

# *Is There a Future for Capital Income Taxation?*

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—Jack M. Mintz\*

## **PRÉCIS**

Cet article donne un large aperçu des résultats provenant de la théorie des jeux, qui peuvent servir à répondre à la question «les impôts sur le revenu du capital sont-ils appelés à disparaître?» L'article commence par traiter de la nature de la concurrence fiscale. Il passe ensuite aux raisons pour lesquelles les gouvernements imposent les revenus d'investissements. L'élément fondamental de l'article est une analyse de l'effet de l'intégration économique mondiale sur l'imposition de ce type de revenu. Contrairement à ce que l'on croit couramment, l'article conclut en déclarant qu'à cause de la mondialisation, des pays industrialisés comme le Canada pourraient à l'avenir choisir d'imposer plus plutôt que moins le rendement du capital investi.

## **ABSTRACT**

This article provides a broad overview of results from game theoretic literature that may be used to address the question "will capital income taxes disappear?" The article begins by discussing the nature of tax competition. It then considers the reasons why governments tax capital income. The core of the article is an analysis of the impact of global economic integration on capital income taxation. Contrary to popular views, it is concluded that developed countries such as Canada may favour more, rather than less, capital income taxation in the future as a result of global economic integration.

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Many tax experts have in recent years made the following assertions:<sup>1</sup>

- The increasing mobility of capital and the globalization of capital markets will make it increasingly difficult for governments to tax capital income.

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<sup>1</sup> Recent papers dealing with this topic include Richard M. Bird and Charles E. McLure Jr., "The Personal Income Tax in an Interdependent World," in Sijbren Cnossen and Richard (The footnote is continued on the next page.)

- As a result of tax competition, any government that tries to tax capital will see its tax base flee to low-tax countries.
- Governments will have to either rely less on capital taxes and more on labour and consumption taxes or seek new forms of cooperation with other governments in the area of tax policy.

This article surveys the impact of tax competition on the use of capital income taxes as a source of government revenue. Specifically, it addresses the following question: does theory confirm the prediction that tax competition and increasing capital mobility will lead to a decline in capital income taxation?

The first section below defines a context for the treatment of this question. The second section considers why most governments, including Canada's, continue to use capital taxes in spite of their possible obsolescence. The third section relates this discussion to an analysis of the impact of tax competition on capital taxation. The final section discusses the implications for capital taxation that arise when governments try to coordinate their tax policies, such as by adopting double taxation agreements or formula apportionment schemes.

## BACKGROUND

This section considers three issues: the impact of taxes on investment and savings in an open economy, the tax treatment of cross-border flows of income, and the nature of tax competition.

### The Impact of Taxes in an Open Economy

To understand the effects of taxes in an open economy, it is useful to begin by considering their effect in a closed economy. The discussion throughout the article assumes that the corporate income tax falls primarily on the returns to investment by businesses and that the personal income tax falls primarily on the returns to savings by individuals. In practice, of course, unincorporated businesses are taxed under the personal income tax, but many of the rules for determining business income under the personal tax are similar to the rules for determining income under the corporate income tax.

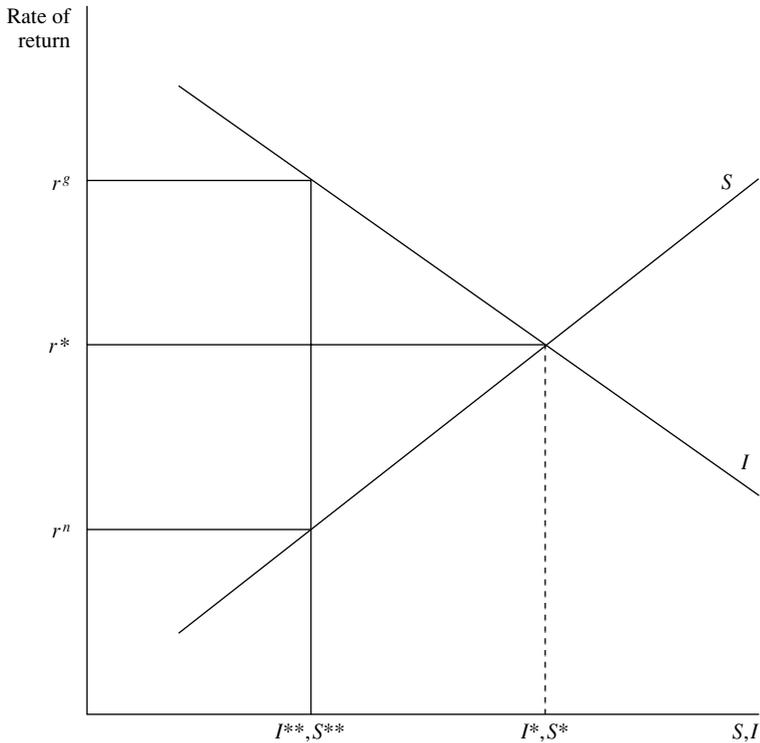
Taxes on capital income affect investment by creating a wedge between the before-tax rate of return on a marginal investment and the after-tax rate of return on the savings used to finance the investment. Figure 1 illustrates this outcome in a closed economy. *I* represents the

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<sup>1</sup> Continued . . .

M. Bird, eds., *The Personal Income Tax: Phoenix from the Ashes?* (Amsterdam: Elsevier Science Publishers, 1990), 235-55; C.E. McLure Jr., "International Aspects of Tax Policy for the 21st Century" (mimeograph, 1990); Roger H. Gordon, "Can Capital Income Taxes Survive in Open Economies?" (July 1992), 47 *The Journal of Finance* 1159-80; and Donald J.S. Breaun, "Here or There? The Source and Residence Principles of International Taxation," in Richard M. Bird and Jack M. Mintz, eds., *Taxation to 2000 and Beyond*, Canadian Tax Paper no. 93 (Toronto: Canadian Tax Foundation, 1992), 302-33.

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



demand for investment by a profit-maximizing firm, a demand that increases as the required rate of return on marginal investment declines. The amount of savings provided by households,  $S$ , increases with the rate of return on capital. If there are no taxes, equilibrium is achieved when 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 ( $I^*, S^*$ ).

The imposition of taxes, corporate or personal, on capital income creates 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, the demand for investment and savings falls 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.

It is important to note that in a closed economy taxes imposed at either the corporate level or the personal level cause both investment and savings to decline. It does not matter in a closed economy whether the government increases taxes on savings (such as by increasing personal

taxation of interest income) or taxes on investment (such as by imposing a higher corporate tax rate). Either policy would reduce both savings and investment.

The outcome is very different if the economy is open. To make this point clear, consider the extreme case of a *small* open economy. A small open economy is one that faces an exogenous rate of interest—that is, a rate determined by the international market. Domestic investments and savings have no impact on the cost to the economy of borrowing funds in the international market.<sup>2</sup>

Figure 2 illustrates the impact of tax policies on investment and savings in a small open economy that is a capital exporter (the same qualitative conclusions would hold for a small capital importer).  $I$  represents the domestic demand for investment and  $S$  the domestic supply of savings. In the absence of taxes, firms will undertake domestic investment,  $I^*$ , until the return on capital is equal to the exogenously determined rate of return on capital,  $r^*$ . The supply of domestic savings,  $S^*$ , is determined by the rate of return,  $r^*$ , that domestic savers can obtain in international markets. These savings are allocated to domestic investment ( $I^*$ ) and foreign asset purchases ( $S^* - I^*$ ).

In the case of a small open economy, it is important to differentiate between taxes at the corporate level and taxes at the personal level.<sup>3</sup> Personal income taxes are residence-based taxes:<sup>4</sup> they apply to capital income that accrues to residents and exempt income that accrues to non-residents. Personal taxes, therefore, affect only the return to domestic savings.<sup>5</sup> Corporate income taxes, on the other hand, are source-based taxes: they apply to income produced by domestic investments and therefore reduce both the return to domestic savings and the return to foreign savings.

When a 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

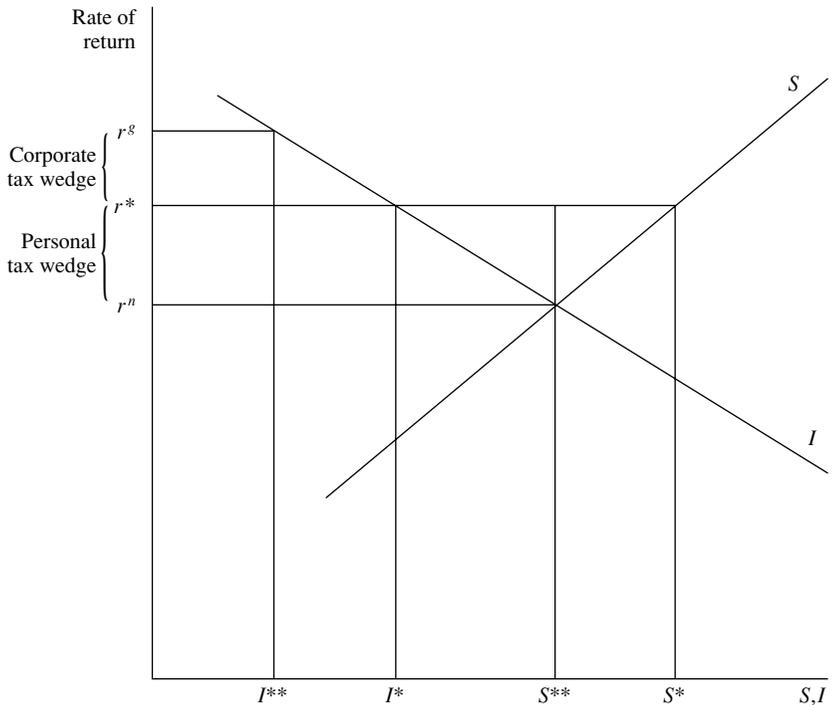
<sup>2</sup> Actually, the small open economy rests on two assumptions: (1) the economy faces an exogenous interest rate on borrowed funds, and (2) the economy is a price-taker for traded goods and services. As is discussed further below, non-price-taking in goods and services markets could result in an endogenous interest rate.

<sup>3</sup> For discussion of this point, see Robin Boadway, Neil Bruce, and Jack Mintz, "Taxation, Inflation and the Effective Tax Rate in Canada" (February 1984), 17 *Canadian Journal of Economics* 62-79; and A. Lans Bovenberg, Krister Andersson, Kenji Aramaki, and Sheetal K. Chand, "Tax Incentives and International Capital Flows: The Case of the United States and Japan," in Assaf Razin and Joel Slemrod, eds., *Taxation in the Global Economy* (Chicago: University of Chicago Press, 1990), 283-324.

<sup>4</sup> The United States uses citizenship as a basis for taxation. Since most US citizens live in the United States rather than abroad, the US tax may be viewed as a residence-based tax.

<sup>5</sup> Countries tax foreign savings by applying non-resident withholding taxes to capital income. They set withholding tax rates independently of personal income tax rates. In fact, withholding tax rates are often set under double-taxation agreements with other countries and cannot be changed unilaterally.

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



tax does not affect domestic savings decisions, since domestic savers can still earn the return  $r^*$  on their foreign asset holdings. In fact, because of the reduction in domestic investment demand, there is an increase in the savings outflow from  $S^* - I^*$  to  $S^* - I^{**}$ .

A personal tax, which affects only the return to domestic savings, has a different impact. Since the personal tax applies to the return earned on residents' domestic and foreign assets alike, savers receive a before-tax rate of return,  $r^*$ , and an after-tax rate of return  $r^n$ . In these circumstances, domestic savings decline from  $S^*$  to  $S^{**}$ . Investment, however, remains at  $I^*$ , since firms borrow at the same international interest rate. The effect of the personal tax is to reduce savings and the capital outflow of a country from  $S^* - I^*$  to  $S^{**} - I^*$ .

Again, the important point here is that in a small open economy, in contrast to the situation in a closed economy, neither corporate income taxes nor personal income taxes affect both domestic investment decisions and savings decisions. The corporate income tax directly affects only domestic investment demand, whereas the personal income tax affects only the supply of domestic savings.

In a large open economy, this distinction breaks down somewhat, though it continues to hold in a general way. An economy is “large” if the international cost of funds depends on the level of the economy’s capital outflow. An increase in domestic investment demand reduces the economy’s capital outflow and thereby increases the international cost of funds. An increase in domestic savings has the opposite effect: the capital outflow increases, causing a reduction in the international cost of funds.

There are several senses in which an economy may be “large” enough to affect the international cost of capital. First, an economy may be large in the sense that an increase in the domestic demand for investment increases worldwide demand for savings. If worldwide demand increases, the international cost of funds may increase as well.<sup>6</sup> Second, an economy may be large in the sense that it faces country-specific risk, which means that no portfolio of assets held in other countries could duplicate that level of risk. The prices of the securities of such a country depend on the amounts supplied to the international market. If demand for domestic investment declines, the risk-inclusive rate of return on capital required by international markets may increase, since fewer securities of a specific risk type will be available to international markets.<sup>7</sup> Third, a country may be large in the sense that it has market power in certain markets for goods and services. In this case, the process through which the economy’s decisions affect the international cost of capital is somewhat intricate. An increase in domestic investment in any open economy implies a reduction in capital outflows, which in the long run will cause the domestic currency to devalue.<sup>8</sup> Sales to international markets will increase, and if the country has market power in these markets the international price of the exported good will fall. The country will then face worsened terms of trade, which will make it more difficult for the country to repay its international debt obligations. This result will in turn increase the rate of return required by international markets for domestic assets.

In a large economy, as in a small one, a corporate tax reduces investment. In a large economy, however, the reduction in investment will also reduce the international rate of return on assets faced by the domestic economy, which means that savers will receive a lower rate of return on their savings. Thus a large economy that taxes corporate income, unlike a small one, will see both domestic investment and savings decline. However, to the extent that the international flow of savings is more sensitive to interest differentials than domestic savings are, the reduction in investment will be larger than the reduction in savings.

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<sup>6</sup> See references to earlier discussions of this topic in Avinash Dixit, “Tax Policy in Open Economies,” in Alan J. Auerbach and Martin Feldstein, eds., *The Handbook of Public Economics*, vol. 1 (Amsterdam: Elsevier Science Publishers, 1985), 313-74.

<sup>7</sup> See Roger H. Gordon and Hal R. Varian, “Taxation of Asset Income in the Presence of a World Securities Market” (May 1989), 26 *Journal of International Economics* 205-26.

<sup>8</sup> See David F. Burgess, “On the Relevance of Export Demand Conditions for Capital Income Taxation in Open Economies” (May 1988), 21 *Canadian Journal of Economics* 285-311.

Personal taxes on capital income produce a similar result. A reduction in domestic savings (and capital outflow) will arise as the after-tax rate of return on capital declines. This result causes the before-tax rate of return on capital to increase, since there are now less savings available to international markets. Investment demand in the economy will decline as the internationally determined cost of borrowed funds increases. The decline in investment, however, will be 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 point will be of particular relevance to the discussion of the effects of tax competition later in the article.

### **The Taxation of Cross-Border Flows of Income**

Two institutional features of tax law are relevant here: the application of withholding taxes to capital income earned by non-residents and the provision of measures to avoid double taxation—that is, the taxation of corporate income in both the host country (the capital importer) and the home country (the country of residence).

Most countries in the Organisation for Economic Co-operation and Development (OECD) levy non-resident withholding taxes on payments made to foreign corporations or to individuals who reside abroad. Non-resident withholding taxes generally apply to dividends, royalties, rents, and management and technical assistance fees. They sometimes also apply, at reduced or zero rates, to capital gains and interest paid abroad.

There is also the matter of taxing foreign-source income earned by corporate and individual residents. The OECD countries use three methods:<sup>9</sup>

1) *The exemption method*: The home country exempts foreign-source income earned by residents from taxation (only the host country taxes the income).

2) *The crediting method*: The home country taxes foreign-source income earned by its residents and grants a credit for withholding and corporate income taxes levied by the host country. The countries that use this method usually tax branch income on an accrual basis and earnings derived from subsidiaries (dividends, interest, royalties, and other cross-border charges) on a remitted basis. The home country credits only corporate income taxes payable to a host country that it deems to have been paid on dividends.<sup>10</sup>

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<sup>9</sup> Foreign-source income is capital income earned in a host country by residents of a home country.

<sup>10</sup> 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.

3) *The deduction method*: The home country taxes foreign-source income net of a deduction for withholding taxes and deemed corporate taxes paid to the host country.

The OECD countries generally use the exemption or crediting systems. A few (Norway, Portugal, and Switzerland) use the deduction method when foreign-source income originates from non-treaty countries. Many countries use the exemption method for some forms of income, such as dividends of “controlled” subsidiaries, and the crediting method for other forms of income.<sup>11</sup> As was noted above, unremitted earnings of subsidiaries are exempt from home-country taxation of foreign-source income.

### Tax Competition

The notion of tax competition is central to this article. Tax competition is the adoption of tax policies that affect the economic welfare<sup>12</sup> of other jurisdictions. The effects of a given jurisdiction’s fiscal decisions on other jurisdictions are called fiscal externalities or spillovers.<sup>13</sup>

Why do tax competition and fiscal externalities arise? It is reasonable to assume that a government will pursue only its own interests or, alternatively, the interests of the population in its own jurisdiction. It follows that a government will set its tax policy independently of the policy’s potential economic effects on other countries. If we add to this assumption of non-cooperative behaviour the assumption of optimizing behaviour, it follows that governments will not simply fail to avoid creating fiscal externalities but actively seek to create them.

An obvious instance of tax competition arises when one country’s tax policy affects the tax base of another country. The effect may be attributable to the tax-induced flight of the first country’s own tax base or to the crediting or deductibility of a tax at home against the tax of the affected country. Tax competition also leads to other fiscal externalities, such as the taxation of non-resident-owned capital, an effect that reduces the income, and hence the welfare, of investors in other jurisdictions. Fiscal externalities have either public consumption effects or private consumption effects; that is, they affect either the tax revenue raised and therefore the consumption of public goods in the externality-recipient country or the consumption of private goods in the externality-recipient country. Externalities may be either detrimental (welfare reducing) or beneficial (welfare increasing) to the recipient country.

<sup>11</sup> A detailed description of these systems by OECD country is provided in K.C. Messere, *Tax Policy in OECD Countries: Choices and Conflicts* (Amsterdam: IBFD Publications, 1993).

<sup>12</sup> More formally, this would be the welfare of the residents, as measured by a standard that may be thought of as national income.

<sup>13</sup> See Jack Mintz and Henry Tulkens, “Commodity Tax Competition Between Member States of a Federation: Equilibrium and Efficiency” (March 1986), 29 *Journal of Public Economics* 133-72, and J.M. Mintz and H. Tulkens, “The OECD Convention: A ‘Model’ for Corporate Tax Harmonization?” in R. Prud’homme, ed., *Public Finance with Several Levels of Government* (The Hague: Foundation Journal Public Finance, 1991), 298-314.

How large are these externalities? A recent paper,<sup>14</sup> uses a two-country model—the United States and the rest of the world—to measure the public and private consumption effects induced by capital taxation. It finds that a doubling of depreciation deductions for corporations in foreign countries results in a long-run increase in US welfare of over 0.5 percent of gross domestic product (GDP) (private consumption effect) and an increase in tax revenues equivalent to about 0.2 percent of GDP (public consumption effect). A 10 percent cut in foreign personal income taxes on capital income results in an increase in US income of 0.6 percent (private consumption effect) and a decline in US revenues equivalent to 0.4 percent of GDP. These effects are large relative to the amount of tax revenue collected, since in most OECD countries capital income taxes amount to less than 5 percent of GDP.

### MOTIVES FOR CAPITAL INCOME TAXATION

By far the most important source of tax revenue in most OECD countries is income taxation—corporate and personal income taxes. Annual income is equal to consumption and the net accretion of wealth held by households. This amount, conversely, is equal to the remuneration paid to labour (wages, salaries, and benefits) and returns to capital (rents, dividends, capital gains, and interest).

Why is income taxation, including capital income taxation, so popular among governments? This is not an idle question. Since the 1970s, economists have hotly debated the virtues of the income base and an alternative tax base—consumption.<sup>15</sup>

An important property of consumption-based taxes is that they exclude savings or the return to savings from taxation.<sup>16</sup> A consumption tax can take the form of either an indirect tax on consumer goods, such as a value-added tax (VAT) or a retail sales tax, or a direct tax on income net of saving.<sup>17</sup> Whatever its form, then, a consumption-based tax, unlike an income-based tax, largely exempts capital income from taxation.

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<sup>14</sup> Philippe Thalmann, Lawrence Goulder, and François Delorme, “Assessing the International Spillover Effects of Capital Income Taxation” (mimeograph, 1994).

<sup>15</sup> The consumption tax base has been advocated by the Meade report, Institute of Fiscal Studies, *The Structure and Reform of Direct Taxation: Report of a Committee Chaired by Professor J.E. Meade* (London: Allen & Unwin, 1978), and discussed in United States, Department of the Treasury, *Blueprints for Basic Tax Reform* (Washington, DC: US Government Printing Office, 1977). It is discussed in more detail below.

<sup>16</sup> See David Bradford, “Definition and Implementation of the Consumption Tax,” in Jack Mintz, ed., *Report of the Policy Forum on Tax Reform and the Consumption Tax* (Kingston, Ont.: Queen’s University, John Deutsch Institute for the Study of Economic Policy, 1985), 1-4; and David F. Bradford, *Untangling the Income Tax* (Cambridge, Mass.: Harvard University Press, 1986).

<sup>17</sup> 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 Robin W. Boadway, Neil Bruce, and Jack M. Mintz, *Taxes on Capital Income in Canada: Analysis and Policy*, Canadian Tax Paper no. 80 (Toronto: Canadian Tax Foundation, 1987).

To understand the rationale for the taxation of capital income in general, it is useful to review the arguments for the taxation of capital income under the personal tax. The rationale for the corporate income tax, as we shall see, largely depends on the rationale for taxing capital income at the personal level.

### **Personal Income Taxes**

During the tax reform period of the 1980s, many governments reduced personal statutory income tax rates and some also broadened the personal income tax base, by reducing deductions and exemptions. Only a few governments, however, significantly changed the tax mix, such as by increasing their reliance on payroll and consumption taxes and reducing their reliance on income taxes. Once again, why has income taxation, with its distinguishing feature of being applied, in principle, to capital income, remained so popular?

The popularity of income taxation at the personal level depends upon both economic and political considerations. The economic considerations subdivide into allocative and administrative issues. The political considerations have to do with the public's perception of fairness in the tax system and the difficulty of handling the transition from one tax system to another.

In addition, there is the question of raising revenue, the main objective of a tax system and one that is of particular concern to deficit-plagued Canadian governments. In raising revenue, however, governments must ask themselves not only "how much must the geese be plucked?" but also "how may we pluck the geese with the least amount of pain?" The discussion below concentrates on the second issue: with a given amount of tax revenue to be raised, why rely on capital income taxation rather than solely on other sources of revenue?

### ***Allocative Issues***

Capital income taxes remain in place in part because economists have failed to agree about the allocative effects of eliminating them. Although some tax experts argue that the exclusion of capital income from the tax base would reduce the economic (allocative) costs of the tax system, others argue that it would simply replace one set of distortions with another.

Economists agree that the elimination of capital income taxes would increase the amount of savings available for investment in domestic and international assets. In fact, the strongest argument against the taxation of capital income is that it discriminates against saving in favour of consumption. This argument is well articulated by Bradford.<sup>18</sup> When a person earns income, tax is paid once. If income is then consumed, there is no further tax liability. If the person saves income, however, any income earned on the savings bears tax. Thus saving is taxed more heavily than is consumption.

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<sup>18</sup> *Untangling the Income Tax*, supra footnote 16.

Because income taxation favours present consumption over saving, which implies future consumption, it creates what economists call an intertemporal distortion. At one time, economists argued that because taxes have little impact on savings decisions the intertemporal distortion is not large. This view began to lose favour in the late 1970s, with the publication of studies by Feldstein<sup>19</sup> and Boskin,<sup>20</sup> and many economists now argue that the intertemporal distortion is in fact substantial. The shift in views occurred in part because of the discovery that earlier studies had incorrectly calculated the economic loss that arises from the taxation of savings and in part because improved econometric analysis had obtained higher estimates of the elasticity of savings.<sup>21</sup>

The intertemporal distortion, however, is not the only distortion that economists are concerned about. Atkinson and Stiglitz<sup>22</sup> and Sandmo<sup>23</sup> point out that the elimination of the tax on savings would require the government to increase the rate of tax on consumption or labour, or both, in order to raise the same amount of revenue. An increase in labour or consumption taxes, however, would worsen other distortions, notably distortions in the supply of labour.<sup>24</sup> It is argued, accordingly, that some taxation of capital income is necessary to avoid the excessive economic loss that would result from taxing labour supply alone. Indeed, Auerbach, Kotlikoff, and Skinner<sup>25</sup> and Auerbach and Kotlikoff<sup>26</sup> find that a shift

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<sup>19</sup> Martin Feldstein, "The Welfare Costs of Capital Income Taxation" (April 1978), 86, special issue *Journal of Political Economy* S29-51.

<sup>20</sup> Michael J. Boskin, "Taxation, Saving, and the Rate of Interest" (April 1978), 86, special issue *Journal of Political Economy* S3-27.

<sup>21</sup> Feldstein, *supra* footnote 19, shows that the correct way of evaluating the intertemporal distortion is to analyze the impact of the income tax on future consumption, which depends on both the amount saved and the interest rate. If the tax reduces interest income, future consumption falls even if savings do not change. Thus the impact of taxes on the intertemporal consumption decision is much bigger than it appears to be if one looks only at the savings decision. Boskin, *supra* footnote 20, in improved econometric work, found elasticities of savings that were higher than those estimated previously. Lawrence H. Summers, "Capital Taxation and Accumulation in a Life Cycle Growth Model" (September 1981), 71 *The American Economic Review* 533-44, argued that the intertemporal distortion is quite large, since the elasticity of savings implied by general equilibrium analysis is higher than the elasticity obtained by econometric studies, which have their limitations. See Roger S. Smith, "Factors Affecting Saving, Policy Tools, and Tax Reform: A Review" (March 1990), 37 *International Monetary Fund Staff Papers* 1-70, for a recent review of empirical literature dealing with the taxation of savings.

<sup>22</sup> Anthony B. Atkinson and Joseph E. Stiglitz, *Lectures on Public Economics* (London: McGraw-Hill, 1980).

<sup>23</sup> Agnar Sandmo, "The Effects of Taxation on Savings and Risktaking," in *Handbook of Public Economics*, vol. 1, *supra* footnote 6, 265-311.

<sup>24</sup> A consumption tax distorts labour supply by reducing the purchasing power of wages and thereby providing wage earners with an incentive to favour leisure over labour.

<sup>25</sup> Alan J. Auerbach, Laurence J. Kotlikoff, and Jonathan Skinner, "The Efficiency Gains from Dynamic Tax Reform" (February 1983), 24 *International Economic Review* 81-100.

<sup>26</sup> Alan J. Auerbach and Laurence J. Kotlikoff, *Dynamic Fiscal Policy* (Cambridge, Eng.: Cambridge University Press, 1987).

from income taxes to a wage tax might increase the economic loss induced by the tax system.<sup>27</sup>

Thus economists are divided on the question whether the replacement of income taxes by wage and consumption taxes would benefit the economy. The lack of consensus in the academic debate on the allocative impact of income taxes has given little comfort to policy makers. Since there is no clear argument against capital income taxes on allocative grounds, reliance on a capital income tax in conjunction with other taxes cannot be ruled out on those grounds. Hence, other considerations, such as fairness and simplicity in the tax system, become more important than allocative effects in determining the appropriateness of a particular personal tax base.

### *Administrative Issues*

Some of the strongest arguments against capital income taxation refer to the administrative difficulties associated with taxing capital income. Again, however, the issue is not clear cut.

The taxation of capital income is difficult because the tax base is often difficult to observe.<sup>28</sup> Three types of problems contribute to the difficulty, and in order to deal with them a number of tricky calculations must be made:

- *Measurement problems.* Accrued income earned on assets is not easily observed. For this reason, capital income earned on investments in consumer durables is generally either omitted from the tax base or imperfectly measured for tax purposes.<sup>29</sup>
- *Timing problems.* Capital gains should be taxed as they accrue rather than when they are realized. 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 constant dollar price of capital goods.
- *Inflation.* Capital income should be indexed for inflation by correcting asset values for replacement cost and adjusting income and interest expenses for inflation.

Given the difficulty of observing the income tax base, some economists have argued in favour of eliminating the tax on capital income and adopting

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<sup>27</sup> According to Auerbach and Kotlikoff, *supra* footnote 26, however, a shift from an income tax to a consumption tax would improve the economy. The reason for this economic gain is that a consumption tax acts as a one-time wealth tax that falls on the savings that had accumulated before the implementation of the tax. The additional tax revenue from past accumulated savings allows the government to reduce other taxes that discourage labour or capital. This transitional difference between consumption taxes and wage taxes is eliminated if consumption taxes exempt accumulated savings.

<sup>28</sup> This point is documented in both the Meade report and the US Treasury document, *Blueprints for Basic Tax Reform*, *supra* footnote 15.

<sup>29</sup> There is also the problem of measuring business income, which is discussed below.

an alternative base, such as cash flow.<sup>30</sup> Under a 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 problems of measurement, timing, and indexation cited above. Other issues arise, however, that are especially important in the context of the tax treatment of capital income: tax evasion and international complications. Although some of the administrative problems associated with these issues suggest that capital income taxes should be avoided, no unambiguous case can be made on this basis in favour of eliminating capital income taxes.

Let us take the issue of tax evasion first. In taxing income, most OECD countries use a self-assessment system. Individuals report their income at the end of the 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 system.

The problem of tax evasion arises when the reporting of income depends solely on the amounts determined by the taxpayer. In the case of wages and salaries, businesses withhold taxes on behalf of the taxpayer; consequently, the taxpayer cannot easily evade the income tax applied to labour earnings. There is no withholding of taxes, however, on capital income paid by a business to a taxpayer (apart from taxes on income payable to non-resident owners and the dividend distribution taxes levied in imputation systems).<sup>31</sup> As a result, tax evasion is more likely to involve capital income than labour income.

Tax evasion also arises when taxpayers earn low-tax or tax-free income outside the taxing jurisdiction. This point applies with particular force to capital income taxation, since taxpayers can hold assets outside their 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 that require 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.

Tax evasion, it is argued, makes capital income taxes difficult to impose. It is easier to impose value-added taxes or payroll taxes, since VAT and payroll records make it possible to audit taxpayers' returns. Of course, evasion occurs even under VAT systems, although the problem is greater in some countries than it is in others.

It is also possible to argue, however, that tax evasion problems would be worse if the personal income tax base excluded capital income, since in that case labour income paid in the form of capital income (dividends

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<sup>30</sup> See Bradford, *Untangling the Income Tax*, supra footnote 16.

<sup>31</sup> The corporate income tax, however, has an important role in withholding income. This point is discussed below.

or capital gains) would not be subject to tax.<sup>32</sup> It would thus be possible to evade tax by reporting labour compensation as capital income.

Many countries rely on minimum taxes to ensure that capital income is taxed. Two types of minimum taxes are in use. The first is a system of withholding taxes on capital income paid by businesses to individuals, such as dividend and interest withholding taxes deducted at source, which are creditable against the personal income tax payable by the recipient. If the rate of withholding tax is close to the top personal tax rate, taxpayers will have little incentive to misreport their capital income. The second type of minimum tax is a tax imposed on an alternative base as a replacement for or an addition to the capital income tax (in some jurisdictions, the minimum tax is creditable against the income tax). For example, a tax on wealth (real property) can be used as a substitute for or an add-on to a tax on capital gains or housing. The advantage of the alternative bases is simply that they are easier to measure or harder to hide than capital income.

Although tax evasion poses serious problems, none of the difficulties that vex capital taxation are more intractable, perhaps, than those that arise from international differences in tax policy. The next section will deal with this topic in detail, but it is appropriate here to discuss briefly a few administrative difficulties associated with the taxation of international transactions.

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 it difficult to impose taxes on income accruing to residents of countries that do tax capital income. For example, foreigners who earned capital income in the host country would owe taxes to neither the host country nor the home country. Foreign investors could borrow in their home countries, deduct interest there, and earn tax-exempt capital income in the host country. These problems become even more important in the context of 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 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 the host country's withholding taxes, using the argument that in the absence of a personal tax applied to residents in the host country these taxes discriminate against non-residents.

The result could be unappealing for a capital-importing country if there is full crediting of taxes against the capital importer's taxes. Given both non-resident withholding taxes and a residence-based personal tax, a capital

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<sup>32</sup> 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 point is discussed in the next section.

importer's non-resident withholding taxes are efficient from its own point of view. If the capital importer does not set withholding taxes, the result could be the receipt of less revenue by the capital importer's treasury and more revenue by foreign treasuries without any increase in foreign investment, since the foreign investor could earn the same after-tax return on investments in the host country with and without withholding taxes.

International complications have been especially important in discouraging countries from choosing tax bases that are substantially 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.

### *Fairness*

Perhaps the most important consideration behind the reluctance of governments to abandon the taxation of capital income is fairness. The public considers 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 is also the primary tool used by governments to redistribute income in society. The rate structure is graduated so that higher-income individuals pay more taxes, proportionate to income, than lower-income individuals pay. A graduated tax structure, however, could also be used for a tax on personal consumption (income net of savings).

In recent years, some economists have developed the view that to properly measure a household's ability to pay taxes one should assess income on a lifetime basis rather than an annual basis. In present value terms, the consumption of a household is equal to its members' lifetime earnings. By this reckoning, capital income, or interest, is simply the price at which savers trade current consumption for future consumption. Under an income tax, future consumption is more heavily taxed than is current consumption. Thus, it can be argued that from the standpoint of fairness capital income should not be taxed.<sup>33</sup>

This view has been criticized on two grounds. First, it has been argued that unconsumed wealth confers benefits (such as political power) to households, so that some capital income taxation is appropriate for reasons of fairness. Second, some households benefit from large inheritances that

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<sup>33</sup> Progressivity is defined here as what results when average tax rates (taxes paid divided by income) increase with the income earned by the household. Most tax-incidence studies measure income on an annual basis (labour and capital income). Income can also be measured, however, on a lifetime basis (the present value of earnings). The difference between these two approaches is that the former does not recognize the extra taxes that a saver pays on future consumption because of the taxation of interest. The lifetime measure of income treats the interest rate as simply the price at which savers trade current consumption for future consumption, rather than as income paid on each dollar of savings. See John Whalley, "Regression or Progression: The Taxing Question of Incidence Analysis" (November 1984), 17 *Canadian Journal of Economics* 654-82, for further discussion.

may not otherwise be taxed if there is no 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.<sup>34</sup>

### ***Transitional Problems***

Finally, governments are reluctant to eliminate taxes on capital income because of the problems that the transition from one tax base to another would create. In any movement from one tax base to another, some taxpayers face an increase in taxes and others a decrease. The elimination of capital income taxes would provide a once-and-for-all windfall gain to investors who had expected to pay taxes on their accumulated savings. At the same time, any compensatory increase in taxes on other bases, such as property, might increase taxes on old assets.

Pressures arise for governments to grandfather exemptions from provisions that would otherwise create windfall losses; on the other hand, there is little political gain to be had from imposing taxes to reduce windfall gains.<sup>35</sup> This political problem makes it difficult for governments to maintain the level of revenue that prevailed under the old tax policy during the transition to the new policy. The prospect of a shift to a new policy will be even less appealing to the government if it must increase its deficit to absorb the revenue losses. Transitional effects can be so difficult to handle that they may deter a government from adopting a new policy even if the long-run effect of the policy may be beneficial.

### **Corporate Income Taxes**

Corporations are the most important form of business organization in OECD countries and are subject to taxation throughout the world. Almost all countries apply corporate taxes to shareholder income—that is, to revenues net of current expenses, depreciation, interest, and intangible capital expenditures.<sup>36</sup>

The motives for corporate income taxation largely depend upon the motives for taxing capital income at the personal level. The basic arguments for corporate taxation refer to its withholding role, its role as a means of exacting payment for benefits conferred on businesses, and its economic policy function.<sup>37</sup>

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<sup>34</sup> See the Meade report, *supra* footnote 15.

<sup>35</sup> In the context of the tax reform process in the United States in the 1980s, the authorities attempted to recapture some of the windfall gains to companies that would arise from the proposed reduction in statutory tax rates, which reduced the tax on old assets. The provisions were dropped before the adoption of tax reform in 1986.

<sup>36</sup> Resource taxes, in contrast, often apply to operating income (no interest is deductible).

<sup>37</sup> For a full discussion of these issues, see Boadway, Bruce, and Mintz, *supra* footnote 17, and Jack Mintz and Jesús Seade, "Cash Flow or Income? The Choice of Base for Company Taxation" (July 1991), 6 *The World Bank Research Observer* 177-90.

### ***The Withholding Role***

The most important role of the corporate income tax is to serve as a withholding device for income that is difficult to tax at the personal level. The withholding principle recognizes 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.

Capital income is relatively easy to tax at the personal level when it takes the form of interest and dividends received by the taxpayer. As was noted earlier, however, the full taxation of accrued capital gains is difficult. One remedy is to use the corporate income tax to withhold tax on retained earnings that give rise to capital gains on shares held by the corporation. This arrangement ensures that the capital gains are taxable on an accrual basis, in much the same manner as other forms of income.

In its withholding role, a corporate income tax will require corporations to pay corporate income taxes on income accruing to investors. If capital income, such as dividends and interest, is fully taxable at the personal level, the corporate tax provisions may allow corporations to deduct it from the corporate income tax. If dividends are not deductible at the corporate level, then the shareholder will receive the dividends net of tax. In this case, some method of integrating corporate and personal taxes is needed to prevent double taxation. Many OECD countries integrate their corporate and personal income taxes by the imputation method: a dividend tax credit is given at the personal level to offset corporate taxes borne on income accruing to shareholders.<sup>38</sup>

For the purposes of the withholding role of the corporate income tax, the appropriate corporate income tax base is retentions—revenues net of operating costs, interest, and dividends. Like the base for capital income under the personal income tax, however, this base is not easy to measure. Difficult calculations must be made to account for economic depreciation, accrued income on intangibles, inflation, and the mismatching of income and expenses.

Another aspect of the withholding function of the corporate income tax—one that will be important to the discussion in the next section—is the treatment of corporate income accruing to foreigners. As was noted earlier, foreigners are not subject to taxes on income at the personal level (apart from non-resident withholding taxes as set by treaty). Thus the corporate tax is the only flexible source of tax revenue from foreign investors. In addition, under current international tax arrangements, investors can credit corporate taxes in host countries against home-country

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<sup>38</sup> The following example shows how corporate and personal taxes are integrated by this method. Suppose the corporate tax rate is 50 percent. For each \$2 in pre-tax profit, the shareholder receives \$1 in dividends. The dividends are grossed up by a factor of two to reflect the underlying corporate tax paid before the distribution of the dividends. The shareholder then computes a personal tax on the grossed-up value of the dividends and subtracts the credit from his personal tax liability. Given a corporate tax rate of 50 percent, the credit is equal to 50 percent of the grossed-up value of the dividends.

taxes on foreign-source earnings of multinationals. This arrangement can give a host country considerable scope for taxing corporate income without causing foreign governments to lose revenue and therefore seek to deter investment abroad.<sup>39</sup>

If the sole purpose of the corporate income tax were to withhold income accruing to residents, then no untoward consequences would follow from allowing corporations to deduct dividends from the tax base. The deductibility of dividends from corporate income is not advisable, however, given that the corporate income tax also serves as a withholding device for income accruing to foreigners. The reason for this is that under current international tax arrangements many capital-exporting countries, including Japan, the United States, and the United Kingdom, tax the remitted foreign-source dividends of their multinational corporations and credit host-country corporate taxes against the tax liabilities owed by the parent company to its home country. If the host country allows the deduction of dividend distributions from the corporate income tax, the result is a reduction in the amount of taxes paid by a foreign subsidiary that would otherwise be credited abroad. This result leads in turn to a transfer of tax revenue from the host government to the home country. Thus, the deductibility of dividends reduces the withholding role of the corporate income tax in the host country. It does so, moreover, without providing the benefit of increased foreign investment, since the after-tax rate of return to foreign investors may be the same whether dividends are deductible or not.<sup>40</sup>

The Royal Commission on Taxation in Canada<sup>41</sup> explicitly recognized the two withholding functions of corporate income taxation 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—retentions

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<sup>39</sup> A host country's ability to take strategic advantage of crediting depends on the reactions of the home country. Gordon, *supra* footnote 1, suggests that the home country may encourage host countries to tax corporate income in order to help the home country enforce its own taxes 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. If enforcement is not an issue, however, 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 investor's government. See Mintz and Tulkens, "The OECD Convention," *supra* footnote 13.

<sup>40</sup> 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 does 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.

<sup>41</sup> Canada, *Report of the Royal Commission on Taxation* (Ottawa: Queen's Printer, 1966) (the Carter report).

because of the difficulty of taxing accrued capital gains, dividends because of the credibility of corporate income taxes deemed to be paid on dividend distributions.

### ***Payment for Benefits***

Another rationale for corporate income taxation is that the resulting revenues serve as payment for benefits conferred on corporations. These benefits include the privilege of limited liability<sup>42</sup> and the use of public property.

Although there are good arguments to be made for a tax on corporations to pay for certain publicly provided benefits, the appropriateness of a tax on income for this purpose is not apparent. For example, if a public good such as infrastructure expenditure confers benefits on businesses, the appropriate tax is a user charge. If the public good allows a company to earn rents, then a rent tax is appropriate.<sup>43</sup> The best argument for the corporate income tax in this context is the fact that it may be easier to implement at the international level than the alternatives are.

### ***The Economic Policy Function***

Corporate taxes are also used as a means of altering the 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. This fact, however, is not in itself a justification. Why should governments use the corporate income tax to change the behaviour of firms, 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. The first is that a corporate income tax incentive is general; its use eliminates the administrative task of determining which firms should benefit from the incentive provision. The second reason is that giving a corporation a tax reduction is politically more appealing, or less unappealing, than giving it a cheque.

The use of corporate taxation for economic policy reasons provides no particular rationale for basing the corporate tax on income. Indeed, tax incentives reduce the ability of the corporate income tax to act as a withholding tax on income and a revenue-raising device. For this reason, many countries have recently scaled back corporate income tax incentives by reducing tax preferences for capital.

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<sup>42</sup> See the Meade report, *supra* footnote 15.

<sup>43</sup> A cash-flow tax with expensing of capital is an easy rent tax to implement. For further discussion, see Boadway, Bruce, and Mintz, *supra* footnote 17, at chapter 5.

The primary argument for a corporate income tax is that it is compatible with the personal income tax. The caveats raised earlier about the difficulty of taxing capital income under the personal income tax apply even more strenuously to the corporate income tax. It is difficult to observe the corporate income tax base; corporate income tax evasion is a problem at both the domestic level and the international level. As long as governments continue to tax capital income at the personal level, however, a tax on corporate income will be necessary as a backstop to the personal income tax.

### **THE IMPACT OF INTERNATIONAL TAX COMPETITION ON CAPITAL INCOME TAXATION**

The previous section discussed a number of reasons why governments wish to rely on capital income taxation. The primary reasons are that income as a tax base is politically popular, since it is viewed as being fair; that given the need to raise revenue the taxation of capital income reduces pressures to levy taxes on other sources; and that 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. Governments apply the corporate tax to shareholder income (dividends and reinvested profits) because it is difficult to tax capital gains at the personal level and because there are benefits to be had from taxing dividends accruing to foreigners, especially residents of capital-exporting countries that credit the corporate income tax against their own taxes on foreign-source income.

Given this background on the role of capital income taxes, we can now address the primary question: will tax competition and the increasing mobility of capital induce governments to shift away from capital income taxation? As a first step toward an answer to this question, the present section will begin by describing the nature of tax competition in the context of the taxation of capital. It will then consider the effects of tax competition on capital income taxation in both small open economies and large open economies.

#### **Tax Competition and Capital Mobility**

Once again, tax competition is the adoption by one country of tax policies that affect the welfare of another country. The effects of the first country's policies on the second country's welfare are called fiscal externalities or spillovers. Capital income taxation induces two general spillover effects: capital flight and tax exportation.<sup>44</sup>

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<sup>44</sup> There are other possible spillover effects, associated with capital flight, such as effects on income earned by non-traded labour (see Martin Feldstein and David Hartman, "The Optimal Taxation of Foreign Source Investment Income" (November 1979), 93 *The Quarterly Journal of Economics* 615-29, and Atish R. Ghosh, "Strategic Aspects of Public (The footnote is continued on the next page.)

### **Capital Flight**

A jurisdiction that taxes capital may lose capital to another jurisdiction.<sup>45</sup> The problem of tax-induced capital flight is a major concern for policy makers who wish to maintain the taxation of capital income. Tax-induced capital flight is often discussed only in terms of the loss of tax revenue occasioned by the capital flight. The discussion here will show that capital flight induced by taxation has economic effects as well as fiscal ones.

The extent of the capital flight induced by capital income taxes depends on the elasticity of the capital base. It is useful here to distinguish between two types of capital flows between countries: portfolio investment 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.

Portfolio capital tends to be quite sensitive to differences in tax-adjusted rates of return on capital across jurisdictions. Corporate income taxes, withholding taxes applied to non-residents, and personal income taxes all heavily influence the portfolio allocation decisions made by owners of financial capital. This conclusion is illustrated by the impact of changes in the withholding taxes applied to interest in Germany in recent years.

Direct investment is, in general, likely to be less sensitive than portfolio investment to changes in rates of return. A multinational corporation that is contemplating direct investment is interested in the use of real capital and labour in production. If there are factors of production specific to a given country, and hence imperfect substitutability of investments across countries, the company may be able to derive rents or above-normal returns in that country. In addition, because most direct investment is undertaken by multinational corporations, which invest in controlled subsidiaries or branches in the capital-importing country, corporate taxes are more important than withholding taxes or personal income taxes as a means of influencing direct investment flows.

The flight of capital induced by capital taxes affects both public and private consumption in the externality-recipient countries. The public consumption effect arises when an increase in one country's effective capital tax rate induces a flight of capital that expands the capital tax base, and consequently the revenues, of another country. Given this effect, which is beneficial to other countries, governments have a strong incentive not to increase their rates of capital income taxation. The implication of the effect, therefore, is that governments would choose higher capital tax

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<sup>44</sup> Continued . . .

Finance in a World with High Capital Mobility" (May 1991), 30 *Journal of International Economics* 229-47), non-capital taxes, and market imperfections such as unemployment and information asymmetries in capital markets.

<sup>45</sup> See, for example, Bird and McLure, *supra* footnote 1.

rates if they were compensated for the benefit that their capital taxation confers on others. In a context of tax competition, in other words, fear of capital flight may lead governments to set their capital tax rates too low relative to the rates that would prevail in a context of international coordination of tax policies.

Capital-tax-induced capital flight affects 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, which affects the return accruing to domestic and foreign investors) and taxes on savings (the personal income tax, which affects the return paid to domestic savers).

The imposition of corporate income taxes in a given country reduces the demand for traded capital, and this effect in turn reduces the international cost of funds (to an extent that depends on the size of the country). Thus a corporate tax rate in one country that induces a flight of capital benefits a competing country if the latter is a net borrower of capital funds and harms it if it is a net capital exporter.

A tax on savings, on the other hand, reduces the supply of international capital and thereby causes the international interest rate to increase. Thus a capital-importing country is harmed by savings taxes imposed by other countries, whereas a capital-exporting country benefits from such taxes.

Although capital flight may be viewed as a reason for reducing or eliminating capital taxes, the preceding discussion suggests that in certain circumstances the opposite conclusion may hold. For example, it may be argued that Canada is a small capital-importing open economy and should therefore, to prevent capital flight, impose no taxes on capital. Many trade studies suggest, however, that Canada is not "small" in all international markets. Consequently, taxes on capital may reduce the cost of funds to Canadian businesses to some degree<sup>46</sup> and may therefore be desirable.

### ***Tax Exportation***

It was noted earlier that one of the benefits of capital income taxes to a capital-importing country is that the country can apply them to income accruing to foreign residents. The resulting tax obligation is in effect exported: it serves to reduce either the income received by foreign investors or, if other jurisdictions provide crediting arrangements, the taxes paid in those jurisdictions.

Tax exportation is, therefore, a harmful externality. If capital income taxation in a capital-importing country withholds income accruing to foreign investors,<sup>47</sup> it reduces their return on capital and hence their ability

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<sup>46</sup> See Burgess, *supra* footnote 8.

<sup>47</sup> Capital income taxes in a large economy 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, since it is important for the reasons discussed in the background section to differentiate between corporate and personal income taxes.

to pay for private consumption goods. The obvious disadvantage of this result, from the point of view of the capital importer, is that it may discourage foreign investment. The disadvantage is removed if the capital-exporting country allows tax credits or deductions for foreign taxes payable. In that case, the capital-importer's capital taxes will reduce the taxes payable to the capital exporter rather than the returns to foreign investors.<sup>48</sup> In either case, the implied consequence of tax exportation is that capital income tax rates are higher than they would be in a context of international coordination of tax policies.

Because Canada relies heavily on foreign direct investment (it accounts for about 25 percent of total capital), tax exportation is an important motive for capital taxation in Canada. The Royal Commission on Taxation<sup>49</sup> acknowledged the tax-exportation motive in drawing up its recommendations.

### **Summary**

In a world of tax competition, capital income taxes are likely to be either higher, owing to tax exportation, or lower, owing to capital flight, than they would be in a world in which governments coordinated their capital tax policies. In most contexts, but not all, the capital-flight spillover effect invites the conclusion that reliance upon capital income taxation will decline in an international economy in which capital is increasingly mobile. On the other hand, the tax-exportation spillover effect suggests that increasing mobility of capital will lead to more reliance on capital income taxes. The strength of each of these contrary results depends, however, on whether the economies in question are "small," in the sense that their saving and investment decisions do not affect international interest rates, or "large," in the sense that their saving and investment behaviour do affect international interest rates. The results also depend on whether the tax applies to domestic savings (the personal income tax) or to domestic investment (the corporate income tax). These factors, in their various combinations, are considered below.

### **Small Open Economies**

Assume for the purposes of the following discussion the existence of a small open economy, defined here as an economy that faces an exogenous cost of portfolio financial funds on international markets.<sup>50</sup> In this economy,

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<sup>48</sup> Nevertheless, tax exportation by the capital importer can benefit the capital exporter by helping it to enforce its own capital income taxes. See footnote 39, supra.

<sup>49</sup> Supra footnote 41.

<sup>50</sup> This assumption of a small open economy for the purposes of tax policy analysis has been used by Boadway, Bruce, and Mintz, supra footnote 3; Assaf Razin and Efraim Sadka, "Integration of International Capital Markets: The Size of Government and Tax Coordination," in *Taxation in the Global Economy*, supra footnote 3, 331-56; and Robin Boadway and Neil Bruce, "Pressures for Harmonization of Income Taxation Between Canada and the United States," in John B. Shoven and John Whalley, eds., *Canada-U.S. Tax Comparisons* (Chicago: University of Chicago Press, 1992), 25-74.

foreign and domestic financial assets, whether they are equity or debt, are substitutes for one another.<sup>51</sup>

Although this hypothetical economy is small in the sense that it faces an exogenous cost of financial capital, there is no presumption that it is small in the sense of having no effect on flows of direct investment capital (the Canadian economy, for example, is small in the first sense but not in the second). It is assumed that a company would not obtain as high a rate of return on direct investment capital if it located in another country. In other words, there are fixed specific factors of production (natural resources and entrepreneurship) or gains to international diversification of production that allow the company to earn rents in a particular location.<sup>52</sup> Given these assumptions, it follows that companies operate in several countries and that there are multiple flows of direct investment among countries.

Some points made earlier about the operation of taxes in a small open economy bear repeating here. In a small open economy, the personal income tax applies directly only to domestic savings and the corporate income tax applies directly only to domestic investment. Consequently, the personal income tax reduces the return earned by savers without affecting the international cost of funds. This means that the personal income tax has no impact on the level of investment, since foreign savings replace domestic savings at the same international interest rate. Similarly, the corporate tax reduces investment without affecting the international interest rate, which determines the level of savings.

### ***Personal Income Tax Spillovers in a Small Open Economy***

Personal income taxes are levied on the income of residents. Some countries, including Canada, tax worldwide income (and provide a credit for foreign taxes); others only tax income from domestic sources. Even if a country exempts foreign-source income from taxation, however, the existence of transaction costs implies that an optimal portfolio will consist of both domestic and foreign assets. Consequently, it is assumed here that the presence of a personal income tax may encourage investors to hold foreign assets but that investors do 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 accrues largely to multinational corporations, not persons.

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<sup>51</sup> An additional assumption is that the cost of finance, including risk, is also unaffected by the amount of financial claims issued by firms operating in a small open economy. One implication of this assumption is that the risk of a specific small open economy can be replicated by a portfolio of assets held in other countries. In other words, there is no country-specific risk.

<sup>52</sup> J.M. Mintz and H. Tulkens, in "Optimality Properties of Alternative Systems of Taxation of Foreign Capital Income," *Journal of Public Economics* (forthcoming), use this assumption for their analysis of corporate taxation of multinational companies. They assume that a multinational invests in two countries, and that each country has a production facility with decreasing returns to scale.

Personal income taxes apply to the labour income as well as the capital income of residents. If the labour supply is fixed and labour is internationally immobile, any tax levied on wages will be borne solely by the worker. If the labour supply is variable, part of the tax will be shifted forward onto the firm through higher wages, an outcome that reduces the demand for both labour and capital.

The personal income tax on labour will not affect the return paid to owners of capital, since the return on portfolio capital is determined by international markets. The tax on labour will affect only the above-normal returns, or rents, earned by fixed factors, such as those associated with entrepreneurship (that is, the ownership of direct capital). Therefore, if labour is internationally immobile, taxes on labour will have little impact on other countries. And although labour has some freedom of movement internationally, immigration laws and cultural barriers do considerably restrict its mobility. For this reason, labour-tax competition is not, in general, an important issue.

The situation is more complicated when the issue is the application of personal income taxes to capital income in a context of capital mobility. There are, in fact, two issues here. The first is the impact of capital mobility on the optimal rate of personal taxation applied by a small open economy to capital income when other countries enforce personal income taxes on foreign-source capital income. The second is the impact of capital mobility on the optimal rate when other countries exempt foreign-source income from taxation or do not effectively enforce the tax.

Consider the case of a small open economy that levies personal income taxes on both domestic-source and foreign-source capital income earned by residents. The consequences of this taxation depend on whether the country is a net exporter or, like Canada, a net importer of portfolio capital.

If the country is a net exporter, an increase in its personal income tax rate will reduce the domestic savings available for international markets. Because the economy is small, however, this outcome will have a negligible impact on the rest of world. In this case, therefore, the spillover associated with capital mobility is unimportant.

If the country is a net capital importer, an increase in the personal tax on capital income will reduce domestic savings and encourage more foreign capital to flow in from abroad. If a foreign government taxes its residents on a worldwide basis, it stands to lose little of its tax base on this account; that is, it will be little affected by capital flight. If, however, the foreign government exempts the foreign-source income of its own residents, or if it cannot enforce its own personal income tax on foreign-source income, it might lose a larger portion of its tax base, although given the smallness of the capital importer the loss would still be relatively unimportant to the capital exporter.

In short, the personal income taxes levied by small open economies do little to provoke tax competition. The personal tax is a residence-based tax; consequently, any changes in personal tax rates in a small open

economy affect only the welfare of that economy. A small economy that decides to increase its personal tax rate is analogous to a household that decides for no good reason to reduce its savings: the decision will not affect the welfare of other households in the economy.

Withholding taxes on the portfolio income of non-residents have different implications for spillovers than do personal income taxes as such, which only affect residents. If foreign countries allow their residents to credit the withholding taxes against their own taxes, a capital-importing country will be able to export taxes to these countries by increasing its withholding taxes. There are, however, two considerations that limit the tax-exportation effect associated with withholding taxes. First, withholding tax rates are often set by double-taxation treaties, so many governments' opportunities for tax exportation are limited. Second, withholding taxes may be difficult to credit against foreign taxes. Current non-resident withholding taxes apply to the gross income earned by the foreigner before the deduction of costs incurred in the host country, but the income tax paid to the home country, against which the withholding taxes are credited, is based on revenues net of the 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 credit fully the withholding taxes they have paid to host countries against home-country liabilities.<sup>53</sup> There are, however, tax-planning methods that taxpayers can use to soak up withholding-tax credits. These methods are discussed below.

Given full taxation under the personal income tax and full enforcement of the tax, capital mobility has little impact on the optimal choice of a personal tax rate in a small open economy. Capital mobility becomes important, however, if residents are able to avoid the personal tax on savings by investing capital in low-tax jurisdictions. Capital flight, which depends on the tax regimes of other countries, may make it difficult to impose a tax on capital income at the personal level.

It is in this context that tax competition may play an important role. In fact, many OECD countries, including Canada, either no longer impose withholding taxes or impose them, at very low rates, only on gross interest accruing to foreigners. As a result, some countries may be finding it increasingly difficult to enforce their capital income taxes. Their residents can earn income in foreign bank accounts, pay little tax to foreign governments, and, if they are not required to report this income or fail to report it, pay no tax to their own governments.<sup>54</sup> 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, for a country that receives foreign savings, non-resident withholding taxes may be optimal—especially if the tax is credited

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<sup>53</sup> This point also applies to the corporate income, which is discussed below.

<sup>54</sup> Treaty negotiations that required withholding taxes on income would help to enforce the personal income tax. This issue is dealt with in more detail in the last section.

abroad, allowing the capital importer to export taxes.<sup>55</sup> Capital mobility in this case increases the capital importer's incentive to tax capital income, especially if it is able to obtain large yields of tax from non-residents. Thus the outcome of capital mobility may be the maintenance of capital income taxes in both the capital-exporting country and the capital-importing country.

### ***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, and thereby acts as a withholding tax not only on residents but on foreigners as well. Because the corporate income tax is source-based, it provides considerably more scope for tax competition than does the personal income tax.

When a small open economy levies corporate income taxes, the taxes crowd out domestic investment.<sup>56</sup> For a capital importer, the result is a reduction in capital inflows; for a capital exporter, it is an increase in capital outflows. The capital flight induced by capital taxation generally involves both portfolio investment and direct investment. When portfolio capital leaves a small open economy, the resulting increase in capital flows has a negligible impact on international markets. From direct investment, however, owners are able to earn above-normal returns, or rents, to the extent that foreign entrepreneurship is complementary to foreign capital. Corporate taxes reduce the income accruing to multinationals and thereby discourage entrepreneurship. This outcome may benefit other jurisdictions that compete for the same entrepreneurship. Thus corporate taxation in one economy can induce a positive spillover in other economies, in the form of additional direct investment.<sup>57</sup>

The size of the tax-exportation spillover associated with corporate taxation depends on the extent to which the corporate tax withholds rents from foreign investors or, via crediting arrangements, revenues from foreign treasuries. Because the corporate income tax, unlike non-resident withholding taxes, deducts tax at source and therefore does not apply strictly to foreign investors, it is a somewhat cumbersome withholding device. Nonetheless, the corporate income tax acts as a significant withholding tax in many capital-importing countries, since a large proportion of the capital in such countries is owned by non-residents.

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<sup>55</sup> As was remarked in footnote 39, *supra*, this may be a desirable outcome for the capital-exporting country.

<sup>56</sup> As was discussed above, the incidence of the corporate income tax is on owners of fixed factors rather than on owners of portfolio capital, which is highly mobile. In other words, 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.

<sup>57</sup> This analysis seems to contradict the smallness assumption applied to capital. Countries within a specific region, however (for example, southeast Asia), may be large relative to one another and thus quite competitive in attracting entrepreneurship.

As direct investment capital becomes more mobile, a country may wish to tax it less to prevent capital flight. On the other hand, increased capital mobility implies increased foreign ownership, which creates an incentive for the host country to tax capital more heavily for tax-exportation reasons. It is unclear, therefore, whether capital mobility encourages or discourages corporate income taxation in a small open economy.

The size of the spillovers associated with the corporate income tax also depends on how well the tax is enforced. International tax-planning techniques 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, provide opportunities for multinational companies to minimize corporate tax payments worldwide. In general, there is an incentive for a company to shift taxable income from countries with high statutory tax rates to countries with low statutory rates by allocating revenues to the low-tax-rate jurisdictions and costs to the high-tax-rate jurisdictions. This strategy allows companies to reduce their overall tax paid without having to shift their 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 the higher statutory tax rates imposed by a given country. It follows that weak enforcement of the corporate income tax may encourage countries to choose statutory corporate tax rates that are lower than they would be in a world of tax-policy coordination. The spate of tax reform initiatives in the 1980s, which saw so many countries reduce their statutory corporate tax rates, was largely induced by anxiety on the part of governments to maintain their respective tax bases.<sup>58</sup>

To overcome the problems of corporate tax base flight, governments throughout the world, including Canada's, 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 corporation tax, which could be viewed as a minimum tax).<sup>59</sup> These taxes are less subject than the corporate income tax is to capital-flight spillovers and can be used for tax exportation.

### Large Open Economies

The concept of the small open economy, defined as an economy that faces an exogenous rate of interest, provides a useful way of characterizing some countries. For other countries, however, such as the United States, Japan, and Germany, the characterization is inappropriate.

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<sup>58</sup> See David A. Dodge and John H. Sargent, "Canada," in Joseph A. Pechman, ed., *World Tax Reform: A Progress Report* (Washington, DC: Brookings Institution, 1988), 43-69, for an explicit discussion of this point in the Canadian case.

<sup>59</sup> See Antonio Estache, "Minimum Taxes on Business Activities: A Brief Introduction to Design Issues" (mimeograph, World Bank, Brazil Department, 1990).

It was noted earlier that economists have defined several ways in which an economy can be “large”:

- An economy is large if its savings and investment decisions affect world interest rates<sup>60</sup> and, consequently, the economies of other jurisdictions.
- An economy is large if it faces country-specific risk. The risk premium on the assets of a specific large economy will depend on the net volume of issues available to the international market.<sup>61</sup>
- Economies may be large in export or import markets for goods and services. Given that the balance of payments equilibrium requires net exports to be equal to capital outflows, the volume of a large economy’s inflows will affect the international prices of exported and imported goods.<sup>62</sup>

In the case of a large open economy, however its “largeness” is defined, the pattern of spillovers induced by capital taxes is more complicated than it is in the case of a small open economy. In any open economy, a tax on capital at the corporate level reduces the domestic demand for investment and thus induces a capital outflow. If a country’s economy is large, the capital outflow causes worldwide savings to outstrip demand, an outcome that reduces the worldwide interest rate or the country-specific risk premium on securities offered by the country. If the country is a net capital importer, it is better off, since the cost of international lending declines. If it 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 country with a large economy increases its tax on domestic savings, there is a reduction in its supply of savings to the international markets; the result is an increase in international interest rates or in the risk premium on the country’s securities. The increase in interest rates would benefit a country that is a net capital exporter but harm a country, such as Canada, that is a net importer.

The picture is further complicated if the large economy influences the prices of goods and services in export or import markets. The imposition of a corporate tax reduces capital borrowing and therefore makes the country less reliant on international lending. The country’s currency will appreciate, and this result will improve its terms of trade, making it better off. The imposition of a tax on savings has the opposite effect: savings decline, reliance on international lending increases, the currency depreciates, the terms of trade deteriorate, and the country is worse off. To the extent that Canada’s tax system can influence the prices of its goods and services in international markets, a tax on corporate income is desirable.

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<sup>60</sup> See Dixit, *supra* footnote 6.

<sup>61</sup> See Gordon and Varian, *supra* footnote 7.

<sup>62</sup> See Burgess, *supra* footnote 8.

In a large economy, then, taxes on capital at the personal level and the corporate income tax have radically different effects. Personal taxes on savings benefit a capital exporter but harm a capital importer. Corporate taxes benefit a capital importer but harm a capital exporter.

### **THE COORDINATION OF CAPITAL INCOME TAXES**

The preceding analysis suggests that the spillovers induced by capital income taxes lead to inefficient levels of taxation. The capital-flight spillover generally causes jurisdictions to tax capital too lightly, given the rates that would apply in the absence of tax competition, and the tax-exportation spillover creates an incentive to tax capital too heavily. In the case of personal taxation of capital income, at least in small economies, the principal spillover effect is capital flight. If a residence-based personal tax is not fully enforced, the personal tax rates will be too low relative to the rates that would apply in a context of international coordination of tax policies. Corporate taxation in small economies produces both kinds of spillover effects. If the tax-exportation spillover dominates the capital-flight spillover, then corporate tax rates are too high. If tax exportation dominates capital flight, then the rates are too low.

The existence of spillovers implies that countries are choosing inefficient tax policies. They would be better off if they could coordinate their policies with those of other countries and thereby reduce tax exportation and capital flight. International coordination of income tax systems might improve the operation of the income tax system in each country.

It was argued earlier that the application of the personal income tax depends on how well the corporate income tax operates—thus improvements in both taxes in each country would help to reduce capital flight and tax exportation, allowing countries to maintain a more globally efficient income tax system.<sup>63</sup> In an international economy, countries undertake tax policies that maximize their own welfare. Without coordination, however, the spillover effects of these policies create a wide variety of effective tax rates on capital. This outcome, in turn, distorts international flows of capital and thus reduces the efficiency of the global tax system.

It is true that governments have made some effort to keep tax competition within bounds. Governments currently use two methods to coordinate their taxes on capital income with those of other governments: the sharing of tax and financial information and double-taxation agreements. To what extent are these methods of coordination an improvement over a complete absence of coordination?

### **The Sharing of Information**

The exchange of information about taxpayer behaviour can help governments enforce the corporate and personal income taxes.

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<sup>63</sup> As was discussed in the background section, one might argue that the use of consumption taxes would be better than reforming the income tax. But even if countries move to consumption taxes there will still be problems of enforcement at the international level. See Mintz and Seade, *supra* footnote 37.

Governments currently enforce their income taxes domestically by requiring taxpayers to submit interest receipts issued by financial institutions, copies of which the institutions send to the government. They may also require taxpayers to provide identification numbers, such as their social insurance numbers, to the institution in order to identify their interest receipts.

Personal income taxes could be enforced at the international level if this information were shared among governments. Governments could require non-resident investors to supply information such as addresses to financial institutions, and the financial institutions could report to foreign governments as well as their own. This procedure would make the enforcement of capital income taxes much simpler.

The advantage of exchange of information is that it reduces the problem of capital flight. It makes it possible for a government that wishes to enforce its taxes on capital income to audit, or have someone else audit, the accounts of taxpayers. Exchange of information does not, however, address the problem of tax exportation. In fact, it could aggravate the problem. If governments are able to enforce income taxes more effectively, host countries would have an incentive to increase their capital income taxes, knowing that the taxes can be credited abroad.<sup>64</sup>

At present, exchanges of information among tax authorities are limited in both scope and usefulness. Many countries prohibit the passing of financial account information to tax authorities; Luxembourg and Switzerland are examples. Moreover, the auditing of accounts is usually left to the authorities of the jurisdiction in which the income is earned. These authorities have little incentive to audit the accounts of non-residents, since the tax revenue would go to a foreign treasury.

Thus, exchange of information requirements, although they are perhaps useful in transfer-pricing cases involving multinational companies, have not been implemented effectively. Current reporting arrangements do not, therefore, seriously impede capital flight.

### **Double-Taxation Agreements**

Many double-taxation agreements have adopted the basic provisions outlined in the OECD model convention. The most important provisions are non-discriminatory taxation of non-residents, agreement to establish rates of withholding tax on non-residents, and taxation at source with the provision by the capital-exporting country of a credit for foreign taxes or the exemption of foreign-source income.

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<sup>64</sup> This point is made by Gordon, *supra* footnote 1, who assumes that information is available to enforce a corporate income tax on foreign-source earnings. See also Patrick J. Kehoe, "Policy Cooperation Among Benevolent Governments May Be Undesirable" (April 1989), 56 *The Review of Economic Studies* 289-96, who argued that coordination 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.

Current double-taxation agreements reduce spillovers in some respects and increase them in others.<sup>65</sup> The non-discrimination clause reduces the incentive for a country to export taxes, since it must tax its own residents at the same rate in order to withhold income accruing to foreigners.<sup>66</sup> The agreement to establish withholding tax rates also reduces a country's ability to export taxes, and if income is taxed wherever it is earned the agreement also helps to reduce capital flight.<sup>67</sup> On the other hand, taxation at source, with crediting, can increase the tax-exportation spillover. This provision, consequently, has a negative implication for capital-exporting countries.

Despite the development of double-taxation agreements, many governments continue to believe that capital income taxation at the international level involves significant distortions and serious enforcement problems. The current agreements have several general shortcomings. One is that they are bilateral; thus the terms of the agreements, particularly in respect to matters such as withholding tax rates, vary considerably across countries. A second problem is that double-taxation agreements do little to reduce tax exportation and smooth out differences in effective tax rates on capital. Bovenberg et al.<sup>68</sup> show that effective tax rates on capital vary substantially across countries, depending on the country of location and of ownership. Leechor and Mintz<sup>69</sup> 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.

### Alternative Methods

If current methods of tax coordination have failed, what is there left for countries to do? McLure<sup>70</sup> and Leechor and Mintz<sup>71</sup> have argued in favour

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<sup>65</sup> This discussion is based on Mintz and Tulkens, "The OECD Convention," supra footnote 13.

<sup>66</sup> 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.

<sup>67</sup> For example, recent changes in treaty provisions reduce the incentive 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 the United States could deduct interest for US 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. The recent treaty changes have eliminated this double-dip arrangement.

<sup>68</sup> Supra footnote 3.

<sup>69</sup> Chad Leechor and Jack Mintz, "Taxation of International Income by a Capital-Importing Country: The Perspective of Thailand," in Javad Khalilzaded-Shirazi and Anwar Shah, eds., *Tax Policy in Developing Countries* (Washington, DC: World Bank, 1991), 100-24.

<sup>70</sup> C.E. McLure Jr., "International Aspects of Tax Policy for the 21st Century" (mimeograph, 1990).

<sup>71</sup> Supra footnote 69.

of an international or regional agreement to coordinate taxes (as McLure calls it, a “GATT for tax”). Efforts to coordinate taxes are common enough within federations. In the federal context, many regional governments have harmonized their income taxes with those of other regional governments. Two widely used methods of tax coordination within federations are revenue sharing and formula apportionment.

### ***Revenue Sharing***

Revenue sharing works as follows. The central government determines a tax base and a tax rate, which is uniform across all states or provinces, and collects the tax. The revenue is then divided among the provinces according to a formula based on, say, population shares, per capita income, or a proxy for the tax base such as corporate sales and payrolls. Revenue sharing would obviously eliminate spillovers, since the tax system would be centralized.

Revenue sharing stands little chance, however, of being adopted at the international level. For one thing, there is no central government to administer, collect, and distribute the tax, although some specialists have argued that the United Nations or some other international agency could assume the role. For another, countries would be reluctant to give up the right to tax capital or not, as they choose. When countries have different revenue requirements, the notion of a centralized tax system is not appealing to them.

### ***Formula Apportionment***

Formula apportionment involves the apportionment of the income tax base, according to some formula, among the jurisdictions in a federation. The jurisdictions can vary their individual bases, as long as the variations are not related to the apportionment base, and they can set their own tax rates.

The personal tax base can be apportioned according to the residency of the individual (problems can arise in apportioning the income of partnerships that operate in more than one jurisdiction). This is the rule currently used in Canada. The apportionment of the corporate income tax base is more difficult, since corporations often operate in more than one jurisdiction. The United States uses a formula generally based on property, revenues, and payroll. Canada uses only payroll and revenues.

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

Even under formula apportionment, however, it is possible to manipulate tax paid by using transfer pricing to affect the reporting of revenue in

a particular jurisdiction.<sup>72</sup> In addition, if property is part of the base, corporations have an incentive to push capital to low-tax-rate jurisdictions.

Formula apportionment would allow national governments to choose their own tax rates. This apparent advantage, however, raises a problem. Although it has been argued that base variation has far more impact than rate variation has on affecting capital allocation across countries,<sup>73</sup> no clear case can be made one way or the other. Differences in statutory tax rates can have important effects 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 corporation that undertakes investment in a country with a high statutory tax rate will be able to deduct depreciation at a high rate. If taxable income generated by that investment is shifted to a country with a low tax rate, the income earned on the investment will be taxed at a low rate. In effect, the company will enjoy a negative effective tax rate on capital by taking advantage of the difference between the statutory tax rates in the two countries.

Enforcement can be a problem under formula apportionment, and not only with respect to transactions within a federation but also with respect to transactions outside the federation. An interesting episode in Canadian fiscal history provides an example. In the early 1980s, the Quebec government won a transfer-pricing case that had been costly to prosecute. The then minister of finance, Jacques Parizeau, decided 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.<sup>74</sup>

There is no evidence to suggest whether formula apportionment is better or worse than separate accounting as a means of coordinating taxes across jurisdictions. Formula apportionment may mitigate the capital-flight spillover in some respects (interest deductions), but it may aggravate it in other respects (the allocation of revenues or capital). It may also aggravate the tax-exportation spillover, since the apportionment of taxable income may not truly reflect where the income is generated. Under separate accounting, on the other hand, companies can minimize taxes by shifting profits from one jurisdiction to another. It is difficult, accordingly, to provide an economic justification for either system.

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<sup>72</sup> See John Bossons, "Provincial Taxes on Corporations," in Melville McMillan, ed., *Provincial Public Finances*, vol. 2, *Plaudits, Problems, and Prospects*, Canadian Tax Paper no. 91 (Toronto: Canadian Tax Foundation, 1991), 301-14.

<sup>73</sup> See M. King, *Harmonization of Taxes on Income from Capital in the EEC*, Special Paper no. 18 (London: London School of Economics, Financial Markets Group, 1990).

<sup>74</sup> The federal government believed that the real reason for the move was the fact that, unlike the provincial corporate income tax, the capital tax was deductible from the federal tax. This may have been an additional reason for the Quebec initiative. If the federal government was correct, the story exemplifies another spillover effect, namely tax exportation.

## CONCLUSIONS

This article has advanced three important theoretical claims about the impact of capital mobility on capital income taxation.

The first claim is that the openness of an economy to international flows of income implies that corporate taxes primarily affect domestic investment decisions and personal taxes primarily affect savings decisions. Given this difference, it is not possible for a country such as Canada to assume that its corporate and personal tax policies have identical effects on domestic savings and investment decisions.

The second claim is that personal taxes induce capital flight to the extent that governments have difficulty in monitoring income on foreign assets owned by residents. Because the lack of monitoring leads to capital flight, it makes the capital income tax base more difficult to tax, especially for smaller open economies such as Canada. Personal taxation in large economies, however, may increase international interest rates on assets and hence improve the returns earned on net capital outflows. Thus personal taxation may benefit capital-exporting countries but harm capital-importing countries.

The third claim relates to the corporate income tax. No clear theoretical result emerges with respect to the impact of global capital mobility on a country's incentive to tax business income. Although the corporate income tax can induce capital flight (particularly the flight of direct investment capital), there are also other, offsetting spillovers. Capital-importing countries such as Canada have an incentive to impose a corporate income tax if the tax successfully withholds income, particularly above-normal returns, or economic rents, accruing to foreigners. To the extent that governments can practice this form of tax exportation, increased mobility of capital may increase the incentive for corporate taxation. In addition, corporate taxation in larger economies may drive down international interest rates. Thus net capital importers would benefit from the imposition of a corporate income tax, whereas net capital exporters would not.

The article has also provided an argument for the need to better coordinate corporate and personal income taxes at the international level. Improved coordination, however, would require some form of formal agreement among countries, at either a multilateral or a regional level, which is unlikely to occur at this time.