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Local Ownership Requirements and Total Tax Collections

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#### Abstract

This paper analyzes the effects of local ownership requirements on inter-country profit-shifting behavior of the multinational corporation with the help of a vertically-integrated MNC-model in which real variables are decided at the division level. With local ownership requirements, an increase in the reported cost of the intermediate product decreases the MNC's global tax-tariff-foreign-shareholder payment. Still, tax-tariff payments to either home or both (when the tariff-effect dominates the foreign country's profit tax rate-effect) countries increase when the home profit taxd rate is not smaller than the foreign profit tax rate. When it is smaller, these payments increase if, in addition, the product of the foreign profit tax rate and the MNC's share in the foreign subsidiary is smaller than the home profit tax rate.

JEL Classification Codes: F23, H87 Key Words: Tax Collections, Local Ownership Requirements, Profit Shifting Local Ownership Requirements and Total Tax Collections

Most developing and many developed countries have foreign ownership restrictions (partly for economic nationalism and technology transfer reasons) in at least some sectors or industries. Some of the more prominent of these countries are: Argentina, Australia, Brazil, Canada, Colombia, Egypt, France, India, Indonesia, Japan, Korea, Mexico, Spain, Sweden and Venezuela [see Coopers and Lybrand 1993]. At the same time, there is continuing policy concern about governments' apparent inability to prevent erosion of the tax base through artificial inter-country profit shifting by multinational corporations (MNCs). Bucks (1991), for example, estimates that U.S. state and federal governments lost \$700b. in revenues through such profit shifting by MNCs during the recent twenty years period.

Different aspects of either tax collections or local ownership requirements have been investigated in the literature [see e.g., Hines and Rice 1994, Jenson and Toma 1994, Kant, 1988, 1990, and 1995, Zameck 1989 and Lai and Chang 1988; and Stoughton and Talmor 1994, respectively]. Still, there does not seem to be any paper examining whether the effects of inter-country profit shifting itself on tax collections (and on the multinational corporation's global tax payments) change in the presence of local ownership requirements.<sup>1</sup> The purpose of this paper is to undertake such an examination. We show that decrease in the tax of profit paid to local shareholders of foreign subsidiary due to an increased reported cost permits increase in home or both governments' total tax collections (even though, as expected, total tax payment of the multinational corporation decrease). We use a vertically-integrated framework incorporating all of the following: profit tax-rates differential, tariffs, foreign tax credit scheme and less than wholly owned foreign subsidiary. The share of the foreign affiliate's pure profit that must be paid to non-MNC shareholders due to foreign government's requirements is not a tax <u>per se</u> in that it is not paid to a government. Yet, it is a tax from the MNC's perspective in that it represents a government-required payment with no benefit accruing to the MNC in return.

The main subject of this paper is to analyze how the headquarters trade offs among the four taxes: (1) the home country profit tax, (2) the foreign country profit tax, (3) the foreign country's tariffs on imports, and (4) the share of the foreign subsidiary's earnings that must be paid to non-MNC shareholders. Further, it studies how such trade offs affect total tax collections of the two governments and the MNC's total tax collections.

### 2. Profits, Tax Collections and Transfer Pricing

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Consider a MNC producing and selling a differentiated final product in two countries but not trading it intrafirm. Its division in country 1 (home country) is called the head-office or the parent firm, while that in country 2 (foreign country) is called the foreign affiliate. The parent firm is also the sole producer of an intermediate product at constant cost, which is exported intrafirm to the foreign affiliate. This intermediate product could either be a tangible good or it could be an headquarters service. For example, it could be a loan from the headquarters to the foreign subsidiary.

Let  $F_i$ ,  $t_i$ ,  $x_i$ , and  $R_i(x_i)$  represent gross reported economic profit, statutory profit tax rate, production or sales of the differentiated

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product, and total revenue function in country i, (i = 1, 2). Further, let  $C_i(x_i)$  and  $h_i$  be the total cost (including the opportunity cost of owned capital and normal profit) and the amount of intermediate product, h, needed for producing  $x_i$ . Similarly,  $C_h(h_1 + h_2)$  is the total cost function of producing the intermediate product. Lastly, the lower case r and c letters represent the corresponding marginal functions.

The head office of the MNC is likely to find it prohibitively expensive to take all real decisions for its subsidiaries spread across continents. For example, Ethier and Horn (1990) suggest that increasing costs of "managerial control", and possibly increasing costs of interfacing with host country with different language, culture, legal system and industrial relations will lead the MNC to let its divisions decide on the real variables. Therefore, following them and Arrow (1964), and Hirshleifer (1956), we assume that the MNC organizes itself on divisional basis in the following manner. It keeps overall control so that the divisions are not truly independent of the head office. Yet, it gives a fair degree of autonomy to its divisions so that they can freely decide on their real variables.

As stated above, the intermediate product is produced at constant unit cost, say,  $\theta$ . The division-managers are rewarded by the head office solely on the basis of their division's gross true profits. They treat  $\theta$ as a parameter and choose the level of real variables to maximize their individual plant profits based on their own revenue and cost functions.<sup>2</sup> Assume, without a loss of generality, that a unit of h<sub>i</sub> is used to produce a unit of x<sub>i</sub>, so that C<sub>h</sub>(h<sub>1</sub> + h<sub>2</sub>) = C<sub>h</sub>(x<sub>1</sub> + x<sub>2</sub>). Let these divisional gross pure or economic profits be represented by D<sub>1</sub> and D<sub>2</sub>, respectively. Then,

$$D_{1} = R_{1}(x_{1}) - C_{1}(x_{1}) - C_{h}(x_{1} + x_{2}) + \theta x_{2}, \qquad (1)$$

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 $D_2 = R_2(x_2) - C_2(x_2) - \theta(1 + \tau)x_2, \qquad (2)$ where

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 $\tau > 0$  is the *ad valorem* tariff in country 2. The first order conditions are: marginal revenue from final product sale in the two countries equals respectively the composite marginal cost of intermediate and final product in country 1, and the sum of marginal cost of final product and tariff-added cost of import in country 2.<sup>3</sup>

Consider now less than full ownership by the MNC over its foreign affiliate (due to ownership restrictions). We assume that the parent firm has all the bargaining ability and can enforce the best ex ante outcome while respecting the local owners' opportunity cost. Let k be the maximum proportion of ownership in the foreign affiliate that the MNC can have, where 0 < k < 1. Given that the local ownership requirement is another kind of tax on the MNC's pure profits in the foreign country the MNC would always choose the maximum permitted value of k.

Assume that regardless of true cost of import of the intermediate good, the cost reported by the head-office to the two governments is  $\theta_r$ . In effect, this means that the MNC keeps two sets of account-books. The first set uses  $\theta$  (which is used internally by the MNC for evaluating divisional efficiency and performance) and is not shown to the governments. The second uses  $\theta_r$  and is shared with the governments.  $\theta_r$  is a pure profit shifting or global tax-tariff-foreign-shareholder payment minimizing variable with no resource allocation effects.<sup>4</sup> The reported-profit functions,  $F_1$  and  $F_2$ , are obtained by replacing  $\theta$  by  $\theta_r$  in the expressions for  $D_1$  and  $D_2$  above.<sup>5</sup>

Most home countries, including the U.S., U.K., Germany and Japan, follow the residence principle for international taxation. Under this principle, the MNC's worldwide income is taxed by the home country,

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whether earned at home or not. At the same time, to avoid subjecting the MNC to double taxation, the home country gives a dollar-for-dollar credit for foreign taxes paid. However, the foreign tax credit cannot exceed home tax-liability on foreign profit. Then, for  $t_1 \ge t_2$ , the foreign tax credit is equal to the foreign taxes paid, while for  $t_1 < t_2$ , it is equal to the home tax on foreign profit. This is explained below:

a) 
$$t_1 \ge t_2$$
:

We assume that accelerated capital cost recovery allowances, investment tax credits, other deductions or exemptions, and reduced tax rates or outright subsidies granted for particular activities or regions in most tax codes make the taxable profits approximately equal to pure profits. Therefore, the statutory profit tax rate in either country is effectively levied and realized on pure or economic profit in that country. The MNC's share of reported foreign profit is  $kF_2$ , the foreign tax paid by it is  $t_2kF_2$ ; and, in this case, it receives an equal foreign tax credit from the home country. The home country, however, taxes both  $F_1$  and  $kF_2$ . The total tax collection of the home country, in this case represented by  $G_1^a$ , is obtained by subtracting foreign tax credit given,  $t_2kF_2$ , from the home tax on  $(F_1 + kF_2)$ . Similarly, let  $G_2$  represent the foreign government's total tax collection. Then,

$$G_1^a = t_1(F_1 + kF_2) - t_2kF_2 = t_1F_1 + (t_1 - t_2)kF_2,$$
 (3)

$$G_{2} = t_{2}kF_{2} + t_{2}(1 - k)F_{2} + \tau\theta_{r}x_{2} = t_{2}F_{2} + \tau\theta_{r}x_{2}, \qquad (4)$$

since the foreign country also collects  $t_2(1 - k)F_2$  as profit taxes from the local shareholders of the MNC's foreign subsidiary and  $\tau \theta_{r2}^{x}$  as the tariff revenue on intrafirm imports in that country.

Consider now the MNC's global tax-tariff-minority-shareholder payment, in this case represented by  $\gamma^a$ . The MNC pays  $G_1^a$  to the home country, and k portion of  $G_2$  to the foreign country. In addition, it

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pays (1 - k) of the pre-tax-tariff profit in country 2 as the host-country-required "tax" to the local shareholders in that country. Let this pre-tax-tariff reported profit be represented by  $F_2^n$ . Then,

$$F_{2}^{n} = R_{2}(x_{2}) - C(x_{2}) - \theta_{r}x_{2},$$
 (5)

so that

$$F_{2} = F_{2}^{n} + \tau \theta_{r} x_{2}.$$
wher  
Clearly,  

$$\gamma^{a} = G_{1}^{a} + kG_{2} + (1 - k)F_{2}^{n},$$
or  

$$r^{a} = t (F_{2} + kF_{2}) + kz\theta x_{2} + (1 - k)r^{n}$$
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$$\gamma^{a} = t_{1}(F_{1} + kF_{2}) + k\tau\theta_{r}x_{2} + (1 - k)F_{2}^{n}.$$
 (6)

In this case the foreign tax paid by the MNC equals the foreign tax credit received from the home country. Thus, the MNC's global tax-tariff-foreign-shareholder payment equals the home tax on both  $F_1$  and  $kF_2$ , MNC's share of tariff payments in country 2, and "non-MNC shareholder tax" in country 2.

b) 
$$t_1 < t_2$$
:

As stated above, in this case the foreign tax credit received by the MNC is equal to the home tax on foreign profit, i.e. to  $t_1 k F_2$ , while (as before) it pays  $t_2 k F_2$  as the foreign tax. Let the home country's total tax collection and the MNC's global tax-tariff-minority-shareholder payment be now termed as  $G_1^b$  and  $\gamma^b$ , respectively. Then,

$$G_1^b = t_1(F_1 + kF_2) - t_1kF_2 = t_1F_1.$$
 (7)

The home country now has no net taxation of foreign profit since the foreign tax credit given equals the home tax on foreign profits.  $G_2$  continues to be defined by (4), while  $\gamma^b$  is:

 $\gamma^{b} = G_{1}^{b} + kG_{2} + (1 - k)F_{2}^{n},$ 

$$\gamma^{b} = t_{1}F_{1} + k(t_{2}F_{2} + \tau\theta_{r}x_{2}) + (1 - k)F_{2}^{n}.$$
(8)

Thus, the MNC's global tax-tariff-foreign-shareholder payment still includes its share of tariff payments and "non-MNC shareholder tax" in country 2. However, now home income tax on only  $F_1$  but full foreign income tax paid by the MNC are included. We will see below how these different definitions of home tax collections and the MNC's global taxtariff-foreign-shareholder payment yield somewhat different conclusions when the foreign income tax rate is higher .

Regulation on the Reported Cost:

Now, consider reasons for imposition of any regulations on the reported cost of internal transactions. Rules and regulations on the admissible reported cost of intermediate product transferred internally by the MNC across countries are arbitrarily defined by governments and are incredibly complex. Yet, the main reason for imposition of these rules (or for their effective enforcement) is to protect tax collections. As will be shown below, the two governments' total tax collections may either be affected in opposite directions or in the same direction. If they are changed in opposite directions, it is assumed that the government whose total tax collection decreases imposes the regulation on the reported cost. Similarly, if both governments' tax collections decrease, either government may constrain the reported cost. The situation of increases in both tax collections is now discussed.

An increase in the reported cost reduces the MNC's profits in the importing country, and a decrease does the same in the exporting country. However, in order to fulfill its local ownership requirements, the MNC will not reduce accounting profit in country 2 below the sum of opportunity cost of capital and normal profit there; i.e. earning non-negative pure profits in country 2 constraints the reported cost. On the other hand, a decrease in the reported cost shifts profits from the home to the foreign country. Since this shift is transparently obvious, pressure from purely domestic home producers for checking this source of

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"competitive advantage" enjoyed by MNCs may force the exporting government to impose a regulation on the imported cost.<sup>6</sup>

The exact conditions for the MNC to increase or decrease its reported cost in the framework modeled here and the effects on  $G_1^a$ ,  $G_2^a$ ,  $\gamma^a$ ,  $G_2^b$ , and  $\gamma^b$  are now analyzed for the  $t_1 \ge t_2$  and  $t_1 < t_2$  cases, respectively, in sections 3 and 4 below.

3. Effects when  $t_1 \ge t_2$  where

Effects of changing the reported cost,  $\theta_r$ , on the MNC's global tax-tariff-minority-shareholder payment function for this case are studied by taking the partial derivative of  $\gamma^a$  with respect to  $\theta_r$ . This derivative can be stated as:

 $(\partial \gamma^{a}/\partial \theta_{r}) = [k\tau(1 - t_{1}) + t_{1}(1 - k) - (1 - k)]x_{2}.$  (9) To interpret (9), first consider a foreign subsidiary wholly-owned by the MNC, i.e. when k - 1. As can be seen from (9), in that case  $(\partial \gamma^{a}/\partial \theta_{r})$  is unambiguously positive, and to decrease  $\gamma^{a}$ , the MNC should report as low a reported cost as possible. A dollar increase in the reported cost,  $\theta_{r}$ , increases  $F_{1}$  by one dollar, and  $t_{1}F_{1}$  by  $t_{1}$ \$. Further, tariff payments in country 2 increase by r\$,  $F_{2}$  decreases by (1 + r)\$, and home tax on foreign profit,  $t_{1}F_{2}$ , decreases by  $t_{1}(1 + r)$ \$.<sup>7</sup> Therefore, the total effect on  $\gamma^{a}$  of a dollar increase in the reported cost is:

 $t_1 + r - t_1(1 + r) = r(1 - t_1) > 0$ , and is given by the first term within square brackets in (9) with the value of k set equal to 1.

With local ownership, i.e. when k < 1, the sign of  $(\partial \gamma^a / \partial \theta_r)$  in (9) becomes ambiguous. The tariff-related effect on  $\gamma^a$  is now  $kr(1 - t_1)$ : a dollar increase in the reported cost now increases the tariff-related payments by  $kr(1 - t_1)$ \$.  $t_1F_1$  increases by  $t_1$ \$ (as before). However,

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the non-tariff related decrease in the MNC's portion of  $t_1F_2$ , i.e. in  $kt_1F_2$ , is only  $kt_1$ \$. Thus, the net increase in the home income tax collection is  $t_1$ \$ -  $kt_1$ \$ =  $t_1(1 - k)$ \$. Lastly, the required localshareholder payment in country 2 decreases by (1 - k). These three effects are respectively captured by the corresponding three terms on the right hand side of (9).

Define 
$$T_i = (1 - t_i)$$
,  $i = 1$ , 2; and restate (9) as  
 $(\partial \gamma^a / \partial \theta_r) = T_1 [kr - (1 - k)] x_2 = T_1 (kr^* - 1) x_2$ , (9')  
here

 $T_1[kr - (1 - k)] = T_1(kr^* - 1) \neq 0$ , (by assumption). (10)(9') collapses the effects of inter-country profit shifting on  $\gamma^a$  into the following two: a positive tariff effect and a negative local ownership effect. Iff the shift of pure profit from local shareholders in the foreign country by increasing the reported cost is greater than the resulting higher tariff payment, i.e. iff  $kr^{\star}$  is smaller than one, by the the MNC increases its reported cost (in order to decrease  $\gamma^a$ ). Further,  $\theta_r$ ) is since  $\mathbf{x}_{2}$  is already determined on real or efficiency considerations by division 2, the sign of  $(\partial \gamma^a / \partial \theta_r)$  remains negative so that  $\theta_r$  is t,  $\theta_r$ , increased to the upper constraining level. Similarly, reported cost is nts in decreased to the lower constraining level iff  $k_r^*$  is greater than one. Since an increase in the reported cost shifts pure profits from the foreign country while a decrease shifts them in the other direction, we call these two situations the shift-from-foreign (SFF) and the shiftfrom-home (SFH) cases, respectively. Further,

$$(\partial G_1^a / \partial \theta_r) = [t_1 - (t_1 - t_2)kr^*]x_2 = [t_1(1 - kr^*) + t_2kr^*]x_2, \quad (11)$$
  
and

1 (9)

$$(\partial G_2 / \partial \theta_r) - [r - t_2(1 + r)] x_2 - [r - (t_2 / T_2)] T_2 x_2.$$
(12)

The effects of such profit shifting on tax collections in the two countries are now discussed separately for the SFF and the SFH cases.

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SFF Case:

As discussed above, this case arises only when k < 1; and, in profit addition,  $kr^{\star} < 1$ . Then, (11) is unambiguously positive, and total home amount tax revenue increases with SFF. Obviously, this positive effect of SFF of the on home revenues is feasible only when the foreign subsidiary has local possib ownership. The effect on  $G_0$  is ambiguous. Clearly, both countries' still total tax revenues can increase; while, at the same time,  $\gamma^a$  decreases report (and makes the MNC better-off). To analyze this somewhat surprising (altho result, decompose  $\gamma^a$  into two components: the MNC's global tax-tariff Furthe payment, L<sup>a</sup>, and the required tax of making profits payments to local going shareholders in the foreign country, i.e.  $(1 - k)F_2^n$ . Then, a SFH

$$\gamma^{a} = L^{a} + (1 - k)F_{2}^{n},$$
 (13) foreig

where

$$L^{a} = G_{1}^{a} + kG_{2} = t_{1}(F_{1} + kF_{2}) + k\tau \theta_{r} x_{2}, \qquad (14)$$
and
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$$(\partial L^{a}/\partial \theta_{r}) = [t_{1}(1 - k) + T_{1}\tau k]x_{2} > 0,$$
 (15)

$$[\partial (1 - k)F_2^n/\partial \theta_r] = -(1 - k)x_2 < 0.$$
(16)

When the MNC owns the foreign subsidiary fully, an unambiguous increase in the MNC's global tax-tariff payment,  $L^a$ , is the only effect of an SFF. With less than wholly owned subsidiary, SFF also shifts pure profit from local shareholders in the foreign country to the MNC. This latter shift dominates the former increase thereby causing the MNC's global taxtariff-foreign-shareholder payment,  $\gamma^a$ , to decrease. Clearly, it is the shift of pure profits from local shareholders in the foreign country which are shared between the MNC and the home government; and if  $[\tau - (t_2/T_2)]$  is positive [which is a sufficient condition to make  $(\partial G_2/\partial \theta_r)$  positive also], between the MNC and both the governments. <u>SFH Case:</u>

As noted above, this case arises when  $kr^* > 1$ . The effect on  $G_1^a$  is

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now ambiguous. A SFH decreases home profit and hence home tax on this profit. At the same time, foreign profit increases, and by a magnified amount - due to the *ad valorem* tariff. Then, the net home taxation (net of the foreign tax credit given) of foreign profit gives rise to the possibility of a SFH increasing total home revenue. The effect on  $G_2$  is still ambiguous while that on  $L^a$  remains positive. A decrease in the reported cost has ambiguous effects on both home and foreign revenues (although it decreases the MNC's global tax-tariff payment,  $L^a$ ). Further, when k < 1, a SFH increases the share of gross pure profits going to local shareholders in the foreign country,  $(1 - k)F_2^n$ . That is, a SFH shifts pure profits from the MNC to local shareholders in the foreign country. Still, the MNC's global tax-tariff-foreign-shareholder payment is lower [as shown by (9) above] because the reduction in its share of tariff payments more than compensates it for shift of pure profits to the local foreign shareholders.

The above discussion is summarized in the following proposition:

<u>Proposition 1:</u> When  $t_1 \ge t_2$ , SFF, which can occur only due to local ownership requirements on the MNC, decreases the MNC's global tax-tariffforeign-shareholder payment, increases home tax collections, and increases foreign countries' tax-tariff collections when  $[r - (t_2/T_2)]$  is positive. Further, it is the pure profit shifted from local shareholders in the foreign country which are shared either between the MNC and the home government or between the MNC and both the governments. On the other hand, a SFH shifts pure profits from the MNC to local shareholders in the foreign country, and still the MNC's global tax-tariff-foreignshareholder payment decreases.<sup>8</sup>

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# 4. Effects when $t_1 < t_2$

In this section, we consider the MNC's profit shifting strategy and its total tax payments to the two countries when the foreign profit tax rate is higher than the home tax rate. As explained above, in this case the MNC faces  $\gamma^{b}$  [given by (8)] as its global tax-tariff-foreignshareholder payment function. The effect of the reported cost on  $\gamma^{b}$  can be stated by the following derivative:

$$\partial \gamma^{\mathrm{D}} / \partial \theta_{\mathrm{r}} = [\mathrm{T}_{2} \mathrm{k} \tau - (\mathrm{T}_{1} - \mathrm{T}_{2} \mathrm{k})] \mathrm{x}_{2}.$$
(17)

An increase in the reported cost shifts profit tax revenues from now the This high-tax foreign country, and profits from the foreign local the  $\epsilon$ shareholders.  $[-(T_1 - T_2k)]$  term in (17) gives the effect of this shift subsi of profit on  $\gamma^b$ , and is negative [since  $T_2 = (1 - t_2) < T_1 = (1 - t_1)$ ] Clean even when the foreign subsidiary is fully-owned by the MNC. On the other hand,  $T_2 k \tau$  measures the effect due to tariffs. Iff the absolute value of where the former is greater than  $T_2 k \tau$ , the derivative in (17) is negative and the : the MNC increases its reported cost. Vice-versa for SFH. Note that in imp1 the SFH case, saving on the MNC's share of tariff payments now dominates impl the shift of profits both to the high-tax foreign country and to the inde local shareholders there.

The effects on tax collections can now be derived and compared to the corresponding effects for the  $t_1 \ge t_2$  case. The expression and the effect on  $G_2$  is the same as before. The expression for the home country's total tax collection is given by (7), and the effect on it is:

$$(\partial G_1^D / \partial \theta_r) = t_1 x_2 > 0.$$
<sup>(18)</sup>

The SFF and the SFH cases are again discussed in turn: <u>SFF Case:</u>

As stated above, since the foreign country now has the higher tax rate, the MNC can find SFF advantageous even if the foreign subsidiary is

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wholly owned by the MNC. Home tax collection again unambiguously increases with SFF. As before, a shift of pure profits from the foreign country can increase both  $G_1^b$  and  $G_2$  and, at the same time, decrease  $\gamma^b$ . The condition for this somewhat surprising configuration of effects on  $G_1^b$ ,  $G_2$ , and  $\gamma^b$  in this case is derived and discussed below.

Let L<sup>b</sup> represent the MNC's global tax-tariff payment corresponding to  $\gamma^b$  so that  $L^b = G_1^b + kG_2$ . Then, the effect on it is given by:  $(\partial L^{b}/\partial \theta_{r}) = [(t_{1} - t_{2}k) + T_{2}k\tau]x_{2}.$ (19)

This effect is now not unambiguously positive. Further, the magnitude of the effect now depends on the extent of MNC's ownership over its foreign subsidiary. To examine this effect further, restate (17) as:

$$(\partial \gamma^{b} / \partial \theta_{r}) = [[(t_{1} - t_{2}k) + T_{2}k\tau] - (1 - k)]x_{2}.$$
 (17')  
Clearly,

$$(\partial \gamma^{\rm b}/\partial \theta_{\rm r}) = (\partial L^{\rm b}/\partial \theta_{\rm r}) + [\partial (1 - k)F_2^{\rm n}/\partial \theta_{\rm r}],$$
 (20)

where the sign of the last derivative in (20) is always negative. When and the foreign subsidiary is not wholly owned by the MNC, an increase in  $\theta_{_{\rm T}}$ : in implies a negative sign of  $(\partial \gamma^b / \partial \theta_r)$ . Such (negative) sign has no lates implication for the sign of  $(t_1 - t_2k) + T_2k\tau$  in (17'); and the latter is indeterminate. However, it and  $(\partial L^b / \partial \theta_r)$  are positive if  $t_2 k < t_1$ . As in the  $t_1 \ge t_2$  case, a dollar increase in the reported cost increases  $t_1F_1$ to by  $t_1$ . Although profits are shifted from the higher tax foreign the country, because of local shareholders there, the MNC gains a reduction of only  $kt_2$  in  $kt_2F_2$ . This latter decrease being smaller than the is: former increase is sufficient to increase the MNC's global tax-tariff (18)payment, L<sup>a</sup>, with an SFF. Then, the MNC's decision to still charge an SFF [i.e. for  $(\partial \gamma^b / \partial \theta_r)$  to be negative] is again explained by the shift of profits from local shareholders in the foreign country [given by the ax [- (1 - k)] term in (17')] dominating the increase in  $L^{b}$ . ry is

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SFH Case:

First consider the effect on the home tax collection.  $(\partial G_1^b/\partial \theta_r)$  is Overs positive (irrespective of whether the MNC wishes to shift its profits royal from home to foreign country or vice versa). Thus, a SFH cannot now exces increase the home country's tax collection - since in this case home costs taxation of foreign profit does not exceed the foreign tax credit given.

On the other hand, a necessary condition for the MNC to desire a SFH multi [i.e. for (17') to be positive] is that  $(t_1 - t_2k) + T_2kr$  is itself integ positive. This last condition implies that  $(\partial L^b/\partial \theta_r)$  is in turn divis positive. Therefore, under  $t_1 < t_2$  also, a decrease in  $\theta_r$  cannot plant increase the MNC's global tax-tariff payment. cost

The additional or different results in this section are summarized as follows:

Proposition 2: When  $t_1 < t_2$ , the exact effect on the MNC's globalit istax-tariff payment now depend on the extent of the MNC's ownership overwithits foreign subsidiary. SFF in this case also unambigously decreases theheadMNC's global tax-tariff-foreign-shareholder payment. Still, payments totax-1either home or both the countries increase if the product of the foreignthe 1profit tax rate and the MNC's share in the foreign subsidiary is smallerpape:

## 5. Summary and Conclusions

On the basis of interviews with business executives of 176 U.S. productor corporations in Latin America, Trivoli, Scroggins and Bullen (1990) paymidentify as many as 46 specific techniques used by these corporations to tari transfer blocked funds out of host countries. Similarly, detailed coun investigation of 36 foreign-owned U.S. corporations (more than half of fore

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which paid no U.S. taxes over ten year period) by Subcommittee on Oversight, U.S. House Ways and Means Committee found widespread use of royalties and kickbacks to parent firms; rebates and resale discounts; excessive freight, insurance, interest, warranty and advertising costs/charges in order to shift income from the U.S. See Heck (1990).

This paper analyzes inter-country profit-shifting behavior by the multinational corporations with the help of a comprehensive verticallyintegrated MNC-model. In this model, real variables are decided at the division level, i.e. the division- managers maximize their individual plant profits subject to their own technological constraints and true cost conditions. It considers that the foreign country has local ownership requirements. Although the share of the foreign affiliate's pure profit that must be paid to non-MNC shareholders due to these requirements is not a tax <u>per se</u> in that it is not paid to a government, it is a tax from the MNC's perspective in that it represents a payment with no benefit to the MNC. What cost of intra-firm transfers the headquarters reports to governments in order to minimize the MNC's global tax-tariff-foreign-shareholder payment, and how the reported cost affects the total tax collections of the two governments is the subject of this paper.

The paper's main results are stated in the two Propositions above. The central conclusion is stated as follows. With local ownership requirements, an increase in the reported cost of the intermediate product decreases the MNC's global tax-tariff-foreign-shareholder payment. Still, tax-tariff payments to either home or both (when the tariff-effect dominates the foreign country's profit tax rate-effect) countries increase when the home profit tax rate is not smaller than the foreign profit tax rate. When it is smaller, these payments increase if,

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in addition, the product of the foreign profit tax rate and the MNC's share in the foreign subsidiary is smaller than the home profit tax <sup>1</sup>Kan rate. Local ownership requirements give somewhat surprising coll configuration of effects of inter-country profit-shifting on the MNC's total "taxes" and the two countries tax-tariff collections. It changes the effects of such shifting on either home tax collections or on the MNC's global tax-tariff payments.

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#### END NOTES

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MNC's hanges the <sup>1</sup>Kant (1990) analyzes the effects of local ownership requirements on tax collections in an horizontally-integrated MNC-model where the head-office takes all decisions for its subsidiaries and transfer pricing is accompanied by changes in the intrafirm trade. This paper models a vertically-integrated MNC where the head-office gives a considerable degree of autonomy to its divisions. The divisions decide the real variables based on true costs while the head-office chooses the transfer price to minimize its global tax-tariff-foreign-shareholder payments. This and other differences will be further explained below.

<sup>2</sup>Hirshleifer (1956) and Diewert (1985) show that under such decentralized profit maximization system, each division uses the true marginal cost of input as its cost for factor allocation. In this paper the true marginal cost of input is the constant cost  $\theta$  of producing the intermediate good. Hirshleifer (1956) calls this cost the arm's length transfer price, while Diewert (1985) gives it the additional names of decentralized profit-maximizing transfer price and marginal cost transfer price.

<sup>3</sup>The division managers also face profit taxes in the two countries. However, it is well-known that decision variables' values that maximize a firm's gross profits, also give its after-tax profit maximum. (See, Henderson and Quandt, 1980, p. 187) Thus, in maximizing gross profits, division-managers in either country simultaneously maximize their respective net profits.

<sup>4</sup>As stated above, this happens since the real variables in the two countries have already been determined on efficiency or real N2

considerations. Diewert (1985) calls this transfer price "money transfer price." Alternatively, we can also call it the financial transfer price. <sup>5</sup>Note that if the MNC acts in a centralized manner leaving no decisions to be taken by the divisions autonomously, then its reported intrafirm cost (the transfer price) will affect the real variables also. (See, Kant, 1990)

<sup>6</sup>This competitive advantage arises because the MNC (as contrasted from a purely domestic firm) has inter-country variables internal to it, and which it can manipulate to decrease its taxes.

'The foreign tax paid by the MNC is immaterial to it since the MNC gets an equal tax credit from the home country.

 $^{8}$ Kant (1990), in a centralized-MNC model where the head-office takes all 5. Hec decisions for the subsidiaries, shows that overinvoicing increases the MNC's global tax-tariff payments. This paper calls overinvoicing SFF, and demonstrates that if we include the tax of payments to foreign 6. Hir shareholders, overinvoicing decreases the MNC's global tax-tariffforeign-shareholder payment. Similarly, in the former paper, the effect of underinvoicing on the MNC's global tax-tariff payment is ambiguous. 7. Hii This paper calls underinvoicing SFH, and shows that it also clearly decreases the MNC's global tax-tariff-foreign-shareholder payment. 8. Jei <sup>9</sup>In Kant (1990), even if the effect of transfer pricing on the volume of intrafirm trade is not considered but the foreign subsidiary is not wholly owned, overinvoicing can increase the MNC's global tax-tariff 9. payment. In this paper, on the other hand, this possibility does not exist and SFF unambiguously decreases the MNC's global tax-tariff-10. foreign-shareholder payment.

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