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INVESTMENT: MODAL NEUTRALITY
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ABSTRACT

Trade versus Direct Investment: Modal Neutrality and National Treatment*

International agreements increasingly constrain the ability of governments to use trade policies whereas few constraints apply to the use of investment policies. Using a model in which a local and a foreign firm compete in the domestic market, we analyse whether the foreign firm may be forced to adopt an inefficient mode of supply (exports versus FDI) when the domestic government is constrained in its ability to use trade policy, but is free to set its FDI policy. We find that the foreign firm chooses the efficient mode of supply, even under a discriminatory output tax levied on FDI. This result suggests that the case for multilateral investment rules on efficiency grounds needs careful evaluation.

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1 Introduction

In the last fifty years, governments have negotiated numerous agreements that aim at liberalizing international trade. At the multilateral level, the World Trade Organization (WTO) greatly restricts the discretion of members to raise trade barriers. Both the WTO and regional trade agreements have increasingly come to address policies that indirectly affect trade so as to make market access commitments more secure. However, much less has been done to discipline policies that affect factor mobility. Some high income WTO members have argued that there is a need to negotiate multilateral rules for investment policies, such as the right of establishment and national treatment for foreign investors. Arguments in support of this position largely revolve around market access objectives: in many sectors the preferred mode of contesting a market may be through foreign direct investment (FDI), not exports. If rules exist on trade policy but not on investment policy, measures imposed by governments in the latter area may *distort* the mode of supply choice of foreign firms. This concern has led to policy proposals in favor of *modal neutrality*.¹ That is, the suggestion is that rules must be designed to ensure that government policies do not lead to the choice of an inefficient mode of supply.²

In this note we analyze the relationship between trade and FDI policy in a market in which a domestic and a foreign firm compete in the domestic market.³ Our main goal is to assess the potential efficiency gains from requiring national treatment for foreign investors (a likely central element of any investment agreement). We compare a situation where the domestic government has two policy

¹See for example Hoekman (1996), Feketekuty (2000), and Low and Mattoo (2000).

²Another line of argument emphasizes the potential payoffs to developing countries of signing on to multilateral rules as a commitment device. See Markusen (2001) and Moran (1998) for discussions of the potential interests of developing countries in negotiating multilateral rules on investment policies.

³Our approach is similar to Levinsohn (1989) and Horstmann and Markusen (1992). While we make specific assumptions regarding market structure and firm behavior (i.e. firms compete in quantities), our central result is robust to allowing for multiple domestic or foreign firms or for price competition between them.

instruments (one each for trade and FDI) with a situation where the ability to use one of the two instruments is constrained. In practice, trade policy is already constrained due to commitments made to the GATT, so that the interesting question concerns the net benefits from also constraining FDI policy.⁴

In our model the market is oligopolistic and firms compete in quantities.⁵ As is well known, under such conditions, a tariff on the foreign firm may result in a globally inefficient outcome in the product market.⁶ What has not received adequate attention, however, is that domestic policy may force the foreign firm to choose an inefficient mode of supply. For example, it is conceivable that a tax on local production by the foreign firm may compel it to export when actually FDI is more efficient (in the absence of such a tax). It is in the analysis of this type of potential distortion that the value added of our paper lies. We show that the last type of distortion *does not* arise in equilibrium even when domestic policy imposes a discriminatory output tax on the foreign firm whereas trade is free. Thus, despite the lack of national treatment under FDI, the foreign firm's decision between different modes of supply does not get distorted (i.e. it chooses the truly efficient mode). Although the lack of national treatment does lead to an inefficient level of output relative to *laissez faire* when firms are relatively symmetric in terms of their costs of production, this distortion is mild in the sense that the equilibrium output under FDI subject to a tax is *no lower* than that which would obtain were the foreign firm to export under a zero tariff regime.

⁴Hoekman and Saggi (2000) argue that if a good can be traded at zero cost, a country's FDI policy loses importance such that foreign firms can evade excessive taxation or other adverse policies by exporting from abroad. However, as we argue below, this logic leaves open the possibility that foreign firms are forced into adopting an inefficient mode of supply.

⁵Our assumptions are motivated by the fact that multinational firms are found mostly in oligopolistic industries.

⁶See Brander and Spencer (1984) and the large literature on strategic trade policy (surveyed in Brander, 1995).

2 Basic Model

We restrict attention to the domestic market that produces two goods: x and y . Preferences over these goods are quasi-linear:

$$U(x, y) = u(x) + y$$

where y is the numeraire good. As is well known, the above preference structure implies that the demand for good x is a function of only its price (i.e. our model is a partial equilibrium one). Let $p(x)$ denote the inverse demand function for good x .

Good x is produced by a single domestic firm that competes with a single foreign firm. We study a three stage game between the two firms and the domestic government. In the first stage of the game, the government chooses its policy stance: it announces the specific import tariff t and/or an output tax s that is imposed on the foreign firm should it decide to produce in the domestic market via foreign direct investment (FDI).⁷ In the second stage, the foreign firm chooses its mode of supply (exports or FDI). In the final stage, the two firms compete as Cournot-Nash competitors.

The domestic firm's marginal cost of production equals c_H whereas that of the foreign firm equals c_F (under FDI) and ϕc_F (under exporting). The parameter ϕ captures the extent to which one mode of supply is more efficient than the other. When $\phi = 1$, the two modes are equally efficient whereas when $\phi < (>)$ 1, exporting (FDI) is the more efficient mode of supply.⁸

The output tax facing the domestic firm is normalized to zero in order to facilitate the comparison between trade policy and FDI policy. If the government

⁷We assume that FDI policy is an output tax for ease of exposition: the comparison between an import tariff and an output tax is more transparent than the comparison between an import tariff and an alternative FDI policy instrument such as a profit tax. Since governments can intervene in both trade and FDI via *multiple instruments*, it is reasonable to focus on two instruments that have similar effects on the market equilibrium.

⁸Of course, exporting and FDI may differ in several other ways: for example, FDI may generate technological spillovers for the local firm. Our model abstracts from these issues and focuses only on static efficiency differences between the two modes of supply.

chooses a zero import tariff, it is said to commit to *free trade* in the first stage of the game. Similarly, if it commits to a zero output tax on the foreign firm under FDI, it is said to commit to *national treatment* of the foreign firm (the tax facing the domestic firm is zero).⁹

3 Analysis

To solve for a sub-game perfect Nash equilibrium, we begin at the last stage of the game. At this stage, the two firms compete in quantities, given the policies set by the government and the foreign firm's choice between exports and FDI. The first order conditions for profit maximization are:

$$p + p'x_i = c_i^j$$

where $i = H, F$ denotes the firm and $j = E, F$ denotes the foreign firm's mode of supply (E denotes exporting and F denotes FDI). Note that the marginal cost of the foreign firm is inclusive of any tariff (t) or tax (s) that it faces.

Given the cost structure assumed, it is obvious that absent any policy intervention, the foreign firm opts for exporting iff $\phi \leq 1$. To understand the interaction between the two types of policies and to analyze equilibrium policies, we first study each policy in isolation.

3.1 Trade Policy

Let $x \equiv x_H + x_F$ the total output sold in the domestic market. Define aggregate welfare in the host country as:

$$W \equiv \pi_H + CS + rx_F \tag{1}$$

where $\pi_H = (p - c_H)x_H$ denotes the profits of the domestic firm; $CS = u(x) - px$ denotes total consumer surplus in the domestic market; $r = s$ or t denotes the relevant government policy; and rx_F denotes total tax/tariff revenue.

⁹We ignore the possibility of subsidies here. Note, however, that the tariff or the output tax on the foreign firm result in rent shifting much like a subsidy to the domestic firm, so that we need not consider subsidies in addition to these two policies.

Define t^* as the domestic economy's optimal import tariff, given that exporting is the *only* mode of supply available to the foreign firm. We have

$$t^* \equiv \text{Arg max } W^E(t) \equiv \pi_H^E(t) + CS^E(t) + tx_F^E(t) \quad (2)$$

As Brander and Spencer (1984) have shown, such a tariff is in general positive. Using the envelope theorem, the first order condition determining the optimal tariff can be written as

$$\frac{\partial W}{\partial t} = p' \frac{\partial x_F}{\partial t} x_H - p' x_F \frac{\partial x}{\partial t} + x_F + t \frac{\partial x_F}{\partial t} = 0$$

The optimal tariff balances the incentives for rent extraction from the foreign firm against the interests of consumers. We assume that the second order condition is satisfied (i.e. $\frac{\partial^2 W}{\partial t^2} \leq 0$).

Since the foreign firm can always produce in the domestic market by opting for FDI, the domestic government may face a constraint on its choice set. Define t^F as the tariff that just deters FDI on the foreign firm's part (as in Konishi et. al., 1999). Since the foreign firm's marginal cost under exporting equals $\phi c_F + t$ whereas under FDI it equals c_F , we have:

$$t^F = (1 - \phi)c_F$$

Note that if $t^* > t^F$ the domestic government is incapable of implementing its optimal tariff (any tariff higher than t^F leads to tariff jumping FDI). We assume this condition holds or else the option of FDI does not have any interesting implications for trade policy. The following lemma notes an important property of the tariff t^F :

Lemma 1: *Domestic welfare gross of tariff revenue (i.e. the sum of consumer surplus and domestic profits) is identical under FDI and exporting subject to the tariff t^F .*

The logic behind this lemma is simple. Market equilibrium is identical under exporting and FDI so long as the costs of both firms are the same under the two

modes of supply. The tariff t^F implies that the foreign firm's marginal cost under both exporting and FDI equals c_F . The domestic firm's cost is c_H , regardless of the foreign firm's mode of supply. Thus, equilibrium outputs of the two firms (and therefore price, profits, and consumer surplus) are identical under exporting and FDI. We next describe the government's equilibrium trade policy:

Proposition 1A: *Suppose $t^* > t^F$ and $\phi \leq 1$ and the tariff is the only policy instrument available. Then, the government implements the tariff t^F that just deters FDI by the foreign firm (i.e. domestic welfare is higher under exporting subject to the tariff t^F than under FDI with national treatment).¹⁰*

Why does not the government impose a tariff higher than t^F thereby inducing FDI by the foreign firm? The reason is that when $\phi \leq 1$, exporting is a more efficient mode of supply than FDI and the domestic government can collect the cost savings the foreign firm enjoys relative to FDI via the tariff t^F while at the same time ensuring that domestic consumers and the local producer are no worse off under exporting than they are under FDI (see lemma 1). As we show below, a similar intuition applies to the case where the government is free to choose only its FDI policy.

3.2 FDI Policy

As in the case of trade policy, define s^* as the optimal output tax on the foreign firm under FDI, given that FDI is the only method of serving the market. We have¹¹

$$s^* \equiv \text{Arg max } W_H^F(s) \equiv \pi_H^F(s) + CS^F(s) + sx_F^F(s) \quad (3)$$

The first order condition for the above problem is completely analogous to the case of the tariff since an import tariff is simply a tax on the output sold by the foreign firm via exporting. As in the case of the tariff t^F , define s^F as the output tax that just deters exporting on the foreign firm's part (any tax less than or

¹⁰Note that if $\phi > 1$, the domestic government is incapable of implementing any positive tariff.

¹¹Note that all profits of the foreign firm, net of the tax under FDI, are repatriated and do not contribute to domestic welfare.

equal to s^F makes FDI more profitable than exporting). Recall that the foreign firm's marginal cost under exporting equals ϕc_F whereas under FDI it equals $s + c_F$. Therefore,

$$s^F = (\phi - 1)c_F$$

As in the case of a tariff, we can show a result very similar to proposition 1. Suppose $s^* \leq s^F$ and $\phi \geq 1$ and the output tax on local production by the foreign firm is the only policy instrument available. Then, the government implements the tax s^F that just deters the foreign firm from switching to exporting (i.e. domestic welfare is higher under FDI subject to the tax s^F than under free trade).¹² The intuition is the same as before: it is optimal for the government to ensure that the foreign firm adopts the more efficient mode of supply so that it can tax the foreign firm's cost savings relative to the inefficient mode.

We now consider the equilibrium of the full game where the government is free to choose both its trade and FDI policy.

3.3 Trade and FDI Policy

As before, the last stage simply involves Cournot competition, so we skip its discussion. Consider the foreign firm's decision regarding its mode of supply. Given the output tax s and the tariff t , the foreign firm opts for exporting over FDI iff

$$t + \phi c_F \leq s + c_F \Leftrightarrow t \leq t'(s) \equiv s + (1 - \phi)c_F \quad (4)$$

It is clear from (4) that the two policies (s and t) are *complementary*: $t(s)$ is increasing in s . In other words, a higher output tax on the foreign firm under FDI allows the government to implement a higher tariff. Note also that if $t = s$, the foreign firm opts for exporting iff $\phi \leq 1$: in this scenario, government policy imposes the same cost disadvantage under both exporting and FDI thereby leaving the decision to be determined solely by the true relative cost comparison. The government's equilibrium policy is described in the following proposition:

¹²If $\phi \leq 1$, the domestic government is incapable of implementing any tax under FDI.

Proposition 1B: *When the domestic government has both policy tools at its disposal, its equilibrium policy is as follows: (i) If $\phi = 1$, equilibrium policy is the pair $\{t^*, s^*\}$ and $t^* = s^*$; (ii) If $\phi < 1$, any pair $\{t^*, s\}$, where $s > s'$ and $s' \equiv t^* - (1 - \phi)c_F$, is an equilibrium policy and $t^* > s'$; (iii) If $\phi > 1$, any pair $\{t, s^*\}$ where $t > t'$ and $t' \equiv s^* - (\phi - 1)c_F$ is an equilibrium policy and $s^* > t'$.*

When trade costs are zero (i.e. $\phi = 1$), the domestic government is able to implement welfare maximizing tariff and tax levels t^* and s^* . When faced with the policy pair $\{t^*, s^*\}$, where $t^* = s^*$, the foreign firm is indifferent between the two modes of supply. Since both modes are equally efficient from the social viewpoint, policy intervention does not result in the foreign firm adopting an inefficient mode of supply. When $\phi < 1$, exporting is more efficient than FDI in the absence of policy intervention. For a policy pair $\{t^*, s\}$, where $s > s'$, to *not* result in an inefficient mode of supply, the foreign firm should choose to export facing any such pair. Indeed it does. The reason is clear: since $s > t^* - (1 - \phi)c_F$, it must be that $\phi c_F + t^* < c_F + s$. When exporting is more efficient, domestic welfare is higher under an optimal import tariff than under FDI subject to the optimal output tax. The reason is same as that highlighted in proposition 1: a more efficient mode of supply allows the domestic government to extract higher revenue. Consequently, the domestic government implements an output tax that is high enough to support its optimal tariff while at the same time ensuring that the foreign firm indeed chooses to export. The interpretation of part (iii) of the above proposition is analogous to part (ii).

As should be expected, having two instruments at its disposal does alter the outcome in favor of the domestic government since it can implement a tariff (tax) as high as it can under the scenario where the foreign firm does not have the option of exporting (FDI). What the analysis above informs us is that, regardless of whether the government has only one or both policy instruments at its disposal, policy intervention does *not* result in the foreign firm adopting an inefficient mode

of supply even though the two modes may differ significantly in their efficiency.¹³

4 Implications for Rule Making

Currently, most countries are free to choose their FDI policies whereas tariffs are bound under the GATT. Our results indicate that the ability to serve the domestic market via exports shelters the foreign firm and naturally constrains the domestic government from implementing its optimal policy. Most importantly, such a policy never results in the foreign firm adopting an inefficient mode of supply.¹⁴

The main implication of our analysis is that constraining the domestic government's FDI policies has primarily *distributional* consequences: it will lose its ability to extract rents from the foreign firm. This is not to say that policy intervention with respect to FDI will never have efficiency consequences. Clearly, one can construct models in which it does. In fact, even in our model, such intervention creates an inefficiency in that too little output is produced. Thus, when $c_F = c_H$, an output tax on the foreign firm lowers world welfare. Our main point here is that it is in the interest of the domestic government that the foreign firm adopt the truly efficient mode of supply so that policy intervention will not create a distortion in at least this dimension.

What happens if the domestic government can implement its optimal FDI tax (i.e. $s^* < s^F$)? Proposition 1B indicates that the foreign firm still adopts the more efficient mode of supply (it will do FDI only if $s^* + c_F < \phi c_F$) so that constraining the government's investment policy again has mainly distributional consequences.

¹³As in Brander and Spencer (1984), it is easy to show that world welfare (sum of foreign firm's profits and aggregate domestic welfare) declines due to domestic policy intervention when the firms have relatively equal marginal costs of production. When the foreign firm is relatively inefficient, a tariff or a tax under FDI can improve world welfare by allocating a greater share of the world output to the lower cost (domestic) firm.

¹⁴Of course, the availability of other instruments (such as profit taxes) may require modifications of our main result.

5 Conclusion

This note evaluates the validity of one of the efficiency arguments in favor of multilateral rules for investment policies. We find that the intuition of policy analysts who argue in favor of modal neutrality and call for WTO rules to be extended to investment policy is not supported in the context of a simple model of oligopolistic interaction. The implication is that efforts to continue the process of multilateral liberalization of trade need not be complemented by an investment agreement if the concern relates primarily to possible distortions of mode of supply choice. Of course, our model is very simple and abstracts away from some important considerations such as the nature of the policy equilibrium in a multi-country world. Yet, the insight it delivers (i.e. it is in the interest of a host country to ensure that policy intervention does not distort the mode of supply) would remain valid in a more complex model.

References

- [1] Brander, J. and B. Spencer 1984. "Tariff protection and imperfect competition," in ed. H. Kierzkowski *Monopolistic Competition and International Trade*, Oxford University Press.
- [2] Brander, J. 1995. "Strategic trade policy," in the *Handbook of International Economics*, vol. 3, edited by G. M. Grossman and K. Rogoff, Elsevier Science Publishers, 1995.
- [3] Feketekuty, G. 2000. "Assessing and improving the architecture of GATS," Chapter 4 in Sauve, P. and Stern, R. (eds.), *Services 2000: New Directions in Services Trade Liberalization*, Brookings Institution and Harvard University, Washington D.C.
- [4] Hoekman, B. 1996. "Assessing the general agreement on trade in services." Chapter 4 in Martin, W. and Winters, A (eds.), *The Uruguay Round and the Developing Countries*, Cambridge University Press, Cambridge.
- [5] Hoekman, B. and K. Saggi 2000. "Assessing the case for extending WTO

- disciplines on investment-related policies,” *Journal of Economic Integration* 15(4): 629-653.
- [6] Horstmann, I. J. and J.R. Markusen 1992. “Endogenous market structures in international trade,” *Journal of International Economics* 32: 109-129.
- [7] Konishi, H., K. Saggi, and S. Weber 1999. “Endogenous trade policy under FDI,” *Journal of International Economics* 49: 289-308.
- [8] Levinsohn, J. A. 1989. “Strategic trade policy when firms can invest abroad: when are tariffs and quotas equivalent?” *Journal of International Economics* 27: 129-146.
- [9] Low, P. and Mattoo, A. 2000. “Is there a better way? Alternative approaches to liberalization under the GATS,” Chapter 15 in Sauve, P. and Stern, R. (eds.), *Services 2000: New Directions in Services Trade Liberalization*, Brookings Institution and Harvard University, Washington D.C.
- [10] Markusen, J., 2001, “Multilateral rules on foreign direct investment: The developing countries’ stake,” *Review of International Economics* 9 (2): 287-302.
- [11] Moran, T. 1998, *Foreign direct investment and development*, Washington DC, Institute for International Economics.