f} = \frac{2(1-c_{1})}{3h-2}$ .

Although the equilibrium investment by the domestic country is the same under export and under FDI by firm 2, i.e.,  $g^x = g^f = g^*$ , it must be noted that the domestic welfare under export is different from that of under FDI for a given investment by the domestic government.

**Proposition 2:** For a given investment by the domestic government on economic governance, the domestic welfare is higher under FDI (export) by firm 2 if  $2(c_1-c_2) > (<)t$ .

**Proof:** Follows immediately from the comparison of (7) and (10). ■

So far, we have derived the equilibrium investments of the domestic government under the assumption that the foreign firm either always exports or it always undertakes FDI. Hence, that discussion may not internalise the foreign firm's equilibrium plant location decision, which depends on g, as shown in Proposition 1. Now we want to determine the equilibrium investment of the domestic government conditional on the equilibrium plant location choice of the domestic government.

First consider the relationship between  $g^*$ , which is the welfare maximising investment by the domestic government under the assumption that the foreign firm either exports always or it undertakes FDI always, and  $\overline{g}$ , which show the critical investment by the domestic government on governance that makes the foreign firm indifferent between export and FDI. We get that  $g^* > (<)\overline{g}$  if

$$\frac{2(1-c_1)}{3h-2} > (<)\frac{9F - 4t(1-2c_2 - t + c_1)}{4t}.$$
(11)

It is immediate that both the inequalities in (11) can hold. For example, ceteris paribus, if *F* is small, left hand side (LHS) of (11) tends to be higher than right hand side (RHS) of (11). However, ceteris paribus, if *F* is relatively high and/or *t* is small, LHS of (11) tends to be lower than RHS of (11).

We have seen in Proposition 2 that for a given investment in governance,  $w^{f} > (<)w^{x}$  for  $2(c_{1}-c_{2}) > (<)t$ . First, consider the case where  $2(c_{1}-c_{2}) > t$ , which occurs if the marginal cost difference between the firms is sufficiently large compared to the transportation cost. This situation may represent the case where a technologically superior developed-country firm competes with a very much technologically backward developing-country firm. This situation is shown in Figure 1.



**Figure 1:** The equilibrium investment by the domestic government for  $w^f > w^x$  and  $g^* < \overline{g}$ 

Figure 1 considers a situation where the parameters are such that  $2(c_1 - c_2) > t$  and  $g^* < \overline{g}$ . These conditions hold if, e.g., *t* is sufficiently small. In this situation, the domestic welfare conditional on the plant location choice of the foreign firm is given

by the solid curve ABCDE. This happens because the foreign firm exports up to  $\overline{g}$ and it undertakes FDI after  $\overline{g}$ . It follows from Figure 1 that if there is no possibility of FDI, the equilibrium investment by the domestic government is  $g^*$ . However, if there is a possibility of FDI by the foreign firm,  $g^*$  amount of investment by the domestic government will not attract FDI. The domestic government needs to investment  $\overline{g}$  to induce FDI by the foreign firm. Since the domestic welfare at point D (which gives the domestic welfare corresponding to investment  $\overline{g}$ ) is higher than the domestic welfare at point B (which gives the maximum domestic welfare under export by the foreign firm), the domestic government want to invest in a way that attracts FDI. Hence, the equilibrium investment by the domestic government conditional on FDI by the foreign firm is  $\overline{g}$ . The possibility of FDI increases the domestic government's investment in governance compared to the situation when FDI is not a possibility. It then shows that there is a two-way relationship between governance and FDI, in the sense that higher investment in governance attracts FDI, and since there is a possibility of FDI, it encourages the domestic government to invest more compared to the situation with no possibility of FDI (i.e., when the foreign firm can export only).

The reason for the above result is as follows. Better governance reduces the marginal costs and induces FDI, which reduces domestic profit but increases consumer surplus. However, since the technological superiority of the foreign firm to that of the domestic firm is high in relation to the international transportation cost, the gain in consumer surplus is more than the loss of domestic profit under FDI (compared to export) by the foreign firm, thus encouraging the domestic government to attract FDI.

Figure 1 considers a situation where *F* is moderate so that  $\overline{g} > g^*$  and point *D* is higher than point *B*. It follows from (6) and (11) that, ceteris paribus, if *F* is small enough so that  $\overline{g} < g^*$ , it is easy to understand that the equilibrium investment by the domestic government will be  $g^*$ , since this amount of investment will attract FDI and will also maximise domestic welfare under FDI. In this situation, while higher investment by the government attracts FDI, as shown in Proposition 1, the equilibrium investment by the foreign firm has the possibility to undertake FDI.

On the other hand, ceteris paribus, if *F* is sufficiently high so that  $\overline{g} > g^*$  and the point *D* is lower than point *B*, implying that sufficiently large amount of investment by the domestic government is required to attract FDI, the equilibrium investment of the domestic government will be  $g^*$ , whether or not firm 2 has the option for FDI. Here, since the domestic government can attract FDI only by investing a large amount in the governance, domestic welfare is higher under export with investment  $g^*$  compared to FDI with investment  $\overline{g}$ . Therefore, even if a large investment by the domestic government. Hence, if *F* is relatively high, the possibility of FDI does not affect the domestic government's investment in economic governance, although a large amount of investment by the domestic government could attract FDI.

The following proposition summarises the above discussion.

## **Proposition 3:** Consider $2(c_1 - c_2) > t$ .

(i) If the cost of FDI is moderate so that  $\overline{g} > g^*$  and "the domestic welfare with investment  $\overline{g}$  and FDI by the foreign firm" is higher than "the domestic welfare with

investment g<sup>\*</sup> and export by the foreign firm", we get a two-way relationship between FDI and governance in the sense that higher investment in economic governance attracts FDI and the possibility of FDI increases investment in governance compared to the situation where FDI is not an option to the foreign firm.

(ii) Ceteris paribus, if either F is small so that  $\overline{g} < g^*$  or F is high so that " $\overline{g} > g^*$ and the domestic welfare with investment  $\overline{g}$  and FDI by the foreign firm is lower than the domestic welfare with investment  $g^*$  and export by the foreign firm", the possibility of FDI by the foreign firm does not affect the domestic government's investment in governance.

Now consider the case where  $2(c_1 - c_2) < t$ . This situation may represent the case where a technologically superior developed-country firm competes with a less technologically backward developing-country firm. This situation is shown in Figure 2.



**Figure 2:** The equilibrium investment by the domestic government for  $w^f < w^x$  and  $g^* > \overline{g}$ 

Figure 2 considers the case where  $w^f < w^x$  and  $g^* > \overline{g}$ , which can happen when, e.g., F is very small. If FDI is not an option, it is clear that the domestic government invests  $g^*$ . However, if FDI is an option to the foreign firm, the foreign firm undertakes FDI if domestic investment is  $g^*$ . Since the domestic welfare conditional on FDI by the foreign firm is given by the solid curve ABCDE, and the domestic welfare at B is higher to that of at D, the equilibrium domestic investment will be  $\overline{g}$ so that the foreign firm does not undertake FDI. In contrast to Figure 1, Figure 2 shows that while better governance attracts FDI, the possibility of FDI reduces the domestic government's investment in governance. Hence, if the marginal cost difference between the firms is very close relative to the international transportation cost, the possibility of FDI reduces investment in governance compared to the situation where FDI is not an option. This happens since better governance induces the foreign firm to undertake FDI, which reduces the domestic profit more than the gain in consumer surplus, because the technological superiority of the foreign firm to that of the domestic firm is not very high. Therefore, in this situation, if we control for other benefits from FDI, such as knowledge spillover and domestic employment generation, the domestic government prefers relatively poor governance in order to prevent FDI.

Now consider the case where  $w^f < w^x$  but the fixed cost of FDI is not very small so that  $g^* < \overline{g}$ . Following the above discussions, it must be clear that, in this situation, the domestic investment in governance will be  $g^*$  irrespective of the possibility of FDI, and FDI will not occur, since "the domestic welfare with investment  $g^*$  and export by the foreign firm" is higher than "the domestic welfare with investment  $\overline{g}$  and FDI by the foreign firm". Again, the domestic government does not prefer FDI and therefore, does not increase investment in governance to attract FDI.

The following proposition summarises the above discussion.

**Proposition 4:** Consider  $2(c_1 - c_2) < t$ .

(i) If the cost of FDI is small so that  $\overline{g} < g^*$ , the investment by the domestic government in economic governance is  $\overline{g}$ , and FDI does not occur. Here, the possibility FDI reduces the investment in governance compared to the situation where FDI is not an option to the foreign firm.

(ii) If F is not very small so that  $\overline{g} > g^*$ , the possibility of FDI by the foreign firm does not affect the domestic government's investment in governance.

#### 3. Conclusion

It is a general consensus that better economic governance encourages the firms – from micro-enterprises to multinationals – to invest by improving the investment climate. While the other branches of economics literature widely discuss the implications of economic governance for the development of a country, the literature on international trade and FDI did not pay much attention to this aspect. Although there are some empirical evidences showing positive correlation between governance and FDI, the causality between these two factors is not clear. Moreover, opposite evidence can also be found, which suggests a negative relationship between economic governance and FDI.

We show the relationship between economic governance and greenfield FDI in a simple model of international oligopoly where a foreign firm can choose between export and FDI. We show that higher investment in economic governance increases the possibility of inward FDI. However, where the possibility of FDI increases the incentive for investment in economic governance compared to the situation with no FDI is not immediate. If the marginal cost difference between the firms is large compared to international transportation cost, the possibility of FDI may increase investment in governance compared to the situation with no FDI, thus showing that there can be a two-way relationship between investment in economic governance and inward FDI. However, if the marginal cost difference between the firms is small compared to international transportation cost, the possibility of FDI can actually reduce investment in governance compared to the situation with no FDI. In this situation, if we control for other benefits from FDI, such as knowledge spillover and domestic employment generation, the possibility of FDI may encourage a domestic governance to adopt a system with poor economic governance compared to the situation with no FDI.

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