

Taxes and Tariffs and the Evaluation of the Benefit from Foreign Investment

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Ce cadre d'analyse est utilisé pour évaluer les revenus d'imposition attribuables à cette source au Canada au cours de la période 1965-74. L'auteur évalue les taux d'imposition effective sur le capital dans les différents secteurs et les applique au capital étranger investi dans ces secteurs. La production additionnelle engendrée par les investisseurs étrangers à cause des barrières tarifaires et la perte de revenus douaniers qu'elles impliquent sont évaluées. Il semble que en 1974 les rentrées fiscales attribuables à l'investissement étranger en étaient arrivées à un niveau qui s'établit entre \$2.2 et \$3.4 milliards par année. Voilà qui représentait de 1.5 à 2.5 pour cent du produit national brut canadien.

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G L E N N P. J E N K I N S / Harvard University

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The main body of economic theory dealing with the gains and losses from international investment has been developed in the context of models containing two countries with two factor inputs (labour and capital) and either one or two commodities per country. Both the theoretical and empirical analyses typically begin by assuming that either labour is internationally immobile or

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immigration is independent of the amount of foreign investment. The investigation of the gains and losses accruing to the home and host countries is then carried out for an incremental transfer of capital goods from the home to the host country.¹

These studies have identified several sources of potential gains to the host country from additional non-resident-owned investment. When the capital stock in the host country is increased, a gain is received by its labour because the marginal product of labour will tend to rise. This leads to an increase in wages paid to labour in the host country. Also, if the host country imports capital-intensive goods, the additional capital stock may lead to an improvement in its terms of trade. The transfer of technology embodied in foreign investment and management is also often cited as a major benefit to the host country (Caves, 1971).

The principal objective of this paper is to examine the role that the taxation of income from capital plays in generating benefits which accrue to a country receiving foreign investment. A methodology is developed to evaluate these taxation benefits and then applied to the Canadian economy for the ten-year period from 1965 to 1974.

We find that the tax revenues gained by Canadian governments through the availability of foreign investment are very significant, as much as 2.5 per cent of GNP a year. Even after allowances are made for possible tax losses from induced capital outflows from Canada and for the economic losses from domestic production using foreign-owned facilities which enjoy tariff protection, the annual gain in tax revenues has amounted to over 1.5 per cent of GNP.

The first section of this paper outlines the way in which the existing international taxation agreements determine the distribution of income tax revenues on foreign-earned income between the host and lending countries. In the second section the relationship between the tariff structure of an economy and the amount of foreign investment induced by the tariff is analysed. An evaluation is also made of the loss to the host country caused by tariffs that encourage the domestic production of goods with capital owned by non-residents rather than the meeting of demand for these goods through imports. The third section assesses the taxation benefits which accrue to a country whose government is able to borrow in the international financial markets. The final section of the paper contains an empirical evaluation of these aspects of the taxation of foreign-owned capital for the Canadian case.

TAX TRANSFERS AND PRIVATE FOREIGN INVESTMENT

The tax legislation of many developed and developing countries contains a foreign tax credit provision or stipulates that if the income from foreign investment is taxed in the host country it is exempt from taxation in the

1 The most important theoretical studies are MacDougall (1960), Kemp (1962), Pearce and Rowan (1966), and Jones (1967).

lending country (Snoy, 1974). Both of these taxing arrangements for foreign-source income recognize the principle that the country of the income source (the host country) has priority in the taxation of income generated by the investments of non-residents. In the case of a foreign tax credit system, the lending country will allow taxes paid in the host country by a corporation or an individual to be used as a credit up to the amount of the income tax liability the lending country levies on this foreign-earned income.² A system of foreign tax credits is used by the United States and the United Kingdom as well as by many other countries, including Australia and Canada.

With such a tax arrangement, the initial introduction of foreign investment from the lending country to the host country will always result in a gain of tax revenues to the host country per dollar of foreign investment equal to $S_h t_h$, where S_h is the rate of return gross of all taxes generated by capital in the host country and t_h is the effective foreign rate of taxation on the income from capital located in the host country but owned by residents of the lending country.³ At the same time the total loss (gain) of income to the lending country from this capital transfer is equal to the gross rate of return this capital would have earned in the lending country (S_L) less the rate of return generated by this investment in the host country, net of the host country's taxes: $S_L - S_h (1 - t_h)$.

This result is based on the assumption that the lending country initially has no investments in the host country. If it does, however, the additional foreign investments may cause the rate of return on all capital in the host country to decline. The simplest explanation for this decline in the rate of return to capital is that the supplies of other factors in the economy (principally labour) are inelastic and hence create diminishing marginal returns for unit increases of the capital stock.

Most previous studies of this subject have assumed fixed supplies of other factors and a falling rate of return to additional foreign investment (for example MacDougall, 1960; Kemp, 1962; Pearce and Rowan, 1966; Jasey, 1960). However, there is substantial evidence to indicate that in some cases the assumption of a constant rate of return to increases in the capital stock of an economy may be more appropriate. From 1954 to 1974 the real net replacement value of industrial assets in Canada expanded by over two and one-half times; yet no observable trend emerged in the net-of-tax real rates of return for the total industrial capital stock (Jenkins, 1972, 1977).

2 For a more detailed discussion of the limitation rules, see Jenkins (1974).

3 In this paper foreign investment refers to both direct and indirect investment in combination. Tax rates are effective rates on the income from assets irrespective of how they have been financed. The debt/equity ratios of Canadian industries are assumed to be determined independently of the source of financing. This assumption is borne out by a comparison of the debt/equity ratio of the part of each Canadian industrial sector which is over 50 per cent foreign-owned with the part which is less than 50 per cent foreign-owned. There appears to be no significant difference between the debt/equity ratios of the two segments of the industrial sectors (Statistics Canada, 1965 to 1974a).

This constancy of the real rate of return over time is usually explained in terms of technological change and the growth of the labour force. For many of the countries which have received infusions of foreign investment, a large part of the rate of growth in the labour force is determined by the number of immigrant workers allowed to enter the country. In Canada, the flow of immigrants into the labour force each year is a policy variable which has been shown to be determined primarily by current labour market conditions.⁴

If immigration is determined by the tightness of the Canadian labour market, an inflow of foreign-owned capital into Canada will increase the demand for labour and lead to an inflow of immigrants. This increase in the labour force will tend to dampen the increase in real wages and also decrease or eliminate any fall in the rate of return to capital.⁵ If the production function of the economy is characterized by constant returns to scale and the immigration authorities control the growth in the labour force to keep the real wage rate from rising as a result of foreign investment, the real rate of return to capital will also remain constant. On this assumption the tax revenues gained by the host country from having non-resident-owned corporate investment are equal to the change in the capital stock due to the addition of foreign investment times the tax revenues per dollar of investment:

$$T_h = (\partial(K_h^h + K_h^L)/\partial K_h^L)dK_h^L(S_h t_h), \quad (1)$$

where T_h is the tax revenues gained by the host country attributable to non-resident-owned capital and K_h^h and K_h^L are the amounts of the capital stock located in the host country owned by residents of the host and lending countries respectively.

Although Canada is a large net borrower of capital, it also owns some assets abroad. In evaluating the taxation gains to Canada from non-resident-owned investment, we shall make two extreme assumptions concerning the impact of foreign capital flows on the amount of foreign lending undertaken by Canadian residents. To give a downward bias to our evaluation, we first assume that if foreign capital had not flowed into Canada no investments would have been made abroad by Canadians. A second estimate is made using the assumption that foreign capital inflows into Canada have had no impact on the amount lent abroad by Canadians. This assumption will tend to give an upward bias to our estimate of the tax revenues gained by Canada by accepting foreign investment.

A number of reasons have been suggested in the literature to explain why

4 Parai (1969, 38). In the case of Canada for the period 1947 to 1974, new immigrants accounted for over 30 per cent of the net increase in the population and an even larger percentage of the increase in the labour force (Department of Finance, 1975).

5 This hypothesis is similar to the one suggested by Dales (1964) in his analysis of the effect of Canadian tariff policies. A slightly different view, which does not place the same emphasis on the role of the immigration authorities but suggests that perceived opportunities within Canada have tended to attract both capital and other factors simultaneously, has been expressed by Stovel (1959).

the flows of foreign investment might move in both directions between two countries.⁶ Factors such as patented inventions, brand names, and differentiation of products through advertising or other marketing expertise will tend to lead foreign investment to flow in both directions between countries if some firms or industries in each of the countries produce goods which possess these distinct characteristics.

A foreign investor with a differentiated product that enters a particular sector of a host country will likely be earning a rate of return on its investment (inclusive of any rents earned by the product's special characteristics) equal to or greater than the rate of return existing prior to its entry. However, its entry may also cause a displacement of some of the host country's investment which would have located in the sector. As investors seek out alternative investment opportunities, some of these funds may end up as foreign investment in the other country. This displacement of domestic investment leading to foreign investment outflow is more apt to occur between countries such as Canada and the United States where both the economies and the capital markets are highly integrated. In the presence of an integrated capital market, the slower the response of labour through migration, and thus the greater the impact on the rate of return to capital, the greater will be the offsetting capital outflows created by the foreign investment inflows which are tied to the production of differentiated goods or services.

It would not be expected that all, or even a large proportion of, Canadian investment abroad would be the result of foreign investment inflows into Canada. However, if we assume that all Canadian investment abroad is due to the displacement effect of foreign investment inflows, we have clearly obtained a lower-bound estimate of the tax revenues gained by Canada from foreign investment.

Rewriting the expression for T_h (equation 1) to include this assumption, as well as making the additional assumption that Canadian investment abroad does not alter the rate of return from capital in the rest of the world, we have

$$T_h = K_h^L S_h t_h - (K_a^h S_h t_h - K_a^h S_a (t_h - t_a)); \quad (2)$$

when $(t_h > t_a)$, then $S_a (t_h - t_a) > 0$; when $(t_h < t_a)$, then $S_a (t_h - t_a)$ is set equal to zero. The subscript a refers to countries outside Canada that host Canadian investment abroad.

The first term in equation (2), $K_h^L S_h t_h$, measures the gross tax revenues collected by the host country, in this case Canada, from taxing the income generated by non-resident-owned capital. The expression $K_a^h S_h t_h$ measures the tax revenues which would be earned by Canada if all its investments now located abroad were instead placed in the domestic economy. If the tax rates of the countries where these investments are located are less than Canada's, the latter will be collecting some taxes (after allowing for foreign tax credits)

⁶ For an excellent discussion of the factors causing firms and industries to engage in foreign investment, see Caves (1971).

on the income from its assets located abroad. This tax revenue is shown by the third term of equation (2), $K_a^h S_a (t_h - t_a)$, and must be deducted from $K_a^h S_h t_h$ to measure the net tax loss to Canada which results from its residents' investing abroad rather than in the Canadian economy. To estimate the gain in tax revenues from foreign investment under the assumption that no subsequent displacement of Canadian capital takes place, we set the last two terms in equation (2) equal to zero.

This analysis assumes that no additional government expenditures are required to service the capital stock owned by non-residents that are not paid for through service charges. This assumption will tend to cause an overestimate of the net gain because some marginal public expenditures may not be fully met by the charges levied. While firms do make payments for infrastructural service items such as water supply and sewage disposal, as well as plant security, these payments may not fully cover the incremental economic costs to the country. Also, while total highway revenues in Canada cover approximately 65 per cent of the total highway expenditures, and thus are likely to more than cover the marginal costs of providing highway services, trucks pay less than the incremental cost of the transportation services they use (Haritos, 1971).

TARIFFS AND THE GAIN FROM FOREIGN INVESTMENT

Tariffs often play a decisive role in the decision to invest abroad.⁷ If the host country has erected barriers, a firm located in the lending country and planning to sell its product in the host country must compare the production, transport, and tariff costs associated with producing the good in its own country and exporting to the host country with the costs of developing production facilities in the host country and producing the good locally for that market.⁸

If the tariff levels in the host country are high enough to induce non-resident-owned capital to locate there, imports will be displaced by the amount of goods now produced by these new foreign-owned facilities. Therefore the loss to the host country of the tariff revenues due to the reduction in imports must be deducted from the revenues gained by taxing the income from foreign investment. This loss to the government in tariff revenues is an economic loss to the country as a whole since it is now accruing to the foreign investors. They will now obtain a higher price for the goods they produce locally, as compared to the net-of-tariff price they received as suppliers of imports into the host country. These additional sales revenues

7 The impact of tariffs on capital movements has been analysed theoretically by Mundell (1957). This section investigates empirically the final question posed (but not answered) by Mundell in his article: 'To what extent have the high tariff barriers between Canada and the United States contributed to the stimulus of American investment in Canada?'

8 The theory underlying the decision of a firm to supply a given market by either producing in that market or exporting into the area has been developed by Horst (1971).

either will be used to meet the higher costs of production in the host country or will accrue as profits to be repatriated out of the country by the foreign investor. Either case represents an economic loss to the host country.⁹

To measure this economic loss from the reduction in the host country's tariff revenues, we must determine the additional output produced by the foreign investments induced by the tariff policies and multiply this value by the tariff rates which apply to the goods.¹⁰ The expression for this economic loss EL can be written as

$$EL = T(dQ_L^S/dK_h^L)(\partial K_h^L/\partial(1 + T)) d(1 + T), \quad (3)$$

where Q_L^S is the production of non-resident-owned firms located in the host country and T is a weighted average of the nominal tariffs levied by the host country (the weights are equal to the proportions of total cutback in imports represented by the various tariff classes of goods).

From previous studies by Horst (1972) and Baumann (1973) of how foreign investment reacts to tariff rates, we are able to estimate how much foreign investment is located in Canada solely because of the existence of Canadian tariffs. Though for our purposes these two studies are almost identical, since Baumann has revised the previous estimates of Horst we shall use his equation (1973, 1011):

$$\ln(Q_m/(Q_m + Q_u^s)) = 5.62 - 2.72 \ln(1 + \tau_i) - 19.2Z_i - 0.046w_{Ai}, \quad (4)$$

(4.42)
(5.86)
(3.84)

where Q_m is US exports to Canada by industry for 1963, Q_u^s is the production of US-owned firms located in Canada by industry for 1963, τ_i is the estimated nominal protection rate by industry for 1963, Z_i is a variable comparing the size of the Canadian market to that of the United States by industry, w_{Ai} is US wages per man-hour divided by Canadian wages per man-hour, and the values in parentheses are t -statistics.

The dependent variable in equation (4) can also be written as the difference between two logarithms:

$$\ln Q_m - \ln(Q_m + Q_u^s) = 5.62 - 2.72 \ln(1 + \tau_i) - 19.2Z_i - 0.046w_{Ai}. \quad (5)$$

Assuming that Z_i and w_{Ai} are independent of τ_i , we differentiate equation

9 The economic loss to the country is exactly equal to the tariff revenues lost only if the market prices of factors of production employed by the foreign investor in the host country are equal to their economic resource costs. This analysis assumes that situation holds. If it does not, a slight bias either upwards or downwards will result, depending on whether market prices of inputs are greater or less than their corresponding economic resource costs.

10 Tariffs also inflict efficiency losses on the host country through the expansion of domestically owned production facilities and the loss in consumer surplus due to the higher domestic prices. These two amounts are disregarded in this analysis because they are caused by the tariff alone and not from the reaction of foreign investment to the tariff policy.

(5) with respect to $(1 + \tau_i)$. Expressing the results as elasticities gives the following relationship:

$$\eta_m^D - \eta_m^D(Q_m/(Q_m + Q_u^s)) - \epsilon_u^s(Q_u^s/(Q_m + Q_u^s)) = -2.72, \quad (6)$$

where ϵ_u^s is the elasticity of supply with respect to $(1 + \tau_i)$ for goods produced in Canada by firms owned by US residents and η_m^D is the elasticity of demand by Canadians for imports from the United States with respect to $(1 + \tau_i)$, defined negatively.

Simplifying equation (6) we have

$$\epsilon_u^s = 2.72((Q_m + Q_u^s)/Q_u^s) + \eta_m^D. \quad (7)$$

Rewriting equation (3) into elasticity form, we derive an expression for the economic loss from increased non-resident-owned production brought about by an increase in the tariff rates:

$$EL = T Q_L^S \epsilon_L^S d(1 + T)/(1 + T), \quad (8)$$

where Q_L^S is the combined output of all non-resident-owned firms in Canada and ϵ_L^S is the elasticity of supply for all non-resident-owned firms in Canada with respect to the Canadian tariff.

If we make the realistic assumption that the elasticity of supply from foreign-owned production facilities in Canada with respect to $(1 + T)$ is the same for both the United States and the rest of the world, we can set $\epsilon_u^s = \epsilon_L^S$, substitute equation (7) into equation (8), and solve for the economic loss:

$$EL = T Q_L^S (2.72((Q_m + Q_u^s)/Q_u^s) + \eta_m^D) d(1 + T)/(1 + T). \quad (9)$$

In this formulation of the economic loss, all the parameters except the value for the elasticity of demand (η_m^D) by Canadians for imported goods are readily available. For an estimate of the value of the latter, we rely on the results of previous studies for Canada.

FOREIGN BORROWING BY GOVERNMENTS

In 1974, over \$11.4 billion of the foreign liabilities of Canada consisted of government debts to residents of other countries (Statistics Canada, 1978, 74). By borrowing from abroad the government obtains additional foreign exchange, which allows the country to increase its imports. The increase in imports enables the government to engage in its expenditure plans while at the same time not depriving the private sector in Canada of the resources for private consumption and investment.

If foreign borrowing is not available as a way of financing government expenditures, then, as the government increases its domestic borrowing, interest rates will tend to be bid up so that firms and individuals in the private sector will be induced to postpone their investment and consumption plans.

We can express the reaction of the private sector to an increase in government borrowing as

$$dB_G = \sum_{i=1}^n (\partial A_i / \partial B_G) dB_G - \sum_{j=1}^m (\partial I_j / \partial B_G) dB_G, \quad (10)$$

where B_G is the value of government borrowing, A_i is private saving from sector i , and I_j is the private investment of sector j .

When the government borrows domestically it extinguishes not only some private consumption and investment but also the future tax revenue this investment would have generated. Alternatively, if the government borrows from abroad it will preserve its domestic tax revenues. These tax revenues T_G can be expressed as

$$T_G = \sum_{j=1}^m (\partial I / \partial B_G) B_G S_j t_j, \quad (11)$$

where S_j is the gross rate of return on private capital in sector j and t_j is the rate of income tax on income from private capital in sector j .

TAX REVENUE GAINED BY CANADA FROM FOREIGN INVESTMENT

This section attempts to quantify for the period 1965 to 1974 the revenue gained by Canada through the taxation of income from non-resident-owned investment.¹¹ The principal tax revenues accruing to Canada from this foreign investment are the corporation income tax, the property tax, the withholding tax, and the value of sales taxes paid on the gross value added of capital embodied in the goods produced by the foreign-owned capital.

Effective rates of corporation income tax and property tax for 1965 to 1974 have been developed elsewhere by the author and are reported again in Table 1 in a form reaggregated to be comparable with the industrial classification of the foreign investment data (Jenkins, 1977, 249). These effective tax rates, expressed as percentages of the net replacement value of the capital stock in current prices, are equal to the variable $S_h t_h$ in equation (2).

In most manufacturing industries in Canada the rate of tax on income t_h is less than the tax rates levied on foreign income abroad.¹² Therefore, the last term in equation (2), $K_a^h S_a (t_h - t_a)$, is set equal to zero.

To complete the evaluation of equation (2) we need to know the current net replacement values of the non-resident-owned investment in Canada K_h^L and the Canadian assets located outside the country K_a^h . Table 2 contains the values of the non-resident-owned capital stock in Canada in current prices.

11 In order to conserve space, only the data for every third year from 1965 to 1974 inclusive are reported.

12 Jenkins and Deutsch (1974, Table 1). This arises because most Canadian foreign investment is located in the United States.

TABLE 1

Effective rates of taxation of capital in Canada (as percentage of capital stocks)

Activity	1965	1968	1971	1974
<i>Income and property tax rates</i>				
1 Animal and vegetable products	5.43	5.69	5.36	4.19
2 Textiles	3.29	4.29	3.85	3.56
3 Wood and paper products	3.42	4.59	2.13	3.94
4 Iron and iron products	5.02	4.42	4.02	4.16
5 Non-ferrous and non-metallic	3.23	2.79	3.48	2.42
6 Chemicals and chemical products	4.46	5.08	3.94	5.01
7 Miscellaneous manufacturing	5.45	6.14	5.52	4.81
8 Total manufacturing	4.31	4.34	3.72	4.04
9 Petroleum and natural gas ^a	1.98	2.13	2.19	5.36
10 Mining and smelting ^a	3.40	3.60	1.80	5.81
11 Utilities ^b	0.55	0.56	0.48	0.45
12 Merchandising	4.39	4.62	4.88	5.89
13 Financial	2.16	2.55	2.93	3.35
14 Other enterprises	3.36	3.82	3.15	2.70
15 Total non-manufacturing	3.50	3.44	3.15	3.29
16 Total manufacturing and non-manufacturing	3.91	3.86	3.40	3.73
17 Rental housing	2.35	2.58	2.44	2.40
18 Owner-occupied housing	1.68	1.84	1.76	1.75
19 Total all activities	2.98	3.17	2.54	2.62
<i>Sales tax rates</i>				
20 Manufacturing	2.92	3.69	3.18	3.86
21 Non-manufacturing	0.17	0.24	0.18	0.36
22 Average all industries	0.83	0.99	0.77	0.92

^a Exclude royalties paid by the petroleum and mining industries^b Government-owned electric utilities which are the principal borrowers from foreign countries.

SOURCE: Jenkins (1977, Tables 3-1, 3-2, 3-4, 3-5, 3-6, and appendix E, Table E-10)

Table 3 contains the current value of direct and indirect Canadian investment abroad. The book values are expressed in terms of net current replacement values using the price adjustment factors developed by Statistics Canada (1976) in their estimation of values for net capital flows and stocks by sector.

By applying the effective rates of income and property taxation in Table 1 to the value of the foreign investment in the manufacturing and non-manufacturing sectors in Table 2, we obtain the gross taxation revenues produced by these sectors. Similarly, the average tax rate for all industries in Canada (Table 1, row 19) is applied to the value of short-term foreign investments and non-resident holdings to estimate the amount of income and property taxes generated by these items of foreign investment. These values correspond to the term $K_h^L S_h t_h$ in equation (2) and are presented in rows 1 to 3 in Table 5.

Table 2 (row 16) shows there has been a large amount of foreign borrowing by the various governments in Canada. To evaluate the tax benefit this has brought to the economy, we use equation (10), which requires us to estimate the reactions of private investment to changes in government borrowing. It

TABLE 2

Direct and indirect foreign investment in Canada (Cdn \$ millions, current prices)

Activity	1965	1968	1971	1974
1 Animal and vegetable products	1,531.0	1,750.2	2,238.2	3,204.0
2 Textiles	222.4	273.0	269.8	560.4
3 Wood and paper products	2,642.0	3,140.8	4,256.1	5,155.7
4 Iron and iron products	3,027.0	3,801.8	4,932.5	6,970.9
5 Non-ferrous and non-metallic	2,242.0	2,620.3	2,997.6	4,158.4
6 Chemicals and chemical products	1,706.8	2,003.0	2,451.3	3,245.8
7 Miscellaneous manufacturing	171.4	224.0	310.9	394.0
8 Total manufacturing	11,542.6	13,813.1	17,456.4	23,689.2
9 Petroleum and natural gas	5,268.0	6,450.0	8,067.0	10,088.0
10 Mining and smelting	2,558.0	3,553.0	4,072.0	5,122.0
11 Utilities	2,018.1	2,369.1	2,965.0	3,761.0
12 Merchandising	1,339.4	1,775.0	2,345.0	3,128.7
13 Financial	2,943.2	3,837.4	4,886.7	6,875.2
14 Other enterprises	2,518.4	2,997.2	3,717.7	4,512.1
15 Total non-manufacturing	16,645.1	20,981.7	26,053.4	33,487.0
16 Total government borrowing	4,961.0	6,822.0	8,090.0	11,419.0
17 Misc. foreign investment in Canada	2,171.0	2,564.0	3,075.0	3,447.0
18 Short-term foreign investments	3,400.0	3,699.0	4,690.0	6,775.0
19 Non-resident holdings of Canadian dollars	600.0	800.0	961.0	2,065.0
20 Total 16 to 19	11,132.0	13,886.0	16,816.0	23,706.0
21 Total foreign liabilities of Canada	39,319.7	48,680.8	60,325.8	80,882.2

SOURCE: Book values before adjustment for inflation from Statistics Canada (1978, Tables 18, 30, and 31)

TABLE 3

Direct and indirect investment abroad (Cdn \$ millions, current prices)

Activity	1965	1968	1971	1974
1 Total industrial foreign assets (book value)	5,366	7,502	9,500	13,200
2 Less: non-resident equity in Canadian foreign assets abroad	1,600	2,000	3,000	3,400
3 Net industrial foreign assets (book value)	3,766	5,502	6,500	9,800
4 Net industrial foreign assets (current value)	4,779	6,842	8,359	13,416
5 Miscellaneous investments	659	755	1,368	2,951
6 Government of Canada credits	1,495	1,434	1,565	2,055
7 Subscriptions to international investment agencies	138	209	319	581
8 Short-term holding of foreign exchange	800	2,200	2,700	2,700
9 Short-term receivables	1,200	2,900	5,500	10,200
10 Total 5 to 9	4,292	7,498	11,452	18,487
11 Total foreign assets (4 + 10)	9,071	14,340	19,811	31,903

NOTE: Net official monetary assets are not included in short-term holdings of foreign exchange.

SOURCE: Statistics Canada (1978, Tables 1 and 2)

was estimated that approximately 20 per cent of the funds borrowed by governments in Canada are obtained through a reduction in private consumption (Evans and Jenkins, 1977). Therefore, on average, 80 per cent of the funds that governments have borrowed from abroad can be credited with preserving private investment, which produces Canadian tax revenues. We

TABLE 4

Economic loss from tariff-induced foreign investment (Cdn \$ millions, current prices)

Variable	1965	1968	1971	1974
1 Q_L^S	19,360	26,229	33,505	55,276
2 Q_m	6,046	9,048	10,951	21,250
3 Q_u^S	15,137	21,937	27,880	44,404
4 η_m^D	-2.1	-2.1	-2.1	-2.1
5 T	0.093	0.093	0.093	0.093
6 $d(1+T)/(1+T)$	0.085	0.085	0.085	0.085
7 Foreign investment induced by tariff	1,675.8	2,047.6	2,505.0	3,869.5
8 Economic loss (estimated by equation 9)	261.4	361.6	447.2	839.7

SOURCE: Q_L^S and Q_u^S from Statistics Canada (1965 to 1974a); Q_m from Statistics Canada (1965 to 1974b); η_m^D from studies by Kreinin (1976) and Kohli (1975); T from Chand and Salley (1972)

TABLE 5

Tax revenue from foreign investment (Cdn \$ millions, current prices)

Activity	1965	1968	1971	1974
1 Total manufacturing	490.7	612.1	561.0	929.5
2 Total non-manufacturing	409.4	572.9	638.9	1,391.7
3 Misc. short-term investments and non-resident holdings	183.9	223.9	221.6	321.9
4 Tax revenues saved by government borrowing abroad	118.3	173.0	164.4	239.3
5 Sales taxes attributable to foreign capital:				
Manufacturing	337.0	509.7	555.1	914.4
Non-manufacturing	28.3	50.4	46.9	120.6
Other foreign	92.4	137.5	129.5	218.1
6 Withholding taxes on dividends and interest payments to non-residents	127.9	163.2	229.4	328.7
7 Gross tax revenues from foreign investment	1,787.9	2,442.7	2,546.8	4,464.2
Less:				
8 Income and property taxes forgone through Canadian investment abroad	314.8	501.8	575.1	984.8
9 Sales taxes forgone on Canadian investment abroad	75.3	141.9	152.5	293.5
10 Sales taxes on goods from tariff-induced foreign investment	48.9	75.6	79.7	149.4
11 Economic loss from tariff-induced foreign investment	261.4	361.6	447.2	839.7
12 Gross reductions in tax revenues	700.4	1,080.9	1,254.5	2,267.4
13 Net tax contributions of foreign investment (full displacement, 7-12)	1,087.5	1,361.8	1,292.3	2,196.8
14 Net tax contribution of foreign investment (no displacement, 13 + 8 + 9)	1,477.6	2,005.6	2,019.9	3,475.1

assume that this investment will yield the average rate of tax paid by the capital stock in Canada, including housing (Table 1, row 19). The values of these taxation benefits are presented in Table 5, row 4.

Sales taxes are also generated by the value added of capital and should be

included in the tax revenue from foreign investment. The rates of sales tax attributable to capital in manufacturing and non-manufacturing (Table 1, rows 20 to 22) are applied to the value of foreign investment in these sectors, with the average rate of sales tax applied to all other categories of foreign-owned assets. Tax revenues arising from these sales taxes are presented in Table 5, row 5. In addition, withholding taxes paid on interest and dividends, when distributed to their non-resident owners, Table 5, row 6, must also be included as part of the tax revenue gained from foreign investment in Canada.

In 1965 the gross tax revenues attributable to foreign investment amounted to approximately \$1788 million and rose to over \$4464 million by 1974. This revenue was equal to approximately 5 per cent a year of the total value of Canada's foreign liabilities during these years, or approximately 3.25 per cent of Canada's annual GNP. However, this estimate overstates the net tax revenues gained by Canadians from foreign investment because the capital inflow might have induced a subsequent capital outflow. In addition, the inflow of capital caused by tariff protection has also created an economic loss through the reduction in tariff revenues collected by the Canadian government.

In order to estimate the second term of equation (2), $K_a^h S_h t_h$, the value of taxes forgone due to Canadian investment abroad, we need to know the current value of these assets. Book values of the Canadian assets held abroad are adjusted by the factors developed by Statistics Canada (1976) when estimating the values of the net capital flows and stocks by sector.

These adjusted values are presented in Table 3. The effective rates of income and property taxation from Table 1 for the average of manufacturing and non-manufacturing are applied to the values of the Canadian industrial asset holdings, and the resulting estimates of the value of taxes forgone are presented in Table 5, row 8. Sales taxes are also lost when Canadians invest abroad, thus decreasing the growth of productive facilities domestically. This loss in sales taxes is calculated by applying the rates of tax (Table 1, rows 20 to 22) to the value of assets held abroad (Table 3). The value of sales taxes forgone because of Canadian investment abroad is given in Table 5, row 9.

Sales tax revenue gained on the output of foreign investment attracted to Canada by the tariff should not be included as a direct benefit, because sales taxes would have been levied on the previously imported goods. To estimate this adjustment to the sales tax revenue, we apply the average rate of sales tax for manufacturing (Table 1, row 20) to the estimate of induced investment in this sector in Canada (Table 4, row 7). The annual values of the adjustment are reported in Table 5, row 10.

Earlier in this paper an analysis was made of the tariff revenues transferred to foreign residents by the existence of foreign investments and tariff barriers. This economic loss to Canada must be deducted from the tax gains obtained through inflows of foreign-owned capital. Equation (9) summarizes the estimation of this loss.

The price elasticity of demand for imports of goods by Canadians from the United States η_m^D appears as a parameter in equation (9). A lower-bound estimate of this variable has been derived in a study of Kreinin (1967), who estimated that the elasticity of demand for all manufactured imports by Canadians was -2.1 .¹³ We would expect the absolute value of the elasticity of demand by Canadians for imports from the United States to be somewhat larger than this number because us imports have to compete with imports from the rest of the world. Therefore, the use of -2.1 as our estimate of η_m^D in equation (13) will bias upwards our estimate of the economic loss from the increased foreign investment brought on by the Canadian tariffs. This bias is consistent with our objective of providing a lower-bound estimate of the gain to Canada from the taxation of income from foreign-owned investments.

Table 4, row 8, shows that the economic loss created in Canada by tariff-induced domestic production from foreign-owned facilities amounted to approximately \$261.4 million in 1965 and increased to \$839.7 million by 1974. These values are recorded in Table 5, row 11.

By dividing the right-hand side of equation (9) by T times the capital/output ratio of foreign-owned firms in Canada, we can estimate the value of the foreign-owned capital stock induced to locate in Canada by the tariffs. This has amounted to approximately \$1676 million in 1965 and \$3870 million by 1974 (Table 4, row 7). These estimated values imply that 15 per cent of the total foreign-owned assets in the manufacturing sector were attracted to Canada because of the tariff policy.

The total of all the offsets to the gross tax revenues from foreign investment amounts to \$700.4 million in 1965 and rises to \$2267.4 million by 1974 (Table 5, row 12). These deductions leave us with a minimum estimate of the tax gain to Canada from foreign investment of \$1087.5 million in 1965 and \$2196.8 million by 1974. This is annually equal to about 4 per cent of the value of Canada's net foreign liabilities, or approximately 1.5 per cent of Canada's GNP for these years.

If we make the less conservative assumption that foreign investment in Canada does not cause Canadians to increase their investment abroad, the tax gains to Canada amount to \$1477.6 million in 1965 and grow to \$3475.1 million in 1974 (Table 5, row 14). Such tax revenues are annually equivalent to approximately 4 per cent of Canada's gross foreign liabilities, or 2.5 per cent of the country's GNP.

It is surprising that in spite of the very significant size of the tax revenues gained by Canadian governments this issue has received very little discussion and no previous empirical analysis. In the case of developing countries tax revenue is often the primary reason stated for the desire to have foreign investment (Smith and Wells, 1975). In Canada, however, the discussion of

13 Recently a study by Kohli (1975) estimated the price elasticity of demand for imports by Canadians. When these two sets of estimates are compared, they yield almost identical results.

benefits from foreign investment has been concentrated on such issues as technological transfers and employment creation. In fact the tax revenues gained from Canada's foreign liabilities equal between 15 and 20 per cent of the total labour income generated in the Canadian manufacturing sector. Considering the historical performance of foreign investment in Canada as a source of tax revenue, it is disturbing from Canada's point of view to find that in 1975 changes in Canadian tax policy reduced the rate of withholding taxes on some classes of foreign borrowing.¹⁴ This policy change largely served to transfer tax revenues from the Canadian Treasury to the treasuries of the home countries of foreign investors.

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