# Foreign direct investment, intra-firm trade and ownership structure

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**Abstract**

Asymmetric information about true opportunity cost in trade between a multinational and its foreign affiliate can alleviate the hold-up problem in foreign direct investment. Selling shares in the affiliate to locals is also beneficial because it increases the parent multinational's information rent that is protected from a host government's confiscatory taxation.

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## 1 Introduction

The fact that governments cannot observe true factor prices in intra-firm trade of multinationals is usually considered to cause efficiency losses. One reason for efficiency losses is the firms' incentive for arbitrage in international profit taxes. With incomplete information, tax avoidance and governmental countermeasures lead to distortions in trade, sales or production decisions.[1]

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[1]For an early overview on transfer pricing and tax arbitrage see Rugman and Eden (1985). More recent contributions are Kant (1988a,b), Schjelderup and Sørgard (1995) and

This paper considers a different aspect of intra-firm trade, showing that asymmetric information about the true opportunity cost of intra-firm trade can be efficiency enhancing with respect to a time consistency problem in foreign direct investment. Countries' governments often try to attract or compete for foreign direct investment. However, once the direct investment has been made and the investment is sunk, the host country has an incentive to confiscate profits from this investment. A multinational firm anticipates that it cannot repatriate any future earnings, and thus has no incentive to invest in the host country, even if the returns on this investment were extremely high. This is the hold-up problem in the context of foreign direct investment (see, e.g., Eaton and Gersowitz 1983 and Schnitzer 1995).

An informational asymmetry between the multinational and the host country as regards intra-firm trade can reduce this hold-up problem. The intuition for this result is that an information asymmetry will give the firm an expected agency rent, even if the host government tries to confiscate as much of the earnings as possible once the direct investment has been made. Hence, some of the profits of the direct investment are protected from confiscation.[2]

An interesting aspect of this principal-agent problem is the ownership of shares in the affiliate. Multinationals often choose joint ventures or sell part of the affiliate to residents or companies owned primarily by residents. Sometimes such a policy is also supported or even mandated by "indigenisation requirements"[3] for foreign direct investment.

Selling shares in a foreign affiliate to residents in that country may indeed reduce the hold-up problem even further, and may therefore be in the interest of both the multinational and the host country. Although the parent firm keeps the control rights with respect to the affiliate, the principal-agent

Schjelderup and Weichenrieder (1998), and, explicitly considering incomplete information in an agency framework, Stoughton and Talmor (1994), Donnenfeld and Prusa (1995), Prusa (1990), Gresik and Nelson (1994) and Bond and Gresik (1996).

[2]For instance, Sampson (1975) reports about the history of oil companies and their negotiations with oil exporting countries. He finds that, in the period prior to and in the early stages of the formation of the OPEC cartel, firms' sunk investment in exploration and drilling, intransparent pricing rules and incomplete information about the oil companies' markets and cost of producing and processing oil were essential elements when the oil companies and the oil exporting countries renegotiated the exporting countries' shares in the oil revenues.

[3]Indigenisation requirements –meaning that the host government requires an investor to share ownership of an affiliate with residents in the host country (Katrak 1983)– are often observed in foreign direct investment. Svejnar and Smith (1984) and Al-Saadon and Das (1996) discuss cost and benefits of indigenisation in a complete information efficient bargaining context.

relationship between the host country's government and the multinational parent is changed if the parent has sold shares in the affiliate. If the affiliate is not fully owned by the parent, profit shifting via intra-firm trade creates an additional incentive problem between the parent and the minority shareholders which can increase the multinational's agency rents in foreign direct investment even further. Several effects are at work. By selling shares in the affiliate the multinational recaptures part of its sunk investment. Moreover, the information rent still goes to the multinational parent, because the parent is the agent with the information advantage. Further, since the host country's government cares about its citizens' incomes from portfolio investment, the government is less willing to use high powered incentives to extract the firm's revenue.[4]

A large literature considers the hold-up problem in foreign direct investment, or, more generally, in capital income taxation. In the context of capital income taxation Kehoe (1989) argues that tax competition can be a disciplinary force. Eaton and Gersowitz (1984) and Thomas and Worrall (1994) discuss reputation effects. Kotlikoff et al. (1987) claim that it can be costly to change institutions and argue that the institutional set-up may therefore reduce the problem. Wilson (1996) argues that anticipation of rent seeking by existing affiliates may alleviate the problem. Another rent-seeking argument for overcoming the hold-up problem in capital income taxation is corruption. Suppose the elected politician is not fully benevolent. He is instead a moderate Leviathan who wants own income and also wants to achieve high welfare for the state, the variables being substitutes, as in Edwards and Keen (1996). Corruption may then help overcome the benevolent government's incentive to tax away all capital income. Boadway and Keen (1998) have argued that the possibility of tax evasion and commitment to a lax enforcement policy can also partially overcome the time consistency problem. Some of the investor's future earnings are protected because the investor can evade confiscatory taxation. Schnitzer (1995) compares the hold-up problem in direct investment with the time consistency problem in the sovereign debt literature. She argues that some direct investment is possible because the host government may not be able to observe perfectly whether the investment in the host country is really sunk or whether part of it is mobile. If the government tries to confiscate too much profit, the subsidiary may leave

[4]The assumption that governments care about the income of their citizens, but not about the profits of foreigners seems most natural. Huizinga and Nielsen (1997) consider this effect in a tax competition model. This general idea has many applications. Examples are Bhagwati and Brecher (1980) in trade theory, Barros and Cabral (1994) on merger policy, and McAfee and McMillan (1989), Branco (1994) and Vagstad (1995) on procurement decisions.

the country. The present paper can be regarded as analyzing informational asymmetries in intra-firm trade as a further channel by which some profit from foreign direct investment can be protected from confiscatory taxation by the host government.[5]

Empirically, foreign direct investment and international intra-firm trade have boomed in parallel in the last decade. As a share of GDP, the stock of FDI's has doubled from 4.9 percent in 1980 to 9.7 percent in 1995 (Barrell and Pain, 1997, p.1771). According to a report by the European Commission (1995), direct investment flows have increased from US $ 60 billion in the mid eighties to US $ 140 billion in 1993. According to the same source, this direct investment flow has been complement to, and not a substitute for world trade of which about 40 percent is intra-firm trade. This evidence is in line with the theoretical argument made in this paper that intra-firm trade may ease foreign direct investment where there is a threat of possible confiscatory taxation.

# 2 The model

The elements of the model are as follows. A multinational firm considers whether to establish an affiliate in a host country (STAGE 1). To do this some foreign direct investment is needed. The multinational can choose the size of the affiliate by choosing the amount of investment. The investment is $k$. It is observable and irreversible. Should the multinational one day in the future decide to close down the affiliate, this investment is lost.

Once the affiliate is set up, the multinational parent decides whether to own the affiliate fully or to sell a fraction $\gamma \in [a, b] \subseteq [0, 1]$ to portfolio investors who are residents in the host country (STAGE 2), where $a$ and $b$ are exogenous limits and discussed below. If shares are sold to portfolio investors an incentive problem is created between the parent and portfolio investors. Rules of control are needed to prevent the parent shifting all profit and leaving zero profits to be shared with the portfolio investors. (See Lipton (1994) for a discussion of the problem and possible instruments.) Later we will specify these rules.

In STAGE 3 the parent firm starts producing an input for the affiliate. It has constant per unit production cost $c$. This cost is low ($c = c_0$) with probability $q$, or high ($c = c_1 > c_0$) with probability $(1-q)$. The information about possible cost and its probabilities is public information. When it starts

[5] The role of information rents as commitment has been used in other contexts, e.g., by Kjerstad and Vagstad (1994) who consider the incentives to enter a procurement auction, depending on the information rents that are left to the successful bidder.

to produce the parent -and only the parent- learns whether cost is in fact low or high.[6]

In STAGE 4 the government taxes and regulates the foreign direct investment as follows. The government knows the prior probability distribution of cost. The parent will sell a quantity $x$ of the intermediate good to the affiliate. The affiliate will turn it into revenues $R(k,x)$ with $R_x > 0, R_k > 0, R_{xx} < 0, R_{kk} < 0$ and $R_{kx} > 0$, where subscripts to $R$ denote partial derivatives. The affiliate could simply be a branch of the multinational, selling final goods produced in the parent company. In this case, however, consumer rents in the host country must be taken into account. To avoid this unnecessary complication we make the standard assumption (e.g., in strategic trade theory) that either the affiliate is a marginal firm and its production and sales do not generate any intra-marginal consumer rent in the host country, or that the affiliate sells all final products to a third country. The government in the host country then tries to maximize its expected tax revenue and, in addition, may care about residents' income. Its policy instruments are combinations of an import quota $x$, and a business tax $T$. The government may offer a set $\mathcal{CR}$ of combinations $(x_i, T_i)$ where $T_i$ is the tax that has to be paid if the quantity $x_i$ is chosen.

Such instruments have several possible interpretations. The most obvious is a non-linear tariff on specific inputs for the affiliate's operations. A second interpretation is license fees for different operation sizes, where the size of the operation of the subsidiary is proportional to the amount of imported intermediate goods. While discriminatory profit taxation of foreign owned companies is difficult under OECD regulation, such license fees, operating fees more generally, and non-linear tariffs are possible instruments for host countries to confiscate returns on foreign direct investment.

In STAGE 5 the parent firm has the (control) right to choose one of the pairs $(x_i, T_i)$ from the set $\mathcal{CR}$. The choice of this contract may have some impact for the transfer price that the parent can charge the affiliate. This will be explained in detail in section 3. Alternatively the parent may close down the affiliate in this stage.

When the parent has chosen to close down the affiliate, the game is over. If it continues the operation of the affiliate and has chosen from $\mathcal{CR}$, the managers (STAGE 6) carry out production, generate the profit and pay taxes as suggested by the contract $(x_i, T_i)$ chosen by the parent. Figure 1 summarizes the timing of choices provided that the affiliate's operation is not

[6] The assumption that information about the probability distribution of production cost is symmetric before the parent invests is for simplicity only. The benefits or harm of private information in a stage prior to the investment stage is explicitly considered in a different context by Erbenová and Vagstad (1995).

terminated.

[Figure 1 about here]

# 3 Time consistent taxation

Suppose $k$ and $\gamma$ are given and consider the subgame consisting of STAGES 4 to 6.

In STAGE 6 the amount of the intermediate good that the parent sells to the affiliate is already given by the parent's choice of the pair $(x_i, T_i)$.[7] A central question is the transfer price $\hat{c}$ the parent charges the affiliate once the parent has chosen the tax/quota regime. The parent's repatriated profit is[8]

$$\pi_i = (1-\gamma)[R(x_i, k) - \hat{c}x_i - T_i] + (\hat{c} - c)x_i \tag{1}$$

where $c$ is the true unit cost. It consists of the parent's share in the affiliate's accounting profit plus the profit shifted using a transfer price that differs from the parent's true cost. Equation (1) shows that repatriated profits are independent of $\hat{c}$ if $\gamma = 0$. If the affiliate is fully owned by the parent, for given $T_i$, the choice of the transfer price is a matter of indifference.

However, repatriated profit is strictly monotonically increasing in $\hat{c}$ if $\gamma > 0$. If the parent earns and repatriates only $(1-\gamma)$ of the affiliate's net-of-tax profits, the parent has an incentive to charge a high transfer price. The parent could fully shift all profit directly home without having to share it with the minority shareholders. If indigenisation is a partnership in any real sense, complete profit shifting must be prevented by minority shareholder protection rights.[9] We assume that the following (exogenous) simple minority

[7] The government could extract profits using contracts with import tariffs instead of a quota. A technical analysis of this problem is more involved. If the government charges import tariffs, the parent firm and its affiliate can negotiate with each other about quantities and the transfer price. Bargaining rules play a role. However, if the parent firm has a strong bargaining position in these negotiations, then results similar to those in this paper can be obtained.

[8] The tax rules that apply to repatriated profits or shifted profits in the parent's home country also influence the parent's payoff function. This issue is the focus of much interest in the literature on transfer pricing and international tax arbitrage. For simplicity and in order to focus on the hold-up problem, this paper removes these additional aspects from the picture and considers only the confiscatory tax in the host country. Equation (1) also reveals that the foreign ownership share $\gamma$ affects the payoff function of the parent firm similarly to a tax, providing similar incentives as corporate taxes do.

[9] Svejnar and Smith (1984) and Falvey and Fried (1986) discuss the role of domestic shareholders in transfer pricing decisions in a full information efficient bargaining context.

shareholder protection rule applies:

*MSP-rule*: The parent may always charge $\hat{c} = c_1$ except where there is evidence that $c \neq c_1$. A parent with true cost $c = c_1$ is expected to maximize its own after-tax profits. If the parent makes a choice that would not be a profit maximizing one for a parent firm where true cost is equal to $c_1$, this is considered evidence for $c \neq c_1$. If such a choice is observed, the parent must charge $\hat{c} = c_0$.[10]

Applied to the model, this rule implies the following: Suppose the host government had offered a set $\mathcal{CR}$ of contracts,

$$\mathcal{CR} \equiv \{(x_0, T_0), (x_1, T_1), ...(x_n, T_n)\}. \tag{2}$$

Calculate the affiliate's profit for each contract in $\mathcal{CR}$. Define

$$\mathcal{M} \equiv \{arg \max_{(x_j, T_j) \in \mathcal{CR}} \{R(k, x_j) - c_1 x_j - T_j\}\} \tag{3}$$

the set of all pairs $(x_j, T_j)$ that maximize the affiliate's profit if it has to pay the high transfer price. Suppose without loss of generality that $(x_1, T_1) \in \mathcal{M}$. The profit for this contract is $R(k, x_1) - c_1 x_1 - T_1$. Note that for $\hat{c} = c_1$ the profit of a high-cost parent is maximized if, and only if the parent chooses a contract that maximizes the profit of the affiliate. Hence, choice of a contract $(x_i, T_i) \notin \mathcal{M}$ is considered evidence for $c \neq c_1$ and this, in turn, implies that the transfer price is low: $\hat{c} = c_0$.[11]

This shareholder protection rule is not necessarily the optimal contract that the multinational and the affiliate could write in view of the anticipated confiscatory activities of the host country government.[12] However, this rule

They assume that the multinational's power to shift profits is a decreasing function of the fraction of the subsidiary owned by nationals. In a more general context, the rights of minority shareholders are a matter of contractual design which can be chosen when the subsidiary goes public, and minority shareholder rights are common in company law. Holmstrom and Tirole (1991) argue that the organizational forms in the relationship between the parent and a subsidiary are endogenous results of a transaction cost minimization problem and may take various forms. Here we simply consider a particular mechanism that keeps minority shareholders from being completely exploited.

[10]Incidentally, similar rules are applied by the U.S. to regulate transfer prices in intra-firm trade among multinationals. I am grateful to a referee who pointed this out.

[11]The MSP rule also makes sure that the parent does not choose contracts that are unprofitable for the subsidiary. Suppose, e.g., $R(k, x_1) - c_1 x_1 - T_1 < 0$ for $(x_1, T_1) \in \mathcal{M}$. If the parent chooses some contract and does not close down the affiliate, then this is evidence for $c \neq c_1$. Hence, the transfer price is low: $\hat{c} = c_0$.

[12]If company law allows arbitrary arrangements between parents and portfolio investors, the contract could, for instance, state that the parent must close down the affiliate whenever the government requires any positive amount of taxes, or may even require a positive lump-sum transfer from the government to the firm. If portfolio shareholders and the

has attractive properties. First, it protects the minority shareholders. Whenever the parent chooses some contract which, for $\hat{c} = c_1$ would not maximize the affiliate's profit, they get some compensation because the parent has to reduce the transfer price. The rule makes it costly for the parent to deviate from a contract that maximizes the affiliate's profit under high cost. If the low-cost parent can charge the high transfer price, it can shift profits. If it must charge the low transfer price, this profit accrues to the affiliate and therefore has to be shared with the minority shareholders. Second, the rule looks like an innocent minority shareholder protective provision. But it turns out that this rule may increase the parent's agency rent and may make positive domestic shareholdings (indigenisation) attractive for both the host government and the multinational parent in an ex-ante situation when the multinational parent considers whether to make the foreign direct investment. One purpose of this paper is to demonstrate that indigenisation can be a useful device for overcoming the hold-up problem. The rule therefore serves as an example that this is indeed true.

Consider now STAGES 4 and 5. In STAGE 4 the government is facing a standard principal-agent problem. The host government has two instruments. It can offer a set $\mathcal{CR}$ of contracts $(x, T)$ specifying a fixed amount $T$ of tax that the affiliate pays if a quota $x$ is chosen. We do not allow the government to make the contract contingent on the actual transfer price $\hat{c}$ for two reasons. First, this is common in the literature (see, for instance, Stoughton and Talmor 1994). Second, if the parent does not sell shares of the firm, the equilibrium outcome is independent of whether the government uses $x$ and $T$ or $x$, $T$ and $\hat{c}$ as instruments. The analysis will show that indigenisation may lead to higher profits if the government is restricted to the same set of two instruments as without indigenisation.[13]

The government's objective function is

$$qT_0 + (1-q)T_1 + \alpha\gamma E[R(k,x) - \hat{c}x - T] \rightarrow \max_{(x_0,T_0),(x_1,T_1)}. \qquad (4)$$

parent are unable to renegotiate the company contract after the government's move in STAGE 4, this would lead to an equilibrium with zero taxation. The impossibility of renegotiations is not unrealistic for dispersed share ownership, given the high transaction cost this would involve. Theoretically, this is a very simple and effective way of overcoming the hold-up problem in foreign direct investment. However, the company law may not allow such contracts. At least, they have not been observed.

[13]If the government controls $\hat{c}$ in addition to $x$ and $T$, the problem and the outcome changes compared to the analysis in the main text only if $\gamma \neq 0$. Equations (1) and (4) show that $\hat{c}$ does not matter for the multinational's or the government's payoff if $\gamma = 0$. However, government's control over $\hat{c}$ would matter if $\gamma > 0$. The beneficial commitment effects of indigenisation would be weakened.

It maximizes expected tax revenues and may care about the income of resident minority shareholders. The weight attributed to resident incomes is $\alpha \in [0,1]$. A Leviathan government would perhaps have $\alpha = 0$. A government that is fully benevolent as regards its own citizens would perhaps have $\alpha = 1/(1+\theta)$ with $\theta$ the marginal excess burden of the marginal source of government revenues. If the true cost type of the parent multinational is public information and equal to $c$, the government will offer only one combination $(x,T)$ of a quota and a tax such that $R_x(k,x) = c$ and $T = R(k,x) - cx$. Hence, it will induce efficient production and confiscate all profits.

However, with private information, the government assigns probabilities $q$ and $(1-q)$ for the parent having low or high cost and uses a mechanism. The import quota and a tax are its instruments. Consider the maximizing behavior of the host government. It can offer an arbitrary set $\mathcal{CR}$ of contracts. The following lemma simplifies further considerations. (A proof is in Appendix A.)

**Lemma 1** *: The government can maximize its payoff by a choice of at most two contracts,* $(x_0,T_0)$*, and* $(x_1,T_1)$*. If it offers two contracts* $(x_0,T_0)$ *and* $(x_1,T_1)$ *then* $R(k,x_0) - c_1x_0 - T_0 \neq R(k,x_1) - c_1x_1 - T_1$*.*

Lemma 1 implies that no loss of generality is incurred if consideration is restricted to situations in which the government may choose $\mathcal{CR}$ with at most two elements. The payoff of the parent depends not only on the contract choice, but also on the availability of alternatives not chosen, because available alternatives not chosen may change the relevant transfer price according to the MSP-rule. This is why Lemma 1 is not trivial.

If the government is strictly better off by offering a set of two contracts, Lemma 1 implies also that the parent with $c = c_1$ chooses $(x_1,T_1) \in \mathcal{M}$ and charges a transfer price $\hat{c} = c_1$.

As is usual in the principal-agent literature, we disregard the case in which the government's best alternative is to offer only one contract which is unprofitable if the parent has high cost. As can be been seen in the proof of Lemma 1, this case has a trivial solution. It can be ruled out by assuming that the probability $(1-q)$ that the firm has high cost is sufficiently high. The pooling contract will also not be considered explicitly (see, however, footnote 14 for some results). The analysis focuses on the case where the government's payoff is maximal if it chooses a pair of contracts that separates types but makes both types produce. Any separating equilibrium in which both types of parents keep the affiliate active leads to truthful transfer prices. A parent with high cost strictly prefers $(x_1,T_1) \in \mathcal{M}$ (by definition of $\mathcal{M}$). By the MSP-rule this choice implies that $\hat{c} = c_1$. Further, offering $(x_0,T_0) \notin \mathcal{M}$

enhances the government's payoff only if this contract is (at least weakly) preferred by a parent with low cost. By the MSP-rule, a choice of $(x_0, T_0) \notin \mathcal{M}$ implies $\hat{c} = c_0$. Hence, the government will offer a pair $(x_0, T_0)$ and $(x_1, T_1)$ such that the parent self-selects, where $(x_0, T_0)$ is the pair chosen by low cost parents and $(x_1, T_1)$ the pair chosen by high cost parents. For a separating pair of contracts it is required that

$$R(k, x_0) - c_0 x_0 - T_0 \geq 0, \tag{5}$$

$$R(k, x_1) - c_1 x_1 - T_1 \geq 0, \tag{6}$$

$$(1-\gamma)[R(k, x_0) - c_0 x_0 - T_0] \geq (1-\gamma)[R(k, x_1) - c_1 x_1 - T_1] + (c_1 - c_0)x_1, \tag{7}$$

and

$$(1-\gamma)[R(k, x_1) - c_1 x_1 - T_1] \geq (1-\gamma)[R(k, x_0) - c_0 x_0 - T_0] + (c_0 - c_1)x_0. \tag{8}$$

Constraints (5) and (6) are the participation constraints for contracts $(x_0, T_0)$ and $(x_1, T_1)$, respectively. Constraints (7) and (8) are the self-selection constraints. For instance, the left-hand side in (7) is the low-cost parent's repatriated net-of-tax profit from choosing $(x_0, T_0)$, with $(1 - \gamma)$ the share of the affiliate that is owned by the multinational parent. The right-hand side consists of two terms. The first term is the parent's repatriated net-of-tax profits from choosing $(x_1, T_1)$ and the second term is the shifted profit due to a wrong transfer price. Constraint (8) has a similar interpretation but refers to a high-cost parent.

Among constraints (5), (6), (7) and (8), only (6) and (7) are binding. In Appendix B we show that (5) and (8) are indeed not binding for the solution. We assume that the pair of contracts $(x_0, T_0)$ and $(x_1, T_1)$ that maximizes (4) subject to (5), (6), (7) and (8) is consistent with $(x_0, T_0) \notin \mathcal{M}$ and $(x_1, T_1) \in \mathcal{M}$, that is,

$$R(k, x_1) - c_1 x_1 - T_1 > R(k, x_0) - c_1 x_0 - T_0. \tag{9}$$

We will later show that (9) is fulfilled under mild conditions in the optimum.

Let $\lambda$ and $\mu$ be the Lagrangian multipliers associated with (6) and (7). Then the first-order conditions for a maximum of (4) subject to (6) and (7) can be transformed into

$$\lambda = 1 - \alpha\gamma \tag{10}$$

$$\mu = \frac{q(1-\alpha\gamma)}{1-\gamma} \tag{11}$$

$$R_x(k, x_0) = c_0 \tag{12}$$

and

$$(1-q)[R_x(k, x_1) - c_1] = \frac{q(1-\alpha\gamma)}{(1-\gamma)}(c_1 - c_0). \tag{13}$$

Conditions (10) and (11) show that the multipliers $\lambda$ and $\mu$ are strictly positive for $\gamma < 1$. The participation constraint (6) and the self-selection constraint (7) are indeed binding. The full profit of an affiliate with a high-cost parent is confiscated, and the affiliate of a low-cost parent is left with a net-of-tax profit that makes the low-cost parent just indifferent between imitating a high-cost type and truthfully revealing its type.

Finally we have to confirm that the affiliate's profit is higher for $(x_1, T_1)$ than for $(x_0, T_0)$ if $\hat{c} = c_1$. A sufficient condition for arbitrary $\alpha$ is $\gamma$ to be sufficiently small. Condition (9) follows immediately from the binding conditions (6) and (7) if $x_1 < (1-\gamma)x_0$, which is always fulfilled for sufficiently small $\gamma$ since $x_1$ is strictly smaller than $x_0$ by (13). In Appendix C we show that (9) is always fulfilled in a separating equilibrium for $\alpha$ sufficiently close to zero. But condition (9) may not be fulfilled for sufficiently large $\gamma$ and $\alpha$, and, in addition, the government may prefer to implement a pooling equilibrium in these cases.

Using conditions (10)-(13) the parent firm's expected payoff for given choices of direct investment and indigenisation can be determined. It is the sum of the share of earnings of the affiliate net of taxes, according to the parent's remaining shareholdings, plus the sales revenue for the shares the parent sells to residents of the host country.

The net-of-tax profit of the affiliate is zero if the parent is a high-cost firm. This is described by (10) which shows that (6) is binding. Condition (12) further shows that the low-cost firm is granted an import quota which leads to efficient production ("no distortion at the top").

The net-of-tax profit of the affiliate if the parent is a low cost firm is equal to

$$\pi_0 = \frac{(c_1 - c_0)x_1}{1-\gamma}. \tag{14}$$

This follows from binding (7). Equation (14) shows that the agency rent that has to be given to the low-cost parent for a given choice of the quota for a high-cost parent is higher the higher the share of minority shareholdership. The intuition is as follows. Suppose the minority shareholdership is

30 percent. If the government grants some net-of-tax profits to the affiliate of a low-cost parent, the parent can repatriate only 70 percent of this profit. If, instead of revealing its type, the parent imitates a high-cost parent, the transfer price is high and the parent can therefore shift profit equal to 100 percent of $(c_1 - c_0)x_1$. Revealing its type implies that the parent has to share the affiliate's profit with the minority shareholders, while mimicking a high-cost parent leads to a (shifted) profit that is not to be shared with the minority shareholders. From the parent firm's point of view, this is one thing that is nice about having minority shareholders that have rights and cannot be arbitrarily exploited by the parent company: for given quotas, the agency rent of the parent company is higher. Even if the parent has sold a share $\gamma$ of the firm, what it receives in terms of net-of-tax dividends still equals $(c_1 - c_0)x_1$.

Using (14) condition (13) can be interpreted as an arbitrage condition. The left-hand side is the loss in taxes that occurs if a high-cost parent's quota is reduced by one marginal unit, times the probability that the parent has high cost. The right-hand side is the expected gain from such a reduction: the agency rent that is to be granted to a low-cost parent is reduced by $\frac{\partial \pi_0}{\partial x_1} = (c_1 - c_0)/(1 - \gamma)$. A share $\gamma$ of this rent would have gone to the minority shareholders. Since government values their income with $\alpha$, only the difference $(1 - \alpha\gamma)$ would really be gained. The gains occur only if the parent firm has low cost, which happens with probability $q$.

The second part of the parent's returns on direct investment is the revenue from selling shares in the affiliate. The price obtained in a competitive market is equal to the expected profit minority shareholders get if they buy a share $\gamma$ of the firm. They earn a share $\gamma$ of the expected agency rent. Hence, the amount by which a competitive stock market will value the share $\gamma$ of the affiliate is

$$\gamma q \pi_0 = \gamma \frac{q(c_1 - c_0)x_1(\gamma)}{(1 - \gamma)}. \tag{15}$$

We summarize these results as

**Proposition 1** *The parent's expected return on the foreign direct investment equals the sum of the expected after-tax repatriated profit of the low-cost parent plus the sales revenue from an indigenisation share $\gamma$. This sum equals*

$$\Phi(\gamma) = q(1 - \gamma)\pi_0(\gamma) + \gamma q \pi_0 = q \frac{c_1 - c_0}{1 - \gamma} x_1(\gamma). \tag{16}$$

For given $x_1$ the payoff in (16) is strictly increasing in $\gamma$. The government's choice of contracts is, however, not independent of $\gamma$. From (13) we obtain

$$\frac{dx_1}{d\gamma} = \frac{1-\alpha}{(1-\gamma)^2}\frac{q}{(1-q)}\frac{(c_1-c_0)}{R_{xx}(k,x_1)}. \tag{17}$$

This ratio is strictly negative for all $\alpha < 1$. The government will distort the quantity for the high-cost type more strongly if the parent decides to make the affiliate go public, and, increasingly so if $\gamma$ increases, and if the government cares less about the earnings of the portfolio investors. This is summarized as

**Proposition 2** *An increase in the minority shareholders' ownership of the affiliate induces the government to change $x_1$ according to (17). Hence, $\frac{dx_1}{d\gamma} <$ (=) 0 iff $\alpha <$ (=) 1.*

The intuition for this result is as follows. Consider first the case in which the government does not care about resident shareholders' incomes. By (13) the government chooses imports $x_1$ that equalize the expected marginal loss of tax revenue from distorting the production in the high-cost case and the expected marginal tax revenue increase from reducing the information rent in the low-cost case. An increase in $\gamma$ does not change the marginal cost of reducing $x_1$ in the high-cost case. However, the government's benefits from marginally reducing imports $x_1$ are increasing in $\gamma$. The information rent that must be granted to the firm in the low-cost case is $\frac{c_1-c_0}{1-\gamma}$ per unit of $x_1$. Hence, a reduction in $x_1$ leads to a stronger reduction in the information rent if the share of indigenisation is higher. Hence, the government chooses lower imports for parents with high cost if the indigenisation share is higher.

This effect is mitigated by a second effect if the government is concerned not only about tax revenue, but also about local shareholders' incomes. The government knows that a share $\gamma$ of the information rent goes to local shareholders. If $\gamma$ is high it is less worthwhile for the government to appropriate information rent, because a large part of this is taken away from local shareholders. The two effects just offset each other if the government is indifferent between tax revenue and income for local shareholders, that is, if $\alpha = 1$.

The next two sections consider STAGES 1 and 2, the parent's choice of the amount of foreign direct investment, and the decision about selling shares in the affiliate to locals in the host country. First the investment problem is analyzed in a situation in which no shares in the affiliate are sold to locals. Then we consider how selling shares in the affiliate changes the multinational's payoff.

# 4 Investment without indigenisation

Suppose that for some reason the multinational must choose $\gamma = 0$ and consider its choice of $k$. By (16) the payoff of the multinational in the separating equilibrium is

$$\Phi(0) - k = q(c_1 - c_0)x_1 - k. \tag{18}$$

The multinational firm chooses the amount of investment that maximizes this payoff, taking into account that $x_1$ is a function of $k$ and is implicitly determined by (13) with $\gamma = 0$. The first-order condition for a maximum can be written as

$$q(c_1 - c_0)\frac{-R_{xk}}{R_{xx}} = 1, \tag{19}$$

where use of (13) has been made to substitute $\frac{-R_{xk}}{R_{xx}}$ for $\frac{dx_1}{dk}$. The left-hand side in (19) is the *marginal expected information rent* from additional investment. If $x_1(k)$ is concave in $k$, condition (19) determines a unique amount $k^*$ of investment that maximizes the multinational's payoff. This concavity is assumed in what follows.

We can now consider the impact of incomplete information on the investment decision and profits by comparing the outcome with the equilibrium under perfect and complete information. With perfect and complete information, the government assigns contracts to affiliates with high cost or low cost respectively, such that profit maximizing quantities $x$ are chosen, and taxes $T$ are levied that are exactly equal to these maximum profits. This was briefly discussed in section 3 above Lemma 1. Hence, any positive investment by the multinational is lost. Accordingly, the multinational has no incentive to invest anything in the host country. The subgame perfect equilibrium with perfect and complete information has investment $k = 0$ and, accordingly, expected payoffs are zero both for the multinational firm and the host government.

This result must be contrasted with the equilibrium foreign direct investment with incomplete information. The following result holds.

**Proposition 3** *(i) With asymmetric cost information the multinational parent chooses a strictly positive amount $k^*$ of foreign direct investment in a fully owned affiliate if the marginal expected information rent at $k = 0$ exceeds unity.*

*(ii) The payoffs of the multinational firm and the host government are higher with asymmetric cost information than with perfect and complete cost information if $k^* > 0$.*

*(iii) An increase in investment starting from the equilibrium $k^*$ increases the sum of the parent's and the government's payoffs.*

Proof. By (19), investment is strictly positive if $q(c_1 - c_0)\frac{-R_{xk}}{R_{xx}} > 1$ at $k = 0$. This shows (i). Consider (ii): $k^* > 0$ implies that the government earns some taxes, and the multinational firm earns some positive expected payoff on intramarginal units of investment, compared to zero payoffs in the equilibrium with perfect and complete information. For (iii) note that the increase in total rent from a marginal increase in $k$ at $k^*$ is

$$q(R_k(k^*, x_0)+[R_x(k^*, x_0)-c_0]\frac{dx_0}{dk})+(1-q)(R_k(k^*, x_1)+[R_x(k^*, x_1)-c_1]\frac{dx_1}{dk})-1 \tag{20}$$

Making use of (13), (19) and (12), the term in (20) reduces to

$$qR_k(k^*, x_0) + (1 - q)R_k(k^*, x_1). \tag{21}$$

The term in (21) is strictly positive. □

Proposition 3 states that foreign direct investment in the equilibrium with incomplete information is higher than in a situation with perfect information, but lower than the efficient level of investment. The agency rent that is caused by the information asymmetry reduces the hold-up problem but does not fully solve it.[14]

The next section considers the impact of indigenisation for the equilibrium payoff from foreign direct investment.

# 5 The benefits of indigenisation

A multinational's expected revenue from foreign direct investment is given in (16). This sum depends on $\gamma$, the share in the affiliate sold to locals. The parent may choose this share from some interval $\gamma \in [a, b] \subseteq [0, 1]$, as was assumed in section 2. The boundaries of this interval may deviate from 0 and 1 for many reasons. For instance, a large share, or even $\gamma \geq 1/2$ may

[14]The analysis is executed in this paper only for the case in which the host government uses separating contracts to extract firms' revenues. Similar results are obtained if the host government chooses an optimal pooling contract. If the same combination of tax and quota applies to both types of parent, the low-cost parent earns profits if the high-cost parent at least breaks even. Hence, the multinational parent earns an expected information rent in the pooling equilibrium. This implies that the multinational has an incentive to choose a strictly positive amount of foreign direct investment, because some expected information rent is protected from confiscatory taxation also in a pooling equilibrium.

not be compatible with the parent's intention to keep the control rights in the affiliate. A high $\gamma$ may also be impracticable (e.g., liquidity constraints in the host country) or reduce the market price for shares (e.g., for moral hazard incentive reasons). Also, the host government may have made some basic decisions about indigenisation requirements, prior to the investment choice of the firm, in which case $a > 0$ may hold. These reasons are not explicitly considered here and the boundaries $a$ and $b$ for the parent's choice are taken as exogenously given. Instead, we consider the effect of a change in $\gamma$ on the parent's payoff:

$$\Phi'(\gamma) = \frac{c_1 - c_0}{(1-\gamma)^3}(1-\alpha)\frac{q}{(1-q)}\frac{c_1 - c_0}{R_{xx}(k, x_1)} + q\frac{c_1 - c_0}{(1-\gamma)^2}x_1. \tag{22}$$

The sign of (22) is ambiguous in general. Qualitatively unambiguous results can be obtained if the government attributes a sufficiently high weight to income of resident minority shareholders. In (17), $\frac{dx_1}{d\gamma} = 0$ for $\alpha = 1$. In this case the government does not choose a different quota for the high-cost parent if a different share $\gamma$ of the affiliate is owned by locals. Equation (15) shows that selling a share $\gamma$ of the affiliate will then increase the expected net-of-tax profit of the affiliate by a factor $\frac{1}{1-\gamma}$. As the parent will obtain a fraction $(1-\gamma)$ of this profit, it can repatriate the same amount of profits, regardless of its ownership share $(1-\gamma)$. In addition, the parent earns $\gamma q \pi_0$ from selling shares of the affiliate. The parent therefore gains from selling a larger share in the affiliate to locals. This is consistent with condition (22) which, for $\alpha = 1$, reduces to

$$\Phi'(\gamma) = q\frac{c_1 - c_0}{(1-\gamma)^2}x_1 > 0. \tag{23}$$

For any $\alpha < 1$, there are two effects at work. First, an increase in $\gamma$ induces the government to distort the quantity used by the high-cost type more strongly in order to reduce the agency rent. This effect is described by the first term in (22) and is negative. Second, an increase in $\gamma$ increases the agency rent for given quotas. This effect is described by the second term in (22). The second effect dominates the first for any $\alpha$ sufficiently close to one, that is, if the government cares sufficiently strongly about its residents' income. In such cases some positive amount of indigenisation increases the multinational parent's payoff. This discussion is summarized as a main result in the paper:

**Proposition 4** *Suppose the amount of foreign direct investment is given. The multinational's payoff is strictly increasing in the indigenisation share* $\gamma$

*if the host country cares sufficiently strongly about the earnings of the local minority shareholders.*

# 6 Conclusions

Developing countries' fear of foreign influence and investors' fear of future confiscatory taxation when they consider direct investment in a foreign country, are seen as major obstacles to an increase in mutually beneficial foreign direct investment and higher capital flows into developing countries. This paper suggests that indigenisation may not only be a way to reduce the fear of foreign influence within these developing countries, but also provide more security to foreign direct investors.

Foreign direct investment has other important and heterogenous aspects: political risks and political stability, technology spillovers, liquidity constraints and insufficiently developed capital markets in the host country, the integration of international taxation, and many more.

In this paper these aspects have been removed from the picture in order to highlight the role of intra-firm trade under incomplete information and indigenisation as two related elements that can provide commitment and thereby reduce the hold-up problem in foreign direct investment. The intuition for the commitment generated by intra-firm trade under incomplete information and by indigenisation is simple and suggests that the result is robust.

First, revenue from direct investment in a foreign affiliate may be protected from confiscatory taxation if the parent firm can use intra-firm trade to shift revenues if the host government does not know the true opportunity cost of goods traded between the parent and the affiliate. Even if the host government tries to confiscate as much revenue as possible, some revenue is protected from confiscatory taxation and is earned as an expected information rent by the investor. The parent firm can make some foreign direct investment, because it can be sure that it will earn at least this expected information rent.

If the parent firm also sells some fraction of the foreign affiliate to locals in the host country, this may increase the investor's expected information rent. The investor's incentive to shift revenue via intra-firm trade is increased, because shifted revenue is not shared with minority shareholders, while revenue that remains within the affiliate is shared between the parent firm and the minority shareholders according to ownership shares. In addition, the host government is more reluctant to use distortionary tax instruments to confiscate revenue because these tax distortions also harm residents in the host country. These two effects may make indigenisation favorable from the point

of view of the parent firm. But the host government may also like this outcome ex ante. If indigenisation increases the parent firm's expected agency rent, this allows more foreign direct investment.

# 7 Appendix

**Appendix A**

Proof of Lemma 1. Let $\mathcal{CR} = \{(x_0, T_0), (x_1, T_1), ... (x_n, T_n)\}$ be the set of contracts that the government offers to maximize its payoff.

Suppose first that all contracts $(x_i, T_i) \in \mathcal{CR}$ yield negative profit if $\hat{c} = c_1$: $R(k, x_i) - c_1 x_i - T_i < 0$ for all $i = 1, ...n$. Any choice by the parent thus reveals that $c \neq c_1$ and $\hat{c} = c_0$, as described by the MSP-rule. Parents with high cost close down the affiliate. Therefore $(x_e, T_e)$ with $R_x(k, x_e) = c_0$ and $T_e = R(k, x_e) - c_0 x_e$ is the payoff-maximizing contract subject to the constraint that $R(k, x) - c_0 x - T \geq 0$, and the government does not gain anything if it offers any additional contracts that yield negative profit.

Suppose next that $(x_1, T_1) \in \mathcal{M}$ yields non-negative profit: $R(k, x_1) - c_1 x_1 - T_1 \geq 0$. Note that the government never gains from offering two different contracts for which $(x_1, T_1) \in \mathcal{M}$, $(x_2, T_2) \in \mathcal{M}$. If these two contracts differ, then the tax associated with one of the contracts must be higher. Suppose, without loss of generality, that $T_1 > T_2$. Then the government is better off if it supplies only one contract, $(x_1, T_1)$, because it receives higher tax revenues whereas the profit $\gamma(R(x_i) - c_1 x_i - T_i)$ accruing to the domestic investors is the same for $(x_2, T_2)$ and $(x_1, T_1)$, as both contracts are in $\mathcal{M}$. This shows that, without loss of generality, the set $\mathcal{M}$ can be considered as single-valued. Note further that the government would not gain from offering more than one contract that is not in the set $\mathcal{M}$. A parent with $c = c_1$ maximizes its payoff if it chooses $(x_1, T_1) \in \mathcal{M}$ by the definition of $\mathcal{M}$. A parent with $c = c_0$ may choose $(x_1, T_1) \in \mathcal{M}$ or one of the other contracts, say $(x_0, T_0)$ or $(x_3, T_3)$. If it chooses $(x_0, T_0) \notin \mathcal{M}$ or $(x_3, T_3) \notin \mathcal{M}$, in both cases $\hat{c} = c_0$. The government may have equal payoffs from these choices, in which case one of the offers is unnecessary, or the government's payoff may be strictly larger for one of these two offers, in which case the other offer is unnecessary (if not chosen) or even reduces the government's payoff (if chosen).

**Appendix B**

If the affiliate is in operation in the optimum for both types of parent, $x_1 > 0$. This, together with (6) and (7) directly implies that (5) is non-binding. Note further that by (13), $R_x(k, x_1) > c_1$, as the right-hand side of (13) is positive. With (12) and $c_1 > c_0$ this implies $R_x(k, x_0) < R_x(k, x_1)$,

and, in turn, $x_0 > x_1$. If conditions (6) and (7) are binding this implies $(1-\gamma)[R(k,x_0) - c_0x_0 - T_0] = (c_1 - c_0)x_1$. Use of $x_0 > x_1$ yields $(1-\gamma)[R(k,x_0) - c_0x_0 - T_0] < (c_1 - c_0)x_0$, which, using again that (6) is binding, implies that (8) is non-binding.

**Appendix C**

Consider $(x_1^*, T_1^*)$ determined by $R_x(k, x_1^*) = c_1$ and $R(k, x_1^*) - c_1x_1^* = T_1^*$. By (13), $x_1 < x_1^*$ in the separating equilibrium. By the binding condition (6), this also implies that $T_1 < T_1^*$ in the optimal separating contract for high–cost firms. If the government chooses a separating equilibrium with a set of contracts $\mathcal{CR} = \{(x_0, T_0), (x_1, T_1)\}$ this choice has a higher payoff (4) to the government for $\alpha = 0$ than some choice $\mathcal{CR}^* = \{(x_1^*, T_1^*)\}$ only if $T_0 > T_1^*$. Consider now (9): $R(k,x_0) - c_1x_0 - T_0 = T_1^* - \int_{x_1^*}^{x_0} [c_1 - R_x(k,x)]dx - T_0$

$\underset{\text{by } T_0 > T_1^*}{<} 0 \underset{\text{by binding (6)}}{=} R(k,x_1) - c_1x_1 - T_1$. Hence, (9) is fulfilled in a separating equilibrium for $\alpha = 0$.

# 8 References


Al-Saadon, Y. and S.P. Das, 1996, Host-country policy, transfer pricing and ownership distribution in international joint ventures: a theoretical analysis, *International Journal of Industrial Organization* 14, 345-364.

Barrel, R. and N. Pain, 1997, Foreign direct investment, technological change, and economic growth within Europe, *Economic Journal* 107, 1770-1786.

Barros, P.P. and L. Cabral, 1994, Merger policy in open economies, *European Economic Review* 38, 1041-1055.

Bhagwati, J.N. and R.A. Brecher, 1980, National welfare in an open economy in the presence of foreign-owned factors of production, *Journal of International Economics* 10, 103-115.

Boadway, R. and M. Keen, 1998, Evasion and time consistency in the taxation of capital income, *International Economic Review* 39, 461-476.

Bond, E.W. and T.A. Gresik, 1996, Regulation of multinational firms with two active governments: a common agency approach, *Journal of Public Economics* 59, 33-53.

Branco, F., 1994, Favoring domestic firms in procurement contracts, *Journal of International Economics* 37, 65-80.

Donnenfeld, S. and Thomas J. Prusa, 1995, Monitoring and coordination in MNCs: implications for transfer pricing and intra-firm trade, *Journal of Economic Integration* 10, 230-255.

Eaton, J. and M. Gersovitz, 1983, Country risk: economic aspects, in: R.E. Herring (ed.), Managing International Risk (Cambridge University Press, Cambridge) 75-108.

Eaton, J. and M. Gersovitz, 1984, The theory of expropriation and deviations from perfect capital mobility, *Economic Journal* 94, 16-40.

Edwards, J.S., and M.J. Keen, 1996, Tax competition and leviathan, *European Economic Review* 40, 113-134.

Erbenová, M. and S. Vagstad, 1995, Information rent and the holdup problem: is private information prior to investment valuable?, CES discussion paper, University of Munich.

European Commission (KOM 95, 42), 1995, Weltweite Harmonisierung der Bestimmungen über Direktinvestitionen, Brussels.

Falvey, R.E. and H.O. Fried, 1986, National ownership requirements and transfer pricing, *Journal of Development Economics* 24, 249-254.

Gresik, T.A. and D.R. Nelson, 1994, Incentive compatible regulation of a foreign-owned subsidiary, *Journal of International Economics* 36, 309-331.

Holmstrom, B. and J. Tirole, 1991, Transfer pricing and organizational form, *Journal of Law, Economics and Organization* 7, 201-228.

Huizinga, H. and S.B. Nielsen, 1997, Capital income and profit taxation with foreign ownership of firms, *Journal of International Economics* 42, 149-165.

Kant, C., 1988a, Foreign subsidiary, transfer pricing and tariffs, *Southern Economic Journal* 55, 162-170.

Kant, C., 1988b, Endogenous transfer pricing and the effects of uncertain regulation, *Journal of International Economics* 24, 147-157.

Katrak, H., 1983, Multinational firms' global strategies, host country indigenisation of ownership and welfare, *Journal of Development Economics* 13, 331-348.

Kehoe, P.J., 1989, Policy cooperation among benevolent governments may be undesirable, *Review of Economic Studies* 56, 289-296.

Kjerstad, E. and S. Vagstad, 1994, Procurement auctions with entry of bidders, Working paper 94-11, Department of Economics, University of Bergen.

Kotlikoff, L.J., T. Persson and L.O.E. Svensson, 1988, Social contracts as assets, a possible solution to the time-consistency problem, *American Economic Review* 78 (4), 662-677.

Lipton, C., 1994, Transfer pricing protective provisions in joint ventures, in: Sylvain Plasschaert (ed.), Transnational Corporations: Transfer Pricing and Taxation, Volume 14, United Nations Library of Transnational Corporations (Routledge, London) 246-255.

McAfee, R.P. and J. McMillan, 1989, Government procurement and international trade, *Journal of International Economics* 26, 291-308.

Prusa, T.J., 1990, An incentive compatible approach to the transfer pricing problem, *Journal of International Economics* 28, 155-172.

Rugman, A.M. and L. Eden, 1985, Multinationals and Transfer Pricing (St. Martin's, New York).

Sampson, A., 1975, The Seven Sisters. The Great Oil Companies and the World They Made (Hodder and Stoughton, London).

Schnitzer, M., 1995, Solutions to the sovereign debt problem: countertrade and foreign direct investment, habilitation thesis, University of Bonn.

Schjelderup, G. and L. Sørgard, 1995, Transfer pricing as a strategic device for decentralized multinationals, *International Tax and Public Finance* 4, 277-290.

Schjelderup, G. and A.J. Weichenrieder, 1998, Trade, multinationals, and transfer pricing regulations, CES working paper no. 152, University of Munich.

Stoughton, N.M. and E. Talmor, 1994, A mechanism design approach to transfer pricing by the multinational firm, *European Economic Review* 38, 143-170.

Svejnar, J. and S.C. Smith, 1984, The economics of joint ventures in less developed countries, *Quarterly Journal of Economics* 119, 149-167.

Thomas, J. and T. Worrall, 1994, Foreign direct investment and the risk of expropriation, *Review of Economic Studies* 61, 81-108.

Vagstad, S., 1995, Promoting fair competition in public procurement, *Journal of Public Economics* 58, 283-307.

Wilson, J.D., 1996, The tax treatment of imperfectly mobile firms: rent-seeking, rent-protection, and rent-destruction, in: R.C. Feenstra, G.M. Grossman, and D.A. Irwin (eds.), The Political Economy of Trade Policy Papers in Honor of Jagdish Bhagwati (M.I.T. Press, Cambridge) 225-244.