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"LATIN AMERICAN TAXATION OF FOREIGN DIRECT INVESTMENT IN A GLOBAL ECONOMY"/*

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LATIN AMERICAN TAXATION OF FOREIGN DIRECT INVESTMENT

IN A GLOBAL ECONOMY

by

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PREFACE

The competitiveness of tax policies is a concern for Latin American countries seeking to attract foreign investment. In the past decade or more, many Latin American states have developed free trade agreements amongst themselves and, in the case of Mexico, with Canada and the United States. As some of the Latin American countries have opened up their borders to international competition, the taxation of foreign direct investment becomes one of the many issues that confront these economies that are seeking better rates of economic growth.

This report provides a detailed analysis of the impact of tax policies on the profitability of foreign direct investment. The information obtained on tax policies in six Latin American countries (Argentina, Brazil, Chile, Columbia, Mexico and Venezuela) were obtained from published and unpublished sources, contacts with tax specialists and visits to some of the countries. The data developed for the analysis was based on 1992 taxation systems and, in some cases, 1993 information was included. Reliable data for some of the analysis were not available so these had to be estimated. Thus, the calculations are best viewed as illustrative rather than exact measurements of the impact of taxation on the profitability of foreign investment.

This report has three purposes. The first is to describe recent trends in Latin American policies that affect the taxation of foreign direct investment. The second is to consider how current tax policies in the six Latin American economies impact on foreign direct investment originating from either the United States or Canada. The final purpose is to describe tax policy options that improve economic integration of Latin American economies with the world economy, especially those of the United States and Canada.

I. INTRODUCTION

In recent years, many Latin American countries have fostered economic growth by removing trade barriers and increasing trade linkages with other states. The most prominent example of this has been the development of the proposed North American Free Trade Agreement amongst Canada, Mexico and the United States with the possible addition of new members at a later time. Other examples include the creation of the Southern Cone Common Market (MERCOSUR) in 1991 amongst Argentina, Brazil, Paraguay and Uruguay; the recent expansion of the Andean Group (NANDINA) that includes Bolivia, Columbia, Ecuador, Peru and Venezuela; the promulgation of the Group of Three (Columbia, Mexico and Venezuela) in 1990; and the development of the Latin American Integration Association (LAIA) involving 11 member countries.[1]

These trade agreements amongst North and South American governments are intended to increase economic integration by eliminating custom duties and, in the case of MERCOSUR and LAIA, non-tariff barriers arising from discriminatory internal taxes and regulations. There is even interest in the co-ordination of macroeconomic, tax and social policies by member countries belonging to MERCOSUR. Moreover, several countries, such as Mexico, Chile and Argentina, have undertaken substantial economic reforms to open up their markets to international competition and harmonize their policies with those of the industrialized countries, particularly with the United States.

An issue of great interest to Latin American countries is their ability to attract foreign direct investment as part of their economic transition from a protected to an unprotected economy. Foreign direct investment is an important catalyst for economic growth since it provides not only capital but also skilful management by companies locating in a particular country. The attractiveness of an economy for foreign investment depends on many factors including the openness of a country to international trade, a country's expenditure and tax regime, infrastructure, political stability, labour productivity and the availability of natural resources. Below, only one of these factors that influence foreign direct investment is considered: namely, taxation.

The economic linkages achieved by countries through trade agreements go hand in hand with improved accessibility of companies to locate in particular market. The purpose here is to consider how growing trade linkages amongst North and South American countries will impact on future tax policies of Latin American countries with respect to foreign direct investment

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[1] An early association, the Central American Economic Integration (SIECA), was begun in 1960 involving Costa Rica, El Salvador, Guatemala and Nicaragua. In addition, Caribbean countries intend to increase trade linkages with the United States and the Enterprise for the Americas Initiative has been created to promote a free trade area in North and South America. See Sijbren Cnossen, "Coordination of Product Taxes in Latin American Common Markets: Lessons from the EC Experience", mimeograph, 1992 for further details of these agreements.

flows.

Tax regimes affect foreign direct investment in two ways. First, specific taxes, such as withholding taxes on income remitted to non-residents or discriminatory tax policies that favour domestic-owned capital[2], operate as a "tariff" on capital imports or a tax or subsidy on capital exports. Second, non-harmonized tax regimes lead to differences in tax burdens on capital across countries. At least to some extent, the flow of foreign direct investment will be directed to those countries with the most attractive tax regime where the after-tax profitability of capital investments will be highest.

This report examines the current differences in tax regimes across six Latin American countries in terms of their ability to attract foreign direct investment from Canada and the United States. The six Latin American countries are Argentina, Brazil, Chile, Columbia, Mexico and Venezuela. For these countries, the impact of various tax policies are considered in terms of their impact on;

    - removing barriers to the free flow of capital across countries; or

    - harmonization of tax regimes with other countries resulting from economic integration.

In Section II of this report, a background discussion is provided with respect to the current tax regimes found in the six Latin American countries considered in this study.

Section III presents effective tax rate calculations that indicate the impact of each country's tax system on the profitability of manufacturing and service investments. The data reported in this section provide a ranking of countries in terms of the attractiveness of their tax regime for direct foreign investment from the United States and Canada. For this purpose, only taxes that affect foreign direct investment flows are considered, such as the corporate income tax, sales, excise and import taxes on capital goods, property tax, asset taxes and non-resident withholding taxes on dividends and other forms of remitted income.[3] From this information, it is possible to

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[2] An example of a discriminatory tax policy is the imputation schemes that integrate corporate and personal taxes for only resident shareholders of a company. Non-resident shareholders may not be allowed to integrate corporate taxes with other taxes on remitted income. See OECD [1992] that measures the impact of discriminatory imputation schemes on the effective tax rates on capital for investments made in industrialized countries.

[3] Taxes on labour such as the personal income tax and payroll taxes are not included in this analysis. Like taxes on capital, labour taxes only affect production costs to the extent that the taxes are shifted onto firms through higher wage costs instead of being shifted back onto labour through lower labour compensation. Our assumption is that the openness of Latin American countries to foreign investment would tend to result in capital taxes being shifted forward in higher production costs rather than onto the return paid to shareholders since multinational firms only invest in a country if the after-tax return offered is at least as high as the after-tax rate of return on worldwide investment opportunities. Also, given the lack of international mobility of labour, it is assumed that labour taxes

determine which aspects of tax law amongst countries lead to a differential tax treatment of foreign direct investment across countries.

In Section IV, alternative tax policy changes are considered to determine their impact on the tax burdens on foreign direct investment. The changes that are explicitly considered are; (a) reductions in taxes on capital imports and exports such as withholding tax rates and capital good tariffs; and, (b) the elimination of tax provisions that increase the degree to which Latin American tax systems are harmonized with those of Canada and the United States. With respect to (b), the policies considered to increase harmonization include a shift towards a consumption-based sales tax (eliminating capital good excise taxes) and the reduction of corporate income tax incentives. We also consider what would happen if Latin American countries followed Argentina and eliminated indexation provisions for inflation under the corporate income tax.

Section V provides a summary of our conclusions on future trends in tax policy for Latin American countries.

II. BACKGROUND

Latin American governments, like many governments throughout the world, use taxes for two purposes: raising revenue to finance public goods and services and pursuing economic objectives such as an efficient allocation of resources, growth and the redistribution of wealth. The taxation of foreign direct investment serves both of the above objectives. Governments seek revenue from foreign companies to help defray the costs of public goods and services that benefit not only the country's population but, as in the case of infrastructure and educational expenditures by governments, the companies themselves. Also, tax policy may be used to spur on investment such as corporate tax incentives that are geared towards specific industrial activities.

In pursuing the revenue-raising and economic policy objectives, Latin American governments collect several taxes that directly affect foreign investment. These include (a) the corporate income tax, (b) capital taxes on businesses, (c) property taxes, (d) sales taxes, excise duties and tariffs that apply to capital goods and (e) withholding taxes on income remitted to non-residents. Below, each of the above taxes are described with respect to the six Latin American countries considered in this study as of the end of 1992. Table c1 in the Appendix to this report provides a summary of information related to the tax systems considered in this study.

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tend to be shifted back in the form of reduced wages rather than through lower rates of return on capital investments. If labour taxes are shifted forward, a different methodology would be needed to aggregate taxes on capital and labour costs. This methodology is discussed in McKenzie, Mintz and Scharf [1992].

a. The Corporate Income Tax

Similar to countries throughout the world, Latin American countries impose taxes on corporate income earned by domestic and foreign businesses. In general, the tax is similar to that found in most countries; namely, the corporate income tax applies to the profits earned by shareholders of the company. However, because of hyperinflation, the six Latin American countries have or had adopted indexation measures for inflation[4]. Indexation is one particularly important measure that distinguishes Latin American corporate tax systems from those found in the U.S. and Canada.

In recent years, many Latin American countries have reformed their corporate income tax following worldwide trends. In general, the corporate tax rate in these countries have been reduced and writeoffs for investments have been curtailed (Shome [1992]). The experience of the six countries considered in this paper is discussed in detail to illustrate the changes in corporate tax policy during the past decade.

Mexico has reduced its top corporate tax rate from 42% in 1980 to 34% at present. Recently, it has broadened it corporate tax base by eliminating all investment allowances in 1992 although it still largely exempts or taxes at a low rate companies operating as "in-bond" companies that import raw materials tariff-free and re-export to the international market (the Maquiladoras).[5]

In 1992, Venezuela reduced its corporate tax rate from 50% to 30% and adopted indexation measures, curbed tax holidays and instituted a temporary investment tax credit. Chile has reduced its corporate income tax rate from almost 50% in 1980 to the current 15% and eliminated many corporate tax incentives in the 1980's. Columbia has reduced its corporate tax rate from 40% to 30% during the past decade; in recent years, it adopted indexation measures[6]. Argentina has eliminated the expensing of capital in 1992, drastically reduced its corporate tax to 20% in 1991 but has recently raised the corporate tax rate back to 33% (including a

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[4]Indexation measures allow for assets and liabilities to be revalued each period for inflation. This implies that depreciation and inventory costs are valued at replacement cost rather than historical cost of assets. Moreover, since nominal interest on bonds and capital gains includes the compensation paid to lenders for the loss in the value of the asset for inflation, only real financial income is included in income. For debt liabilities, firms only writeoff the real cost of interest (real interest is nominal interest less the reduction in the value of debt due to inflation). In 1992, Argentina abandoned indexation measures as part of its economic policy to curb inflationary expectations.

[5]These companies must pay, however, the Mexican asset tax on certain assets (details are discussed below). There are signals that the Mexican government will eventually eliminate the preferential tax treatment of Maquiladoran companies operating in lieu of increased access to the Mexican market as required by NAFTA. See del Castillo [1992].

[6]The deductibility of nominal rather than real interest is being phased out over a ten year period in Columbia. See McLure [1992] for a comparison of Columbian and Venezuelan reforms experience.

surcharge).

Of the six countries, only Brazil has not seriously reformed its corporate income tax system in the wake of recent worldwide reform. The Brazilian corporate income tax rate has risen from 35% in 1980 to about 42% in 1993.[7] Brazil has also maintained many tax incentives under the corporate tax such as tax holidays and tax-free zones.

At present, the rates of corporate income tax for the six Latin American countries considered below are similar to the U.S. rate of 34% and the Canadian manufacturing corporate tax rate of about 36%[8]. The exceptions are Brazil which has a high tax rate of over 40% and Chile which has a low corporate income tax rate of 15%.[9]

The impact of corporate taxes on foreign investment depends on more than just the corporate tax rate. Depreciation allowances, inventory cost deductions and tax incentives can reduce the amount of tax paid by a corporation operating in a country. As discussed above, all six of the Latin American countries except for Argentina index the income tax for inflation. Moreover, the depreciation deductions given for capital in the six Latin American countries are similar to the U.S. and Canada[10] although, as remarked above, Brazil and Venezuela have special preferences for capital.

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[7]The corporate tax rate in Brazil is comprised of a general rate of tax, a surcharge, a state capital income tax surcharge and a contribution to the social security system. In addition, up until the end of 1992, a withholding tax of 8% applied to net profits. The total corporate tax rate in 1992 was over 50% (including the withholding tax). In 1993, the Brazilian government lowered the general corporate tax rate from 30% to 25%.

[8]Canada taxes non-manufacturing at rate varying from about 36% (Quebec) to almost 45% (some Maritime provinces). Manufacturing companies are taxed at a preferential corporate tax under federal and provincial laws varying from 29% to about 38%.

[9]Chile and Mexico integrate personal and corporate taxes in a manner quite different than many other countries. These two countries reduce personal or non-resident withholding taxes as long as the profits bear some tax prior to distribution. In Chile, dividends paid from profits subject to the corporate tax rate of 15%, are taxed at a 20% rate. If dividends are paid from untaxed profits, the rate of tax is 35%. In Mexico, dividends paid from taxed corporate profits are exempt while dividends paid from untaxed profits are subject to a 35% tax rate.

[10]The above is true except for one provision. In Brazil, Columbia and Chile, companies are allowed to depreciate assets faster than normal if the asset is used in double or triple shifts during the day. This provision, however, can lead to tax evasion. Unless governments monitor firms to ensure that assets are used in double or triple shifts, companies are able to write off assets two or three times faster than the normal rate even though the assets are only used for one shift a day. We will refer to this particular provision of the tax code as "accelerated depreciation".

b. Capital Taxes

Many Latin American countries impose capital taxes on the assets or the net worth of companies. The rationale for the capital tax is to circumscribe tax avoidance, that has resulted from companies taking advantage of fast writeoffs under the corporate tax, or tax evasion, due to poor administration in some countries[11]. As a result of this experience with tax avoidance and evasion, many companies have paid little or no corporate income tax. In order to ensure that corporations pay at least some tax each year, a corporation is required to pay either the greater of the corporate income tax or the capital tax.[12] The capital tax thus operates as a minimum tax which is paid by companies with no or little corporate taxable income[13].

As Latin American governments have reduced corporate income tax rates and scaled back tax incentives, they have resorted to an increased use of minimum taxes in the form of capital taxes. Mexico begun its 2% asset tax on companies in 1990. Venezuela is discussing in Congress the imposition of a 2% asset tax that is similar to the Mexican tax. Brazil is also considering a minimum tax on assets. Argentina has had a tax on net worth originally but has expanded the minimum tax to apply to assets and recently raised the rate from 1% to 2%. Columbia's presumptive tax on net worth has increased from 3.2% of 7% of net worth during the past decade. Only Chile does not have a minimum tax on assets.

c. Property Taxes

Latin American countries have traditionally avoided the use of property taxes that apply to land and assets affixed to land (i.e. real estate). For example, in 1980, little or no property tax was collected in Argentina, Brazil, Chile and Venezuela while some property tax was collected in Columbia and Mexico. However, by 1991, most Latin American countries collect property taxes although property taxes currently play a minor role in the financing Latin government

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[11]In the presence of high inflation, imperfect indexation measures for corporate accounts can lead to an erosion of tax revenues. The corporate minimum tax allows governments to reduce the scope for either tax avoidance or evasion. See E. Sadka and V. Tanzi [1993].

[12]Net worth is equal to assets net of debt liabilities. Assets are usually measured according to tax rules for the valuation of assets.

[13]The U.S. government allows foreign corporate income taxes to be credited against U.S. taxes owing on remitted dividends. Capital taxes paid in foreign countries can only be deducted from income, not credited against tax. Latin American countries either credit the capital tax against the income tax or, in the case of Mexico and Columbia, vice versa. If the corporate income tax is credited against the capital tax, a practice that is explicitly used in Mexico and implicitly in Columbia, a U.S. company paying sufficient corporate income is able to maintain the full value of foreign tax credits when remitting income to the U.S. parent.

expenditures[14]. Argentina collects the most significant property tax (1.1% of GDP in 1991) while the other five countries collect property taxes that are less than .3% of GDP. At most property taxes make up 5% of total government revenues.

The experience of Latin American countries with property taxation contrasts sharply with the United States and Canada (similar to other Anglo-Saxon countries). In the U.S. and Canada, property taxes play a more significant role in financing government expenditure in that they comprise 10% of total tax revenues or 3.5% of GDP (Bird [1991]). Although much of the U.S. and Canadian property tax is paid by individuals, a considerable sum is levied on companies, thereby reducing the incentive to invest in real estate. On the other hand, some property taxes are user charges assessed for municipal services (e.g. expenditures on roads and sewers) and are "benefit taxes" without penalizing capital.

d. Capital Good Sales, Excises and Tariffs

In recent years, there has been a trend amongst Latin American countries to reduce commodity taxes on capital goods. For example, in the interest of enhancing economic integration and improving trade opportunities for businesses, capital good tariffs have been reduced in a number of countries. Moreover, sales tax regimes have been reformed to eliminate taxes on business inputs and capital goods. Argentina once had a value-added tax that applied to capital goods as well as consumer goods but in 1990 changed the VAT so that it applied to goods sold to consumers. Brazil is considering the elimination of its federal VAT that applies to a narrow based of industrial products. Chile and Mexico have VATs that apply to consumer goods and services.

Nevertheless, a significant tax on capital remains in Latin American countries in the form of tariffs, excise duties and sales taxes on capital goods. Capital good tariffs are especially high in Argentina and Brazil. And, in the case of Brazil[15] and Columbia, value-added taxes apply to sale of capital goods with no input tax credit given for purchases taxed capital goods. Moreover, sub-national governments in Argentina impose gross receipt taxes ranging up to 10%; these taxes add to the cost of manufacturing and distribution of goods and services, including capital goods. Less important but significant gross receipt taxes are found in Brazil, Columbia and Venezuela.

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[14]See Shome [1992].

[15]Brazil has two value-added taxes at the federal and state levels. The federal VAT applies to industrial products and thus impact on the price at which capital goods are sold.

e. Withholding Taxes on Income Remitted to Foreigners

As a source of revenue and a means to protect the income tax base, relatively high withholding taxes on income remitted to non-residents have been imposed by Latin American countries, at least compared to many countries throughout the world. However, with increased economic integration, withholding taxes on remitted income have fallen since 1980 especially for interest and dividend income.

There is now considerable difference in withholding tax rates among Latin American countries as exemplified by the six countries considered in this study. Argentina, Brazil and Columbia have relatively high withholding tax rates ranging from 15% to 35% on interest, royalties, fees and dividends. The most important rate of withholding tax ranges from 15% to 20% on dividends. Venezuela has recently eliminated its withholding tax on dividends while Chile and Mexico integrate the withholding tax on dividends with the corporate income tax as discussed above.

The recent Mexican-U.S. treaty perhaps exemplifies the most interesting trends that will likely occur in the future for withholding tax policies. The United States wanted Mexico to eliminate its withholding tax rate on interest and impose a withholding tax rate of 10% on dividends remitted to the U.S. Mexico wanted an exemption for dividends and a 15% tax rate on interest. In the end, Mexico and the United States agreed to 5% withholding tax rate on dividends (similar to proposed Canadian withholding tax rate on dividends remitted to the U.S.) and a 4.9% withholding tax rate on interest. The latter withholding tax rate makes it easier for a U.S. parent company to credit Mexican withholding taxes against U.S. taxes for all sources of income.[16]

f. Summary

Future developments in Latin American tax policy is important to foreign investors prior to making investment commitments in these countries. Tax policy changes in Latin America have aimed to modify the tax system to make it more neutral in its impact on industrial activities.

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[16]Under U.S. rules, foreign-source interest subject to a high withholding tax rate (5% or more) is placed in a separate "basket" for U.S. tax purposes. With the separate "basket" treatment, the interest is segregated to calculate U.S. tax on Mexican-source income. The U.S. tax owing is equal to the U.S. tax on foreign-source income (e.g. 34%) less foreign taxes paid (e.g. 15%). If interest from high withholding tax countries is separated, a parent company must pay 19% tax to the U.S. government on each dollar of remitted interest. If interest is subject to a low withholding tax, it can be aggregated with dividends and other sources of income. This allows the parent to average high foreign-taxed sources of income (dividends) with low foreign-taxed sources of income (interest) for foreign tax credit purposes. Given the above example, if foreign taxes on dividends is more than the U.S. tax, the excess foreign tax credits on dividends can be used to reduce taxes on remitted interest which would otherwise be taxed at a U.S. rate of 19%.

The income and sales taxes have been reformed to reduce tax rates in lieu of base-broadening measures that have scaled back fast writeoffs or exemptions. In high inflation countries, indexation measures have been instituted or improved except for Argentina which has recently de-indexed its tax system in its attempt to curb inflation. These trends are similar to those achieved in the United States and Canada where similar tax measures, except for indexation, were adopted. In some countries, such as Brazil, there is considerable effort still required to make the tax system more neutral and efficient.

There has also been a move to enhance economic integration by removing tax barriers that impede the free flow of capital into Latin American countries. The reduction in withholding taxes and capital tariffs has encouraged foreign investment although withholding tax rates and capital tariffs still remain high at least compared to the United States and Canada.

Although Latin American countries have made important strides in reforming their tax systems, an important question to answer is the following: how much more do Latin American tax systems need to change if they are to ensure that their tax systems are competitive for foreign direct investment? The next section is devoted to answering these questions.

III. CURRENT TAX COMPETITIVENESS

This section examines the tax competitiveness of the six Latin American countries considered in this study. Briefly, the following results are highlighted:

- Except for Argentina and Brazil, Latin American tax systems are competitive relative to the United States and Canada. The effective tax rates on capital are either close to or below the effective tax rates in Canada and the United States.

- If Argentina eliminated its tariffs on capital imports and Brazil eliminated capital tariffs and its excise taxes (primarily the federal IPI) on capital goods, effective tax rates on foreign direct investment would be similar to those found in the United States and Canada.

- For corporate income taxes only, effective tax rates in the six Latin American countries are well below U.S. and Canadian effective tax rates. The advantage for Latin American countries arises primarily from fast writeoffs for depreciation and investment expenditures, indexation measures for inflation and, in the case of Chile and to a lesser extent Columbia and Venezuela, a low corporate tax rate.

- The tax holiday for investments in Brazil and the investment tax credit in Venezuela provide significant tax advantages to foreign investment. However, the Mexican corporate tax and capital tariff exemptions for Maquiladoran companies will only provide some advantage to

foreign companies if the Mexican 2% asset tax must be fully paid as a minimum corporate income tax.

- Given that many Latin American corporate income taxes are indexed for inflation, foreign companies can improve their tax positions by issuing debt in Canada or the United States (where nominal interest is deductible for corporate tax purposes) rather than in the Latin American country (where only real interest is deductible). The effective tax rates for investments in Chile, Columbia, Mexico and Venezuela are especially reduced if the foreign parent issues the debt in Canada or the United States rather than the subsidiary.[17]

These points are discussed in more detail below.

a. Effective Tax Rates

Investors know that tax regimes have varying effect on the profitability of investments. The statutory rates range as low as 15% (Hong Kong and Chile) to more than 50% (such as Japan). As any astute investor knows, however, the tax treatment of depreciation, inventory costs and interest deductions under the corporate income tax can also affect the amount of profits, net of corporate tax, that is obtainable from a foreign investment. In addition, as discussed in the previous section, many governments provide special incentives such as investment allowances, investment tax credits and tax holidays that affect the company's tax obligation. Finally, other taxes such as tariffs, excise duties and property taxes, that are levied on capital reduce the potential profits that can be earned.

To take all these effects of the tax system into account, a useful summary measure called the effective tax rate is commonly employed. The effective tax rate indicates the degree to which the tax system in all its ramifications reduces the after-tax rate of return from a given before-tax return. For example, if an investment earns 12 percent before taxes and the effective tax rate is 50 percent, the net-of-tax rate of return is 6 percent. The appendix explains the methodology used to calculate effective tax rates reported below.

The calculations of effective tax rates for each country is based on a U.S. or Canadian company making investments in a manufacturing or a hotel type of operation. The same calculations are made for an investor based in Canada and only when results differ do we report effective tax rates calculated for both U.S. and Canadian companies. The calculations are based on the assumption that the investments are financed with typical debt-equity mixes and the debt is borrowed by the subsidiary or by the parent.

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[17]As noted below, the U.S. interest allocation rules curtail some degree the ability of the U.S. parent to deduct interest costs in U.S. to finance investments in foreign countries.

The base case results for each of the six Latin American countries, presented in Table 1 below, show the effective tax rates for late 1994 or early 1995. Effective tax rates for capital in Canada and the United States are provided for comparability. Variations on the base case are shown for Tables 2 to 5.

b. Comparability of the Latin American Regimes

Table 1 presents effective tax rates for foreign direct investments in manufacturing and services for the six Latin American countries, Canada and the United States. The effective tax rates aggregate the impacts of corporate income tax, property tax, withholding taxes, capital tariffs, sales taxes and excise duties on the profitability of investments in each of the countries.

For manufacturing, Columbia, Chile and Mexico have effective tax rates on capital that are comparable with those of the United States and Canada. Venezuela has a substantially lower effective tax rate than the U.S. or Canada. On the other hand, Argentina and Brazil have relatively high effective tax rates on capital. For services, all Latin American countries have higher effective tax rates than the U.S. or Canada.

The differences in tax burdens across the countries is better understood by decomposing the effective tax rates to reflect taxes themselves. Table 2 provides this decomposition by eliminating taxes successively.

With the removal of capital tariffs, the effective tax rates for foreign direct investment fall dramatically for the six Latin American countries. This is especially true for Argentina where the effective tax rate falls from over 55% to about 26% as the tariff is 30% of the price paid for imported capital goods[18]. Major reductions in effective tax rates occur for the other Latin American countries where capital good tariff range from 11% (Mexico, Chile and Venezuela) to 40% for Brazil. With the removal of the capital good tariff, the effective tax rates on capital for all Latin American countries fall below the effective tax rates on capital in Canada and the United States.

The elimination of sales taxes, gross receipt taxes and excise duties would also lower substantially the tax burdens on capital in Latin American countries and, more so, compared to Canada and the United States. For Argentina, Brazil, Columbia and, to a lesser extent, Venezuela, the current sales and excise tax regimes impose a significant tax on the purchase of capital goods. This tax would be eliminated if each of these countries shifted their sales tax regimes to a VAT on consumer goods (businesses would obtain a full credit for taxes paid on

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[18]In the calculations, it is assumed that domestic-produced capital is protected by the tariff. The elimination of the tariff not only reduces the price of imported capital goods but also domestic-produced capital goods which are no longer protected.

Table 1
Effective Corporate Tax Rates
Percentages

	Manufacturing	Services
	Base Case	Base Case
Argentina	56.2	64.4
Brazil	60.8	66.2
Chile	36.2	42.9
Colombia	30.4	33.1
Mexico	33.3	37.8
Venezuela	37.5	34.7
Canada	39.8	27.8
USA	35.4	23.6

<u>Table 2</u>
Effective Corporate Tax Rates - Manufacturing
Decomposition of Taxes
Percentages

	Aggregate	Aggregate, excluding; capital tariff taxes.	Aggregate, excluding; gross receipts tax, excise tax, property and capital tariff	Corporate income tax
Argentina	56.2	26.8	11.3	11.3
Brazil	60.8	35.1	17.5	10.3
Chile	36.2	21.8	9.0	1.4
Colombia	30.4	21.9	13.4	9.5
Mexico	33.3	17.9	14.8	12.2
Venezuela	37.5	23.8	21.1	21.1
Canada	39.8	39.8	29.7	29.7
USA	35.4	35.4	25.3	25.3

the purchase of business inputs including capital goods). On the other hand, for the U.S. and Canada, the effect of shifting from state and provincial retail sales taxes to adopting a VAT on consumer goods (such as the federal Goods and Services Tax in Canada) would have only a marginal impact on the taxation of capital.

The final column of Table 2 provides effective corporate tax rates where all other taxes including property and withholding taxes are eliminated. In terms of corporate income taxation alone, the tax burden on capital in the Latin American countries is well below those in the United States and Canada. Chile's effective tax is low (equal to 1.4%)[19] since Chile has a very low statutory corporate income tax rate of 15%. Brazil, Columbia and Chile also have low effective tax rates since companies are able to accelerate deductions for depreciation if machinery is used in more than one shift a day.[20]

The low corporate tax rate for Argentina (a rate of 11%) is especially interesting since Argentina has recently de-indexed its corporate income for inflation. Over the past four years Argentina has reduced its inflation rate significantly.[21] As discussed in Section II, the effect of inflation on the corporate income tax rate is ambiguous. On one hand, inflation reduces the value of depreciation costs and other tax deductions that are based on historical values. On the other hand, the deductibility of nominal interest costs is a significant gain to the company in that it is able to writeoff some of the real value of the debt's principal and shield income from taxation.

c. Special Cases

The above calculations of effective tax rates are for companies that are taxed ordinarily under the law and receive no special tax concessions. However, in several Latin American countries, there are special tax concessions such as a tax holidays, export concessions and free

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[19]In various tables the effective tax rates are low and in some cases negative for some countries. A negative effective tax rate means that the company would not pay corporate income tax in the host country unless its rate of return is above its cost of capital. As well, it would have a loss for tax purposes that could potentially be used to reduce taxes on other income, which could be either its own future income if losses can be carried forward, or income earned from other activities which are taxed at positive rates. The size of the calculated negative tax rate is an indication of the importance of this potential benefit of investing in a project that generates losses for tax purposes relative to the income earned by the company.

[20]Based on interviews with experts dealing with Brazilian and Columbian law, the assumption used for these calculations is that the firms use capital less frequently than two or three shifts a day than what is reported for tax purposes. The tax authorities are unable to administer this tax provision to ensure that firm claim depreciation that matches the number of shifts that machinery is used. Companies would take the maximum depreciation deduction even if capital is not used for only two or three shifts a day.

[21]An anticipated inflation rate of 5% was used for calculations based on latest forecasts provided by the World Bank.

trade zones.[22] Also, Venezuela's investment tax credit is only in place for five years and may not be extended.

Brazil makes considerable use of tax incentives to relieve companies from the payment of taxes that affect the profitability of investments. The Brazilian tax incentive schemes allow companies to be exempt, at least partially, from corporate income tax, the IPI and capital tariffs. For example, companies in the Northeast are given a ten-year exemption from corporate income tax and whole or partial relief from paying tariffs and excise taxes on capital goods. We illustrate the impact of this tax holiday on the effective tax rate on capital in Northeast Brazil. As shown in Table 3, the Brazilian effective tax rate is, for manufacturing, 13.8% (compared to 60.8% without the holiday) and, for services, 10.2% (compared to 66.2% without the holiday). Thus, the holiday affords considerable tax relief for Brazilian foreign investments.

The Mexican government over the past several years have abolished many tax incentives such as investment allowances for capital. However, the Maquiladoran incentive for foreign companies that import raw material and re-export them as final products has been responsible for luring almost one-half of foreign investment into Mexico. The Maquiladoran incentive allows the company to be exempt from corporate income tax and tariffs on imports. Also, at present, the Maquiladoran companies are partly exempt from the Mexican asset tax[23] although there is some indication that the Mexican government will eliminate exemptions in the future.

In Table 3, we estimate the effective tax rate for the Maquiladoran company by taking into account the Mexican asset tax (with and without exemptions) and assuming the Maquiladoran company is exempt from paying corporate income tax and capital good tariffs. Without exemptions under the asset tax, the effective tax rate on capital is 28.9% for manufacturing (compared to 33.3 for the non-incentive case) and 34.3% for services (compared to 37.8% for the non-incentive case). With an exemption for machinery and inventories, the effective tax rates on Maquiladoran companies is 10.4% for manufacturing and 17.3% for services.

The Maquiladoran incentives will be of little value if the asset tax fully applies to them in the future. In addition, as Maquiladoran enterprises, the production must be re-exported so that the Mexican domestic market is closed for these companies. As one observer remarked, the Maquiladoran scheme could eventually be eliminated once companies realize that it is better to participate in the Mexican market especially if the NAFTA agreement is invoked (del Castillo [1992]).

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[22]There are other special cases such as a export incentives and regional development zones used by Argentina, Chile, Columbia and Venezuela. However, these four countries have scaled back tax incentives over the past several years so that most incentives are not significant enough to include in our analysis.

[23]The asset tax currently exempts processed inventories and machinery and equipment.

Table 3
Effective Corporate Tax Rates
Special Cases

	Manufacturing	Services
Brazil: 10 year tax holiday for investments in North East region	13.8	10.2
Mexico: Maquiladoran firms - without exemptions	28.9	34.3
Mexico: Maquiladoran firms - with exemptions	10.4	17.3
Venezuela: Including investment tax credits	37.5	34.7
Venezuela: Excluding investment tax credits	49.0	49.7

d. Debt and Taxation

As discussed above, a significant difference between the corporate income tax regimes of Latin America with those of Canada and the U.S. is that the former are indexed (except Argentina) and the latter are unindexed for inflation. Given this particular lack of harmonization of corporate tax systems in the Americas, there are special tax considerations applicable to foreign investment that should be recognized.

The most obvious case is related to the deductibility of interest costs incurred by the multinational in financing the investments of the subsidiary. The multinational can arrange for the subsidiary to borrow funds which implies that interest is incurred and reduces corporate taxes paid to the host Latin American country. Alternatively, the parent could borrow in the home country (United States or Canada) and transfer the funds as equity to the subsidiary operating in the host country.

The issue for the multinational is simple: which strategy would minimize the cost of debt finance? Without taxes, the cost of issuing debt in either country would be the same once adjusting for the anticipated devaluation of one currency relative to another. In the long run, the anticipated devaluation of a currency is based on a country's inflation rate relative to that of other countries.[24] Once adjusting for differences in inflation rates, the interest costs of debt finance would be the same.

However, with taxes, the cost of debt finance is not the same across countries. Given indexation in the Latin American countries and the lack of indexation in Canada and the United States, the after-tax cost of debt finance will surely differ. When the multinational issues debt in a country with indexation, only real interest costs (interest costs adjusted for inflation) are deductible from the corporate tax in that country. When financing costs are deductible in a country without indexation, nominal interest deductions are instead deductible from that country's corporate tax. Given the fungibility of debt, it is relatively easy for the multinational to shift interest deductions from one country to another to take advantage of the most favourable tax treatment of debt financing costs. For a U.S. and Canadian multinational operating in Latin American countries that index profits for inflation, it would generally be preferable for tax purposes to issue debt in the U.S. or Canada where there are no indexation measures.

The degree to which a multinational can take advantage of differences in indexation provisions across countries depends on other rules of the tax code that could inhibit companies from engaging in financial planning that reduces taxes paid. For example, in the United States, there are interest allocation rules that limit the extent to which interest deductions incurred to finance

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[24]It is expected that the currency of the host country will devalue with respect to the home country by the difference between the rate of inflation in the host and home country. For example, if the U.S. inflation rate is 5% and the Mexican inflation rate is 20%, the Mexican peso would devalue by 15% relative to the U.S. dollar.

investments abroad are deductible under U.S. tax.[25] Also, some countries, such as the U.S. and Canada, have "thin capitalization" rules that restrict the interest deductions taken by resident foreign-owned subsidiaries.

Table 4 presents the impact of financial planning on taxation of the profitability of foreign investments made in Latin America. The first column provides effective tax rates on Latin American investments with the debt issued by the subsidiary in the host country. The second column present effective tax rates for Latin American investments when the parent issues debt in the United States and where the multinational is required to allocate domestic interest on a consolidated basis according to the distribution of US and foreign assets. For the purpose of this study it is assumed that the proportion of interest deemed not deductible in the US was 35%. The third and forth columns show the effective tax rates for Latin American investments when debt is issued in the United States (assuming that the interest allocation rules do not apply) and Canada respectively.

As a result of being able to take advantage of unindexed interest deductions in the Canada or U.S., the effective tax rate for Latin American countries (except Argentina and Brazil) is much lower compared to the case in which debt is issued by the subsidiary. For example, the Mexican effective tax rate for debt issued in Mexico is 33.3%, falling to 21.0% when debt is issued in the United States and 23.2% when debt is issued in Canada. However, when the multinational is in an excess foreign tax credit position as dividends are repatriated back to the US and are required to allocate interest expenses to foreign source income this then results in higher US taxes paid on worldwide income. In all cases, when interest is allocated effective tax rates are higher than when interest deductions are not required to be allocated according to the distribution of US and foreign asset rule.

The higher effective tax rate for the Canadian case compared to the United States reflects a lower rate of inflation in Canada (3%) compared to the U.S. (4%). In a country with high inflation, there is a greater advantage to companies that take nominal interest deductions in that country compared to the case which involves a country with a low rate of inflation. The logic behind this conclusion is the following.

In the presence of inflation, a company pays interest to compensate lenders for postponing their consumption to the future as well as for inflation the erodes the real value (or purchasing power) of the debt's principal. When companies are able to writeoff nominal interest, they are able to writeoff part of the real value of the debt's principle. In effect, a company is given a "double" deduction for an investment made in a Latin American country -- it deducts not only the value of investment through indexed tax depreciation allowances (given in the host country) but also, to the extent assets are financed by bonds, part of the debt's principal in the home country.

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[25]A U.S. company may be required to allocate U.S. interest expenses to its foreign subsidiary based on the distribution of its worldwide assets.

Table 4
Effective Corporate Tax Rates
Alternative Sources of Debt Financing
Manufacturing
Percentages

	Location of Debt Financing for Host Country Investment			
	Host Country	United States		Canada
	Base Results	Non-Allocated	Allocaated Interest[1]	
Argentina	56.2	58.4	64.5	59.1
Brazil	60.8	59.9	89.5	61.1
Chile	36.2	16.6	38.6	20.2
Colombia	30.4	16.2	53.1	19.9
Mexico	33.3	21.0	45.6	23.2
Venezuela	37.5	33.6	56.7	36.8

[1]The base case results assume that firms are allowed to allocate domestic interest expenses to foreign source income on a non-consolidated basis according to the distribution of gross income or assets. The interest allocation effective tax rates reflect the post 1986 rule changes that required US multinationals to allocate domestic interest expenses on a consolidated basis according to the distribution to US and foreign assets - the proportion of interest not deductible was set to 35%. For further details see Mintz and Altshuler [1994].

Although there may be tax preference to issue debt in the U.S. rather than Canada, the interest allocation rules in the U.S. may restrict U.S. companies from taking full advantage of financial planning to reduce taxes paid on worldwide operations. However, there are no limitations on interest deducted in Canada for foreign investments made abroad; a Canadian company could issue debt in Canada without its interest deductions being restricted under Canadian law.

In the case of foreign investments in Argentina where there are no indexation provisions under corporate tax law, a multinational would find it more advantageous for the Argentinean subsidiary to issue debt rather than for the parent to do so in the U.S. or Canada. The argument underlying this point is analogous to comparing the value of interest deductions taken in Canada and the United States. The currently high inflation rate in Argentina (over 15%) compared to much lower inflation rate in Canada and the United States makes nominal interest deductions much more valuable in Argentina compared to the U.S. or Canada.

IV. FUTURE POLICY DEVELOPMENTS

At the present time, there are significant differences among Latin American countries with respect to the taxation of foreign direct investment. Some countries, like Mexico and Chile, have reformed their tax systems by reducing protective tariffs, lowering tax rates on capital and broadening tax bases while others, like Brazil and, to some extent, Argentina, primarily use tax policy to protect certain domestic industries from foreign competition or to encourage investments in certain activities. As shown in the previous section, effective tax rates on foreign direct investment vary substantially across countries ranging from as low as 22% in Venezuela to as high as 65% in Brazil.

As discussed above, there are a number of taxes that contribute to high rates of taxation that act as impediments to foreign investment. These include capital good tariffs, withholding taxes on remitted income to non-residents, excise and sales taxes on capital goods and corporate income taxes. As the Latin American economies have shown through the 1980's, it is likely that a number of these taxes will be dramatically altered as economies become more integrated. Capital good tariffs and withholding taxes on income would likely be reduced. Sales and excise tax systems will likely shift towards a consumption-based sales tax system, relieving capital goods from excise taxation. Corporate income taxes will be reformed by reducing tax rates and broadening tax bases.

What impact will tax policies aimed at economic integration have on foreign direct investment? Below, the taxation of U.S. and Canadian foreign direct investment is examined taking into account various alternative policy choices made by the six Latin American countries considered in this study.

Table 5
Effective Corporate Tax Rates
Various Policy Alternatives
Manufacturing

	No Capital Tariffs	No Withholding Tax	No Gross Receipts or Excise Taxes	Harmonization[2] (Debt Financing)	
				Locally	USA
Argentina	26.8	56.2	52.2	17.8	16.1
Brazil	35.1	58.7	55.4	21.9	19.1
Chile	21.8	32.2	36.2	6.8	6.6
Colombia	21.9	27.7	18.5	16.7	4.9
Mexico	17.9	31.6	18.0	14.8	6.6
Venezuela	23.8	37.5	35.3	27.7	31.5
Canada	39.8	39.8	35.5	35.5	35.5
USA	35.4	35.4	31.1	31.1	31.1

[2]Harmonization for the six Latin American countries and including Canada and the United States implies; 5% withholding taxes on dividends, no gross receipts or excise taxes, no accelerated depreciation and no special incentive (tax holidays or investment tax credits).

a. The Removal of Capital Tariffs

As Latin American countries adopt policies to enhance free trade, it would be expected that capital tariffs would be reduced, if not eliminated altogether. In Table 5 (first column and the same as Table 2), we compare effective tax rates in the six Latin American countries with United States and Canada. As demonstrated, most of the Latin American countries, except Brazil, would have relatively competitive tax regimes that would attract capital from United States and Canada.

From an economic perspective, there is much to commend countries in eliminating protective measures. Unfettered free trade is arguably an important step for economies to improve their standard of living since industries would specialize in more efficient production.

There are, however, two factors that limit countries from seeking more open borders to trade. The first is related to public finances and fiscal needs. Tariffs and other trade taxes provide revenues for government expenditures; their elimination requires government to seek other sources of revenues to finance fiscal needs. Of the six Latin American countries considered here, trade taxes account for about 8% of tax revenues and range from 1.7% (Brazil) to 13.3% (Columbia) of total government tax revenues (Shome [1992]). Although trade taxes are not major sources of revenues, governments are reluctant to give up revenues especially if they are having difficulty meeting their expenditure obligations.

Second, tariffs, by their nature, are used to protect special industries and regions in a country. With the opening up of markets, the reduction of tariffs would have important ramifications for those industries and regions that have been protected by past policy. In some situations, governments may have difficulty in reducing tariffs if politically powerful industries or regions are adversely affected.

Nonetheless, despite these reservations, the recent economic success in countries such as Mexico and Chile has demonstrated that a reduction in trade barriers can help foster economic growth.

b. The Elimination of Withholding Taxes

As reviewed above, Latin American countries have relied on relatively high withholding taxes imposed on income remitted to non-residents except for dividend withholding taxes of Mexico and Venezuela. Such withholding taxes can operate as an important barrier to foreign direct investment. In Table 5, we consider the effect of eliminating withholding taxes for the six Latin American countries. As shown in the table, the elimination of withholding taxes does improve the tax competitiveness of most of the regimes although the two high tax countries, Argentina and Brazil remain high-taxed, relative to Canada and the United States.

In general, the reduction or elimination of withholding taxes would have a positive but small impact on the taxation of foreign direct investment (the largest reduction would be for Argentina). The benefits for Latin American countries of reduced withholding taxes is to encourage more investment from the U.S. and Canada. As in the case of capital tariffs, however, there are economic costs resulting from a reduction in withholding taxes. The first is with respect to a loss in tax revenue for governments. The second cost is that the elimination of withholding taxes may make it more difficult for a country to protect its tax base. For example, without withholding taxes, it may make it easier for companies to use transfer pricing and other mechanisms to shift profits out of country.

Nonetheless, current developments suggest that countries are negotiating lower withholding taxes that act as a barrier to capital flows. This is particularly important for countries engaged in free trade areas where investment opportunities are enhanced for multinational companies. As discussed in Section II, the Mexican-U.S. negotiations suggest that 5% withholding tax rates on dividends and much lower withholding taxes on interest income could eventually become a norm for future tax treaty developments in NAFTA.

c. The Elimination in Commodity Taxes on Capital Goods

As discussed above, another trend in Latin American tax policy has been to target sales taxes on consumer goods only rather than applying the taxes to business inputs and capital goods. In Table 5, we show that the elimination of gross receipt taxes, excise duties and sales taxes on capital would have a significant impact on the taxation of capital especially in Argentina, Columbia and Brazil.

The elimination of sales taxes in Argentina would require the reform of the sub-national government gross receipt (turnover) taxes that apply at most stages of production. These turnover taxes are cascaded into higher prices for capital and other inputs used by businesses. In Columbia, the elimination of excise taxes on capital goods would be achieved if Columbia allows businesses to claim an input tax credit for capital goods under the VAT. In Brazil, the reform of the federal VAT (IPI) and certain other sales taxes would realize a significant reduction in the excise taxes on capital goods.

The above policy prescriptions for sales tax reform would be done at the expense of revenue. However, governments can reform their sales tax systems without losing revenues by expanding tax bases to include more consumer goods and services or raising the rate of tax on consumer goods. Investment would be encouraged if the sales tax regimes were reformed so that they truly apply to consumer rather than producer goods.

d. Towards Tax Harmonization in the Americas

Economic integration in North and South America potentially imply two sorts of tax policies: (i) a reduction in taxes on trade and capital flows and (ii) harmonization of income and commodity tax policies. Currently, North and American governments are adopting, at least in part, policies that are aimed to improve economic integration. As discussed above, these policies include a reduction of tariffs and withholding taxes, the reform of sales taxes to relieve business inputs from taxation and the improvement of corporate tax bases to reduce rates of tax and broaden tax bases. If these are current trends in Latin American tax policies, what would happen to the taxation of foreign direct investment if these policies were pushed towards an extreme?

In Table 5, we present effective tax rates on capital if North and South American countries adopted a package of harmonized taxes of the following form:

- The elimination of capital good tariffs.

- A withholding tax on dividends equal to 5%.

- The removal of sales taxes and excise duties that apply to business inputs.

- The elimination of accelerated depreciation, tax holidays and investment tax credits under the corporate income tax.

As is shown in the Table 5, (columns 4 and 5), tax harmonization along these lines would have a significant impact on the tax competitiveness of Latin American countries. All Latin American countries would tax foreign direct investment from the United States (and, if shown, Canada) at a rate significantly below the tax burdens imposed in the U.S. or Canada. This would be particularly true if the multinational could finance Latin American investments with debt issued in the United States rather than the host country (with the exception of Argentina). As discussed above, this would allow the multinational to deduct nominal interest costs in the U.S. rather than real interest costs in the Latin American country that indexes corporate profits for tax purposes.

Thus, we conclude that Latin American tax policies aimed towards reducing the tax on capital and eliminating barriers to the flow of capital will make Latin American economies attractive for foreign investment.

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APPENDIX A

Calculating the Effective Tax Rates

This appendix provides additional details of the methodology, assumptions, and data sources used to calculate the effective tax rates. The methodology is based on the open economy analysis of Boadway, Bruce, and Mintz (1984, 1987). The work is similar to that of King and Fullerton (1984) and the OECD (1991). The main differences in the methodology used here and that of the OECD, for example, is that actual interest rates and inflation rates are used to measure the effective tax rates.

The methodology used to estimate the effective tax rates rests on a number of assumptions. To start, companies are assumed to maximize profits, implying that they invest in capital to the point where the return on capital equals the cost of capital. It is also assumed that companies choose the level of debt and equity needed to minimize their cost of finance. Cost minimization of financing implies that companies issue debt until the tax benefits from additional debt equals the bankruptcy and agency costs associated with incremental debt. In addition, the six host countries of this study, Argentina, Brazil, Chile, Colombia, Mexico and Venezuela are treated as small open economies. In a small open economy, corporations have the option of acquiring financing from domestic and international markets while, at the same time, the domestic market interest rate for a country is determined by international trading of currencies.

Furthermore, the analysis explicitly deals with those investments of multinational corporations whose home country is the United States of America. While the United States is the capital-exporting country, Argentina, Brazil, Chile, Colombia, Mexico and Venezuela are the host or capital-importing countries.

One tax incentive was incorporated into the analysis, the investment tax credit offered by Venezuela. Aside from the base effective tax rate estimations, various simulations were also considered, specifically; alternate real interest rates (5% for the base estimations and 15% for one of the alternatives); and, the parent borrowing from the home country.

All home (capital-exporting) country variables are denoted by the ' symbol. Those characters without the ' symbol represent host (capital-importing) country variables. The term i is the nominal interest rate; ß is the portion of multinational parent's capital financed by debt in the home country, while γ represents that portion of the multinational subsidiary's investment financed by debt in the host country; g' is the nominal home country cost of equity finance; and p' is the expected rate of inflation of the home country (p is also the inflation rate of the host country). The rate of return on capital held by the owners of the multinational parent, as formulated above, is essentially a weighted average of the rate of return available to owners of debt, $\gamma(i-p)$ (or $\gamma(i'-p')$ for firms that borrow from the home country), and owners of equity, (e'-p') where e' $=(1-ß)g'+ßi'(1-u')$. The host country rate of return on capital from holding

equity is itself a weighted average of both home country equity, $(1-\beta)g'$, and the rate of return on corporate bonds in the home country, $\beta i'(1-u')$.

The multinational is assumed, in the base calculations, to finance capital in the host country using two sources of money. The first is debt raised in the host country and the second is equity invested by the multinational parent in the subsidiary operating in the host country. Savers are paid a net of tax return on debt equal to (i'-p') in the home country and (i-p) in the host country. The net return for holding equity to savers is e'-p', which itself is composed of both home country debt and equity. The expression for the net-of-tax rate of return to savers, for both industries is;

$$r_n = \{e' - p'\}(1-\gamma)+\gamma(i-p)$$

(a.1)

However, savers can also substitute debt from the host to the home country. In this case, the net-of-tax rate of return to savers is modified as follows;

$$r_n' = \{e' - p'\}(1-\gamma)+\gamma(i'-p')$$

(a.2)

It is assumed that international interest rates are determined in the long run by arbitrage in international markets. Assuming purchasing power parity to hold in the long run to determine the host country's interest rate relative to the home country, the following equation is assumed to hold:

$$i = i' - (p' - p)$$

(a.3)

The owner of a multinational parent is assumed to be a typical G-7 country investor. The investor is assumed to face a weighted average of tax rates imposed at the personal level across the G-7 countries. It is important to note that the net-of-personal tax rate of return earned on bonds is assumed to equal the rate return earned on equity held by the marginal investor in the U.S. parent. This relationship between the rate of return earned by bonds and equity implies the following expression:

$$g' = \frac{i'(1-m')}{(1-\theta')}$$

(a.4)

The variable, m', is the personal income tax paid on interest (the rate used was 31 percent). The variable, θ', is the tax on equity income for the average OECD investor. This tax rate is assumed to be a weighted average of personal tax rates on dividends and capital gains and found

to equal 13.6 percent.

The nominal interest rate is operationally defined as the 1991 lending rate, while the annual change in the consumer price index was used as the inflation rate. Both variables, for all countries were collected from the IMF International Financial Statistics. The rates used for each country are presented in Tables A-1 and A-2.

The data used for the debt-to-total-assets ratio (ß), the debt-to- asset-ratio of the multinational company's investment within the host country (γ), and the economic depreciation rates (δ) were estimated from World Bank project data for all countries. The components of the debt data included debentures and loan stocks, loans from financial institutions, loans and advancements from headquarters and subsidiaries, short-term borrowing, and other creditors. The debt/asset ratio was estimated for each of the three industries. The debt-to-asset and economic depreciation parameters used are summarized in Table A-1:

<div align="center">

Table A-1
Debt-to-Asset and Economic Depreciation Parameters

</div>

	Manufacturing	Services
β	29	44
γ	38	50
δ - Bldg	3	4
δ - Mach	14	22

The statutory annual depreciation rates and relevant tax rates, such as the corporate, income, and dividend tax rates, were obtained from the International Bureau of Fiscal Documentation, 1990 edition, and Price Waterhouse International Taxation of Corporate Income. Actual rates used are provided in Tables A-1 and A-2.

1. Rental Cost of Capital & Effective Tax Rate

a) Without the allocation of interest:

For a profit-maximizing company, capital is acquired until the return on capital, gross of taxes, and depreciation equals the rental price of capital. The rental price of capital, for buildings and machinery, is mathematically defined as,

$$F_{Mach/Bldg} = \frac{(\delta + ri)}{1 - u - t_g \frac{(1-u)}{(1-a_L)}}(1-A)(1+t+t_k) + \frac{t_p(1-u)(1+t+t_k)}{1 - u - t_g \frac{(1-u)}{(1-a_L)}}$$ (a.5)

For Venezuela, since they offer investment tax credits the rental price of capital for machinery and buildings is defined as follows;

$$F_{Mach/Bldg} = \frac{(\delta + ri)}{1 - u - t_g \frac{(1-u)}{(1-a_L)}}(1-a_1-A)(1+t+t_k) + \frac{t_p(1-u)(1+t+t_k)}{1 - u - t_g \frac{(1-u)}{(1-a_L)}}$$ (a.6)

where F represents the return per dollar of capital (gross of depreciation and taxes), t_g is the gross receipts tax, t is the excise tax on capital income, t_k represents the tariff on capital, t_p is the property and capital tax rate, a_L is the value added share to labour, ri is the real interest rate (specified below) and δ the economic depreciation rate. The variable a_1 represents the investment tax credit offered for investments in machinery and structures. The term A is the tax value of the annual depreciation allowances per dollar of capital expenditure:

$$A = u\{\frac{a_2}{(a_2+ri)}\}$$ (a.7)

where a_2 is the annual declining balance (or equivalent) depreciation rate. For all countries depreciation of machinery and structures are indexed to inflation. The term ri is the company's indexed net-of corporate tax real cost of financing, which is defined as;

$$ri = \frac{\{e' - p'\}(1-\gamma)}{(1-x)} + \gamma\{(i-p)(1-u)\}$$ (a.8)

and $Ri = ri + p'$

When the firm borrows from the home country the real indexed cost of finance adjusts to the following:

$$ri' = \frac{(e' - p')(1-\gamma)}{(1-x)} + \gamma\{i'(1-u')-p'\}$$

(a.9)

and $\quad$ Ri' = ri' + p'

The cost of finance is similar to the net-of-tax return on capital (equation a.1) except for two terms. The first incorporates the interest deductibility of debt in the host country ((i-p)(1-u)). The second incorporates the term x, which represents the weighted average host country taxes on dividends and capital gains.

In all host countries the valuation of inventories is indexed to inflation. The user cost of capital for inventories is therefor defined as:

$$F_{Inv} = \frac{(ri+\phi up)(1+t+t_k)}{1-u-t_g\dfrac{(1-u)}{(1-a_L)}}$$

(a.10)

such that $\phi=0$ for indexed inventory valuation.

Finally, eliminating physical depreciation and tax depreciation allowances, the user cost of capital for land is expressed as follows:

$$F_{Land} = \frac{ri}{1-u-t_g\dfrac{(1-u)}{(1-a_L)}} + \frac{t_p(1-u)}{1-u-t_g\dfrac{(1-u)}{(1-a_L)}}$$

(a.11)

The effective corporate tax rate (U), defined as the difference between the risk-adjusted cost of capital, net of economic depreciation, r_g, and the net-of-tax rate of return required to compensate savers for their savings that are to be invested in the company's particular capital, is for the purpose of this study defined as

$$U = \frac{(r_g - r_n)}{r_g}$$

(a.12)

where;

$$r_g = F - \delta \tag{a.13}$$

As stated previously, the host country economic depreciation rate used, δ, for buildings and machinery was derived from World Bank project data.

b) Application of interest allocation rules:[26]

The cost of capital and effective tax rate estimations for the United States were estimated assuming that multinational firms are in an excess foreign tax credit position and that the post 1986 interest allocation rules applied. By requiring firms to comply with the post 1986 interest allocation rules firms are no longer capable of allocating interest cost across investments to lower their aggregate effective tax rate. As a result, a penalty term is introduced in the cost of finance and the cost of capital equations.

When US multinationals are required to comply with the interest allocation rules, the cost of finance term is modified and expressed as follows;

$$rf_{mult} = \frac{\{\beta i'(1-u')+(1-\beta)g'-p'\}(1-\gamma)}{(1-x)} + \gamma \frac{\{[i'(1-u')]-p'-[(1-\lambda)^2(1+p)u'i'\beta]\}}{(1+p')} \tag{a.14}$$

where λ represents the proportion of interest that is non-deductible, which was set to 35%.

The penalty term (S') that is added on to the cost of capital is expressed as follows;

$$S'_{Mach/Bldg/Land} = \frac{u'i'\beta(1-\lambda)^2}{[(1+p')(1-u)]} \tag{a.15}$$

For inventories the penalty term is the following;

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[26]The corporate income tax rate for the United States used was 38% and expected inflation was estimated at 4.3%. The proportion of interest not deductible was assumed to be 35%.

$$S'_{inv} = \frac{u'i'\beta(1-\lambda)^2}{(1-u)}$$

(a.16)

The cost of capital (machinery and buildings) for US multinational firms is altered to the following expression;

$$F_{Mach/Bldg} = \frac{(\delta+rf)}{1-u-t_g\frac{(1-u)}{(1-a_L)}}(1-A)(1+t+t_k) + \frac{t_p(1-u)(1+t+t_k)}{1-u-t_g\frac{(1-u)}{(1-a_L)}} + S'$$

(a.17)

Similarly, for inventories and land the cost of capital for US multinationals is the expressed as follows;

$$F_{Inv} = \frac{(rf+\phi up)(1+t+t_k)}{1-u-t_g\frac{(1-u)}{(1-a_L)}} + S'_{inv}$$

(a.18)

and,

$$F_{Land} = \frac{rf}{1-u-t_g\frac{(1-u)}{(1-a_L)}} + \frac{t_p(1-u)}{1-u-t_g\frac{(1-u)}{(1-a_L)}} + S'$$

(a.19)

The net of tax return to capital is also amended as follows;

$$r_n = \{\beta i'(1-u')+(1-\beta)g'-p'\}(1-\gamma)+\gamma\frac{(i'-p')}{(1+p)}$$

(a.20)

2. Tax Holidays:

Brazil offers incoming investments tax holidays. The cost of capital for the firm qualifying for tax holidays can be represented as follows;

$$F = \frac{\delta + ri_0}{1 - u_0 - t_g \frac{(1-u_0)}{(1-a_L)}}(1-A_t)(1+t+t_k) + \frac{(1+ri_0)(A_t - A_{t-1})(1+t+t_k)}{1 - u_0 - t_g \frac{(1-u_0)}{(1-a_L)}} +$$

$$+ \frac{t_p(1-u_0)(1+t+t_k)}{1 - u_0 - t_g \frac{(1-u_0)}{(1-a_L)}} \tag{a.21}$$

The term ri_0 is the indexed cost of finance with the exception that the domestic corporate income tax rate, for interest deductibility reasons, is set to zero. Investments that qualify for tax holidays in Brazil are also exempt from excise, gross receipts and property taxes on capital. The effective tax rates are calculated as indicated from equation (a.13).

The expression A_t represents the present value of depreciation allowances. The expression for A_t is;

$$A_t = u_0\alpha_1 + [u_0 Z_0(1-Y_t) + u_1 Z_1 \frac{(1+\theta_1)}{(1+\theta_0)}Y_t] \tag{a.22}$$

for $t^* - t > 0$.

$$Z_t = \frac{(1 + R_t)\alpha_2}{\alpha_2 + R_t} \tag{a.23}$$

and,

$$Y_t = \left[\frac{(1-\alpha_2)}{(1+R_t - (p'-p))} \right]^{t^* - t} \tag{a.24}$$

3. Mexico - Maquiladoran firms:

The free trade zone in Mexico exempts firms from paying corporate income taxes and capital tariffs. Asset taxes are paid instead of corporate income taxes. The cost of capital for firms qualifying for tax holidays is;

$$F_{Mach/Bldg} = (\delta + ri)(1 + \frac{t_a}{\alpha + ri})(1 + t + t_k) + t_p(1 + t + t_k) \qquad (a.25)$$

for machinery and structures, and for inventories;

$$F_{Inv/Land} = ri(1 + t + t_k) + t_a(1 + t + t_k) + t_p(1 + t + t_k) \qquad (a.26)$$

The term t_a represents the asset tax.

4. Canada / United States

While the basic definition of the effective tax rate for the United States and Canada is similar to the methodology presented up to this point there are however three exceptions; investments in Canada and the United States are treated as domestic investments; Canada imposes a capital tax on all the firm's assets; and both the United States and Canada do not require firms to index interest deductions and the valuation of inventories and depreciable assets for the purpose of deriving taxable income.

For the United States equations a.5, a.10 and a.11 define the user cost of capital with the exception that the real cost of finance "ri" (as defined for the Latin American countries for indexation and investments by US or Canadian based multinationals) is defined as follows;

$$r = \beta i'(1 - u') + (1 - \beta)g' - p' \qquad (a.27)$$

and;

$$R = \beta i'(1 - u') + (1 - \beta)g' \qquad (a.28)$$

Furthermore, the net-of-tax rate of return is adjusted for Canada and the United States to the following equation;

$$r_n - \beta i' + (1-\beta)g' - p'$$

(a.29)

For Canada, the user cost of capital for machinery and structures is defined as follows;

$$F_{Mach/Bldg} = \frac{(\delta+r)}{1-u'}(1-A)(1+t) + \frac{\tau(\delta+r)}{\alpha_2+R}(1+t) + t_p(1+t)$$

(a.30)

where τ is the Canadian capital tax.

For inventories the user cost of capital is;

$$F_{Inv} = \frac{(r+\phi u'p')(1+t)}{1-u'} + \tau$$

(a.31)

The user cost of capital for land in Canada is;

$$F_{Land} - \frac{r}{1-u'}\left\{1 + \frac{\tau(1-u')}{r+p'}\right\} + t_p$$

(a.32)

5. Derivation of Brazil's Corporate Income Tax Rate

While for many countries taxing corporate profits is the responsibility of the federal or central government, Brazil has a two tier system of corporate income taxation; one at the central level and also at the local regional government level. In addition, firms are also required to pay a social contribution tax. The aggregate taxation of corporate profits in Brazil is a bit involved as the taxes a firm pays one government level and the social

contribution taxes can be credited against the taxes owed to the other level of government. The aggregate Brazilian corporate income tax is expressed as follows;

$$u = u_F[1 - \tilde{u}_p - u_s(1 - \tilde{u}_p)] + u_s(1 - \tilde{u}_p) + \tilde{u}_p$$

(a.33)

The term u_F represents the federal income tax rate, u_s is the social contribution tax on corporation profits and $\tilde{u}_p$ is the derived local government tax rate on corporate profits. Equation a.26 can be expressed as the aggregate Brazilian corporate income tax rate which intuitively is the statutory federal rate, reduced by the credits given for the taxes paid to the local government and also for the social contribution taxes, plus the social contribution taxes paid, less the credit for taxes paid to the local government, and finally including the taxes paid to the local government. The expression for $\tilde{u}_p$, the local government derived tax rate is;

$$\tilde{u}_p = u_p u_F[1 - \tilde{u}_p - u_s(1 - \tilde{u}_p)]$$

which yields,

$$\tilde{u}_p = \frac{u_p u_F(1 - u_s)}{1 + u_p u_F[1 - u_s]}$$

(a.34)

The term u_p is the statutory local government tax rate.

6. Aggregation

The aggregation of the effective tax rates for each industry for each country involved the individual weighting of r_g and r_n by the corresponding capital stock weight (csw) for the four assets in each industry. The aggregation of the effective tax rates for either the manufacturing or service sectors can be more formally expressed as;

$$U_{Aggregate} = \frac{\sum_{j-1}^{4} r_{gj} csw_j - \sum_{j-1}^{4} r_{nj} csw_j}{\sum_{j-1}^{4} r_{gj} csw_j}$$

(a.35)

where j represents the four capital stocks. The capital stock weights used for the six Latin American countries were derived from World Bank project data.

Table A-2
Capital Stock Weights

	Manufacturing	Services
Land	4.51	2.86
Buildings	22.54	6.41
Machinery	33.28	6.36
Inventories	23.16	0.89
Total	83.49	16.51

Tables A-1 and A-2 summarize the relevant input data used to calculate the user costs of capital and effective tax rates for all four countries.

Appendix B

Table a1
15% Real Interest Rates
(Percentages)

	Manufacturing	Services
Argentina	43.7	48.7
Brazil	44.2	47.9
Chile	22.2	25.6
Colombia	15.4	16.3
Mexico	19.8	22.6
Venezuela	22.9	19.2

<u>Table a2</u>
<u>Subsidiary Borrows from Home Country (USA)</u>
<u>15% Real Interest Rates</u>
<u>(Percentages)</u>

	Manufacturing	Services
Argentina	46.0	48.9
Brazil	55.9	54.1
Chile	14.6	14.2
Colombia	23.1	20.8
Mexico	25.2	22.6
Venezuela	44.5	40.3

1: FIRMS BORROW IN HOST COUNTRY:

A. 5% Real Interest Rates for All Countries:

Table b1
Effective Tax Rates
Percentages

	Argentina		Brazil		Chile	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	54.9	56.8	52.0	51.9	46.8	45.7
Machinery	68.0	76.8	73.0	78.9	37.7	44.4
Inventories	24.9	-9.9	34.4	26.9	14.9	11.1
Land	23.9	16.4	37.9	31.0	42.1	39.5
Aggregate	56.2	64.4	60.8	66.2	36.2	42.9

Table b2
Effective Tax Rates
Percentages

	Colombia		Mexico		Venezuela	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	28.5	25.7	29.0	27.9	36.8	33.5
Machinery	33.0	40.8	41.9	50.3	38.5	36.4
Inventories	26.9	21.1	22.0	16.8	36.4	32.9
Land	37.1	32.6	21.6	25.0	36.4	32.9
Aggregate	30.4	33.1	33.3	37.8	37.5	34.7

B. 15% Real Interest Rates for all Countries:

Table b3
Effective Tax Rates
Percentages

	Argentina		Brazil		Chile	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	42.8	43.3	36.6	34.9	30.9	29.4
Machinery	53.7	62.1	58.0	63.6	23.3	26.9
Inventories	25.9	0.7	20.3	13.6	7.9	5.1
Land	15.2	11.5	22.8	16.1	26.2	22.0
Aggregate	43.6	48.7	44.2	47.9	22.2	25.6

Table b4
Effective Tax Rates
Percentages

	Colombia		Mexico		Venezuela	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	11.6	8.6	15.9	14.4	22.5	18.4
Machinery	16.4	22.6	27.1	33.9	23.8	20.3
Inventories	15.9	11.2	12.1	8.0	22.2	18.0
Land	22.1	17.9	17.0	12.8	22.2	18.0
Aggregate	15.4	16.3	19.8	22.6	22.9	19.2

2: FIRMS BORROW FROM HOME COUNTRY (US):

C. 5% Real Interest Rates for All Countries:

Table b5
Effective Tax Rates
Percentages

	Argentina		Brazil		Chile	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	54.0	57.1	42.6	43.7	13.5	10.2
Machinery	68.1	76.9	70.6	77.5	22.9	30.5
Inventories	25.9	17.0	48.7	43.2	-3.5	-16.6
Land	24.7	17.5	21.9	13.7	29.7	23.3
Aggregate	58.4	64.8	59.9	62.9	16.6	20.5

Table b6
Effective Tax Rates
Percentages

	Colombia		Mexico		Venezuela	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	3.0	-4.6	7.2	0.1	34.7	24.6
Machinery	21.5	28.8	31.5	39.1	33.9	23.1
Inventories	16.8	3.5	12.0	-2.9	38.6	28.9
Land	26.3	16.2	14.0	0.8	31.6	21.1
Aggregate	16.2	14.7	21.0	19.9	33.6	23.6

D. 15% Real Interest Rates for all Countries:

Table b7
Effective Tax Rates
Percentages

	Argentina		Brazil		Chile	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	45.0	45.5	50.2	47.6	15.6	12.8
Machinery	51.3	59.3	59.3	63.9	14.7	17.3
Inventories	37.7	34.6	59.0	54.9	12.3	7.7
Land	24.4	20.9	37.6	31.6	16.2	11.9
Aggregate	46.0	48.9	55.9	54.1	14.6	14.2

Table b8
Effective Tax Rates
Percentages

	Colombia		Mexico		Venezuela	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	18.3	13.2	20.2	15.2	45.2	40.7
Machinery	23.0	26.1	28.3	32.0	45.0	40.5
Inventories	29.8	23.7	26.5	19.7	48.2	44.0
Land	29.7	23.2	21.1	14.0	42.7	37.8
Aggregate	23.4	20.8	25.2	22.6	45.5	40.3

E. Allocated Interest Results (5% inflation & Debt located in USA):

Table b9
Effective Tax Rates
Percentages

	Argentina		Brazil		Chile	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	59.5	62.7	81.8	82.5	36.5	32.4
Machinery	72.3	80.8	93.8	94.8	44.1	51.9
Inventories	33.1	25.8	60.2	60.3	20.8	3.1
Land	32.7	27.9	43.5	44.8	42.3	34.9
Aggregate	64.5	70.2	89.5	90.5	38.6	41.0

Table b10
Effective Tax Rates
Percentages

	Colombia		Mexico		Venezuela	
	Mfg	Serv	Mfg	Serv	Mfg	Serv
Buildings	43.4	44.5	33.1	35.9	54.1	52.2
Machinery	63.6	67.4	58.1	66.1	63.1	61.8
Inventories	29.9	22.2	23.5	14.2	44.3	37.5
Land	37.4	31.5	15.8	17.0	38.7	31.5
Aggregate	53.1	54.6	45.6	50.6	56.7	53.7

SUMMARY OF INPUTS

Table c1
Inputs Used

	Argentina	Brazil	Chile
u-corporate income tax	33%	46.44%	15%
tg-gross receipts tax (Mfg)	1.6%	0%	0%
tg-gross receipts tax (Serv)	2.5%	0%	0%
t-excise tax (capital)	0.0%	12%	0%
capital goods tariff	30.0%	40.0%	11%
tp-property tax	1%	0%	2%
Interest deductions	nominal	real	real
ITA/C:Bldg-Mfg	0.0%	0.0%	0.0%
ITA/C:Bldg-Serv	0.0%	0.0%	0.0%
ITA/C:Mach-Mfg	0.0%	0.0%	0.0%
ITA/C:Mach-Serv	0.0%	0.0%	0.0%
annual depreciation / Bldg-Mfg	2%	8%	7.5%
annual depreciation / Bldg-Serv	2%	8%	7.5%
annual depreciation / Mach-Mfg	10%	20%	22.5%
annual depreciation / Mach-Serv	10%	20%	22.5%
Indexed depreciation	no	yes	yes
dividend withholding tax-Canada	0%	12%	20%
dividend withholding tax-USA	0%	12%	20%
Tax Loss Carry-forward	5-years	Indefinite	Indefinite
Capital Gains tax	36%	25%	10%
Tax Holidays	No	10/yrs	No
Inventories	LIFO	Indexed	Indexed

Note: the annual depreciation is expressed as straight line rates.

Table c2
Inputs Used

	Colombia	Mexico	Venezuela
u-corporate income tax	37.5%	34%	54%
tg-gross receipts tax (Mfg)	0.5%	0.0%	0.5%
tg-gross receipts tax (Serv)	0.6%	0.0%	0.5%
t-excise tax (capital)	0.0%	0.0%	0%
capital goods tariff	6.0%	11.0%	11.0%
tp-property tax	0.8%	0.5%	0%
Interest deductions	real	real	real
ITA/C:Bldg-Mfg	0.0%	0.0%	10.0% [C]
ITA/C:Bldg-Serv	0.0%	0.0%	10.0% [C]
ITA/C:Mach-Mfg	0.0%	0.0%	10.0% [C]
ITA/C:Mach-Serv	0.0%	0.0%	10.0% [C]
annual depreciation / Bldg-Mfg	7.5%	5%	1.5%
annual depreciation / Bldg-Serv	7.5%	5%	2%
annual depreciation / Mach-Mfg	15%	10%	7%
annual depreciation / Mach-Serv	15%	10%	11%
Indexed depreciation	yes	yes	yes
dividend withholding tax-Canada	7.0%	5.0%	0.0%
dividend withholding tax-USA	7.0%	5.0%	0.0%
Tax Loss Carry-forward	5-years	5-10 years	3-years
Capital Gains tax	30.0%	20%	30.0%
Tax Holidays	No	No	No
Inventories	Indexed	Indexed	Indexed

Note: the annual depreciation is expressed as straight line rates.