

CEsifo *Working Paper Series*

TARIFF JUMPING FOREIGN INVESTMENT AND CAPITAL TAXATION

Vivek H. Dehejia
Alfons J. Weichenrieder*

Working Paper No. 260

March 2000

CEsifo
Poschingerstr. 5
81679 Munich
Germany
Phone: +49 (89) 9224-1410/1425
Fax: +49 (89) 9224-1409
<http://www.CEsifo.de>

* This research was initiated during a visit by Dehejia to the Center for Economic Studies, University of Munich, February 1998. The hospitality and research support of CES are gratefully acknowledged, as are conversations with Richard A. Brecher, Dane Rowlands, Pascalis Raimondos-Møller, and Arvind Panagariya.

*CESifo Working Paper No. 260
March 2000*

TARIFF JUMPING FOREIGN INVESTMENT AND CAPITAL TAXATION

Abstract

This paper reconsiders the welfare effects of “tariff jumping” direct investment if mobile capital is subjected to taxation. In contrast to the conventional wisdom, the receiving country may in this case gain from the incremental inflow of capital, as this diverts tax revenues from the rest of the world. In the case of perfect capital mobility, this possibility becomes a certainty. Our argument provides one rationale for a small country to levy a distorting tariff in a second best world in which capital taxes already exist.

Keywords: Capital taxation, tariff jumping, foreign direct investment

JEL Classification: F11, F13, F21, H20

*Vivek H. Dehejia
Carleton University,
CEPR and CESifo
1125 Colonel By Drive
Ottawa K1S 5B6
Canada*

e-mail: vivek_dehejia@carleton.ca

*Alfons J. Weichenrieder
CES
University of Munich and CESifo
Schackstr. 4
80539 München
Germany*

a.weichenrieder@ces.vwl.uni-muenchen.de

1. The Received Opinion on Tariff Jumping

There is a sizeable empirical literature which interprets the high levels of foreign direct investment (FDI) in a number of economies to be the result of "tariff jumping": since tariffs increase the cost of exporting, foreign firms prefer to jump the tariff and take up production within the protected market. For example, economic historians interpret the expansion, during the nineteenth and early twentieth centuries, of German FDI in the United States, Russia, and a number of other European countries, British FDI in Europe and the US, and American FDI in Canada and Europe, to be, at least in part, the result of tariff jumping.¹ More recently, an UNCTAD report (1996, ch. IV), summarizing the evidence on incentives for FDI, points to high tariff levels in receiving countries as one determinant out of a host of economic and non-economic factors. Econometric studies of recent experience come to mixed conclusions, but it is difficult to reject the tariff jumping motive for FDI.² Likewise, the theory of multinational enterprises (MNEs) stresses the importance of tariff jumping possibilities when a firm produces in both its home country and an export market.³

From the point of view of neoclassical economic theory, it is often argued that such "tariff jumping" FDI is likely to be harmful to a small receiving country.⁴ Intuitively, the inflow of capital is producing a good whose local price, because of the tariff, is higher than on world markets. Therefore, the marginal productivity of capital, evaluated at the socially optimal world price, falls short of the interest rate that must be paid to foreign capital owners. More recently, theorizing in the political economy mode has revisited the tariff jumping

¹ Cf. Kenwood and Lougheed (1983, 49) as a typical example.

² UNCTAD (1996, 47) reviews the evidence and finds support for the tariff jumping motive for the US and (perhaps paradoxically, given the widely-held belief to the contrary), not for Canada, in the literature reviewed. However, it is also pointed out that some of the studies suffer from the defect that they use current tariff rates, rather than those in place at the time that the FDI took place.

³ Dunning (1993) is a recent reference from the business literature. Caves (1996, ch. 2) demonstrates the relevance of tariff jumping in the context of the theory of the MNE.

⁴ The classic reference is Brecher and Diaz-Alejandro (1978). The literature, both preceding and following this paper, is surveyed in Bhagwati and Srinivasan (1983, ch. 28) and Ruffin (1984).

question, and rationalized the existence of tariff-defusing FDI, or "quid pro quo FDI", which is intended to defuse the potential threat of future tariffs in the recipient country, when the level of protection is endogenous.⁵

We believe that the literature on tariff jumping has failed to emphasize what is an obvious and important reason why countries may want to induce capital flows, viz., capital taxation.⁶ There is a large literature in public finance which argues that, in a world where capital is taxed in all countries, each country has an incentive to reduce the net outflow (increase the net inflow) of capital.⁷ The reason is that taxation drives a wedge between the objective of an investor and the national interest. While an investor will invest up to the point where net of tax returns across countries are equalized, the government would like to equate the gross return at home with the return net of foreign taxes abroad. As we show, in the presence of capital taxation this implies that tariff jumping FDI may well be beneficial, rather than harmful, to a small receiving country, contrary to the conventional wisdom. This provides one rationale for a small country to levy a distorting tariff in a second-best world in which capital taxes already exist.

2. A Simple Framework

Several authors have emphasized that a small country which faces a perfectly elastic supply of capital will not find it beneficial to tax inflowing capital.⁸ According to the argument, source-based taxation of capital is not feasible, since, for a small country, an increase in capital taxation must be accompanied by an equivalent increase in the gross interest rate. Immobile factors such as land and labor are therefore bound to bear the complete

⁵ For a recent survey of the pertinent political economy literature, see Bhagwati, Dinopoulos, and Wong (1992).

⁶ It should be noted that Brecher and Diaz-Alejandro allude briefly to the effect that capital taxation has on their results, and this is also implicit in the literature surveyed in Ruffin. In this literature, however, the problem studied is how to manipulate factor movements (which in turn change the terms of trade). In our approach, taxes create the possibility to benefit from a fiscal externality, which is quite a different argument. To our knowledge, the argument has never been articulated in this fashion nor related directly to the relevant public finance literature.

⁷ Cf. MacDougall (1960, 16 - 17), Richman (1963), Musgrave (1969) and Alworth (1988, 233).

⁸ Cf., e.g., Razin and Sadka (1991).

tax burden (plus an excess burden). In contradiction to this theoretical prediction, it is an empirical fact that even small countries (for example, Luxembourg) do have significant corporate taxes. One possible explanation for this fact is that large countries (like the United States) have committed themselves to the credit system of taxing foreign investment.⁹ Under a credit system the capital exporting country subjects its residents' capital income earned abroad to the domestic tax rate. At the same time, to avoid double taxation, the country agrees to credit against the domestic tax bill those taxes which have been paid abroad.¹⁰ Since the credit is usually restricted to the amount of taxes that would be due to domestic income, the optimal reaction of a small country is to match the large country's tax rate on capital income. Another strand of literature emphasizes that positive taxation of capital may be optimal for small countries if the capital tax substitutes for (non-existent) taxes on pure profits.¹¹

To make the following arguments as simply and cleanly as possible, we concentrate on the case where all countries do indeed tax capital at the same rate, t , leaving the explicit rationale for this outside the model.¹² Consider, as do Brecher and Diaz-Alejandro (1978), an economy of the Heckscher-Ohlin-Samuelson (HOS) type. Let X and Y represent the exportable and importable goods, respectively, and suppose, again along with Brecher and Diaz-Alejandro, that Y is capital-intensive. Suppose as a first step, that the economy practises free trade in goods, and that there is no capital mobility, and assume that conditions for factor price equalization (FPE) obtain, so that relative and real factor prices (gross as well as net of taxes) are equalized between the economy in question and the rest of the world. Suppose now that capital mobility becomes possible. Since tax rates are identical, there will in the first instance be no incentive for such mobility, due to the presence of FPE. Assume now that the economy levies a small tariff, τ , on the importable. By the Stolper-Samuelson theorem, we know that the real return to capital in the economy will rise due to the tariff. There is accordingly an incentive for capital to flow in – this is the phenomenon of tariff jumping FDI.

⁹ Cf. Gordon (1992).

¹⁰ Most prominently, such a tax system is used by the US, Japan, and the United Kingdom.

¹¹ For a survey of this literature see Huizinga and Nielsen (1997).

¹² In the case of identical tax rates, which we consider, the empirically observed methods of granting relief from double taxation, i.e. the exemption system and the credit system, are economically equivalent.

2.1. Incremental capital import

In the first instance, we follow Brecher and Diaz-Alejandro and consider the effects of an incremental increase in the capital stock of the receiving country. Such an incremental increase is consistent with the continuing import of good Y and does *not* result in the equalization of returns across countries. As noted by Brecher and Diaz-Alejandro, the welfare effects on the receiving country, in the traditional case with a tariff-induced inflow but no capital tax, can be decomposed as follows: (i) the standard production and consumption losses from the tariff, at the pre-inflow factor endowments; (ii) the loss or gain due to accumulation of domestic capital in the presence of the tariff; and (iii) the loss due to the repatriation of foreign profits.¹³ In the case of our model, there is an additional effect: (iv) the gain in tax revenue due to the inflow of foreign capital. (Or, equivalently, our effect (iv) may be subsumed under effect (iii) and be taken to lessen the loss due to profit repatriation.)

Brecher and Diaz-Alejandro demonstrate that the sum of effects (ii) and (iii) must be negative, so that, since effect (i) is certainly negative, the net welfare effect is negative. This is the "received opinion" that we mentioned at the beginning of the paper. Will the situation change when our effect (iv) is present? To examine this formally, consider the following decomposition of the income change:

$$dI = \bar{K}dr + trdK + (P - P^*)dE_Y = \bar{K}dr + trdK + P\tau dE_Y, \quad (1)$$

where d denotes the differential operator, I is national income, \bar{K} is the total domestically owned capital stock, K is the capital stock employed domestically, r is the domestic gross rate of return on capital, P and P^* are the domestic and world relative prices, respectively, for good Y , and E_Y is the (optimized) excess demand function for good Y . Equation (1) is identical to equation (5.37) in Ruffin (1984), subject to notation differences and the addition of the second term (on which we say more in a moment), and follows immediately from the assumptions of the HOS model. As we are considering a small inflow, so that the domestic real return on

¹³ This follows the similar taxonomy by Bhagwati (1973).

¹⁴ The second version of the equation arises by noting that $P = P^*(1 + \tau)$.

capital does not change due to this inflow, $dr = 0$, and the first term disappears. The third term is negative for a country importing the capital-intensive good, due to the Rybczynski effect, and reflects the loss of tariff revenue which is at the core of the Brecher and Diaz-Alejandro result.¹⁵ The new component is the second term, which reflects the rise in national income due to the tax revenue accruing on the incremental capital, dK , all of which is imported.

The first thing to notice is that, in the case in which there is no capital taxation, so that $t = 0$, the change in income from a marginal inflow of capital is negative. This replicates the Brecher and Diaz-Alejandro result. When capital taxation is present, the results are ambiguous, since the loss in tariff revenues may be more than offset by an increase in tax revenues. We cannot determine *a priori* whether the economy will gain or lose.

To derive a condition for welfare gain, i.e. for $dI/dK > 0$, assume that domestic preferences are Cobb-Douglas, $U = X^\alpha Y^{1-\alpha}$, where $0 < \alpha < 1$. From the Rybczynski theorem, $dK_Y > 0$ follows from $dK > 0$. Then, with k_Y denoting the (constant, at given factor prices) sector Y capital intensity in our tariff distorted economy, the excess demand for Y is given by:

$$E_Y = \frac{1-\alpha}{(1+\tau)P} \cdot I - K_Y / k_Y. \quad (2)$$

From (1) and (2), we have:

$$\frac{dI}{dK_Y} = \frac{tr - P\tau/k_Y}{1 - \frac{\tau(1-\alpha)}{1+\tau}}. \quad (3)$$

From (3), we see that welfare gain is more likely, the higher the tax rate, the lower the relative price times the tariff rate, and the higher the capital intensity of the imported good. Since consumer prices are unaffected by the marginal inflow of capital, the welfare effect depends only on the sign of dI/dK .

¹⁵ This argument and interpretation follows Ruffin (1984). Intuitively, since relative goods prices are unchanged by the inflow of capital, the factor rewards of labor and capital remain constant and the only reason for a change in domestic income is due to a change in tax and tariff revenues.

A welfare increase from the capital inflow leaves open whether an overall gain prevails if we additionally consider the distorting effect of the tariff at pre-inflow factor endowments (labeled by (i) above). At least for a sufficiently small τ this will be the case, since for a small country an arbitrarily small tariff [with an arbitrarily small effect (i)] is sufficient to induce a capital import and to generate the income gain expressed in equation (3).

2.2. *Perfect capital mobility*

In this section our analysis departs from that of Brecher and Diaz-Alejandro more fundamentally. In principle, there seems to be no compelling reason to assume that capital flows should stop after the initial incremental inflow, so long as there remains a differential in returns.¹⁶ Will our ambiguous results in the case of a small inflow change in this latter case of perfect capital mobility? We find that they do. If we assume that capital will continue to flow endogenously in response to the differential, then we are in the situation studied in the classic paper by Mundell (1957). Mundell established that the capital flows must continue so long as any positive quantity of Y is imported, since in such a case the domestic rental rate is pinned down, à la Stolper-Samuelson, by domestic relative prices. Mundell accordingly demonstrates that equilibrium will be restored only when imports of Y are altogether extinguished, so that relative goods and factor prices are once again equalized at their pre-capital inflow levels. In a world without the distorting capital tax, the level of welfare in the economy levying the tariff is exactly equal to the free trade level, since (with identical, linearly homogenous technology) world production and (with identical and homothetic preferences) world consumption is unchanged. The capital flows have only shifted some of world production of capital-intensive good Y to the domestic economy from the rest of the world, the changes at home and abroad being fully offsetting. In Mundellian terms, therefore, the tariff jumping FDI has left the economy neither worse off nor better off than before. However, in the presence capital

¹⁶ The conventional interpretation is that quantitative restrictions (QRs) on capital inflows exist in either the sending or hosting country, which restrict the magnitude of the capital flow to an incremental amount. But this implies that an *additional* distortion, in the form of the QRs, must be present.

taxation, the picture changes since the economy may benefit from attracting taxable capital from the rest of the world. This increases domestic tax revenue at the expense of foreign tax revenues and constitutes a fiscal externality.

To see this formally, notice that, in the presence of the capital tax, we can write national income as total production minus the net of tax income accruing to foreigners:

$$I = X(K_X, L_X) + PY(K_Y, L_Y) - (1-t)r(K_X + K_Y - \bar{K}), \quad (4)$$

where the notation is as before and, additionally, the production functions X and Y are neoclassical. Again, t is the tax rate, r is the world rate of return on capital (equal to the domestic rate in the initial and final equilibria), L_i is employment in sector $i = X, Y$, K_i is capital in sector $i = X, Y$, and, as before, \bar{K} is the total domestically owned capital stock.¹⁷

Linear homogeneity of production functions implies, by Euler's theorem:

$$X(K_X, L_X) = wL_X + rK_X \quad (5)$$

$$PY(K_Y, L_Y) = wL_Y + rK_Y \quad (6)$$

where w is the wage rate. Substituting eqs. (5) and (6) into (4), and collecting terms, yields:

$$I = w\bar{L} + r\bar{K} + rt(K_X + K_Y - \bar{K}) \quad (7)$$

where $\bar{L}(= L_X + L_Y)$ is the total domestic endowment of labor. From (7), total domestic income equals the rewards of domestically owned factors, plus the tax on foreign owned capital.

It follows immediately from equation (7) that the tariff-induced FDI, which has increased total employment of capital in the economy, $(K_X + K_Y)$, is necessarily welfare-improving, because it increases the third term above but leaves unchanged the first and second terms. Intuitively, in the absence of the fiscal externality, the economy would be indifferent to

¹⁷ Notice that the tariff rate τ is not included, because it is redundant in the final equilibrium.

the situation without the tariff; it follows that the level of welfare must now be strictly higher, compared to the situation before the capital flow and in which the capital tax is present.

3. Summary

We conclude that, in the presence of capital taxation, tariff-induced ("tariff jumping") FDI may be beneficial to the economy, rather than harmful, as is conventionally argued. This beneficial outcome is a possibility in the case of an incremental capital inflow and becomes a certainty in the case of perfect capital mobility. The beneficial outcome relies on a "beggar thy neighbour" effect, i.e., exploiting the fiscal externality. Given that all countries tax capital, an inflow redirects tax revenues to the capital receiving country at the expense of other countries' revenues. Our argument, therefore, provides a second best rationale for the existence of tariffs in a world with capital taxation.

REFERENCES

Alworth, J.S. 1988, *The finance, investment and taxation decisions of multinationals*. (Basil Blackwell, Oxford).

Bhagwati, J.N., 1973, *The theory of immiserizing growth: Further applications*, in: M. Connolly and A. Swoboda, eds., *International trade and money*. (University of Toronto Press, Toronto, ON).

Bhagwati, J.N. and T.N. Srinivasan, 1983, *Lectures on international trade*. (MIT Press, Cambridge, MA).

Bhagwati, J.N., E. Dinopoulos, and K.-Y. Wong, 1992, *Quid pro quo foreign investment*, *American Economic Review* 82, 186 – 190.

Brecher, R.A. and C.F. Diaz-Alejandro, 1978, *Tariffs, foreign capital, and immiserizing growth*, *Journal of International Economics* 7, 317 – 322.

Caves, R.E., 1996, *Multinational enterprises and economic analysis*, 2nd edition. (Cambridge Univ. Press, Cambridge).

Dunning, J.H., 1993, *Multinational enterprises and the global economy*. (Addison-Wesley, Wokingham).

Gordon, R., 1992, *Can capital income taxes survive in open economies?* *Journal of Finance* 47, 1159-1180.

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

Kenwood, A.G. and A.L. Lougheed, 1983, *The growth of the international economy, 1820 – 1980: An introductory text*. (George Allen & Unwin, London).

MacDougall, G.D.A., 1960, *The benefits and costs of private investment from abroad: A theoretical approach*, *Economic Record* 36, 13 - 35.

Mundell, R.A., 1957, *International trade and factor mobility*, *American Economic Review* 47, 321 – 335.

Musgrave, P.B., 1969, *United States taxation of foreign investment income: Issues and arguments*. (Harvard Law School, Cambridge, MA).

Razin, A. and E. Sadka, 1991, *Vanishing tax on capital income in the open economy*, NBER Working Paper No 3796. Cambridge, MA, NBER.

Richman, P.B., 1963, Taxation of foreign investment income. (Johns Hopkins Univ. Press, Baltimore, MD).

Ruffin, R.J., 1984, International factor movements, in: R. Jones and P. Kenen, eds., Handbook of International Economics, vol. 1, International Trade. (North-Holland, Amsterdam).

United Nations Conference on Trade and Development (1996). Incentives and Foreign Direct Investment. (United Nations, New York and Geneva).