On the Role of Local Content Requirement in Defusing the Threat of *Quid-Pro-Quo* FDI *

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Abstract

We analyze local content requirement (LCR) and tariff in a two-country model of vertical market-structure with endogenous foreign direct investment (FDI). The foreign firm chooses whether to export or to undertake FDI. The host country anticipates the potential for FDI and selects tariff with or without LCR rate accordingly. Without LCR, the FDI imposes a threat on the host country and the threat exerts a tariff-liberalizing pressure. This FDI is often coined as *quid-pro-quo* FDI in the literature. In contrast, we show that with LCR the host government can defuse the threat of quid-pro-quo FDI.

Keywords: tariff, local content requirement, export, quid-pro-quo foreign direct investment

J.E.L. **Classification**: F13, F14, F23, L13

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1 Introduction

Bhagwati, et.al. (1987), in a seminal paper, demonstrated that firms may undertake foreign direct investment (FDI) in order to by-pass tariff imposed by a host country on their exports and to further exert liberalizing pressure on the host country's trade barriers. This kind of FDI is usually coined as *quid-pro-quo* FDI. Due to the trade-liberalizing pressure of this FDI, the host country may impose a combination of an optimal tariff and an optimal tax (subsidy) on capital exports (Bhagwati, et.al. (1987)) or alternatively it may prefer to use voluntary export restraints (VERs) instead of tariff (Konishi, Saggi, and Weber (1999)).

This paper delves further into the issue of *quid-pro-quo* FDI using a simple two-country model of vertical market-structure with an endogenous FDI. In the model, the foreign firm chooses whether to export or to undertake FDI. Suppose that a host country prefers the foreign firm to choose export to FDI as an entry mode, then it follows that a mere threat of having an inward FDI establishment by the foreign firm could indeed exert a credible pressure on the host country to liberalize its trade barrier.[1]

Rather than bending to the liberalizing pressure of the FDI threat, the host country can undertake a different policy approach. It can implement a policy that induces an unfavorable environment for FDI. Such a policy will render FDI less attractive than export for the foreign firm. This paper suggests that it can be done by implementing a *local content requirement* (LCR) policy. A tougher LCR policy makes export increasingly more attractive than FDI as an entry mode for the foreign downstream firm. Consequently, the host country is able to *defuse* the threat of *quid-pro-quo* FDI without necessarily embarking in any unilateral trade liberalization. Thus in this sense, an LCR policy helps the host country to *sustain* protectionism.

To the best of our knowledge, such an insight on the role of LCR in defusing the threat of *quid-pro-quo* FDI is novel in the literature. Usually, an LCR policy is analyzed in a framework in which foreign firms have already chosen FDI as an entry mode and face the LCR policy.[2] It does not allow us to analyze the incentive of foreign firms to choose FDI instead of export as an entry mode in the first place. Naturally if the level of LCR is excessively high, these foreign firms will not enter. Indeed, the empirical evidence on

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[1] In the literature, the *physical presence* of FDI is needed in order to exert a credible pressure on the host country to liberalize its trade. In contrast, this paper shows that such a credible pressure can already be induced by the existence of a *potential* FDI establishment.

[2] See among others Wonnacott and Wonnacott (1967), Corden (1971), Grossman (1981), Krishna and Itoh (1988), Vousden (1987), Hollander (1987), Davidson, et.al. (1987), Richardson (1991), and Belderbos and Sleuwagen (1997).

foreign firms' incentive to enter as an FDI in a host country in the presence of the host country's LCR policy confirms this.[3]

Lahiri and Ono (1998) and Qiu and Tao (2001) are perhaps exceptions, as they do investigate the choice of foreign firms' entry mode in the presence of tariff and LCR. However, their paper does not consider set-up costs as a barrier to entry. On the contrary, this present paper argues that set-up costs should play a crucial role for the foreign firms' entry decision[4], and hence should be explicitly incorporated in the analysis. Furthermore and most importantly, their paper does not analyze the relationship between LCR and *quid-pro-quo* FDI.

This paper proceeds as follows. Section 2 presents the model setting and its solutions. Section 3 examines the role of set-up costs and LCR policy in defusing the threat of *quid-pro-quo* FDI. Section 4 concludes the paper.

2 The Model Setting

There are two countries, i.e. the home country (h) and the foreign country (f). In each country, there is a downstream firm (d) which produces a homogenous final goods, and an upstream firm (u), which produces a homogenous input goods that is utilized in the production of the final goods. For simplicity, we assume that there is no final goods market in the foreign country. This implies that the home and foreign downstream firms are only competing in the home country. The home market demand for the final goods is assumed to be linear in the form of $P = 1 - Q = 1 - (q_d^h + q_d^f)$, in which P, Q, q_d^h, and q_d^f denote respectively the price, total aggregate quantities, and quantities produced by the home and foreign downstream firms.

We assume that the two competing downstream firms have the same production technology. One unit of the input goods is needed to produce one unit of the final goods. Before competing in the home country's final goods market, the foreign downstream firm must decide whether to *export* the final goods into the home market or to *enter* the home market directly. If the foreign firm chooses the former, it has to pay a specific tariff, τ, per unit of exports. However, if it chooses the latter, it has to pay set-up costs (S) and comply with the host country's policy on LCR (α), which stipulates the required ratio

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[3]See among others Kokko and Blomstrom (1995) and Lopez-da-Silanes, Markusen, and Rutherford (1996). They find that local content provisions discourage foreign firms from producing inside.

[4]Indeed, an empirical study conducted by Moran (1992) finds that firms are often reluctant to move production to a country even if the rate of LCR is sufficiently low. Markusen and Venables (1995) argue that this empirical result points to the importance of entry costs. See also Brainard (1993) for the importance of fixed costs as a barrier to entry.

of local input contents to the total input contents that the foreign downstream firm must use in the production.[5]

Let q_u^h and q_u^f denote the amount of input used by, respectively, the home and the foreign downstream firms. If the LCR policy is imposed, αq_u^f represents the amount of local input that the foreign downstream firm is obliged to use, and $(1-\alpha)\, q_u^f$ represents the amount of input that is allowed to be imported from its own country without duties.[6] The 'one-to-one' production technology implies that $q_d^h = q_u^h$ and $q_d^f = q_u^f$.

We assume that foreign firms are vertically integrated, while domestic firms are vertically separated. This essentially implies that the foreign upstream firm sells input to the foreign downstream firm at the prevailing internal transfer price, which is assumed to be equal to the marginal cost of producing input (c). For the sake of simplicity and without loss of generality, we assume that the marginal cost of producing input for both upstream firms is zero. The domestic downstream firm, on the contrary, must buy the required input from the domestic upstream firm at a market price (p_u^h). As the domestic input price is higher than the foreign internal input price, there is no incentive for the foreign downstream firm to buy input from the domestic upstream firm in the absence of an LCR policy. Furthermore, as foreign firms are vertically integrated and the foreign downstream firm competes with the domestic downstream firm in the home market, there is no incentive for the foreign upstream firm to supply input to its downstream competitor. Thus, input markets are effectively segmented. It is also obvious that when the foreign downstream firm chooses to enter the home market using FDI, there is no incentive for the foreign firm to deliberately exceed the stipulated LCR rate. This setting thus allows us to get a clearer picture on the effect of an LCR policy.

The timing sequence of the model is as follows. In stage 1, the home government sets tariff and LCR. In stage 2, the foreign downstream firm decides its entry mode, i.e., exporting to the home market or setting up a firm in the home market. In stage 3, the foreign input producer supplies input to the foreign downstream firm and charges an internal transfer price which is equal to the marginal cost of producing input. Meanwhile, the home input producer observes the demand for input from the domestic downstream

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[5]Grossman (1981) defines an LCR in both the physical and value terms. In this paper, and also in Lahiri and Ono (1998) and Qiu and Tao (2001), we define an LCR in the physical term.

[6]Qiu and Tao (2001) mention that when an LCR is imposed, then typically, in practice, there is a penalty imposed, in the form of tariff duties, on a country that cannot satisfy the minimum level of the LCR. If the LCR policy is abided by, then there will be no tariff duties imposed. In addition, Veloso (2001) shows that LCR policy is weakly preferred to a tariff. In line with these two factors, we assume that there is no tariff imposed on the import of input done by the subsidiary of the foreign downstream firm.

firm and maximizes its profits by setting an optimal input price. Finally, in stage 4, the home and foreign downstream producers engage in Cournot competition. We solve this game by backward induction.

2.1 Downstream Cournot Competition

There are two possible cases depending on the entry mode chosen by the foreign downstream firm. The first case is the export case, while the second case is the FDI case.

2.1.1 Export Mode

The home and foreign downstream firms' profits can be expressed as follows.

$$\Pi_d^h = \left(1 - q_d^h - q_d^f - p_u^h\right) q_d^h \tag{1}$$

$$\Pi_d^f = \left(1 - q_d^h - q_d^f - \tau\right) q_d^f \tag{2}$$

Both firms compete in Cournot fashion. The following Cournot-Nash equilibrium quantities can be straightforwardly derived. Recall that we have $p_u^f = c = 0$.

$$q_d^h = \frac{1 - 2p_u^h + \tau}{3}, \quad \Pi_d^h = \left(q_d^h\right)^2 \tag{3}$$

$$q_d^f = \frac{1 + p_u^h - 2\tau}{3}, \quad \Pi_d^f = \left(q_d^f\right)^2 \tag{4}$$

The final goods's price in the home market can be expressed as,

$$P = \frac{1 + \tau + p_u^h}{3} \tag{5}$$

2.1.2 FDI Mode

To establish a foreign direct subsidiary, the foreign firm must incur set-up costs (S). In addition, it is also required to comply with the LCR policy (α) adopted by the host country's government. The home and foreign downstream firms' profit function can then be expressed as follows.

$$\Pi_d^h = \left(1 - q_d^h - q_d^f - p_u^h\right) q_d^h \tag{6}$$

$$\Pi_d^f = \left(1 - q_d^h - q_d^f - \alpha p_u^h\right) q_d^f - S \tag{7}$$

The Cournot-Nash equilibrium quantities can be easily derived as follows.

$$q_d^h = \frac{1 + (\alpha - 2)\, p_u^h}{3}, \quad \Pi_d^h = \left(q_d^h\right)^2 \tag{8}$$

$$q_d^f = \frac{1 + (1 - 2\alpha)\, p_u^h}{3}, \quad \Pi_d^f = \left(q_d^f\right)^2 - S \tag{9}$$

The final goods's price in the home market can be expressed as,

$$P = \frac{1 + (\alpha + 1)\, p_u^h}{3} \tag{10}$$

2.2 Upstream Monopolists' Decision

Similarly, there are two possible cases depending on the entry mode chosen by the foreign downstream firm.

2.2.1 Export Mode

The profit function of the two upstream firms can be written as follows.

$$\pi_u^h = p_u^h q_u^h \tag{11}$$

$$\pi_u^f = 0 \tag{12}$$

It is obvious that the foreign upstream firm's earns zero profit as it sells input at marginal cost to its downstream firm subsidiary. On the contrary, the domestic upstream firm earns positive profits because it sells input to the vertically-separated domestic downstream firm at a market price.

The assumption of 'one-to-one' production technology implies that the domestic downstream firm's optimal output acts as the domestic upstream firm's derived-demand for input. From (3), we can express this derived demand as,

$$p_u^h = \frac{1 + \tau - 3q_u^h}{2} \tag{13}$$

Upon substituting this derived demand into the domestic upstream firm's profit function and solving it for the optimal quantity of input we obtain,

$$q_u^h = \frac{1 + \tau}{6} \tag{14}$$

The optimal quantity of input (q_u^f) produced by the foreign upstream firm can be straight-forwardly derived as,

$$q_u^f = q_d^f = \frac{5 - 7\tau}{12} \tag{15}$$

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We require $\tau \leq \frac{5}{7}$ to have $q_u^f \geq 0$.

The domestic input price can then be simplified into,

$$p_u^h = \frac{1 + \tau}{4} \tag{16}$$

2.2.2 FDI Mode

The profit function of both upstream firms can be expressed as,

$$\pi_u^h = p_u^h \left(q_u^h + \alpha q_u^f \right) \tag{17}$$
$$\pi_u^f = 0 \tag{18}$$

The domestic upstream firm supplies both the domestic downstream firm and also the foreign downstream firm. This is because the foreign downstream subsidiary must abide by the LCR policy, and thus must buy a certain fraction of its input needs (α) from the domestic upstream firm. Using (8) and (9), we can easily express the domestic upstream-firm's derived-demand as,

$$p_u^h = \frac{1 + \alpha - 3 \left(q_u^h + \alpha q_u^f \right)}{2\alpha^2 - 2\alpha + 2}$$

Given this derived demand for input, the optimal quantities of input supplied by the domestic upstream firm can be straightforwardly derived as,

$$q_u^h = \frac{2\alpha^2 - 5\alpha + 5}{12\alpha^2 - 12\alpha + 12} \tag{19}$$

Using this expression, we can easily derived the following.

$$q_u^f = \frac{5\alpha^2 - 5\alpha + 2}{12\alpha^2 - 12\alpha + 12} \tag{20}$$

The domestic price of input can then be simplified into,

$$p_u^h = \frac{1 + \alpha}{4\alpha^2 - 4\alpha - 4} \tag{21}$$

2.3 Foreign Downstream Firm's Choice of Entry Mode

The foreign downstream firm's choice of entry is determined by the following rule,

$$Max \left[\Pi_d^f(\tau), \Pi_d^f(\alpha) \right] \tag{22}$$

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Using all solutions derived previously, we can express the foreign downstream firm's profit function for each mode of entry.

$$\Pi_d^f(\tau) = \frac{(7\tau - 5)^2}{144} \tag{23}$$

$$\Pi_d^f(\alpha) = \frac{(2\alpha^2 - 5\alpha + 5)^2}{144(\alpha^2 - \alpha + 1)^2} - S \tag{24}$$

It is easy to check that the foreign downstream firm's profits are decreasing in the level of LCR ($\frac{\partial \Pi_d^f(\alpha)}{\partial \alpha} < 0$ for $0 \leq \alpha \leq 1$). The optimal α for the firm is $\alpha = 0$, which implies that the firm will never have an incentive to exceed the stipulated LCR level.

For a given set of tariff (τ) and LCR (α), the foreign firm prefers exporting to investing directly when $\Pi_d^f(\tau) > \Pi_d^f(\alpha)$. Otherwise, the opposite prevails. The set of tariff (τ) and LCR (α) policy combinations that makes the foreign firm indifferent between the two entry modes can be derived by equating $\Pi_d^f(\tau)$ and $\Pi_d^f(\alpha)$. Figure 1 depicts this set of policy combinations, which we call the *profit equivalence curve* (PEC), for the case of $S = 0$ and $S = 0.024$.

[ENTER FIGURE 1 HERE]

All policy combinations above the PECs give us $\Pi_d^f(\tau) < \Pi_d^f(\alpha)$, which implies that the foreign downstream firm prefers FDI to export. Likewise, all policy combinations below the PECs indicate that $\Pi_d^f(\tau) > \Pi_d^f(\alpha)$, which implies that the foreign downstream firm prefers export to FDI.

2.4 Home Country 's Choice of Policy

In stage 1, the home country's objective is to maximize its welfare by choosing an optimal tariff or LCR rate.[7] The welfare consists of consumers' surplus, upstream and downstream producers' surplus, and the tariff revenue (under the export mode). The domestic government's preferred entry mode is determined by the following rule.

$$Max\left[W^h(\tau), W^h(\alpha)\right] \tag{25}$$

In which $W^h(\tau)$ and $W^h(\alpha)$ denote, respectively, the domestic welfare under the export mode and the FDI mode. They can be straightforwardly expressed as,

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[7]In this paper, we do not consider subsidies. Hence, we only restrict our attetion to the case of non-negative tariff levels.

$$W^h(\tau) = \frac{23 + 30\tau - 41\tau^2}{96} \qquad (26)$$

$$W^h(\alpha) = \frac{96\alpha^2 - 76\alpha^3 - 56\alpha + 37\alpha^4 + 23}{96\left(1 - \alpha + \alpha^2\right)^2} \qquad (27)$$

The following lemma applies.

Lemma 1 (*i*) *The optimal tariff rate that will be imposed by the domestic government if the foreign firm is expected to choose export as an entry mode is $\tau^o = 0.37$.* (*ii*) *The optimal LCR rate that will be imposed by the domestic government if the foreign firm is expected to choose FDI as an entry mode is $\alpha^o = 1$.* (*iii*) *Given the optimal tariff and LCR level, the home country's welfare in the case of export is higher than that in the case of FDI ($W^h(\tau^o) > W^h(\alpha^o)$).*

Proof. This is trivial from the comparison of (26) and (27). ∎

Figure 2 verifies point (iii) of the above lemma. The domestic country's welfare under the export mode is indeed higher than that under the FDI mode. Obviously, the domestic country would like to induce the foreign country to export rather than to undertake FDI.[8] This result is similar to Motta (1992), who shows that there will be a rise in the inefficient production and a loss in the tariff revenue that will lead to a welfare reduction when an optimal tariff is imposed and an FDI takes place.

[ENTER FIGURE 2 HERE]

From our earlier discussion, the foreign downstream firm may choose either export or FDI as an entry mode depending on the parameter values of the model. Meanwhile, from our welfare analysis, the domestic government prefers export to FDI as an entry mode. This implies that there is potentially a conflict of entry-mode preference between the foreign firm and the domestic government. Our next section discusses this aspect in details.

3 The Role of LCR in Defusing the Threat of 'Quid-Pro-Quo' FDI

For the purpose of our analysis in this section, we define the welfare equivalence curve (WEC) as the set of tariff (τ) and LCR rate (α) that makes the host government indifferent between the two entry modes that might be chosen by the foreign downstream firm;

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[8]It should be noted that in this model we do not take into account other positive benefits that may be accrued from having an FDI, such as an increase in the employment rate and a technology transfer.

$W^h(\tau) = W^h(\alpha)$. The area above and below the WEC represents, respectively, the case of $W^h(\tau) > W^h(\alpha)$ and $W^h(\tau) < W^h(\alpha)$.

Figure 3 below combines the PEC and WEC together. It is obvious that under some circumstances there will be a conflict of entry-mode preference between the home government and the foreign firm. For instance, policy combinations above the PEC will induce the foreign firm to undertake FDI, however the home government will prefer the foreign firm to choose export. On the contrary, policy combinations below the WEC will induce the foreign firm to choose export, however the home government will prefer the foreign firm to choose FDI. The only policy combinations that do not lead to a conflict of entry-mode preference are those located in between the PEC and WEC. Here, both parties would prefer to have export to FDI as an entry mode.

[INSERT FIGURE 3 HERE]

Suppose that initially the host country's government only sets an optimal tariff ($\tau^o = 0.37$) and does not impose any LCR policy ($\alpha = 0$). In addition, let us also assume that $S = 0$. Under this setting, it can be verified that the foreign downstream firm prefers to choose FDI to export as an entry mode. On the contrary, the host government prefers to have export to FDI as the foreign downstream firm's entry mode. In figure 3, this combination of policies ($\tau^o = 0.37$ and $\alpha = 0$) is located in the area above the PEC and the WEC. In order to eliminate the conflict of entry-mode preference, the host government must induce the foreign firm to choose export as an entry mode. However, if the LCR policy is not available at the government's disposal, the only way that the government can do is to unilaterally liberalize its tariff. It is obvious from figure 3 that in this case, the host government must go all the way to free trade ($\tau = 0$).

In this sense, the threat of FDI forces the host country to unilaterally liberalize its tariff protection. This is reminiscent to the seminal idea of *quid-pro-quo* FDI pioneered by Bhagwati, et al. (1987), which examines the power of FDI in exerting a liberalizing pressure on the potential host government's trade protection. The framework that is used in the analysis of the *quid pro quo* FDI is usually a two period framework. In the first period an FDI is implemented, and then in the second period the existence of FDI will exert pressure on the host country to liberalize its trade. The trade liberalization could take several forms such as, an optimal tax (subsidy) on capital exports as in Bhagwati, et al. (1987), or the use of voluntary export restraints (VERs) rather than tariff as in Konishi, Saggi, and Weber (1999). In all of these *quid-pro-quo* FDI studies, the physical presence of an FDI is required in order to create the liberalizing pressure. In contrast,

our paper shows that the *mere threat* of an FDI establishment is enough to exert that liberalizing pressure.

Now, given that $\tau^o = 0.37$ and $\alpha = 0$, let us assume that there are set-up costs, i.e. $S = 0.024$. The presence of set-up costs will shift the PEC upward. As a result, the area located in between the PEC and WEC becomes wider (see figure 4). It implies that there will be more policy combinations that do not result in a conflict of entry-mode preference. This is because the relative attractiveness of FDI to export as an entry mode diminishes. This also implies that the home country's government is able to reduce the extent of tariff liberalizing pressure. It is easy to derive that when we have $S = 0.024$, the required tariff level to avoid the conflict of preference is $\tau = 0.05$ (point A in figure 4).[9] It is obvious that the required level of tariff reduction from the optimal tariff rate is more stringent in the case of $S = 0$ than in the case of $S = 0.024$. In the former, the host government has to go all the way to free trade ($\tau = 0$), while in the latter, the host government can still maintain a little bit of tariff protection by setting $\tau = 0.05$. In this sense, the presence of set-up costs can partly defuse the threat of FDI.

[INSERT FIGURE 4 HERE]

As an alternative to set-up costs, the host country can also defuse the threat of *quid-pro-quo* FDI using an LCR policy. To see this, let us suppose that the host government imposes $\alpha = 0.5$. Meanwhile, we still keep $\tau^o = 0.37$ and $S = 0.024$. It can be easily verified that with this level of LCR, the host government needs only to set $\tau = 0.20$ (point B in figure 4) in order to avoid a conflict of preference. This implies that imposing an LCR policy increases the host government's ability to maintain its tariff protection. This is because the host government needs only to reduce its optimal tariff level by approximately 43%. As a comparison, if the government imposes no LCR policy, it must reduce its optimal tariff level by approximately 86%.

Now, if the domestic government is able to set an optimal LCR level to maximize its welfare, it will set $\alpha^o = 1$ (see lemma 1). Given the optimal tariff level (τ^o), setting $\alpha^o = 1$ brings us to point C in figure 4. It is immediately apparent that with $\alpha^o = 1$, the domestic government needs not to unilaterally liberalize its tariff. It can still keep the optimal tariff level $\tau^o = 0.37$ intact.

The following proposition summarizes our results.

Proposition 1 *All in all, our model points to the following results.*

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[9]To obtain this tariff rate, we substitute $\alpha = 0$ into the expression of $\Pi_d^f(\tau) = \Pi_d^f(\alpha)$. Then we derive the value of τ that will satisfy the above expression.

(*i*) *The presence of set-up costs diminishes the relative attractiveness of FDI to export as an entry mode for the foreign downstream firm. In this respect, the presence of set-up costs defuses the threat of quid-pro-quo FDI.*

(*ii*) *In the absence of an LCR policy and when set-up costs are not excessively high, the host country's government must unilaterally liberalize its tariff in order to defuse the threat of FDI.*

(*iii*) *In the presence of an LCR policy, the extent of unilateral tariff liberalization depends on the size of the LCR rate. A higher LCR rate implies a less stringent need to unilaterally liberalize the tariff.*

(*iv*) *When the LCR rate is set optimally ($\alpha^o = 1$), there is no need for the host country's government to unilaterally reduce its tariff. It can still keep imposing the optimal tariff level ($\tau^o = 0.37$). In this respect, the presence of an optimal LCR policy completely eliminates the threat of a quid-pro-quo FDI.*

4   Conclusion

We explore, in a simple model of vertical structure, the relationships between a host country's endogenous choice of trade and investment policies and a foreign multinational firm's endogenous choice of entry mode.

We find that under some circumstances there might be a conflict of entry mode preference between the host country and the foreign downstream firm. The foreign firm prefers to choose FDI as an entry mode, while the host government prefers the foreign firm to choose export since the host country's welfare is higher under the export mode than under the FDI mode. As a result of this conflicting preference, the foreign firm can use FDI to exert a liberalizing pressure on the home country's tariff barrier. This idea is reminiscent to the concept of *quid-pro-quo* FDI pioneered by Bhagwati, et al (1987). This type of FDI induces the host country to unilaterally liberalize its tariff in order to defuse the threat of FDI. However, in the presence of an optimal LCR policy, it is not necessary for the host country to unilaterally liberalize its tariff in order to defuse the *quid-pro-quo* FDI. In this sense, the LCR policy can actually be used to *sustain* protectionism.

Given the nature of the LCR policy shown above, it is interesting to extend this paper to analyse the current WTO's rule on the LCR policy. In recent years, the WTO has also incorporated trade related investment measures (TRIMs), including LCR, in its regulatory framework. The main purpose of this inclusion is to encourage countries to

further open up their markets to foreign firms. It is stipulated that an adoption of an LCR policy by a Member country on FDIs is deemed illegal (see Article III:4 of GATT). In the context of our paper, it is interesting to investigate whether or not LCR should be deemed illegal from the viewpoint of multilateral trade (tariff) liberalization. We leave this issue for our future research.

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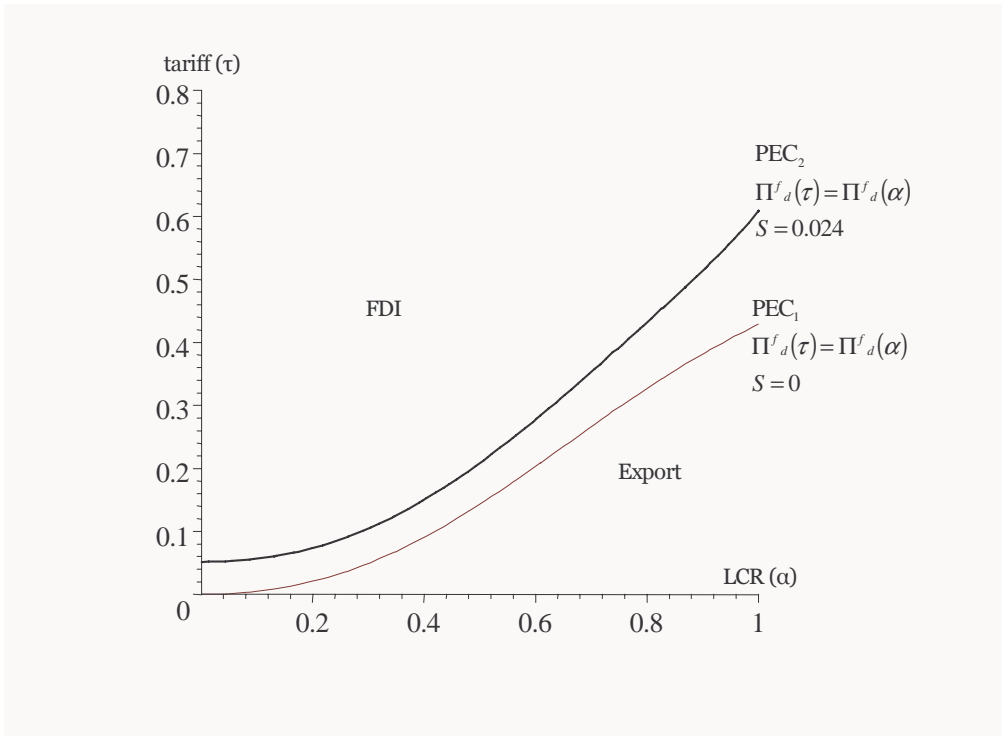
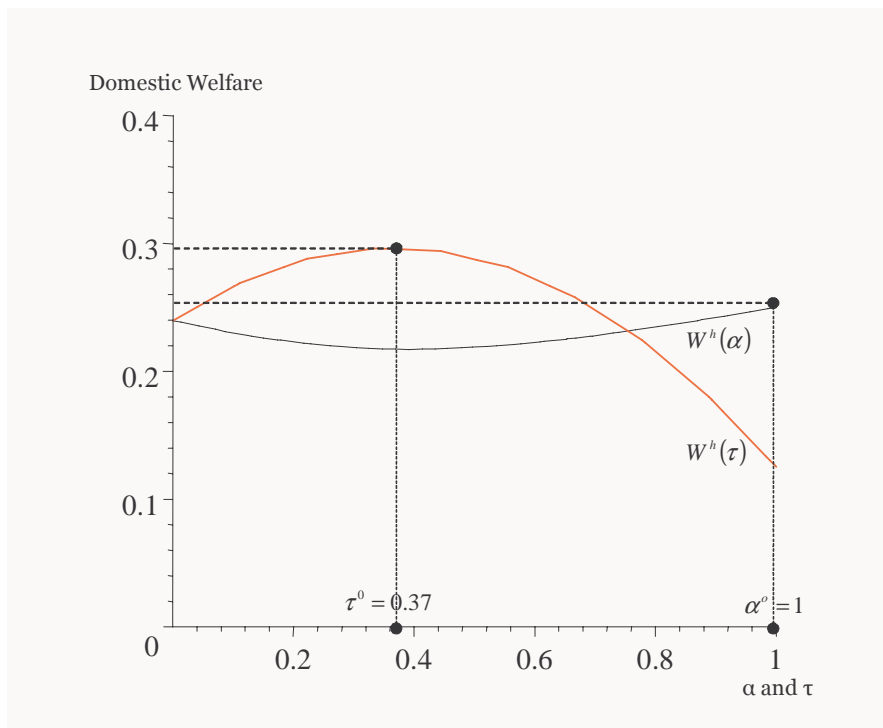Figure 1: The Profit Equivalence Curve (PEC)

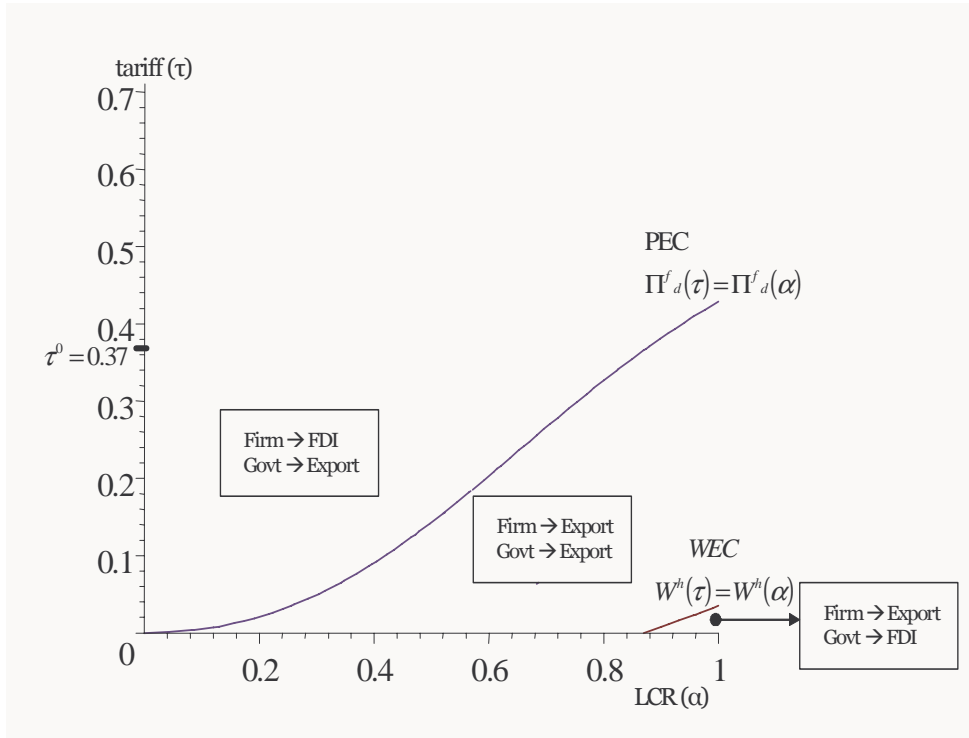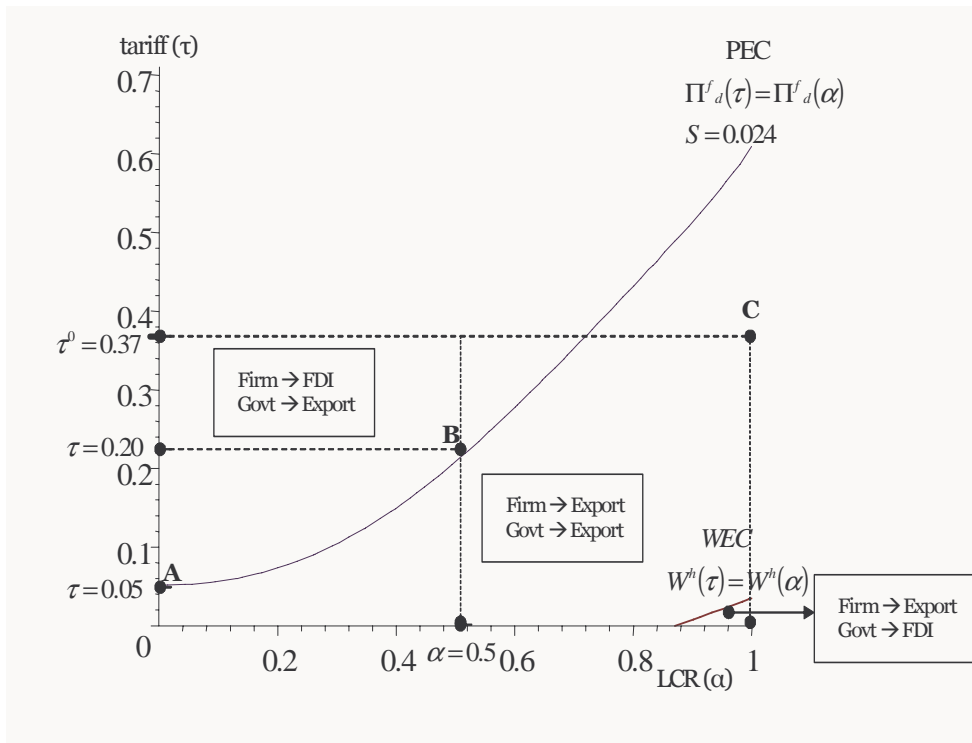Figure 2: The Domestic Welfare

Figure 3: The Conflict of Preference ($S = 0$)

Figure 4: The Conflict of Preference ($S = 0.024$)