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Is There a Future for Capital Income Taxation?

Jack M. Mintz

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IS THERE A FUTURE FOR CAPITAL INCOME TAXATION?

This paper examines the future of capital income taxation in a world of capital mobility. It first explores the motivation for personal and corporate income taxation in an open economy and argues that policymakers should view these taxes as having quite different impacts on the economy. The paper then suggests that some forces (e.g. capital flight) will encourage governments to shift away from capital income taxation while others (e.g. tax exportation) will have the opposite effect.

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Cette étude examine l'avenir de la fiscalité applicable aux revenus du capital dans un contexte de mobilité croissante des flux de capitaux internationaux. Elle explore tout d'abord les motifs sous-jacents à l'imposition des revenus du capital en économie ouverte et souligne que l'incidence économique de ce type d'imposition diffère selon qu'il concerne les ménages ou les entreprises (ce dont devraient tenir compte les pouvoirs publics). L'étude suggère ensuite que certains facteurs (tels une fuite des capitaux) auront tendance à encourager les autorités à s'éloigner de la fiscalité des revenus du capital alors que d'autres considérations (par exemple, le souci d'imposer les non-résidents) auront l'effet opposé.

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IS THERE A FUTURE FOR CAPITAL INCOME TAXATION? (1)

I. Introduction

Recently, many tax experts in various countries have made the three general claims (2):

-- The mobility of capital and globalisation of these markets will make it more difficult for governments to tax capital income in the future.

-- As a result of tax competition, any government that tries to tax capital will find its tax base flee to low-tax countries.

-- Governments will have to rely less on capital taxes and more on labour and consumption taxes and/or seek new forms of co-operation at the international level with respect to tax policy.

The aim of this paper is to provide a theoretical discussion of the impact of tax competition on the use of capital income taxes as a source of government revenue. Specifically, it will address the following issue: does theory provide a conclusion that there should be a decline in capital income taxation as a result of tax competition and increased capital mobility?

II. Background

At the outset, it will be useful to characterise several important concepts that are used throughout this paper. These include the following: a) the impact of taxes on investment and savings in an open economy; b) the tax treatment of cross-border flows of income; and c) the meaning of tax competition.

A. Taxation impacts in an open economy

The conceptual framework underlying the analysis in this paper is an economy open to international flows of goods, services and capital. To understand the differences that arise in the study of tax policy in an open economy, it is useful to begin with an analysis of taxes using the closed economy as a benchmark.

Taxes on capital income impact on investment by creating a wedge between the before-tax rate of return on a marginal investment and the after-tax rate of return on savings used to finance investment. This is illustrated in Figure 1 below for a closed economy. The demand for investment by firms is indicated by the "I" line. This line indicates that the demand for capital by a profit maximising firm increases when the required rate of return on marginal investments declines. The "S" line indicates the amount of savings provided by households rises with a higher rate of return on capital. Without taxes, equilibrium is achieved where the rate of return on the marginal investment (r^*) clears the market: the demand for investment is equal to the supply of savings at this point (I^*, S^*).

When taxes on capital income are imposed at the corporate and personal level, they create a wedge between the before-tax rate of return (r^g) on investment and the after-tax rate of return on savings (r^n). The difference is the effective tax on capital. When this tax is positive, as indicated in Figure 1, the demand for investment and savings fall from (I*,S*) to (I**,S**). At this equilibrium, savings are equal to investment but the firm must earn r^g on the marginal project so that savers can receive r^n as a return on capital.

An important conclusion can be noted for a closed economy: taxes imposed either at the corporate or the personal level cause both investment and savings to decline. It does not matter if a government in a closed economy increases taxes on savings (such as more personal taxation of interest income) or on investments (such as a higher corporate tax rate). Both policies would have the same effect in reducing investment and savings in the closed economy.

This conclusion contrasts sharply with that arising in a case in which an economy is open. To make this point clear, the extreme case of a **small** open economy case is considered. A small open economy is one in which the economy faces an exogenous rate of interest determined by international markets. Domestic investments and savings in the small open economy have no impact on the economy's cost of borrowing funds derived from the international market (3).

Figure 2 illustrates the impact of tax policies on investments and savings for a small open economy that is a capital exporter. (Although not shown here, the same qualitative conclusions hold for a small capital importer.) The domestic demand for investments is indicated by the line I and the domestic supply of savings is indicated by the line S. The international rate of return on capital, r*, is exogenous to the country. Without taxes, domestic investment, I*, is undertaken by firms until the return on capital is equal to the return, r*. The supply of domestic savings, S*, is determined by the rate of return, r*, that the domestic savers can obtain in international markets. These savings are allocated to domestic investment (I*) and foreign asset purchases (S*-I*).

In a small open economy, it is important to differentiate between taxes at the corporate and personal level (4). Personal income taxes are residence-based taxes (5) as they apply to the capital income accruing to residents and exempt income accruing to non-residents. The personal tax thus affects only domestic savings (6). On the other hand, corporate income taxes apply to income produced from domestic investments. The corporate income tax thus reduces the return paid to both domestic and foreign savings. The corporate tax is thus a source-based tax.

When the corporate tax is imposed, domestic investment is undertaken at I** where the rate of return on capital is just equal to the internationally determined cost of funds plus corporate taxes paid on the marginal investment (r^g). Although investment declines from I* to I**, the corporate tax does not affect savings decisions since domestic savers can still earn the return r* on their foreign asset holdings. In fact, there is an increase in the savings outflow from S*-I* to S*-I**, given the reduction in domestic investment demand.

A personal tax that affects the return to domestic savings has a different impact. Since the personal tax applies to the return earned on both domestic and foreign assets held by residents, savers receive a before-tax rate of return, r^*, and an after-tax rate of return r^n. Domestic savings declines from S^* to S^{**}. However, it may be noted that investment remains at I^* since firms borrow at the same international interest rate. The impact of the personal tax is to reduce savings and the capital outflow of a country from S^*-I^* to $S^{**}-I^*$.

The important lesson from the small country analysis is that corporate and personal income taxes do not have the same effect on domestic investments and savings decisions. The corporate income tax directly impacts on domestic investment demand while the personal income tax affects the supply of domestic savings.

In the large open economy case, the main result regarding the differential impact of corporate and personal income taxes still holds although the story is more complicated. When the economy is large, the international cost of funds depends on the capital outflow of a country. Increased domestic investment demand causes a reduction in the economy's capital outflow, thereby increasing the international cost of funds. Increased domestic savings has an opposite impact: the capital flow increases, causing a reduction in the international cost of funds.

There are several reasons why an economy may be large in this context. First, if the demand for investment rises in a large economy, the international cost of funds may increase since world-wide demand for investment requires more savings (see references to earlier literature in Dixit, 1985). Second, the economy may face "country-specific" risk that implies that the prices of securities depend on amounts supplied to the international market. If less domestic investment is required, the risk-inclusive rate of return on capital required by international markets may increase as fewer securities of a specific risk type are available to international markets (Gordon and Varian, 1989). Third, if the country has market power in goods and services markets, its domestic borrowing rate of international markets may be affected by capital outflows by the following argument. An increase in domestic investment and a reduction in capital outflows causes the domestic currency to devalue in the long run (Burgess, 1988). Sales to international markets will increase and, if the country has market power in these markets, the international price of the exported good falls. The country will then face a worsened terms of trade, making it more difficult to repay international debt obligations in the future. This will cause the rate of return required by international markets for domestic assets to increase.

In the case of the large economy, a corporate tax reduces investment as in previous cases. However, because the international rate of return on assets faced by the domestic economy declines, the savers will receive a lower rate of return on assets. Thus, for a large economy, both the domestic investments and savings decline. However, as long as the international flow of savings is more sensitive to interest differentials than domestic savings there will be larger reduction in investment compared to savings.

For personal taxes on capital income, a similar story arises. A reduction in domestic savings (and capital outflow) will arise as the after-tax

return on capital declines. This causes the before-tax rate of return on capital to increase as there are fewer savings available to international markets. Investment demand in the economy will decline as the cost of borrowed funds as determined by international markets increases. However, investment will decline by less than the decline in domestic savings.

Given the openness of capital markets, it is important to consider corporate and personal tax policies separately as they apply to an open economy. This will be particularly of interest when tax competition issues is considered below.

B. Taxation of cross-border flows of income

Certain institutional features of the tax law that are relevant to discussion below are described briefly here. The first is with respect to the withholding taxes applied to capital income earned by non-residents. The second is with respect to double taxation of income earned by firms in a host country (the capital importer) with the same income also taxed by the home country (country of residence).

Most host OECD countries levy non-resident withholding taxes on payments made to corporations or individuals residing abroad. Non-resident withholding taxes apply generally to dividends, royalties, rents, management and technical assistance fees. They may also apply, if at all or at reduced rates, to capital gains and interest paid abroad.

As for the taxation of foreign-source income earned by corporate and individual residents, OECD countries follow one of three methods (7):

- The exemption method: Foreign-source income earned by residents is exempt from taxation by the home country (only the host country taxes the income).

- The crediting Method: Foreign-source income earned by residents is taxed by the home country with a credit given for withholding and corporate income taxes levied by the host country. Those home countries that use the crediting system usually tax branch income on an accrual basis and earnings derived from subsidiaries on a remitted basis (dividends, interest, royalties and other cross-border charges). The home country only credits corporate income taxes payable to a host country that are deemed to be paid on dividends (8).

- The deduction method: Foreign-source income net of a deduction given for withholding taxes and deemed corporate taxes paid to the host country is taxed by the home country.

The OECD countries generally use the exemption or crediting system with respect to the treatment of foreign-source income when the income originates from either treaty or non-treaty countries. The deduction method is only used by a few OECD countries (Norway, Portugal and Switzerland) when foreign-source income originates from non-treaty countries. Moreover, many countries use the exemption method for some forms of income, such as dividends of "controlled" subsidiaries, and the crediting method for other sources of income (9). As

noted above, reinvested earnings of subsidiaries are exempt from home country taxation of foreign-source income.

C. The meaning of tax competition

It would be useful, at the outset, to provide a definition of tax competition which is central to the discussion throughout this paper. Following Mintz and Tulkens (1986, 1990, and 1991), tax competition is a process leading to a result that involves the fiscal decisions of one country affecting the economic welfare (10) of another. Tax competition therefore leads to interdependencies arising from fiscal decisions, or what shall be referred to below, **fiscal externalities**.

To understand tax competition and fiscal externalities, it is important to specify at the outset an operating assumption regarding government decision-making. It is reasonable to assume that the political process is designed so that a government seeks to its maintain its own self-interest or, alternatively, the interest of the population in its own jurisdiction. Given the assumption that a government's tax policy is set independently of potential economic effects on other countries, tax competition will affect the welfare of other jurisdictions. This is characteristic of what is referred to as **non-cooperative** behaviour. Combined with an assumption of optimising behaviour, governments seek to exploit interdependencies including the attraction of tax bases from neighbouring jurisdictions.

By this definition of interdependencies, one specific case of tax competition obviously arises when one country's tax policy affects the tax base of another. This may be due to the flight of its own tax base or the crediting or deductibility of a tax at home against the tax of the affected jurisdiction. Tax competition also leads to other fiscal externalities such as the taxation of non-resident-owned capital which reduces income, and hence, welfare, of investors in other jurisdictions. We characterise fiscal externalities as having "public consumption" effects (i.e. affecting the tax revenue raised and therefore the consumption of public goods in the externality recipient country) or "private consumption" effects (i.e. related to the consumption of private goods in the externality recipient country). Externalities may be detrimental (welfare reducing) or beneficial (welfare increasing) for the recipient country.

The impact of tax competition on the future of capital taxation is examined in detail in the remainder of this paper. To understand why governments rely on capital taxes, Section III outlines the motives for capital taxation. This is then related to discussion in Section IV where the impact of tax competition on capital taxation is discussed. Section V discusses the impact of tax competition on capital taxation when governments try to co-ordinate tax policies in some manner, such as the use of double taxation agreements or formula apportionment rules that have been adopted in federal countries.

III. Motivations for Capital Income Taxation

By far, the most important source of tax revenue in most OECD countries is that raised under the income tax (corporate and personal income taxes). By definition, income is the remuneration paid to labour (wages, salaries, and benefits) and returns to capital (rents, dividends, capital gains, and interest).

Why does income taxation, including capital income taxes, remained so popular among governments? This is not a moot question. A vast literature has developed since the 1970s debating the virtues of the income base with an alternative form of the tax base: namely, consumption (11).

An important property of the consumption-based tax is that savings or the return to savings is exempt from taxation (Bradford, 1985 and 1986). The consumption tax can be imposed as an indirect tax on consumer goods such as the Value-Added Tax or Retail Sales Tax. Or, alternatively, it can be imposed as a direct tax on the income net of saving (or, perhaps, by exempting capital income such as under a payroll tax (12)). Thus, unlike an income-based tax, the consumption-based tax largely exempts capital income from taxation.

To understand the rationale for the taxation of capital income, it is useful to review the arguments the taxation of capital income under the personal tax. Following this, it is easy to consider the rationale for the corporate income tax that, as argued below, largely depends on the form of tax adopted at the personal level.

A. Personal income taxes

During the recent tax reform period of the 1980s, many governments reduced personal statutory income tax rates and, in some countries, broadened the personal income tax base by reducing deductions and exemptions. However, except in some cases, there has been no significant change in the tax mix such as increasing reliance on payroll and consumption taxes as alternatives to the income tax. So why has the income tax, with its distinguishing feature of being applied, in principle, to capital income, remained so popular?

The political acceptability of the income tax at the personal level may be largely credited to a number of factors, economic and political. The economic factors include both allocative and administrative issues. The political ones deal with the public's perception of fairness in the tax system and the difficulty of handling transitional issues.

In addition, there is the issue of raising revenue, the main objective of a tax system. However, the question faced by governments in raising taxes is not only "how many geese to pluck" but "how to pluck the geese with the least amount of pain". The discussion below concentrates on the second issue; given the amount of tax revenue to be raised, why rely on capital income taxation rather than solely on other sources of revenue?

1. *Allocative issues*

One of the reasons that income taxes have not been eliminated is with respect to the economic difficulties that would arise by relying solely on

taxes that largely fall on labour. Taxation of capital income, especially at the personal level, has been argued for on the grounds that, otherwise, there would be a high tax on labour supply, making the tax base too narrow. Although the intellectual debate in academic circles, as cited above, has led some tax experts to favour the exclusion of capital income from the tax base, there remains considerable disagreement on whether a reform that eliminates capital income taxation would reduce the economic (allocative) costs of the tax system.

Economists have pointed out that the elimination of capital income taxes has the benefit of increasing the amount of savings available for investment in domestic and international assets. In fact, the strongest criticism against the income tax is that it discriminates against savings in favour of consumption. The argument against income taxes is well articulated by Bradford (1986). When a person earns income, tax is paid once. If income is then consumed, there is no further tax liability. However, if the person saves income, any income earned on savings bears tax. Thus, the savings is more highly taxed than consumption.

The income tax thus creates what economists have called an "intertemporal distortion". At one time, economists argued that the impact of taxes on savings was very little so that this "intertemporal distortion" was not large. However, beginning with Feldstein (1978) and Boskin (1978), it was argued that the intertemporal distortion was much greater than that estimated in earlier studies. This was in part due to an error in calculating the economic loss arising from the taxation of savings and in part due to improved econometric analysis that obtained higher estimates of the elasticity of savings (13).

The intertemporal distortion, however, is not the only distortion that economists are concerned about. As discussed by Atkinson and Stiglitz (1980) and Sandmo (1985), the elimination of the tax on savings requires the government to increase the rate of tax applied to consumption and/or labour to raise the same amount of revenue. However, the effect of the increased level of labour or consumption taxes (14) is to worsen other distortions, such as distorting the supply of labour. It is thus argued that some taxation of capital income is necessary to avoid too great of an economic loss induced by solely taxing labour supply. Indeed, Auerbach, Kotlikoff and Skinner (1983) and Auerbach and Kotlikoff (1987) find that sole reliance on a wage tax compared to an income tax could increase the economic loss induced by the tax system (15).

Economists have thus been divided as to whether the replacement of income taxes by wage and consumption taxes would be beneficial to the economy. The lack of consensus in the intellectual debate on the allocative impact of income taxes has given little comfort to policymakers. As there is no clear argument against capital income taxes, then reliance on a capital income tax in conjunction with other taxes cannot be ruled out on allocative grounds. Other issues such as fairness and simplicity in the tax system become more important than allocative impacts in determining the appropriateness of a particular personal tax base.

2. *Administrative issues*

Some of the strongest arguments against capital income taxation is related to administrative difficulties arising from implementing a tax. However, administrative issues can lead to arguments in favour of taxing capital income at the personal level, as to be further elaborated below.

As is well documented by the Meade Report (1978) and the U.S. Treasury *Blueprints for Basic Tax Reform*, taxation of capital income is inherently difficult because the tax base is often difficult to observe. To properly tax capital income, a number of tricky calculations must be made (16):

- Accrued income earned on assets is not easily observable. For example, capital income earned on investments in consumer durables are exempt from taxation or imperfectly measured for tax purposes.

- Capital gains should be taxed as they accrue rather than when they are realised.

- Capital income should be indexed for inflation by correcting asset values for replacement cost and adjusting income and interest expenses for inflation.

- Depreciation, reflecting the decline in the real value of assets and an individual's human capital stock, should reflect true economic lives and take into account changes in the price of capital goods.

Given the difficulty of observing the income tax base, some economists have argued in favour of eliminating the tax on capital income by relying on an alternative base such as cash flow (Bradford, 1986). For example, under the cash flow tax, investments in assets are expensed (asset disposals are taxable) and capital income is exempt (interest expenses are not deductible). The advantage of eliminating capital income from the tax base is that it avoids the difficult calculations cited above. However, other issues arise that are particularly important with respect to the treatment of capital income: tax evasion and international complications. Although some administrative problems with respect to these two issues suggest that capital income taxes should be avoided, as is argued below, no unambiguous case can be made in favour of eliminating capital income taxes.

Tax evasion

Taxation of income, particular capital income, is based on a self-assessment system in many of the OECD countries. Individuals report their income at the end of year and pay taxes net of instalment payments or amounts withheld by business upon payment of income to the individual. Spot auditing is used to enforce the income tax system.

The problem of tax evasion arises when the reporting of income depends solely on the amounts determined by the taxpayer. With wages and salaries, businesses withhold taxes on behalf of the taxpayer so that the taxpayer cannot easily evade the income tax applied to labour earnings. However, with capital income, there often is no withholding of tax on sources of capital income paid by the business to the taxpayer (except on income payable to non-resident

owners or dividend distribution taxes as found in imputation systems) (17). As a result, tax evasion is more likely to occur with respect to capital compared to labour income.

Tax evasion also arises when taxpayers earn low-taxed or tax-free income outside of the taxing jurisdiction. This particularly applies to capital income taxation since taxpayers can hold assets outside of the country of residence, not report income to the taxing authority in their country of residence and still maintain residence within the jurisdiction. Unless there are foreign exchange controls requiring individuals to report remittances of income from foreign sources, individuals are able to avoid income taxes payable to their country of residence (home country) by holding assets in foreign bank accounts, especially in tax-haven countries.

As a result of tax evasion, it is argued that capital income taxes are difficult to impose. Other taxes, such as the Value-Added Tax or the payroll tax, are more easily implemented because of a paper trail available to assess the taxpayer. However, evasion does occur, even for VAT systems, with the problem more endemic for some countries than for others.

It should also be pointed out that, in some cases, tax evasion problems could be worse if the personal income tax excluded capital income from the tax base or there were sole reliance on the payroll tax. If taxpayers earn labour income in the form of capital income (dividends or capital gains), it possible for an individual to be paid compensation without any tax borne on the income (18). Tax evasion, in this case, would arise from the underreporting of labour compensation in favour of capital income.

To avoid problems of tax evasion, authorities in many countries rely on two forms of minimum taxes to ensure that capital income is taxed (19). The first is a system of withholding taxes on capital income paid by the business to the individual, such as dividend and interest withholding taxes deducted at source, which are creditable against the personal income tax payable by the individual recipient. If the rate of withholding tax is close to the top personal tax rate, there is a strong incentive for taxpayers to report their capital income. Otherwise, they may pay more tax to the authorities. A second form of minimum tax is to impose a tax on an alternative base as a replacement or addition to the capital income tax (the minimum tax could be creditable against the income tax). For example, a tax on wealth (real property) can be used as a substitute or add-on to a tax on capital gains or housing. These forms of minimum taxes help enforce the capital income tax, making capital income taxation less subject to tax evasion.

International complications

International issues are perhaps the most difficult set of problems that arise with capital income taxation. As this is the topic to be dealt with in detail in Section IV, only a few administrative difficulties with respect to international transactions are briefly mentioned here.

If a country chooses not to impose a tax on capital income, a number of complications can arise. First, a host country that exempts capital income may find that it is difficult to impose taxes on income accruing to non-residents when neighbouring countries continue to assess an income tax. For example,

foreigners from neighbouring countries would prefer to earn capital income in the host country rather than other forms of compensation to avoid paying taxes to both the host and home countries. Also, foreign investors could borrow in a foreign country, deduct interest there, and earn tax-exempt capital income in the host country. These problems become even more important with respect to corporate income taxes.

Second, some capital exporting countries such as Japan, Germany and the United States allow their taxpayers to claim a credit for withholding taxes paid to foreign governments against the home country taxes owing on foreign-source income. If a host country eliminates its tax on capital income under the personal income tax, the home country may disallow the crediting of foreign withholding taxes, using the argument that these taxes, in absence of a personal tax applied to residents in the foreign country, discriminates against non-residents.

The above result could be unappealing for a capital importing country. With both non-resident withholding taxes and a residence-based personal tax, the capital importer's non-resident withholding taxes are efficient from its own point of view. Without the taxes, there would be a transfer revenue from its treasury to foreign treasuries without discouraging foreign investment since the foreign investor earns the same after-tax return on investments in the host country.

International complications have been especially important in discouraging countries from choosing tax bases that are quite different from those in the rest of the world. Any country that chooses to eliminate unilaterally its tax on capital income may find that certain administrative complexities make it difficult to assess the existing taxes in its own jurisdiction.

3. *Fairness*

Perhaps the most important reason that governments have been reluctant to abandon the taxation of capital income is with respect to fairness. The public has perceived income to be a good measure of an individual's ability to pay taxes. Individuals with greater income are expected to pay more taxes.

The income tax has also been the primary tool used to redistribute income in society (20). The rate structure is graduated so that higher income individuals pay more taxes, proportionate to income, compared to lower income individuals.

As mentioned in the above footnote, an alternative view has developed that income should be assessed on a lifetime rather than annual basis to properly measure a household's ability to pay taxes. In present value terms, the consumption of a household is equal to its lifetime earnings. The implications of this is that capital income, or interest, is only the cost or price at which current consumption is sacrificed for future consumption. Under an income tax, future consumption is more highly taxed than current consumption. Thus, it can be argued that from the standpoint of fairness, capital income should not be taxed.

This view has been criticised on two grounds. First, it has been argued that unconsumed wealth confers benefits (i.e. political power) to households so that some capital income taxation is appropriate for reasons of fairness. Second, some households benefit from large inheritances that may not otherwise be taxed unless there is a capital income tax. The inclusion of capital income earned on inherited wealth has been proposed as a substitute for the taxation of inheritances and bequests (Meade Report, 1978).

4. *Transitional problems*

Another problem arising from the elimination of taxes on capital income is with respect to transitional issues. When moving from one tax base to another, some taxpayers face an increase, others a decrease in taxes. The reduction in capital income taxes could provide a once-and-for-all windfall gain to investors expecting to pay taxes on their accumulated savings. However, an increase in compensatory taxes on other bases (i.e. property) could increase taxes on old assets.

Pressures arise for governments to grandfather provisions that create windfall losses while there is little political gain to impose taxes to reduce windfall gains (21). This political problem leads to difficulties in maintaining tax revenues resulting from a shift in tax policy during a transition. Moreover, if the government must increase its deficit to absorb revenue losses. the tax policy may be far less appealing to it. At times, transitional impacts are so difficult to handle that they deter governments from adopting the policy even though the long run impact of the policy may be beneficial.

B. Corporate income taxes

Corporations are the most important form of business organisation in OECD countries and have been subject to taxation throughout the world. In almost all countries through the world, the corporate tax generally applies to shareholder income: revenues net of current expenses, depreciation, interest and intangible capital expenditures (22).

In the discussion related to the personal income tax, it was argued that the taxation of capital income has been widely accepted in many countries for a number of economic and political reasons. Having established the motivations for personal income taxation, the rationale for the corporate tax can be better understood. In this section, several arguments are given for corporate taxation: i) its withholding role, ii) its role of exacting payment for benefits conferred on business and iii) its economic policy function (23).

1. *The withholding role*

The most important role of the corporate income tax is to serve as a withholding device on income that is difficult to tax at the personal level. This principle recognises that a taxpayer can try to avoid capital income taxes at the personal level by keeping income in the corporation on a tax-free basis.

An important aspect of the corporate tax is its withholding role with respect to reinvested income of the corporation. Interest and dividends received by taxpayers can be easily taxed at the personal level. However, as

argued in the previous section, the full taxation of accrued capital gains is difficult to accomplish. Therefore, to ensure that capital gains on shares held in companies are taxable on an accrual basis, similar to other forms of income, the corporate income can be used as a withholding tax on such retained earnings that give rise to capital gains on shares.

Under the withholding role of the corporate income tax, the corporation can pay corporate income taxes on income accruing to investors. If capital income, such as dividends and interest, are fully taxable at the personal level, then they could be deductible from the corporate income tax. If dividends are not deductible at the corporate level, then the shareholder would receive taxed distributions. Integration of corporate and personal taxes would be needed to avoid double taxation, such as providing a dividend tax credit for taxes paid at the corporate level. In many OECD countries, the corporate and personal income taxes are integrated by the imputation method: a dividend tax credit is given at the personal level to offset corporate taxes borne on income accruing to shareholders (24).

Given this withholding role of the corporate income tax, the corporate income tax base would be retentions (revenues net of operating costs, interest and dividends). However, the corporate income tax would be an imperfect one. The difficult calculations made with respect to economic depreciation, accrued income on intangibles, indexation for inflation and the mismatching of income and expenses would apply to the problem of measuring corporate income as discussed above with respect to personal income taxation.

Another withholding aspect of the corporate income tax, and one that will be important to the discussion of Section IV, is the treatment of corporate income accruing to foreigners. As discussed above, foreigners are not taxed on income at the personal level by the host country (except for non-resident withholding taxes that are subject to treaty negotiations). This implies that the corporate tax serves as the only flexible source of tax revenue paid by foreign investors in the host country. In addition, under current international tax arrangements, corporate taxes in host countries may be credited against home country taxes on foreign-source earnings of multinationals. This could give considerable scope for a host country to tax corporate income without deterring necessarily foreign investments as foreign treasuries lose revenue (25).

Above, it was suggested that dividends could be deductible from the corporate tax base if the sole purpose of the corporate income tax were to withhold income accruing to residents when such income is difficult to tax at the personal level. However, the deductibility of dividends from corporate income would not be advisable if the corporate income tax serves as a withholding device for income accruing to foreigners. The reason for this is the nature of international tax arrangements whereby many capital exporting governments, such as Japan, United States and United Kingdom, tax the remitted foreign-source dividends of their multinational companies and credit host country corporate taxes against the tax liabilities owed by the parent company to its home country. By allowing the deduction of dividend distributions from the corporate income tax, the host government reduces the amount of taxes paid by a foreign subsidiary that would otherwise be credited abroad. This leads to a transfer of tax revenue from the host government to the home country. Subsequently, the deductibility of dividends reduces the withholding role of

the corporate income tax in the host country without the benefit of attracting new foreign investments (26).

These two withholding roles of the corporate income tax were explicitly recognised by the Royal Commission on Taxation (1966) in Canada (the Carter Report) in its argument for the implementation of the corporate income tax. The role of withholding was to ensure that all forms of capital income would be taxed at the personal and international levels of taxation. The appropriate base would be shareholder income, retentions and dividends, the former because of the difficulty of taxing accrued capital gains, the latter because of the credibility of corporate income taxes deemed to be paid on dividend distributions.

2. ***Payment for benefits***

Another rationale for the corporate tax is that it serves as a benefit payment for privileges conferred on the corporation. These benefits include limited liability (Meade Report, 1978) and use of public property (such as exploitation of government-owned land or natural resources).

Although there are good arguments to be made for a tax on corporations to pay for certain publicly-provided benefits, the use of the income base for this purpose is not apparent. For example, if a public good such as infrastructure expenditure, confers benefits on businesses, the appropriate tax would be a user charge. If the public good allows the company to earn rents, then a rent tax is appropriate (27). It is somewhat difficult to argue for the use of income tax base except for the fact that the base may be easier to implement at the international level.

3. ***Economic policy function***

Corporate taxes are also used as a means of altering investment patterns of businesses. The use of tax incentives encourages companies to undertake activities that would not otherwise be pursued in a market economy.

The use of the corporate income tax as a tool for government intervention is common to most nations. However, this begs an important question. Why should the corporate income tax be used to change firm behaviour rather than expenditure policies such as cash grants and subsidies? After all, tax incentives create complexity in the corporate income tax system and increase compliance and administrative costs for both taxpayers and the government.

Two reasons may be given for the use of corporate tax incentives rather than expenditure programs. One reason is that the corporate income tax incentive is more general, reducing the administrative burden of determining which firm should benefit from the provision. A second is that it is politically more appealing for the government to provide a reduction in taxes rather than a cheque to the corporation.

Although the corporate tax is used for economic policy reasons, there is no particular rationale for the corporate tax to be based on income. Indeed, tax incentives reduce the role of the corporate income tax to act as a withholding tax on income and as a revenue-raising device. For these reasons,

reform measures recently adopted in many countries have scaled back corporate income tax incentives by reducing tax preferences for capital.

The primary argument for a corporate income tax is that it is most compatible with the personal income tax. The caveats raised with respect to difficulty of taxing capital income under the personal income apply even more so to the corporate income tax. There are difficulties in observing the corporate income tax base; there are problems of tax evasion at the domestic and international level. However, as long as governments continue to tax capital income at the personal level, a tax on corporate income is necessary as a backstop to the personal income tax.

IV. The Impact of International Tax Competition on Capital Income Taxation

In the previous section, a number of reasons were given for why governments wish to rely on capital income taxation. The primary factors are that: i) income as a tax base is politically popular as it is viewed as being fair; ii) given the need to raise revenue, taxation of capital income reduces pressures to raise taxes on other sources; and iii) administrative problems could arise if there were no tax on capital income. Once a government chooses to institute a personal income tax, a corporate income tax becomes necessary to ensure the full taxation of income at the personal level. The application of the corporate tax to shareholder income (dividends and reinvested profits) results from the difficulty of taxing capital gains at the personal level and the benefit of taxing dividends accruing to foreigners, especially if the corporate income tax is credited against taxes assessed by capital exporting countries on foreign-source income.

Given this background on the role of capital income taxes, it is now possible to assess the primary issue addressed in this paper: will countries shift away from capital income taxation as a result of increased mobility of capital and tax competition? To answer this question, it would be useful to describe the nature of tax competition in relation to the taxation of capital. Following that, capital income taxation will be discussed first for small open economies and then for large open economies.

A. Tax competition and capital mobility

In the introduction, tax competition was defined in terms of the fiscal externalities or spillovers caused by one government's fiscal decisions that affects the welfare of the other. In terms of capital taxation, two types of spillovers are identified (28):

1. *Capital flight*

The common perception of capital tax competition is that a jurisdiction, by taxing capital, loses capital to another (see, for example, Wildasin, 1987; Bird and McLure, 1990). This has been termed as "capital flight" and has been a major concern for policymakers that are trying to maintain the taxation of capital income.

The extensiveness of capital flight depends on the elasticity of capital base. It would be useful here to distinguish between two types of capital

flows between countries: portfolio and direct investment. Portfolio investment refers to financial assets (bonds and equities with minority holdings) held by companies and individuals. Direct investment refers to bond and equity assets held in a firm that is controlled by the investor. Along with direct investment, owners transfer technology and managerial expertise.

One would expect that portfolio capital would tend to be quite sensitive to differences in tax-adjusted rates of return on capital across jurisdictions. Both the corporate income tax, the withholding taxes applied to non-residents and personal income taxes heavily influence the portfolio allocation decisions made by owners of financial capital. This is illustrated by impact of changes to the withholding taxes applied to interest in Germany in recent years.

Direct investment, on the other hand, would be expected to be less sensitive to changes in rates of return. With direct investment, a multinational is interested in the use of real capital and labour in production. If there are country-specific factors of production leading to imperfect substitutability of investments across countries, the multinational may be able to derive rents or above-normal returns in a host country. In addition, most direct investment tends to be undertaken by multinational corporations investing in controlled subsidiaries or branches operating in the capital importing country. This is important to keep in mind since the corporate tax is the most important fiscal instrument used to influence direct investment flows while withholding and personal income taxes have a secondary role in this respect.

As a result of capital flight, capital taxes imposed by one government affect the welfare of other externality-recipient countries via two mechanisms.

The first is a "public consumption" effect whereby a tax imposed in one country expands the capital tax base and, subsequently, revenues of the other. This is a fiscal externality that is beneficial to other countries that is not taken into account in decision-making when the a government increases its rate of capital income taxation. Its implication is that capital tax rates are set too low relative to a situation of co-ordinated taxes since a government, if compensated for the benefit conferred on others, would have chosen a higher capital tax rate.

The second aspect of capital flight is its impact on "private consumption" in other countries by inducing changes in the prices of internationally traded goods and capital. Here, a distinction must be made between taxes on investment (the corporate income tax that affects the return accruing to domestic and foreign investors) and taxes on savings (the personal income tax that affects the return paid to domestic savers).

With the corporate income tax, a country reduces the demand for traded capital. This reduces the international cost of funds depending on the size of the country. Thus, a corporate tax rate in one country, that induces the flight of capital, is beneficial to a competing jurisdiction that is a net borrower of capital funds and is harmful to a competing country if the latter is a net capital exporter. On the other hand, a tax on savings reduces the supply of international capital, thereby causing the international interest rate to increase. As a result, a capital importing country is harmed by savings taxes imposed by other countries while the converse applies if the externality-recipient country is a capital exporter.

Although capital flight may be viewed as a reason for why capital taxes are too low, the above discussion suggests that in certain circumstances the opposite conclusion may hold.

2. ***Tax exportation***

As discussed in the previous section, one of the benefits of capital income taxes to a capital importing country is that the taxes may be applied to income accruing to foreign residents. This is an example of "tax exportation" whereby the capital income tax is exported reducing the income or, as a result of crediting arrangements, taxes paid in other jurisdictions.

In the first case, capital income taxes in a capital importing country withhold income accruing to foreign investors (29), although it may deter foreign investment. This is an example of a harmful fiscal externality since the corporate income tax in the capital importing country reduces the return on capital derived by foreign investors and, hence, their ability to pay for private consumption goods. The substantive effect of this spillover is to suggest that capital income taxes are set too high by governments relative to a situation that involves a coordination of tax policies.

In the second case, the crediting of a capital income tax against foreign taxes payable, or just its deductibility from foreign taxable income, encourages the capital importer to export taxes. This reduces taxes owing to the capital exporter and harmful to it. However, this could be beneficial to the capital exporter it its capital income taxes can be better enforced (30).

The net impact of these two spillover effects is to suggest that capital income taxes may be chosen either too high, due to tax exportation, or too low, due to capital flight, in a tax competitive world relative to one with tax co-ordination. The capital flight spillover often, although not always, leads to the conclusion that capital income taxation will be less relied upon in international economy with mobile capital. However, the tax exportation spillover suggests that more mobility of capital will lead to more reliance on capital income taxes. The strengths of these results depend, however, on whether the economies are "small", in the sense that international interest rates are unaffected by their decisions, or "large" in the sense that international interest rates do depend on domestic investment and savings of a particular country. They also depend on whether the tax applies to domestic savings (the personal income tax) or to domestic investment (the corporate income tax). These will considered in turn below.

B. Small open economies

A small open economy is defined here as one facing an exogenous cost of portfolio financial funds obtained from international markets (31). Foreign and domestic financial assets, be they equity or debt, are substitutes with each other (32).

Although the economy is small with respect to financial capital, there is no presumption that it is small with respect to direct investment flows. For the purposes of discussion below, it is assumed that companies cannot replicate production facilities yielding the same rate of return on capital in other countries. In other words, there are fixed specific factors of

production (natural resources and entrepreneurship) or gains to international diversification of production which allow a company to earn rents in particular location (33). Given these assumptions, multinational companies operate in several countries and there are multiple flows of direct investment amongst countries.

In a small economy, it is important to emphasise points raised in the background discussion of Section II. The personal income tax directly applies to domestic savings, and the corporate income tax applies to domestic investment. A personal tax on domestic savings reduces the return earned by savers without affecting the international cost of funds. As a result, the personal income tax has no impact on the investment since foreign savings replaces domestic savings at the same international interest rate. Similarly, the corporate tax reduces investment without affecting the international interest rate that determines savings.

1. *Personal income tax spillovers in a small open economy*

Personal income taxes are levied on the income of residents. Some countries tax world-wide income (with a credit for foreign taxes) and others only tax income from domestic sources. Below, it is assumed that personal taxes fall on domestic savings to some extent. Even if a country exempts foreign-source income from taxation, an individual investor holds an optimal portfolio of domestic and foreign assets for transaction cost reasons. A personal income tax may encourage investors to hold foreign assets but an investor does not fully escape taxation.

It is also assumed that personal income taxes apply primarily to income from portfolio capital. Income from cross-border direct investment largely accrues to multinational corporations, not persons.

Also, the personal income tax applies on labour income earned by residents. If we take the assumption that labour is fixed in supply and internationally immobile, any tax levied on wages will be borne by the worker. With variable labour supply, the tax is partly shifted forward unto the firm through higher wages, thereby reducing the demand for both labour and capital.

The return paid to owners of capital will not be affected by the personal income tax on labour since the return on portfolio capital is determined by international markets. Only the above-normal return, or rents, earned by fixed factors, such as those associated with entrepreneurship (owners of direct capital) will be affected. The main conclusion drawn here is that spillovers associated with taxes on labour, which is internationally immobile, have little or no impact on the other countries. Tax competition issues are not important with respect to labour taxes.

With respect to the personal taxes on capital income, the impact of one country's personal tax on the other is more complicated. There are two issues that must be separated here. The first is the impact of capital mobility on the optimal personal tax rate applied to capital income when personal income taxes on domestic and foreign-source capital income are enforced. The second arises with either the exemption of foreign-source income or lack of enforcement.

When personal income taxes are levied on both domestic-source and foreign-source capital income earned by residents, governments tax capital income regardless of whether the income is earned at home or abroad. It would useful here to consider situations in which the country is a net exporter or importer of portfolio capital.

If a country is a net exporter, the effect of an increase in its personal income tax is to reduce domestic savings available for international markets. However, given the smallness of the economy this has a negligible impact on the rest of world. The spillover associated with capital mobility is unimportant for this reason.

In the case of the country being a net capital importer, the personal tax on capital income reduces domestic savings and encourages more foreign capital to flow in from abroad. If the foreign governments tax residents on a world-wide basis, the foreign governments lose little of their tax base, thereby being little affected by capital flight. However, if the foreign governments exempt foreign-source income of their residents (or cannot enforce its own personal income on foreign-source income), the foreign governments could lose a significant portion of their tax base, although given the smallness of the capital importer, this is relatively unimportant to the capital exporters.

The personal income tax may thus have little impact on tax competition for small open economies. It is a residence-based tax so that any changes in personal tax rates only affect the welfare of the small economy that imposes it. Other countries are not affected. This logic is similar to the situation in which a household, deciding to reduce its savings for no rational reason, will not affect the welfare of other households in the economy.

The above discussion applies to the personal income tax. There are also withholding taxes on non-residents that may be viewed as part of the income tax system. Withholding taxes on non-resident portfolio income have different implications for spillovers compared to the personal income tax that only affects residents. If foreign governments allow the withholding taxes to be credited against their own taxes, a capital importing government is able to export taxes onto foreign treasuries by increasing its withholding taxes. This leads to a "tax exportation" spillover, as discussed above.

There are two limitations, nonetheless, with respect to tax exportation. The first is that withholding tax rates are often negotiated by double taxation treaties so the latitude given to a government to take advantage of tax exportation is curtailed. The second is that withholding taxes may be difficult to credit against foreign taxes. Current non-resident withholding taxes apply to the gross income earned by the foreigner prior the deduction of cost incurred abroad. For example, a foreigner earning interest, rents and management fees pays withholding taxes to the host country on the gross revenues earned. However, the income tax paid to the home country, to which the withholding taxes are credited, is on revenues net of costs incurred for business purposes (costs exclude foreign withholding taxes since the withholding taxes are creditable). Thus, some non-residents may not be able to fully credit their withholding taxes paid to host countries against home country liabilities (34). There are, however, tax planning methods that could be used to try to soak up withholding tax credits and these are discussed further below.

With the full taxation and enforcement of the personal income tax, capital mobility has little impact on the optimal choice of a personal tax rate in a small open economy. However, capital mobility becomes important if residents are able to avoid the personal tax on savings by investing capital in low tax jurisdictions. Capital flight, which depends on tax regimes of other countries, may make it more difficult to impose a tax on capital income at the personal level. However, if other countries tax capital income accruing to non-residents at a sufficiently high rate, tax avoidance by holding accounts abroad becomes less important. This is where tax competition may play an important role.

In fact, many OECD countries no longer impose withholding taxes or at very low rates on gross interest accruing to foreigners (for the reasons given above). As a result, a particular country has difficulty enforcing the capital income tax. Its residents may earn income in foreign bank accounts, pay little tax to foreign governments, and with no requirement or lack of reporting, no tax to the home government (35). To the extent that residents can avoid personal income taxes on capital income, governments must rely on other sources of revenue.

On the other hand, a government receiving foreign savings would find that non-resident withholding taxes may be optimal especially if the tax is credited abroad, allowing the capital importer to export taxes (36). Capital mobility in this case increases the incentive to tax capital income by the importer especially if its government is able to obtain large yields of tax levied on non-residents. In the wake of capital mobility, the outcome may thus be the maintenance of capital income taxes in both the capital exporting and capital importing countries.

2. *Corporate income tax spillovers in a small open economy*

Unlike the personal income tax which is, in principle, residence-based, the corporate income tax is a source-based tax. It reduces the return accruing to both domestic and foreign owners, thereby acting as a withholding tax not only on residents but on foreigners as well. Given the source-based nature of the corporate income tax, the issue of tax competition is more critical compared to the personal income tax.

When a small open economy levies the corporate income tax, it crowds out domestic investment (37). This leads to a reduction in capital inflows for a capital importer or to an increase in capital outflows as capital exporter. Capital flight arises with respect to both portfolio and direct investment. With respect to portfolio capital leaving a small open economy, the increased capital outflow has a negligible impact on international markets. However, for direct investment, owners are able to earn above-normal returns or rents to the extent that foreign entrepreneurship is complementary to foreign capital. The effect of corporate taxes is to reduce income accruing to the multinational and discourage entrepreneurship. This could have a positive effect on neighbouring jurisdictions that compete for the same entrepreneurship. Thus, the corporate tax could induce a positive spillover whereby other countries benefit from additional direct investment (38).

The tax exportation spillover becomes quite important with the corporate tax to the extent that the corporate tax withholds rents accruing to foreign

investors, or via crediting arrangements, foreign treasuries. Unlike non-resident withholding taxes which directly withhold income accruing to foreigners, corporate income taxes are a more cumbersome withholding device since they are a deduction of tax at source rather than applying strictly to foreign investors. Nonetheless, the corporate income tax acts a significant withholding tax in many capital-importing countries since a large portion of capital is owned by non-residents.

With more mobility of capital via direct investment, a country would wish to tax it less as a result of capital flight. However, capital mobility implies increased foreign ownership in a country and there is an incentive for the host country to tax capital more highly for tax exportation reasons. It is thus ambiguous as to whether capital mobility encourages, or discourages. corporate income taxation in a small open economy.

The size of these spillovers also depends on how well the corporate income tax is enforced. International tax planning such as transfer pricing, issuing debt in high interest rate countries with weak currencies, and repatriating tax deductible royalty payments and management fees rather than dividends. provides opportunities for multinational companies to minimise corporate tax payments world-wide. In general, there is an incentive for a company to shift taxable income from high to low statutory tax rate countries by allocating revenues to the low tax rate jurisdiction and costs to the high tax rate jurisdiction. This allows companies to reduce their overall tax paid without needing to change production facilities or real capital. Thus, with poor enforcement, a country might face "corporate tax base flight" rather than real capital flight. The spillover is a positive one in the sense that other countries benefit from higher statutory tax rates imposed by a single country. This also suggests that weak enforcement of the corporate income tax encourages countries to choose statutory corporate tax rates that are too low in a world without tax policy co-ordination. The recent tax reform experience in which so many countries reduced corporate statutory tax rates was largely induced by policy concerns on part of governments to maintain their own individual tax base (39).

To overcome problems of corporate tax base flight, governments throughout the world have been shifting to alternative taxes on corporations such as minimum taxes on book profits, taxes that apply to assets rather than income, and dividend taxes (such as the Advance Corporate Tax which could be viewed as a minimum tax) (40). These taxes are less subject to capital flight spillovers and can be used for tax exportation motives.

C. Large open economies

The small open economy is a useful characterisation for a number of countries. However, many economies are large, such as the United States, Japan and Germany so that the characterisation that they face an exogenous rate of interest is inappropriate.

As discussed in Section II, largeness of economies has been introduced in the literature in a variety of ways.

-- Savings and investment decisions of a particular economy impact on world interest rates (Dixit, 1985). Other jurisdictions are thus affected.

-- Economies have country-specific risk in the sense that no portfolio of assets held in other countries could duplicate the same risk. The risk premium on assets of a particular country depends on the net issues available to the international market (Gordon and Varian, 1989).

-- Economies may be large in export and/or import markets. Given that the balance of payments equilibrium requires net exports to be equal to capital outflows, the international prices of exported and imported goods are affected the capital inflow of a country (Burgess, 1988).

All three forms of "large economies" affect the nature of spillovers in a more complicated manner than that described for small open economies. For example, a tax on capital at the corporate level reduces the domestic demand for investment, inducing a capital outflow. This in turn causes world-wide savings to outstrip demand, thereby creating downward pressures on the world-wide rate of interest rate and/or country-specific risk premium on securities offered by the country. If the country is a net capital importer, the country is better off since the cost of international lending declines. On the other hand, if the country is a net capital exporter, it is worse off since the interest rate at which it lends capital to international markets declines.

A personal income tax that affects domestic savings has a different spillover effect. If a large economy increases its tax on domestic savings, there is a reduction in its supply of savings to the international markets, leading to an increase in interest rates or the risk premium on securities. A country that is a net-capital exporter would then benefit from higher interest rates while a country that is a net importer would be harmed by higher interest rates.

All this further complicated if the large economy influences prices of goods and services in export or import markets. A corporate tax, that reduces capital borrowing, causes the country's currency to appreciate over time since the country is less reliant on international lending. In turn, this improves the terms of trade at which the country exports and imports goods and services, thereby making the country better off. Similarly, a tax on savings that increases reliance on international debt has an opposite effect: terms of trade are worsened in export and import markets and the country is worse off.

Thus, in a large economy, a tax on capital at the personal level has quite different effects on spillovers than the corporate income tax. The personal tax on savings is less favoured by the capital importer compared to capital exporter. The corporate tax is more favoured by the capital importer than the capital exporter.

V. Co-ordination of Capital Income Taxes

The above analysis with respect to capital income taxation suggests that spillovers lead to inefficient levels of taxation. The capital flight spillover generally causes jurisdictions to tax capital too lightly and the tax exportation spillover creates an incentive to tax capital too highly. Indeed, it can be concluded that, for small economies, the personal tax spillovers are

generally related to capital flight. If there is lack of enforcement of a residence-based personal tax, the personal tax rates are set too low relative to a co-ordinated outcome. As for corporate income tax spillovers in small economies, the tax rates may be set too high if the tax exportation spillover dominates the capital flight spillover as discussed above.

Spillovers imply that countries are choosing inefficient taxes; the countries could be better off if they could reduce tax exportation and capital flight. The outcome of this co-ordination might be to improve the operation of the income tax system in each country.

As argued in Section II, the application of the personal income tax depends on how well the corporate income operates -- thus, improvements in both the corporate and personal income taxes in each country would help reduce capital flight and tax exportation, allowing countries to maintain a more globally efficient income tax system (41). In an international economy, countries undertake policies that maximise their own welfare. However, without coordination, the spillover effects of tax policies inducing a variation of effective tax rates on capital. This, in turn, has the negative effect of reducing the global efficiency of the tax system by distorting international flows of capital.

The current methods used by countries to co-ordinate taxes on capital are i) the sharing of tax and financial information and ii) double taxation agreements. To what extent are current methods of co-ordination improvements over the complete absence of co-ordination?

A. Sharing of information

The exchange of information regarding taxpayer behaviour could help governments enforce the corporate or personal income taxes.

Countries currently enforce income taxes by requiring taxpayers to submit information issued by financial institutions, copies of which are sent from the institution to the government. Also, taxpayers may be required to provide identification numbers such as their social insurance numbers to the institution to identify their interest receipts.

Personal income taxes could be enforced at the international level if information is shared among governments. Non-resident taxpayers could be required to supply similar information to foreign institutions when investing in other countries and these financial institutions could report not only to their own but also foreign governments. This type of information would make the enforcement of capital income taxes would be much simpler.

The advantage of exchange of information is to reduce the problems that arise with capital flight spillovers. A government wishing to enforce its income tax on capital income will be able audit, or have someone else audit, the accounts of taxpayers. However, exchange of information does not limit the problems arising with the tax exportation spillover. In fact, the spillover could worsen with the exchange of information. As governments are able to enforce more effectively income taxes, this could encourage higher capital income taxes levied by host countries knowing that the taxes can be credited abroad (42).

Many countries, however, prohibit the use of financial account information to be passed on to authorities (Luxembourg and Switzerland). Moreover, enforcement is usually left to the authorities of a particular jurisdiction who audit accounts of non-residents. However, there is little incentive for these authorities to audit these accounts since the tax revenue would go to a foreign treasury.

Thus, exchange of information requirements, while perhaps useful in transfer pricing cases for multinational companies, have not been implemented effectively. As a result, the capital flight spillover is not lessened in a fundamental way by current reporting arrangements.

B. Double taxation agreements

Many double taxation agreements throughout the world have followed the basic principles outlined in the OECD model convention. The most important principles are i) non-discriminatory taxation of non-residents, ii) agreement to established withholding tax rates on non-residents, and iii) taxation at source with a credit for foreign taxes or the exemption of foreign-source income offered by the capital exporting country.

Current double taxation agreements help reduce spillovers in some respects and increase them in other respects (43). The non-discriminatory clause reduces the incentive for a country to export taxes since a country must tax its own residents at the same rate to withhold income accruing to foreigners (44). The agreement on established withholding tax rates also reduces a country's ability to export taxes and, if income is taxed wherever it is earned, help reduce capital flight (45). The acceptance of taxation at source, with crediting, however, can increase the tax exportation spillover. This consequently has a negative implication for capital exporting countries.

Despite the development of double taxation agreements, countries continue to believe that capital income taxes at the international level are levied with significant distortions and serious enforcement problems. Several problems arise with these double taxation agreements. The first is that double taxation agreements are developed on a bilateral basis with considerable variation in terms, such as withholding tax rates, across countries. The second is that double taxation agreements do little in the way reducing tax exportation and smoothing out differences in effective tax rates on capital.

Indeed, there are some significant problems that arise at the international level with respect to distortions in capital taxes across countries and industries. Bovenberg *et al.* (1990) show that there is substantial variation in effective tax rates on capital across countries, depending on the country of location and of ownership. In a recent study, Leechor and Mintz (1991) suggest that it would be impossible for a capital importing country to have a neutral domestic corporate tax since it would be offset by differences in host and home tax regimes that apply unevenly to cross-border flows of capital.

If current methods of tax co-ordination have failed, what is left for countries to do? McLure (1991) and Leechor and Mintz (1991) have argued in favour of a international or regional agreement to co-ordinate taxes (as McLure calls it, a "GATT for Tax"). Efforts at tax co-ordination are well known

within federations. In the federal context, many regional governments have harmonised their income taxes with other regional governments or have turned over tax bases to be collected by the central government. Within federations, the most practical methods for co-ordination have included the following:

1. ***Revenue-sharing***

The central government collects a tax and determines the tax base and rate which is uniform across all states. A formula is used to divide the revenue among the individual states (often based on population shares, *per capita* income or a proxy for the tax base such as corporate sales and payrolls). Revenue-sharing would clearly eliminate spillovers since the tax system would be centralised.

Revenue-sharing would unlikely work well at the international level for several reasons. First, there is no central government although some specialists have argued that the United Nations or some other international agency could collect the corporate income tax and divide it among the nation states. Second, countries would have to give up their independence in their decision to tax capital. When countries have different revenue requirements, a centralised tax system would not be appealing.

2. ***Formula apportionment***

Formula apportionment would involve states apportioning the income tax base by a formula. The base used for formula apportionment would largely be the same across jurisdictions. However, some base variation could be permitted as long as that variations are not be related to the apportionment base. Tax rates could be chosen independently.

If the personal tax base is apportioned, the base can be divided according to the residency of the individual (there can be some problems with determining income from inter-state partnerships). This is the current rule used in Canada, for instance.

The apportionment of the corporate income tax base is more difficult since corporations often work in more than one state. The United States uses a formula generally based on property, revenues and payroll. Canada only uses payroll and revenues.

There is one important advantage to formula apportionment over the separate accounting method. Under separate accounting, corporations can easily shift taxable income from one jurisdiction to another by shifting fungible income-earning financial assets to the low tax jurisdiction and interest-bearing debt liabilities to high tax jurisdictions. With formula apportionment, it is more difficult to shift taxable income from high to low tax jurisdictions since the financial assets do not enter into the apportioning formula.

However, even under formula apportionment, it is still possible to manipulate tax paid by transfer pricing that affects the reporting of revenue in a particular state (Bossons, 1991). Also, there is an incentive to push capital to low tax rate states when property is included in the formula.

Formula apportionment introduces flexibility for national governments to choose their tax rates. However, there is a problem that arises when states do have freedom to choose rates. Although it is argued that base variation is far more important than rate variation in affecting capital allocation across countries, (King, 1988), no clear case can be made. It may be observed that differences in statutory tax rates can have important impacts on the taxable profits allocated to low-tax jurisdictions. If companies tend to report income in low tax rate jurisdictions and costs in high tax rate jurisdictions, real investment flows can be affected. For example, even if tax bases are identical across countries, a company undertaking investment in a high statutory tax rate country will be able to deduct depreciation at a high rate. If taxable income generated by that investment is shifted to a low tax rate jurisdiction, the income earned on the investment would be taxed at a low rate. In effect, the company could enjoy a negative effective tax rate on capital by taking advantage of differences in statutory tax rates in the two countries.

Enforcement can be a problem under formula apportionment, not only with respect to transactions within the federation but also transactions outside of the federation. An interesting example of this is taken from Canadian fiscal history. In the early 1980s, the Quebec government completed a transfer price case that was costly to prosecute even though the province won eventually. The Minister of Finance, Jacques Parizeau, decided that it would be good to reform the corporate income tax to reduce transfer pricing. He did this by lowering the Quebec corporate tax rate by almost 10 points, making up the difference in revenue with a higher tax rate on paid-up capital (46).

There is no evidence to suggest that formula apportionment is better or worse for tax co-ordination than separate accounting with crediting. Although the capital flight spillover may be mitigated in some respects (interest deductions), it could be worsened in other respects (the allocation of revenues or capital). The tax exportation spillover could be worsened under formula apportionment since the division of taxable income may not truly reflect where the income is generated. A country, under formula apportionment, may thus be able to tax income earned in other jurisdictions.

VI. Conclusions

This paper lays out several important theoretical claims regarding the impact of capital mobility on capital income taxation.

The first claim is that openness of economy to international flows of income implies that corporate taxes primarily affect domestic investment decisions while personal taxes primarily affect savings decisions. As a result of these differences, it is not possible for a country to assume that corporate and personal tax policies have identical impacts on domestic savings and investment decisions.

The second claim is that personal taxes induces capital flight to the extent that governments have difficulty in monitoring income on foreign assets owned by residents. This lack of monitoring leads to capital flight making the capital income tax base more difficult to tax, especially for small open economies. However, for large economies, personal taxation could increase international interest rates on assets and improve returns earned on net

capital outflows. Capital exporting countries could then benefit from personal taxation while capital importing countries would be worse off.

The third claim is related to the corporate income tax. No clear theoretical result is derived regarding the impact of global mobility on a country's incentive to tax business income. Although the corporate tax can induce capital flight (particularly, direct investment), there are other offsetting spillovers. Capital importing countries have the incentive to impose a corporate income tax if the tax successfully withholds income, particularly above-normal returns or economic rents, accruing to foreigners. This form of tax exportation implies that increased mobility of capital could increase the incentive for corporate taxation. Also, in the case of a large economy, corporate taxation could drive down international interest rates. Net capital importers would benefit by the imposition of a corporate income tax while net capital exporters would not.

The paper also provides an argument for the need to better co-ordinate corporate and personal income taxes at the international level. However, to do so, it requires some form of formal agreement among countries, either at a multilateral or regional level, which is unlikely to occur at this point of time.

Notes

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2. Recent papers dealing with this topic include Bird and McLure (1990), McLure (1990), Gordon (1991) and Brean (1991).

3. This theoretical background is useful for empirical analysis that is presented in other parts of this document.

4. Discussion of this case is considered by Boadway, Bruce and Mintz (1984) and Bovenberg *et al.* (1990).

5. The United States uses citizenship as a basis for taxation. To the extent that most citizens live in the U.S. rather than abroad, the U.S. tax may be viewed as a residence-based tax.

6. Countries tax foreign savings using non-resident withholding taxes applied to capital income. Withholding tax rates are set by countries independent of personal income tax rates. In fact, withholding taxes cannot be changed unilaterally if they are negotiated with other countries under double taxation agreements.

7. Foreign-source income refers to capital income earned in a host country by residents of a home country.

8. The credit for corporate taxes deemed to be paid on dividends is calculated by multiplying a dividend payout ratio by the corporate taxes paid to the host country. The home country's corporate tax applies to the value of grossed-up dividends which is calculated by adding to remitted dividends the amount of corporate taxes deemed to be paid on dividends.

9. For a detailed description of these systems by OECD country, see OECD (1991).

10. More formally, this would be the welfare of the residents which may be measured by a metric that may be thought of as national income.

11. The consumption tax base has been advocated by the Meade Report (1978) and discussed in the U.S. Treasury (1977). It is discussed in more detail below.

12. A payroll tax that exempts capital income is not equivalent to a consumption-based tax if households can earn economic rents. A consumption tax applies to economic rents that are consumed. See Boadway, Bruce and Mintz (1987).

13. Feldstein shows that the correct way of evaluating the intertemporal distortion is to analyse the impact of the income tax on future consumption which depends on the amount saved as well as the interest rate. If the tax reduces interest income, future consumption falls even if savings does not change. Thus, the impact of taxes on the intertemporal consumption decision is much bigger than simply looking at the savings decision. Boskin, in improved econometric work, found higher elasticities of savings than those estimated previously. Summers (1981) argued that the intertemporal distortion is quite large as the elasticity of savings implied by general equilibrium analysis is higher than that obtained by econometric studies that have there limitations. See Smith (1990) for a recent review of empirical literature dealing with the taxation of savings.

14. A consumption tax also falls on labour supply. When an individual earns income, a tax on consumption reduces the purchasing power of his wages, thereby discouraging work effort in favour of enjoying more leisure.

15. However, a shift from income to consumption taxes improves the economy according to Auerbach and Kotlikoff. The reason for this economic gain is that a consumption tax acts as a one-time wealth tax, applying to the unconsumed accumulated savings that have been built up prior to the implementation of consumption tax. The additional tax revenue on past accumulated savings allows the government to reduce other taxes that discourage labour or capital. This transitional difference between consumption and wage taxes would be eliminated if consumption taxes were implemented so that they exempted accumulated savings.

16. The above list can be broadened to include the problems of measuring business income, which is discussed below.

17. There is the corporate income tax that has an important role of withholding income which is discussed below.

18. The treatment of labour compensation also depends on the corporate tax. For example, if capital income is not deductible from the corporate tax base, then the receipt of labour income may bear corporate tax even though the income is exempt at the personal level. This is discussed below in the following section.

19. These issues are discussed in more detail in Mintz (1991).

20. Progressivity here is defined as the case when the average tax rate (taxes paid divided by income) increase with the income earned by the household. Income is usually measured on an annual basis (labour and capital income) in most tax incidence studies. However, income could also be measured on a lifetime basis (the present value of earnings). The difference in these two approaches is that the former does not recognise the extra taxes paid by a saver on future consumption arising from the taxation of interest. With the lifetime measure of income, the interest rate is simply the price at which current consumption is traded for future consumption rather than income paid on each dollar of savings. See Whalley (1984) for further discussion.

21. The U.S. authorities attempted to capture back some of the windfall gains to companies arising from the proposed reduction in statutory tax rates that reduced the tax on old assets. The provisions were eventually dropped prior to the adoption of tax reform in 1986.

22. This is in contrast to resource taxes that often apply to operating income (no interest is deductible).

23. A full discussion of these issues is provided in Boadway, Bruce and Mintz (1987) and Mintz and Seade (1991).

24. The following example can be given to show how corporate and personal taxes are integrated by this method. Suppose the corporate tax rate is 50 per cent. For each $2 in pre-tax profit, the shareholder receives $1 in dividends. The dividends are grossed-up by a factor of two reflecting the underlying corporate tax paid prior to the distribution of dividends. The shareholder then computes a personal tax on the grossed-up value of dividends and subtracts the credit from his personal tax liability. In the case of the 50 per cent corporate tax rate, the credit is equal to 50 per cent of the grossed-up value of dividends.

25. The ability to take strategic advantage of crediting depends on the reactions of the home government. Gordon (1991) suggests that the home country may encourage host countries to tax corporate income to help the home country enforce its tax on capital income. Thus, even from the point of view of the home country, the host country's desire to take advantage of tax crediting is beneficial. However, if enforcement is not an issue, Mintz and Tulkens (1991) suggest that withholding income to take advantage of crediting could be undone by the home country. If the host country increases its tax on income accruing to foreigners, the home country might react by raising taxes on foreign-source income. The only role of the corporate income tax is, therefore, to withhold income from the investor, not the government.

26. The deductibility of interest is warranted since the tax credit for corporate income taxes given by the home country applies to the corporate income tax on shareholder income only. If the host country did not allow interest to be deducted, the foreign-owned firm may find that it is unable to credit the host country's corporate tax against taxes owing to its home country.

27. The cash flow tax with the expensing of capital is a easy rent tax to implement. For further discussion, see Boadway, Bruce and Mintz (1987, Chapter 5).

28. There are other possible spillover effects that could be included in these categories. These include the impact of capital taxes on income earned by non-traded labour (Feldstein and Hartman, 1979 and Ghosh, 1991), non-capital taxes and market imperfections such as unemployment and information asymmetries in capital markets.

29. In a large economy, capital income taxes may also affect the rate of interest and the income earned by investors throughout the world. The impact of taxes on world interest rates is discussed further below as it is important to differentiate between corporate and personal income taxes as discussed in Section II.

30. This point is raised by Gordon (1991) as discussed in footnote 25.

31. This assumption of a small open economy for the analysis of tax policy has been used by Boadway, Bruce and Mintz (1984); Razin and Sadka (1990); and Boadway and Bruce (1990).

32. For a small open economy, the cost of finance, including risk, is also unaffected by the amount of financial claims issued by firms operating there. The implication of this assumption is that the risk of a specific economy can be replicated by a portfolio of assets held in other countries. In other words, there is no country-specific risk.

33. Mintz and Tulkens (1990) use this assumption for their analysis of corporate taxation of multinational companies. They assume that a multinational invests in two countries, each country having a production facility with decreasing returns to scale.

34. This also applies to the corporate income which is discussed below.

35. Treaty negotiations that require withholding taxes on income would help enforce the personal income tax. This issue is dealt with in more detail in Section IV.

36. As remarked above in footnote 25, this may be a desirable outcome for the capital exporting country.

37. As discussed above, the incidence of the corporate income tax is to fall owners of fixed factors rather than owners of portfolio capital that is highly mobile. The implication of this is that the corporate income tax can withhold above-normal profits or rents accruing to owners of direct investment but cannot fall on the return paid to portfolio investment.

38. This seems to contradict the smallness assumption applied to capital. However, countries within a specific region (i.e. south-east Asia) may be relatively large with respect to each other and thus quite competitive in attracting entrepreneurship.

39. See Dodge and Sargent (1988) for an explicit discussion of this in the Canadian case.

40. See Estache (1990).

41. As discussed in Section II, one might argue that the use of consumption taxes would be better than the income tax. Even if countries move to a consumption tax there are still problems with regard to enforcement at the international level. See Mintz and Seade (1991) and Mintz (1991).

42. This point is made by Gordon (1991) who assumes that information is available to enforce a corporate income tax on foreign-source earnings. See also Kehoe (1989) who argued that co-ordination could lead to inefficient tax policy. In his particular model, tax competition reduces a dynamic inconsistency problem related to the power of governments to tax capital after it is sunk.

43. This discussion is based on Mintz and Tulkens (1990).

44. A country could try to work around the non-discriminatory provision in the OECD convention by providing grants or public expenditure benefits to domestic firms.

45. For example, recent changes in treaty provisions no longer make it possible for multinational companies to use the Netherlands Antilles for treaty shopping purposes. The Netherlands Antilles allowed certain interest to be remitted to a taxpayer free of tax and no withholding tax was applied to interest leaving the country. For example, a company in a country like United States could deduct interest for U.S. tax purposes, pay no tax on interest as it funnelled through the Netherlands Antilles and deduct interest to finance a loan to the Antilles subsidiary. This double dip arrangement is no longer possible.

46. The federal government believed that the real reason for the move was that, unlike the provincial corporate income tax, the capital tax was deductible from the federal tax. This may have been another motive for the Quebec government. If, nonetheless, the federal government is correct, the story exemplifies another aspect of spillovers, namely tax exportation.

Figure 1: Impact of Taxes on Savings and Investments in a Closed Economy

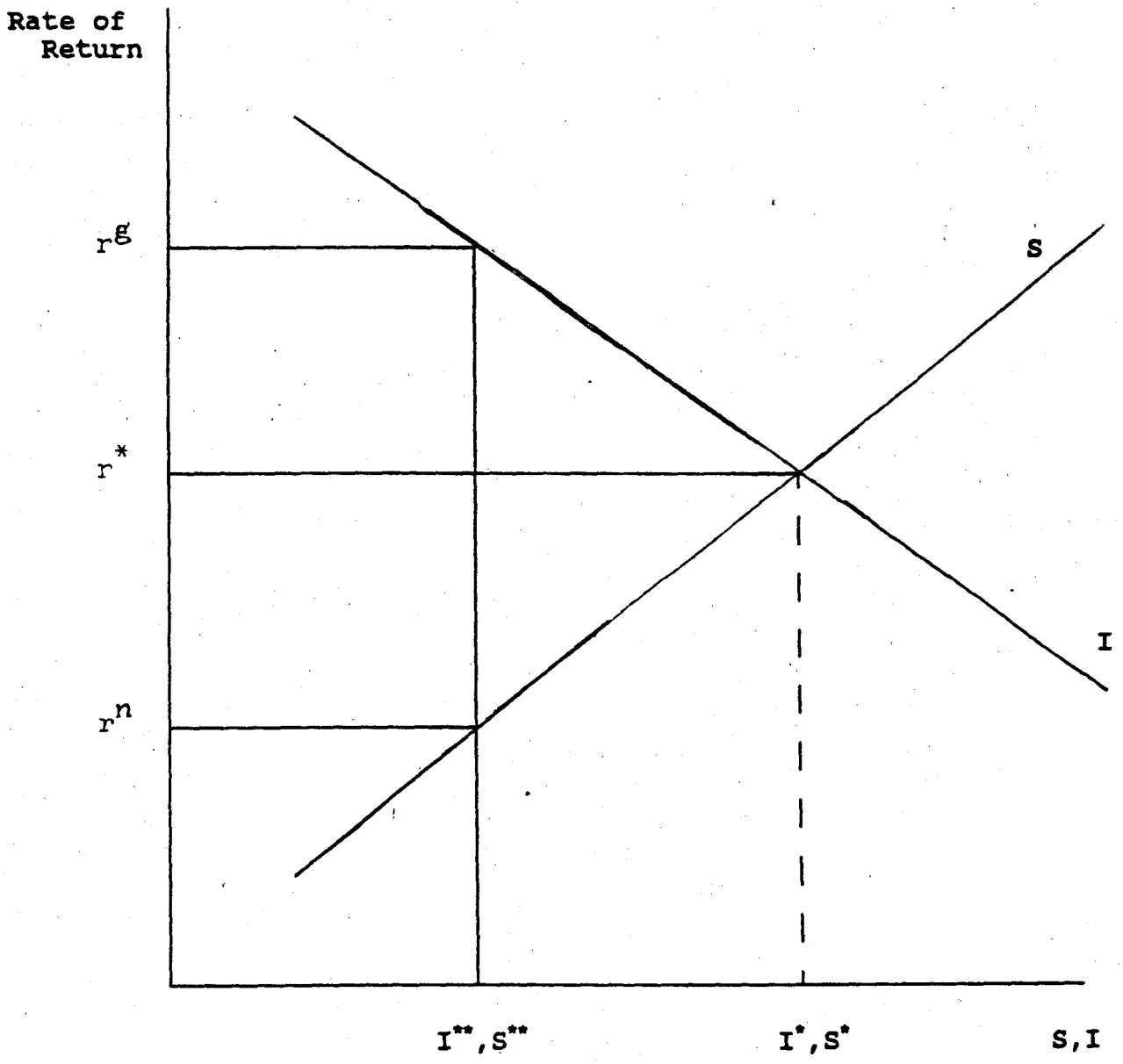
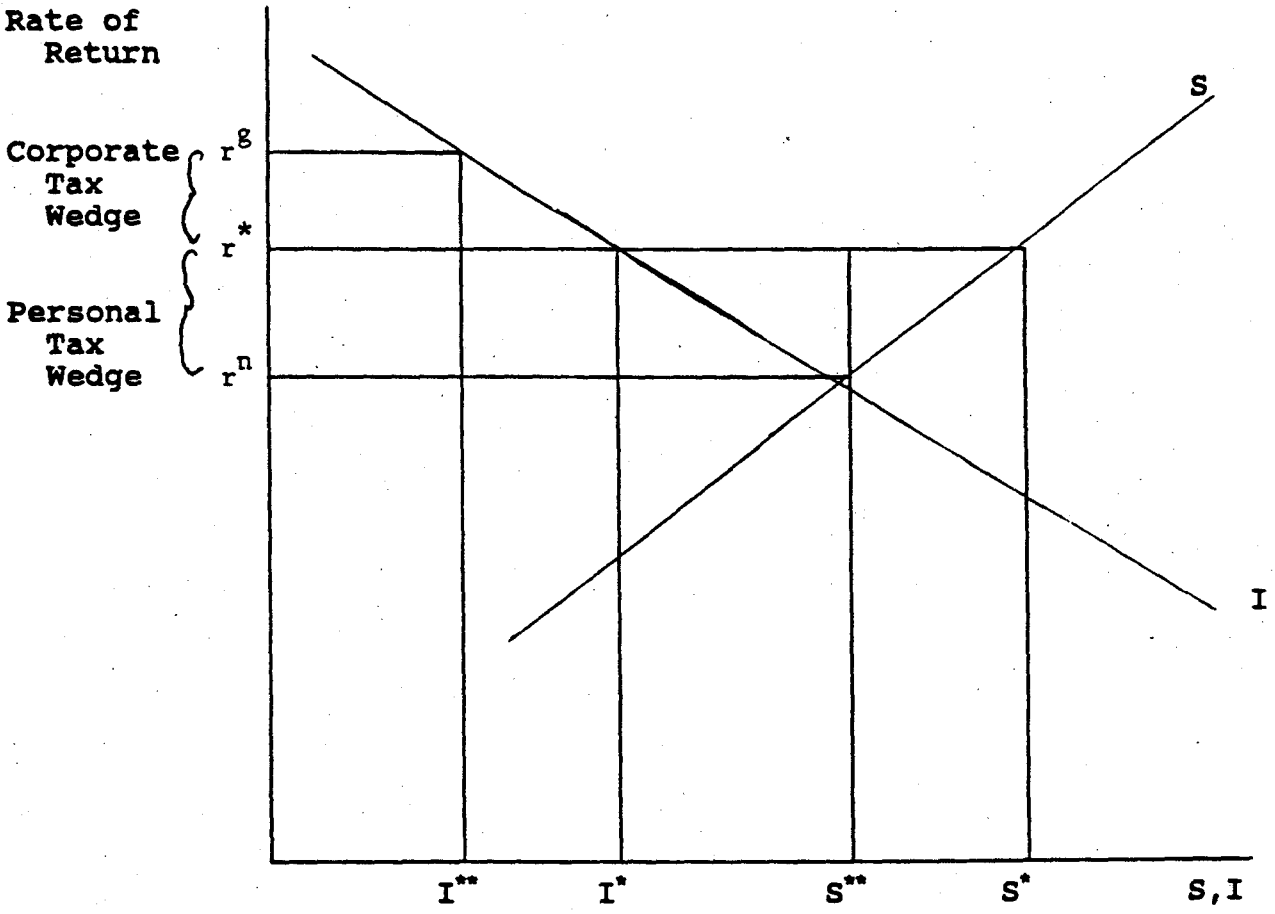


Figure 2: Impact of Taxes on Savings and Investments in a Small Open Economy



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