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Corporate transparency, cream-skimming and FDI

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Abstract

We develop a simple information-based model of Foreign direct investment (FDI) flows. On the one hand, the relative abundance of "intangible" capital in specialized industries in the source countries, which presumably generates expertise in screening investment projects in the host countries, enhances FDI flows. On the other hand, host-country relative corporate-transparency diminishes the value of this expertise, thereby reducing the flow of FDI. The model also demonstrates that the gains for the host country from FDI [over foreign portfolio investment (FPI)] are reflected in a more efficient size of the stock of domestic capital and its allocation across firms. These gains are shown to depend crucially (and positively) on the degree of competition among FDI investors. We provide also some evidence on the effects of corporate transparency indicators, such as accounting standards, on bilateral FDI flows from a panel of 24 OECD countries over the period of 1981–1998.

JEL Classification: ■; ■; ■

Keywords: Foreign direct investment; Specialization; Transparency; Asymmetric information

1. Introduction

Foreign direct investment (FDI) has been growing faster than world GDP, and is becoming a major component of foreign investment.[1] We usually observe both one-way flows of FDI, from developed to developing economies, and two-way flows among

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[1]See the Australian Productivity Commission (2002) for a recent case study.

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developed economies. The world flows of FDI rose about sevenfold in current US dollars over the 1990s; the vast majority flowed between developed countries (see Figs. 1A and B).

The purpose of this paper is to explore two unique features of FDI, associated with host-country transparency relative to the source-country and source-country industry specialization relative to the host-country, that make this form of foreign investment stand out among the various other forms of capital flows, such as foreign portfolio investment (FPI).We develop a simple information-based model, in which the industry specialization in the source country provides a comparative advantage to potential direct investors in eliciting good investment opportunities in the host country, relative to domestic investors and foreign portfolio investors in the host country. The advantage stems from the ability of FDI investors to apply better industry-specific micro-management standards (an "intangible capital"). The advantage of FDI investors in their cream-skimming skills is less pronounced when corporate transparency and capital market institutions are of high quality; in which case FDI inflows are less abundant.[2]

Our model also suggests that the gains from FDI to the host country are reflected in a more efficient size of the stock of domestic capital and its allocation across firms. Domestic firms that are controlled by FDI investors are typically the "cream" (high-productivity firms). The magnitude of these non-traditional gains from trade that arise in our model depends crucially (and inversely) on the degree of competition among potential FDI investors over the domestic firms. The non-traditional gains can vanish entirely if there is no such competition. Also, FDI inflows could make the size of the aggregate stock of domestic capital larger than otherwise (under some plausible assumptions).

This result is consistent with some recent empirical evidence. For instance, Borenzstein et al. (1998) and Bosworth and Collins (1999) provide such evidence for a sample of developing countries during the period 1978–1995. More recently, in a sample of developing countries, Razin (2005) finds that the effect of FDI inflows on domestic investment is significantly larger than either FPI or loan inflows. He also provides evidence that FDI inflows promote efficiency: The effect of FDI on GDP growth is higher than the effect of other forms of foreign investment. In this paper, we also provide an empirical illustration of some implications of our model. It demonstrates how host-country transparency, relative to the source-country transparency, affects bilateral FDI flows from source to host countries; either through the source–host selection channel, or by affecting the intensity of the FDI flows.

The organization of the paper is as follows. Section 2 develops a simple information-based model, which emphasizes the role of host-country relative transparency, and source-country relative industry specialization in explaining the determinants of FDI and FPI flows. Section 3 compares the benefits for the host-country from receiving FDI inflows instead of FPI inflows. Section 4 provides an empirical illustration. Section 5 concludes.

2. FDI and skimming high-productivity firms

Assume a large number (N) of ex ante identical domestic firms in an industry. Each firm employs capital input (K) in the first period, in order to produce a single composite good in the second period. As usual, we assume that capital depreciates at the rate $\delta(<1)$. Output in the second period is equal to $F(K)(1+\varepsilon)$, where F is a production function, which

[2]See also Wei (2000), Razin and Sadka (2003), and Albuquerque (2003).

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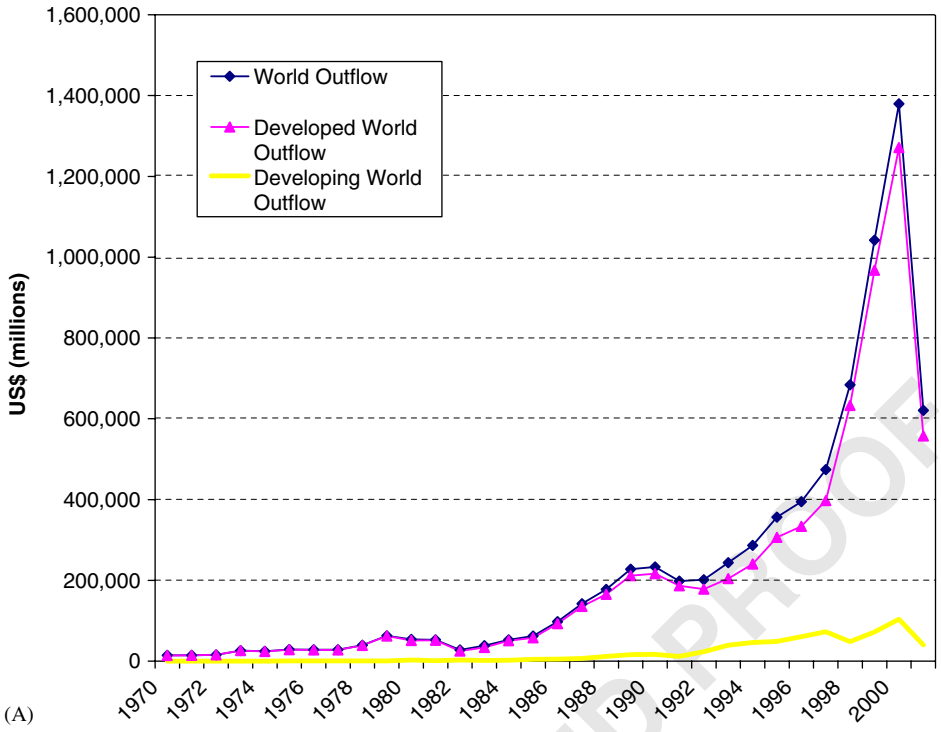
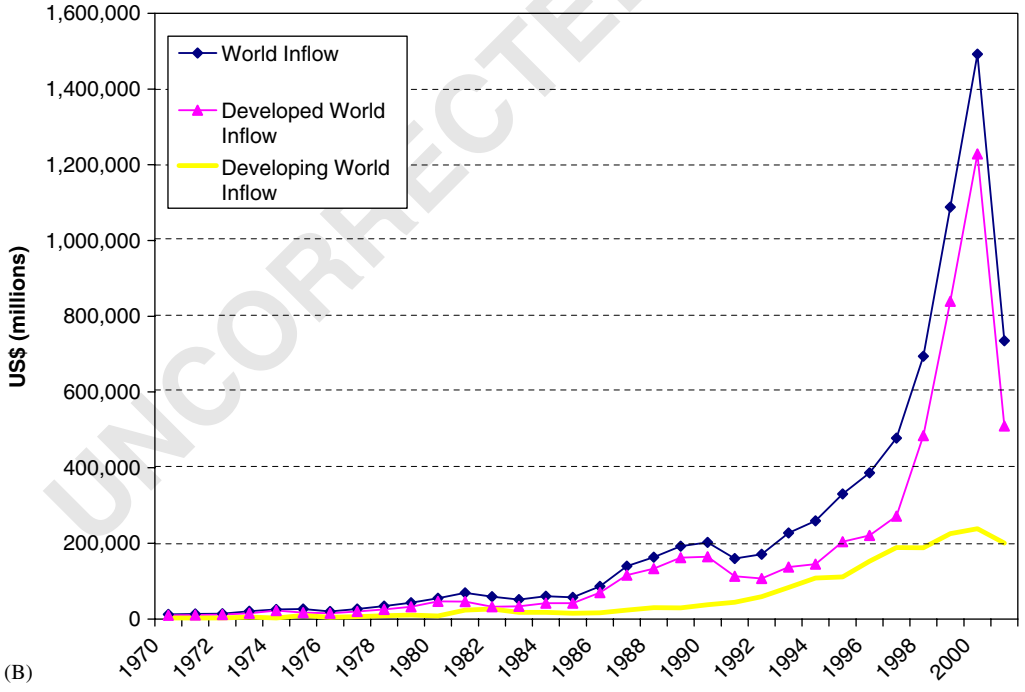


(A)



(B)

Fig. 1. (A) FDI outflows and (B) FDI inflows.

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exhibits diminishing marginal productivity of capital. We assume that ε is bounded from below by -1, so that output is always non-negative. For notational ease, we also assume that ε is bounded from above by 1. Suppose that ε is purely idiosyncratic, so that there is no aggregate uncertainty in the model. Consumers–investors are well diversified and will thus behave in a risk-neutral way. We denote by G the cumulative distribution function of ε, and by $g = G'$ the corresponding density function.

At the starting point of the agents' decision process, the productivity factor (ε) of each firm is not revealed with full accuracy in the first period. Rather, each firm receives a signal ε' about its productivity, which is common knowledge.[3] The true ε of the firm is within an interval of $\pm\beta$ around ε'. Formally, given ε' the true value of ε is distributed according to the distribution of the productivity factor, conditional on its being in the interval $(\varepsilon'-\beta, \varepsilon'+\beta)$. The conditional distribution is therefore:

$$\phi(\varepsilon/\varepsilon') = \frac{G(\varepsilon) - G(\varepsilon' - \beta)}{G(\varepsilon' + \beta) - G(\varepsilon' - \beta)}. \tag{1}$$

The conditional distribution $\varphi(\varepsilon|\varepsilon')$ denotes the cumulative distribution function of ε, conditional on the signal ε'. We assume that the signal ε' is distributted according to the distribution function G.

The firm chooses the level of the capital stock (and investment), denoted by $K(\varepsilon')$, after the signal ε' is received, so as to maximize its expected market value, conditional on ε'. This maximized value is

$$V(\varepsilon') = \int_{\varepsilon'-\beta}^{\varepsilon'+\beta} \left\{ \frac{F[K(\varepsilon')](1+\varepsilon) + (1-\delta)K(\varepsilon')}{1+r} - [K(\varepsilon') - (1-\delta)K_0] \right\} \mathrm{d}\varphi(\varepsilon/\varepsilon'), \tag{2}$$

where $(1-\delta)K_0$ is the initial stock of capital, and r is the world rate of interest.[4] The optimal stock of capital in this case, $K(\varepsilon')$, is implicitly defined by the first-order condition:

$$\int_{\varepsilon'-\beta}^{\varepsilon'+\beta} \left[\frac{F'(K)](1+\varepsilon) + (1+\delta)}{1+r} - 1 \right] \mathrm{d}\varphi(\varepsilon/\varepsilon') = 0.$$

This expression can be simplified to

$$F'[K(\varepsilon')][1 + E(\varepsilon/\varepsilon')] = r + \delta, \tag{3}$$

where $E(\varepsilon/\varepsilon')$ is the conditional expected value of the productivity factor, given that this factor lies within the interval $(\varepsilon'-\beta, \varepsilon'+\beta)$, that is

$$E(\varepsilon/\varepsilon') = \int_{\varepsilon'-\beta}^{\varepsilon'+\beta} \varepsilon \, \mathrm{d}\varphi(\varepsilon/\varepsilon'). \tag{4}$$

The level of capital $K(\varepsilon')$ is based on an imprecise signal ε' rather than on the true productivity of the firm. We refer to it as a signal-based optimal stock of capital, to distinguish it from what will be defined later as the productivity-dependent optimal stock of capital, which depends directly on the true productivity of the firm, ε.

Suppose that there is a screening (or search) technology, which, at some fixed cost per firm, can elicit the true value of the productivity factor of the firm, ε. A potential buyer can

[3] One can think of this signal as sort of encapsulated information, provided by up-to-date financial statements.

[4] Because of the assumption that there is a single composite good, which serves both for investment and for consumption, it is irrelevant whether the optimal K is above or below $(1-\delta)K_0$.

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apply the technology after she acquires and then gains control of the domestic firm. We assume that foreign direct investors have a cutting-edge advantage over domestic investors in extracting information about the true value of the firm. If foreign direct investors acquire a domestic firm, they can apply their superior micro-management skills in order to elicit the true value of ε. This advantage stems from some sort of "intangible capital" (specialized knowledge) in this particular industry. The basic idea is that firms get involved in foreign operations in order to exploit this unique advantage that they have accumulated over time in their source country. The advantage is modeled here by specifying a lower screening cost for foreign direct investors than for domestic investors. Formally, the cost per firm for a foreign direct investor is C_F, which is assumed to be lower than C_D, the corresponding cost for a domestic direct investor (i.e., a domestic investor who gains and acquires control of the domestic firm). This sort of comparative advantage is industry based, and is therefore not confined solely to flows of FDI from developed to developing countries. Thus, this sort of comparative advantage can explain also two-way FDI flows among (multi-industry) developed countries.

If the true value of ε were to be known, then the firm would choose an optimal capital stock, denoted by $K^*(\varepsilon)$, according to the marginal productivity condition:

$$F'[K^*(\varepsilon)](1+\varepsilon) = r + \delta. \tag{5}$$

This stock of capital is referred to as the productivity-dependent stock of capital.

Given the signal ε', a potential foreign direct investor knows that the true value of ε must lie between $\varepsilon'-\beta$ and $\varepsilon'+\beta$, and that she will be able to elicit the true value of ε if she purchases the firm, at a cost C_F. Therefore, her gross bid price, given the signal ε', is given by

$$P(\varepsilon') = \int_{\varepsilon'-\beta}^{\varepsilon'+\beta} \left\{ \frac{F[K^*(\varepsilon)](1+\varepsilon) + (1-\delta)K^*(\varepsilon)}{1+r} - [K^*(\varepsilon) - (1-\delta)K_0] \right\} \mathrm{d}\varphi(\varepsilon/\varepsilon'). \tag{6}$$

Her net bid price is then $P(\varepsilon')-C_F$. Because C_F is smaller than C_D, the bid price of the foreign direct investor is higher than that of the domestic investor.

Given the signal ε', the value of information to the FDI investor (that is, the value of eliciting the true productivity of the firm) is $P(\varepsilon')-V(\varepsilon')>0$. To see that indeed $P(\varepsilon')-V(\varepsilon')$, note that in calculating P it is assumed that K is optimally adjusted for the true value of the productivity, whereas in calculating V it is required that K is fixed across all firms in the β-interval. The associated cost of gaining the information is C_F. In order to incur this cost, the value of information must exceed this cost. Naturally, one would expect the value of information to rise with ε'. This is because, given the signal ε', the deviations of the productivity-independent signal-based $K(\varepsilon')$ over the interval $(\varepsilon'-\beta,\ \varepsilon'+\beta)$, from the productivity-dependent $K^*(\varepsilon)$ over this interval, and consequently the deviations of $F(K^*(\varepsilon'))$ from $F(K(\varepsilon'))$ over this interval, are magnified by the productivity factor $1+\varepsilon$. We therefore assume indeed that $P(\varepsilon')$ $V(\varepsilon')$ rises with ε'.[5] Hence, there exists a cutoff level of the signal, denoted by ε'_0, such that for all $\varepsilon'<\varepsilon'_0$, the bid-ask price difference $P(\varepsilon')$ $C_F-V(\varepsilon')$ is negative and, similarly, for all $\varepsilon'>\varepsilon'_0$, the bid-ask price difference is positive. Thus, all the firms that receive a low-productivity signal will be retained by the original (domestic) owners, whereas all the firms that receive a high-productivity signal will be

[5]Indeed, Burstein (2003) provided us with an illuminating numerical example in which the bid-ask price difference rises with ε', as expected.

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acquired by foreign direct investors, who manage to outbid their domestic counterparts concerning the high-productivity firms. The cutoff level of the signal depends on the screening cost C, and is defined implicitly by

$$P[\varepsilon'_0(C)] - C = V[\varepsilon'_0(C)]. \tag{7}$$

With FDI investors who can do the screening at a cost C_F per firm, the cutoff level of the signal is a function of C_F; denoted by $\varepsilon'_{0F} \equiv \varepsilon'_0(C_F)$.

The assumption that $P(\varepsilon') - V(\varepsilon')$ rises with ε' implies also that as the screening cost (C_F) of the FDI investors falls, the cutoff productivity level (that is, ε'_{0F}) declines with C_F, as well. This means that with a fall in C_F, more firms will be acquired by FDI investors. Therefore, a lower screening cost of FDI investors gives rise to a larger volume of FDI inflows.[6] By the same token, as the signal becomes more accurate (that is, as β becomes smaller), the benefit of the screening technology, which is $P(\varepsilon') - V(\varepsilon')$, declines. We interpret a more accurate signal as an improvement in corporate transparency. The advantage of FDI investors in their cream-skimming skills is less pronounced when host-country corporate transparency improves,[7] and FDI inflows are expected to be less abundant. After the signals are revealed, then a firm with a signal ε', below ε'_{0F}, actually adjusts its capital stock to the signal-dependent, productivity-independent level $K(\varepsilon')$. But a firm, which receives a signal ε' above ε'_{0F}, expects to adjust its capital stock to a productivity-dependent level $K^*(\varepsilon)$ with a cumulative distribution function $\varphi(\varepsilon/\varepsilon')$. The expected value of its capital stock, denoted by $E[K^*(\varepsilon)/\varepsilon']$ is given by

$$E[K^*(\varepsilon)/\varepsilon'] = \int_{\varepsilon'-\beta}^{\varepsilon'+\beta} K^*(\varepsilon)\, \mathrm{d}\varphi(\varepsilon/\varepsilon'). \tag{8}$$

Thus, the total expected value of the stock of capital (before signals are revealed) is

$$K^F = \int_{-1}^{\varepsilon'_{0F}} K(\varepsilon')\, \mathrm{d}G(\varepsilon') + \int_{\varepsilon'_{0F}}^{-1} E[K^*(\varepsilon)/\varepsilon']\, \mathrm{d}G(\varepsilon'). \tag{9}$$

This is our measure of the size of domestic capital.

3. FPI inflows versus FDI inflows

To understand the unique role played by FDI, suppose now that instead of FDI inflows there are only FPI inflows. That is, assume that the world rate of interest (rate of return) continues to prevail in the home country. Management under FDI ownership, however, may be plagued by the notorious "free-rider" problem. As noted succinctly by Hart (2001), "If the shareholder does something to improve the quality of management, then the benefits will be enjoyed by all shareholders. Unless the shareholder is altruistic, she will ignore this beneficial impact on other shareholders and so will under-invest in the activity of monitoring or improving management." To capture this argument in our case, we

[6] We refer to the sum of the acquisition price of the firm and the investment in its capacity (that is financed by the FDI owner) as FDI inflows.

[7] Indeed, these results also hold in Burstein's (2003) example, albeit with a different stochastic specification.

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simply assume that FPI buyers will not be willing to incur the cost of eliciting the true productivity of the firm whose equity they purchase.[8]

In this case, domestic direct investors acquire and gain control of the firms with the high-productivity signals. Domestic and FPI investors will acquire all the other firms with low-productivity signals. The cutoff level of the signal in this case is $\varepsilon'_{0D} \equiv \varepsilon'_0(C_D)$. Because $C_D > C_F$, it follows that $\varepsilon'_{0F} < \varepsilon'_{0D}$ [see Eq. (7) and recall that $P(\varepsilon') - V(\varepsilon')$ is increasing in ε', by assumption]. Thus, the difference in investment in capacity between the two regimes lies only in the range of signals between ε'_{0F} and ε'_{0D}. The capital stock of a firm with a signal below ε'_{0F} is the same in the two regimes. The expected capital stock of a firm with a signal above ε'_{0D} will also be the same in the two regimes. But a firm, which receives a signal ε' in-between these two cutoff levels, will invest a signal-dependent, productivity-independent $K(\varepsilon')$ in the foreign portfolio-investment regime, compared to a productivity-dependent schedule, $K^*(\varepsilon)$, with a cumulative distribution $\varphi(\varepsilon/\varepsilon')$, in the FDI regime. Naturally, the latter is more efficient, in the sense that it yields a higher expected return.[9]

3.1. Gains to the host country

The economic gains from FDI, relative to FPI inflows, consist of the efficiency of investment and the lower screening cost of FDI investors. Note that because the same world interest rate, r, prevails in the home country in the two regimes, it follows that the gains from FDI relative to FPI in our case do not include the traditional gains from opening up the domestic capital market to foreign capital inflows. (Evidently, the traditional gains are present also in the portfolio regime.) In the FDI regime the firms with signals above the cutoff signal ε'_{0F} are screened; whereas in the FPI regime a smaller set of firms, namely only the firms with signals above ε'_{0D} are screened (recall that $\varepsilon'_{0D} > \varepsilon'_{0F}$). Therefore, the gains to the host country stemming from the efficiency of investment is

$$\mathrm{GAIN}_E = \int_{\varepsilon'_{0F}}^{\varepsilon'_{0D}} [P(\varepsilon') - C_F - V(\varepsilon')]\,\mathrm{d}G(\varepsilon'). \tag{10}$$

In addition, for the firms that are screened in the two regimes (that is, the firms with signals above ε'_{0D}), the screening cost is lower under the FDI regime than under the portfolio flow regime. This gives rise to further gains from FDI, which are

$$\mathrm{GAIN}_C = (C_D - C_F)[1 - G(\varepsilon'_{0D})]. \tag{11}$$

Observe that the entire gain, attributable to the lower screening cost of FDI investors, is captured by the host country because of the assumed perfect competition among the FDI investors over the domestic firms. Competition among FDI investors must drive up the price they pay for a domestic firm to their net bid-price [that is, $P(\varepsilon') - C_F$], which exceeds the ask-price of the domestic owners [that is, $V(\varepsilon')$]; except for the cutoff firm (for which the bid price and ask price are equal to each other). Thus, the total gain to the host country

[8] In this paper, we do not distinguish between foreign and domestic portfolio investors. For an analysis of information asymmetry between these two types of investors, which leads to the home-bias phenomenon in portfolio investment, see Razin et al. (1998).

[9] We have assumed that the only advantage of FDI investors over direct domestic investors lies in the search/screening cost. Naturally, if we were to assume that FDI investors can also obtain better information about the true ε (we have assumed that both can accurately elicit ε), then the difference between the two regimes may expand to the entire range of $[-1, 1]$ of signals.

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from FDI is

$$\mathrm{GAIN_E} + \mathrm{GAIN_C} = \int_{\varepsilon'_{0F}}^{\varepsilon'_{0D}} [P(\varepsilon') - C_F - V(\varepsilon')]\,\mathrm{d}G(\varepsilon') + (C_D - C_F)[1 - G(\varepsilon'_{0D})]. \tag{12}$$

Note, however, that in the extreme opposite case of a monoply, the single FDI investor will never offer a price for a domestic firm above the price that will be offered by domestic investors, which is $P(\varepsilon')-C_D$, as long as this price is above, or equal, to the ask price of the domestic owner, which is $V(\varepsilon')$. Thus, the price at which the foreign direct investor buys a domestic firm with a signal ε' is $\mathrm{Max}[P(\varepsilon')-C_D,\ V(\varepsilon')]$. Because $P(\varepsilon'_{0D})-C_D = V(\varepsilon'_{0D})$, it follows that $P(\varepsilon')-C_D < V(\varepsilon')$ in the interval $(\varepsilon'_{0F}, \varepsilon'_{0D})$. This means that in this interval the domestic firms are purchased by the foreign direct investor at the ask price $V(\varepsilon')$. Hence, the efficiency gain of investment, $\mathrm{GAIN_E}$, vanishes. Similarly, firms in the interval $[\varepsilon'_{0D}, 1]$ must be purchased at the price $P(\varepsilon')-C_D$ [rather than $P(\varepsilon')-C_F$ in the competitive case]. Hence, $\mathrm{GAIN_C}$ vanishes as well. Thus, as expected, the entire gain from FDI accrues to the single FDI investor. To retain some of the gains of FDI, a possible remedy for the host country is to impose some sort of a floor on the sale prices of domestic firms. Another partial remedy for the host country is to impose a (source-based) capital gains tax on FDI investors. In the intermediate case of imperfect competition among a few FDI investors, but not a strict monopoly, the gains from FDI are split between the host country and the FDI investors.[10]

3.2. The size of investment in capacity in the host country

We have already established that the allocation of the capital stock (its aggregate level and distribution over firms) is more efficient in the FDI regime than in the portfolio regime. Is the capital stock also larger in the FDI regime than in the FPI regime? Recall that the fundamental difference between the two regimes is the screening cost C. Therefore, rephrasing the question one can ask whether a decline in the search cost increases the aggregate stock of capital. In order to answer this question, we write the aggregate stock of capital as a function of C, as follows (see Eq. (9)):

$$\bar{K}(C) = \int_{-1}^{\varepsilon'_0(C)} K(\varepsilon')\,\mathrm{d}G(\varepsilon') + \int_{\varepsilon'_0(C)}^{1} E(K^*(\varepsilon)/\varepsilon'[\mathrm{d}G(\varepsilon'), \tag{13}$$

where $\varepsilon'_0(C)$, $K(\varepsilon')$ and $E[K^*(\varepsilon)/\varepsilon']$ are defined by Eqs. (7), (3) and (8), respectively. Now, differentiate $\bar{K}(C)$ with respect to C, to get

$$\frac{\mathrm{d}\bar{K}(C)}{\mathrm{d}C} = \{K[\varepsilon'_0(C)] - E[K^*(\varepsilon)/\varepsilon'_0(C)]\}g[\varepsilon'_0(C)]\frac{\mathrm{d}\varepsilon'_0(C)}{\mathrm{d}C}. \tag{14}$$

From Eqs. (3) and (5) we can conclude that

$$K[\varepsilon'_0(C)] = H\{E[\varepsilon/\varepsilon'_0(C)]\} \tag{15}$$

and

[10] Evidently this is an extreme case. If there is an additional domestic input, say labor, the host country still gains, even in the case of a single FDI investor, through infra-marginal gains to domestic labor. However, these gains are sharply smaller than what they could have been in case of competitive FDI investors.

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$$K^*(\varepsilon) = H(\varepsilon),$$

where the function $H(\cdot)$ is defined by

$$H(x) = (F')^{-1}\left(\frac{r+\delta}{1-x}\right)$$

and where the function $(F')^{-1}$ denotes the inverse of F'. Thus, we can rewrite Eq. (14) as

$$\frac{\mathrm{d}\bar{K}}{\mathrm{d}C} = (H\{E[\varepsilon/\varepsilon_0'(C)]\} - E[H(\varepsilon)/\varepsilon_0'(C)])g[\varepsilon_0'(C)]\frac{\mathrm{d}\varepsilon_0'(C)}{\mathrm{d}C}. \quad (16)$$

If the function $H(\cdot)$ is convex, then it follows from Jensen's inequality that $\mathrm{d}\bar{K} = \mathrm{d}C$ is negative (because $\mathrm{d}\varepsilon'_0/\mathrm{d}C > 0$). Indeed, one may plausibly assume that H is convex (for instance, this is the case with a Cobbv–Douglas production function), in which case $\mathrm{d}\bar{K} = \mathrm{d}C < 0$. That is: The size of investment in capacity is larger under the regime of FDI inflows than under the regime of FPI inflows.

4. The role of transparency: Empirical illustration

In this section, we present some empirical evidence in line with some of the implications of our theory. This is done in the context of FDI flows between (source–host) pairs of countries. Our theory is interpreted to suggest that FDI depends on the accuracy of the productivity signals in the host country. The more accurate are the signals, the less pronounced is the advantage of FDI investors, and the less abundant are FDI flows to the host country. These signals are proxied by the level of transparency in the corporate sector in the host country (see Section 2). In principles the latter is proxied by a host of indicators as follows:

(i) Antidirector Rights Index (La Porta et al., 1999). This is a summary measure of shareholder protection. This index ranges from zero to six and is formed by adding one when: The country allows shareholders to mail their proxy vote to the firm; shareholders are not required to deposit their shares prior to the General Shareholders'Meeting; cumulative voting or proportional representation of minorities in the board of directors is allowed; an oppressed minorities mechanism is in place; the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10% (the sample median); shareholders have preemptive rights that can only be waived by a shareholders' vote. In essence, this index indicates how transparent must be the managers (whether or not they belong also to the controlling shareholders, in case if there are any) vis-a-vis all shareholders and, consequently, the public at large. But, the Antidirector index affect FDI through the corporate governance channel, as well.

(ii) The Creditor Rights Index (La Porta et al., 1999). This is a summary measure of creditor protection. This index ranges from zero to four and is formed by adding one when: The country imposes restrictions, such as creditors' consent or minimum dividends to file for reorganization; secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; the debtor does not retain the administration of its property pending the resolution of the reorganization.

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We stipulate that the transparency is positively correlated with the debt–equity ratio because firms that rely more heavily on debt have to present to their creditors and the public more reliable and detailed information about their business. Because the debt–equity ratio may be jointly determined with the FDI by other fundamentals, the Creditor Right Index can serve as an instrument.

(iii) Accounting Standards (La Porta et al., 1999). This is an index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items falling in the categories of general information, income statements, balance sheets, funds flow statement, accounting standards, stock data, and special items.

We use country fixed effects to capture time-independent country characteristics. At the same time, we have data for all the indicators of transparency just for one year. Therefore, we can employ these indicators one at a time only. We arranged the transparency indicators in source–host difference pairs. Therefore, we are likely to capture with these time-independent pairs the effect of transparency and not the effect of the country characteristics.

Our econometric approach is based on Razin et al. (2003) where attention is paid to the problems that arise when FDI flows are "lumpy": FDI flows are actually observed only when they exceed a certain (unobserved) threshold. Therefore, the Heckman selection-bias method is adopted to jointly estimate the likelihood of surpassing this threshold (the "participation" equation) and the magnitude of the FDI flow, provided that the threshold was indeed surpassed (the "gravity" equation).

The data employed in the empirical illustration are drawn from OECD reports (OECD, various years) on a sample of 24 OECD countries, over the period from 1981 to 1998. The FDI data are based on the OECD reports of FDI exports from 17 OECD source countries to 24 OECD host countries.[11]

We employ 3-year averages, so that we have six periods (each consisting of 3 years). The main variables we employ are (1) standard country characteristics, such as GDP or GDP per-capita, population, educational attainment (as measured by average years of schooling), financial risk ratings, etc.; (2) source–host (H–S) pair characteristics, such as H–S FDI flows, geographical distance, common language (zero-one variable), H–S flows of goods, bilateral telephone traffic per-capita as a proxy for informational distance, etc. Table 1 describes the list of the 24 countries in the sample, and whether they are observed in the sample (at least once) as a source or host country (but most source countries do not have positive flows more than with few host countries), and Table 2 describes the data sources.

Table 3 presents the effects of some key host-country transparency variables on FDI flows. We naturally include also in the empirical analysis a host of standard explanatory/control variables that are employed in studies of the determination of FDI flows. They are analyzed in details in Razin et al. (2003). These variables includes standard "mass" variables (the source and the host population sizes); "distance" variables (physical distance between the source and host countries and whether or not the two countries share a common language); and "economic" variables (source and host GDP per capita,

[11]The OECD reports accurately on *all* rich and poor countries that are a host to OECD FDI exports. But data are missing for non-OECD countries as a source of FDI exports. This is the reason that we restrict our sample to the group of OECD countries, as potential source and host countries, among themselves, with no missing data.

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Table 1
Frequency of source–host positive flows by countries

Country	Source	Host	Country	Source	Host
Australia	0.43	0.41	Korea	0.09	0.39
Austria	0.66	0.38	Mexico	0.00	0.33
Belgium	0.03	0.56	Netherlands	0.68	0.54
Canada	0.62	0.41	New Zealand	0.00	0.34
Denmark	0.35	0.46	Norway	0.64	0.33
Finland	0.65	0.34	Portugal	0.00	0.49
France	0.94	0.52	Spain	0.02	0.51
Germany	0.98	0.54	Sweden	0.84	0.45
Greece	0.00	0.36	Switzerland	0.27	0.47
Ireland	0.00	0.49	Turkey	0.02	0.36
Italy	0.81	0.46	United Kingdom	0.91	0.58
Japan	0.96	0.41	United States	0.87	0.64

Table 2
Date sources

Variables	Source
Import of goods	Direction of trade statistics, IMF
FDI inflows	International direct investment database, OECD
Unit value of manufactured exports	World economic outlook, IMF
Population	International financial statistics, IMF
Distance	Shang Jin Wei's Website: 222.nber.org/~wei
Bilateral telephone traffic	Direction of traffic: Trends in international telephone tariffs, International communication union International telecommunication union
Educational attainment	Barro-Lee Dataset: www.nber.org
ICRG Index of financially sound ratings (inverse of financial risk)	Ashoka Mody, IMF
Antidirector rights index	http://www.andrei-shleifer.com/data.html
Creditor rights index	
Accounting standards	

source–host differences in average years of schooling, and source and host financial risk ratings). In addition, we include a dummy variable (previous FDI) to indicate whether or not the source–host pair of countries have already established DI relations between them in the past; such past relations may facilitate new flows of FDI. The results in Table 3 are more or less in line with findings in Razin et al. (2003). For instance, a high gap in education in favor of the source country reduces the probability of having FDI flows to the host country. This is expected because a gap in years of schooling may be a proxy for a productivity gap; see also Lucas (1990). The host financial risk rating affects positively the flow of FDI, whereas the analogous variable of the source country is negative and significant in the selection equation. The existence of past FDI relations is positive and significant in the selection equation, as it may help to facilitate new FDI flows.

The first three explanatory variables in Table 3 are the focus of our hypothesis that a lower degree of transparency in the host country, relative to a potential source country, is

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Table 3
FDI bilaterl flows, OECD countries (1981–1998)

Accounting for fixed country effects	Flow	Selection	Flow	Selection	Flow	Selection
Host–source antidirector rights	2.39 (1.210)[a]	–0.46 (0.849)				
Host–source creditors rights			−10.31 (3.619)[b]	2.50 (0.909)[b]		
Host–source accounting standards					0.47 (0.161)[b]	−0.77 (0.178)[b]
Host real GDP per capita	0.769 (0.921)	−0.509 (0.922)	0.259 (0.841)	−0.764 (0.896)	−1.053 (0.810)	0.305 (0.889)
Source real GDP per capita	(0.627)	−3.030 (1.760)	−0.105 (0.590)	−2.321 (1.603)	−0.204 (0.580)	−2.289 (1.957)
Host population	−3.828 (1.872)[a]	5.804 (1.849)[b]	−3.867 (1.669)[a]	4.976 (1.776)[b]	−3.074 (1.663)	4.725 (1.854)[a]
Source population	−0.745 (2.453)	−3.783 (2.403)	−0.282 (2.119)	−3.465 (2.324)	0.553 (2.110)	−4.118 (2.463)
Source–host difference in schooling	−0.102 (0.089)	0.188 (0.085)[a]	−0.101 (0.085)	0.231 (0.085)[b]	−0.087 (0.083)	0.232 (0.087)[b]
Common language	1.047 (0.142)[b]	0.382 (0.166)[a]	0.921 (0.128)[b]	0.456 (0.164)[b]	0.912 (0.137)[b]	0.475 (0.180)[b]
Source–host distance	−0.711 (0.096)[b]	−0.308 (0.082)[b]	−0.668 (0.093)[b]	−0.319 (0.076)[b]	−0.691 (0.096)[b]	−0.336 (0.082)[b]
Previous FDI (dummy)		0.723 (0.124)[b]		0.736 (0.115)[b]		0.703 (0.118)[b]
Number of observations	2184	2184	2398	2398	2184	2184

[a]Indicates significance at the 5% level.
[b]Indicates significance at the 1% level.

likely to increase the probability that this will become a source–host pair, with positive FDI flows. Lower degree of transparency may also increase the intensity of FDI flows between the source and the host country. We may detect in the data some evidence in these directions. Indeed, the coefficient of the H–S accounting standards is negative and significant in the selection equation: A lower level of these standards (that is, less transparency) in the host country, relative to the source country, increases the likelihood of attracting FDI flows from the source to the host country. Similarly, the coefficient of the H–S creditor rights is negative and significant in the flow equation: A lower level of this index (that is, less transparency) in the host country, relative to the source country, increases the flows of FDI from the source to the host country.

5. Concluding remarks

We develop a model in which foreign direct investors are better equipped to cream skim domestic projects than their direct domestic and portfolio counterparts, due to rich experience in the skimming of "good" firms. Employing this advantage, foreign direct investors are able to outbid direct domestic and portfolio investors for the good firms.

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Better hands-on management standards, which characterize FDI investors, entails a cutting-edge advantage over portfolio investors in reacting in real time to a changing business environment. This feature is naturally more pronounced in high-productivity firms, resulting in the acquisition of high-productivity firms by FDI investors. This mechanism applies both to mergers and acquisitions and to green-field investments. The productivity signal, though, is likely to be coarser in the latter, conveying less information about the true productivity. Thus, the advantage of the FDI investors over their domestic direct investors counterparts is even more pronounced in the case of green-field investments than in mergers and acquisition.

We view FDI as distinct from FPI investment with respect to the quality of monitoring management. Foreign direct investors, by definition, acquire some significant control over the firm they invest in, whereas portfolio investors, plagued by free-rider problems, have no control. Consequently, foreign direct investors can apply hands-on management (or micro-management) standards that would enable them to react in real time to changing economic environments. This feature may stem from "intangible capital" accumulated through a specialization by the foreign direct investors in a certain niche.[12] Indeed, there is some microevidence in support of this hypothesis. For example, Djankov and Hoekman (2000) report that foreign direct investors pick the high-productivity firms in transition economies. Similarly, Griffith and Simpson (2003) find that foreign-owned manufacturing establishments in Britain, over the period 1980–1996, have significantly higher labor productivity than those that remain under domestic ownership.[13] Britain is not an exception as a developed country attracting FDI. In fact, the vast majority of FDI flows among developed countries. The model in this paper is relevant when a developed country may specialize in certain niches and gain cutting-edge advantages in these niches over another developed country. The opposite may apply in some other niches.

We provide some illustrative evidence on the effects of transparency on FDI flows. Our data are country-pair data, but at the macro level. Thus, our evidence captures country-specific shocks rather than firm-level idiosyncratic ones.

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[12]See Gopinath (2004) for a different application of a search model for a study of FDI flows into developing economies.

[13]In addition, labor productivity improves faster over time and faster with age in foreign-owned establishments. Other studies found that this phenomenon is accounted for by the greater capital intensity of multinationals. For an overview see Lipsey (2002).

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References

Albuquerque, R., 2003. The composition of international capital flows: Risk-sharing through foreign direct investment. Journal of International Economics 61 (2), 353–383.

Borenzstein, E., De Gregorio, J., Lee, J.W., 1998. How does foreign direct investment affect economic growth? Journal of International Economics 45, 115–135.

Bosworth, B., Collins, S., 1999. Capital flows to developing economies: Implications for saving and investment. Brookings Papers on Economic Activity 1, 143–169.

Burstein, A., 2003. Discussion of Ashoka Mody, Assaf Razin, and Efraim Sadka 2003. The role of information in driving FDI flows: Host-country transparency and source-country specialization. The North American Meeting of the Econometric Society, Washington, DC (January).

Djankov, S., Hoekman, B., 2000. Foreign investment and productivity growth in Czech enterprises. The World Bank Economic Review 14 (1), 49–64.

Gopinath, G., 2004. Lending booms, sharp reversals and the real exchange dynamics. Journal of International Economics 62 (1), 1–23.

Griffith, R., Simpson, H., 2003. Characteristics of foreign-owned firms in British Manufacturing. NBER working paper No. 9573, March.

Hart, O., 2001. Financial contracting. The 2001 Nancy L. Schwartz Lecture, Kellogg Graduate School of Management, Northwestern University.

La Porta, R., de Silanes, F.L., Shleifer, A., Vishny, R.W., 1999. Investor protection and corporate governance. 〈http://ssrn.com/abstract=183908. The data can be downloaded from http://www.andrei-shleifer.com/data.html〉.

Lipsey, R., 2002. Home and host country effects of FDI. NBER working paper # 9293.

Lucas, R.E., 1990. Why doesn't capital flow from rich to poor countries? American Economic Review: Papers and Proceedings 80 (2), 92–96.

Productivity Commission, 2002. Oshore investment by Australian firms: Survey evidence, Commission research paper, Canberra, Australia.

Razin, A., 2005. FDI contribution to capital flows and investment in capacity. In: Ito, T., Rose, A. (Eds.), Productivity, East Asia Seminar on Economics (EASE), vol. 13. University of Chicago Press, Chicago.

Razin, A., Sadka, E., 2003. Gains from FDI inflows with incomplete information. Economics Letters 78, 71–77.

Razin, A., Sadka, E., Yuen, C.-W., 1998. A pecking order theory of capital flows and international tax principles. Journal of International Economics 44 (1), 45–68.

Razin, A., Rubinstein, Y., Sadka, E., 2003. Which countries export FDI, and how much? NBER working paper no. 10145, December.

Wei, S.-J., 2000. How taxing is corruption on international investors. Review of Economics and Statistics 1, 1–11.

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