

Recent Developments in Tax Coordination: A Panel Discussion by Bev Dahlby, Robert Henry, Michael Keen, and David E. Wildasin*

Rapporteurs: Jack M. Mintz and Michael Smart**

ABSTRACT

In May 1999, a panel discussion on tax coordination took place at the annual meetings of the Canadian Public Economics Study Group. The panelists were Bev Dahlby of the University of Alberta, Robert Henry of the Department of Finance, Michael Keen of the International Monetary Fund, and David E. Wildasin of Vanderbilt University. This article presents an edited version of the panelists' comments, followed by a brief summary of questions from the audience and panelists' responses.

INTRODUCTION

In recent years, problems in coordinating tax policies among national and subnational governments have assumed greater importance in federal states. In Canada, several recent developments have brought tax coordination to the fore in federal policy debates. These developments have been particularly visible in the fields of sales taxation (agreements to harmonize the federal goods and services tax [GST] with provincial retail sales taxes) and personal income taxation (the recent agreement giving provinces the power to levy "tax on income"). In the realm of business taxation as well, spillovers among governments are of increasing

* The panel discussion was organized by the Department of Finance, Ottawa, and the Institute of International Business and the Institute for Policy Analysis, both of the University of Toronto. It took place on May 26, 1999, at the annual meetings of the Canadian Public Economics Study Group, University of Toronto. Bev Dahlby is director of the Institute for Public Economics and professor of economics at the University of Alberta; Robert Henry is of the Intergovernmental Tax Policy Division, Department of Finance, Ottawa; Michael Keen is of the International Monetary Fund, Washington, DC; and David E. Wildasin is of the Department of Economics, Vanderbilt University, Nashville, Tennessee.

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concern. The recent report of the Technical Committee on Business Taxation¹ devoted considerable attention to improving federal-provincial coordination on business tax issues.

With these considerations in mind, the federal Department of Finance, the Institute of International Business, and the Institute for Policy Analysis (both institutes of the University of Toronto) brought together a panel of international experts to discuss recent developments in subnational tax coordination. The panel discussion took place at the annual meetings of the Canadian Public Economics Study Group (CPESG) at the University of Toronto in May 1999. The distinguished panel consisted of Bev Dahlby of the University of Alberta, Robert Henry of the Department of Finance, Michael Keen of the International Monetary Fund, and David E. Wildasin of Vanderbilt University.

Remarks of the panelists are presented, in somewhat revised form, in the four papers published here. The panelists' papers can be summarized as follows:

- Robert Henry provides a summary of the recent history and current state of federal-provincial tax coordination, in a way that "sets the scene" for the papers that follow. Discussing the long process of decentralization of tax powers in the post-war period, Henry points out that provinces together now account for about the same share of total revenues as the federal government, a situation unparalleled among federations in the world. He discusses in detail recent changes to the tax collection agreements (TCAs), which will permit provinces to levy tax directly on personal incomes, rather than as a percentage of basic federal tax, and establish a cost structure for federal administration of provincial tax measures. The result, he suggests, is a system that allows provincial flexibility but encourages national harmonization.

- Bev Dahlby outlines problems of tax spillovers that arise in a federation, with particular emphasis on business taxes. Canada's system of corporate income and capital taxes is reasonably successful at "horizontal" (interprovincial) coordination, he suggests, because tax bases are largely harmonized, a common allocation formula is used, and most provinces cede tax administration to the federal government through the TCAs. (Dahlby points out, however, that while a common allocation formula may limit the tendency of provinces to compete excessively in attracting tax bases, it cannot eliminate such competition. Moreover, the formula can have perverse effects, even causing much of the incremental burden of corporate taxes to fall on labour.) On the other hand, "vertical" coordination is poorer, because federal and provincial governments often occupy the same tax bases, and this overlap may lead to excessive rates of taxation.

- Michael Keen provides a fascinating look at how value-added taxes (VATs) work within a federation. In Canada in recent years, the federal government has

¹ Canada, *Report of the Technical Committee on Business Taxation* (Ottawa: Department of Finance, April 1998) (herein referred to as "the Mintz report").

devoted considerable time and expense to inducing provinces to replace retail sales taxes with a single harmonized, national VAT. Keen points out that, because so much trade occurs across provincial borders, it is very difficult to design a system that gives provinces autonomy in setting tax rates while preserving a consistent system of taxation nationwide, based on the destination principle. Keen considers and rejects systems based on “zero-rating” of inter-provincial exports and on the “clearing house” mechanism apparently favoured by the European Commission. He then considers two innovative proposals for subnational VATs, the “compensating VAT” (CVAT) and the “viable integrated VAT” (VIVAT), which, he argues, give provinces complete flexibility in setting tax rates without significant increases in compliance costs for taxpayers or administrative complexity for governments. The key point is that the federal GST provides opportunities for more flexible arrangements as compared to the European situation where there is no central VAT on which national states can base their own systems.

- David Wildasin compares subnational corporate income tax systems in Canada and the United States, and he provides an extensive discussion of emerging issues in US corporate taxation. He agrees with other panelists that Canada’s system, based largely on national agreements, creates a tax regime that is simpler, more transparent, and perhaps less likely to induce distortions in economic activity among jurisdictions than is the case with the US system. On the other hand, US states have experimented more in setting policies to meet local needs. He discusses the current ambiguities in US tax law on establishing “nexus” between a business and a state, which is the basis for states’ taxation powers. Nexus is a particularly thorny issue for trade in intangibles, such as income derived from financial transactions, intellectual property, and, perhaps, electronic commerce. Wildasin reviews the economic considerations that suggest states should not have the power to tax intangibles.

We conclude with a précis of questions from the audience and answers from the panelists. We wish to thank Christine Neill for her assistance in preparing this section.

TAX COORDINATION IN CANADA: SETTING THE SCENE

Robert Henry

The interest of the Department of Finance in sponsoring this type of session, as we did in 1998 with the session on the Mintz report,² is to try to forge a better link between the policy work that we do in Finance and the research undertaken in the academic community. This year, we have focused on the issue of tax

2 See Stanley Winer, rapporteur, “The Report of the Technical Committee on Business Taxation (the Mintz Report): A Panel Discussion by Michael P. Devereux, Roger Gordon, and John Helliwell, with a Comment by Jack Mintz” (1998), vol. 46, no. 6 *Canadian Tax Journal* 1245-77.

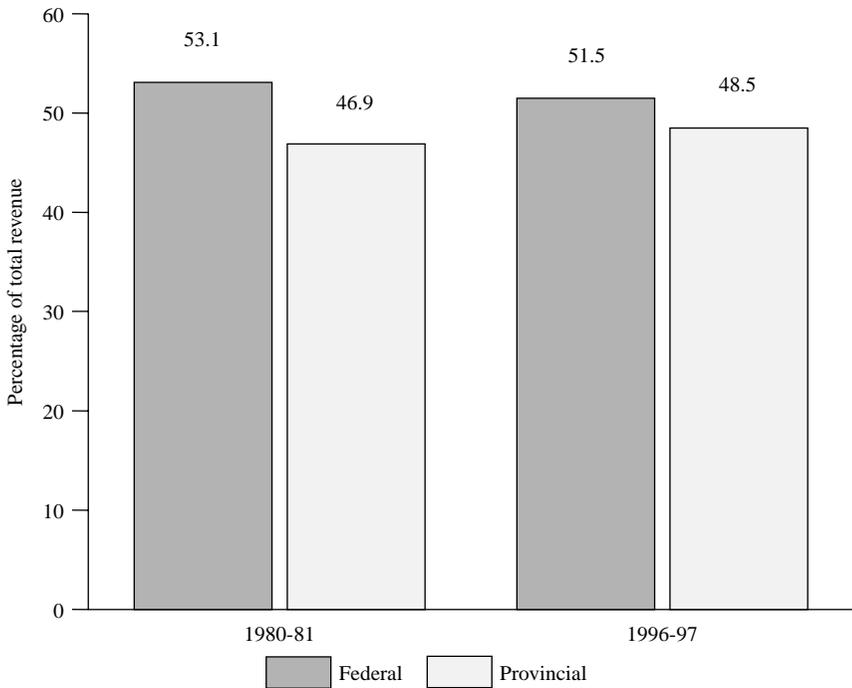
coordination within the Canadian federation because important changes are occurring in this area. My presentation is intended simply to set the scene for my fellow panelists. I will begin with a few key facts about the taxation environment in Canada and then provide some detail on new directions in federal-provincial tax coordination.

Within the Canadian federation, the provinces play a prominent role in the social and economic life of its citizens. That role has increased over the years. In the period immediately following World War II, the federal government was clearly the dominant player in the federation. Its share of government revenues was in the order of five to one relative to that of the provinces. Since the 1970s, there has been a marked change in that relationship. As figure 1 shows, the provinces have become much more important players; by 1996-97, the federal and provincial governments were sharing the revenue pie in Canada in more or less equal proportion. That is an important feature of our federation.

Another important feature is that each province has its own agenda and objectives, as does the federal government. Accordingly, one might expect to find some diversity among provinces in the types of tax policies that they implement. One indication is the range of personal income tax rates imposed by the provinces. Currently, all provinces except Quebec calculate their personal income tax as a percentage of basic federal tax. Figure 2 shows that effective average rates (including all credits and surtaxes) in 1999 ranged from 45.2 percent of basic federal tax in Ontario to 79.2 percent in Quebec. Another indication of diversity is provincial corporate income tax rates. Figure 3 shows a variation of almost 8 percentage points in the general corporate rate and more than 4 percentage points in the small business rate. A number of provinces have corporate capital taxes and a wide dispersion appears again, as shown in figure 4, from 0.25 percent in Nova Scotia to 0.64 percent in Quebec.

The sales tax policy across provinces also shows some diversity. At present, three of the four Atlantic provinces are fully harmonized with the federal GST; Quebec is essentially harmonized. Five other provinces impose sales taxes at rates ranging between 7 and 10 percent. Alberta and the three territories do not have sales taxes. Consequently, as shown in figure 5, the tax base on which provincial sales taxes are imposed varies widely across provinces, relative to the GST base, from a low of 0 percent in Alberta to a high of 100 percent in the fully harmonized Atlantic provinces, as well as in Quebec. In between, we have proportions ranging from 55 percent in British Columbia and Saskatchewan to 65 percent in Ontario and 70 percent in Prince Edward Island and Manitoba. Likewise, for those provinces that have sales taxes, the proportion of sales tax revenues that emanate from the taxation of business inputs varies across the country; as shown in figure 6, the range is from 5 percent in Quebec to 50 percent in Saskatchewan and British Columbia.

With the high degree of decentralization and diversity that we have in Canada, and the desire of provinces to pursue unique economic and social objectives, we

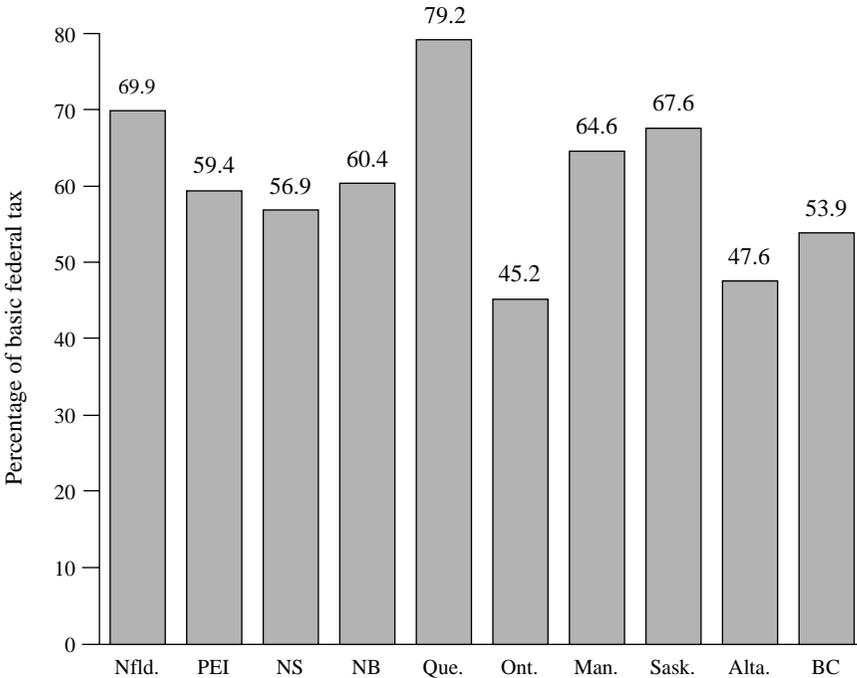
Figure 1 Changing Federal-Provincial Shares of Government Revenues

believe, at the federal level, that it is important to have mechanisms that provide a balance between provincial flexibility and national tax coordination. To that end, we have negotiated TCAs with the provinces for both personal and corporate income taxes, and comprehensive integrated tax coordination agreements (CITCAs) in respect of sales taxes. For personal income tax, we have TCAs with all the provinces and territories except Quebec, which runs its own system. For corporate income tax, we have TCAs with all provinces except Ontario, Quebec, and Alberta—not minor exceptions since these three provinces together account for 75 percent of the corporate taxable income base.

A TCA serves two key purposes. It provides a policy framework through a set of policy rules that specify what provinces can do, what flexibility they have, and what they should not do in terms of national objectives. A TCA also offers the convenience of a single administrative process. All of the participants benefit from economies of scale, and taxpayers benefit from reduced compliance costs. The TCAs have been in existence in Canada since 1962 and have evolved with the times, as I will explain below.

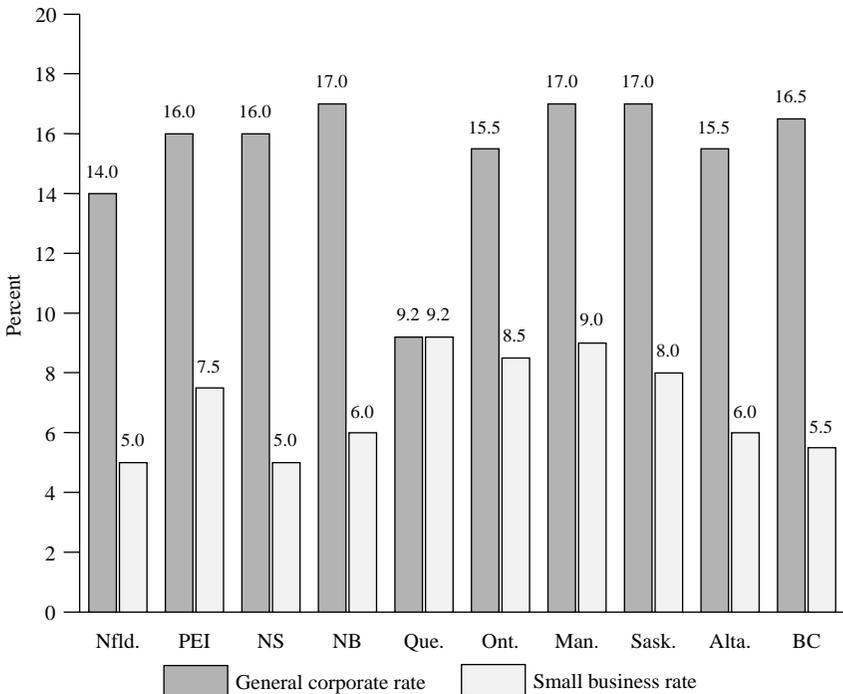
With respect to constraints on provinces under the TCAs, some have argued that the TCAs as currently configured are fairly constraining. Provinces must adhere to the common definition of taxable income; that is, they cannot levy

Figure 2 Provincial Personal Income Tax Average Rate as a Percentage of Basic Federal Tax, 1999



different tax rates on different sources of income within the province. The obvious concern here is for the mobility of factors of production. A second major constraint—and this appears to be the biggest concern of some of the provinces—is that under the current system, provinces must impose their personal income tax as a single percentage of basic federal tax. Consequently, they are bound to the federal definition of tax brackets and tax rates, and that constrains them in pursuing their own objectives, especially in respect of the type of progressivity they can have in their own systems. To get around that constraint, provincial tax systems have tended, over time, to become quite complicated, incorporating a plethora of special measures intended to support provincial policy objectives—measures such as low-income reductions, income-tested credits, high-income surtaxes, and economic development credits.

Concerned about the proliferation of these special measures, the federal government decided that guidelines were needed to indicate to the provinces what would be acceptable for federal administration. The so-called MacEachen guidelines, issued in 1981, attempted to put a fence around what provinces could do, but unfortunately the criteria were quite broad. A measure had to be effectively administrable, a condition that is fairly simple to determine. It had to adhere to the common tax base, again a condition that is fairly simple to

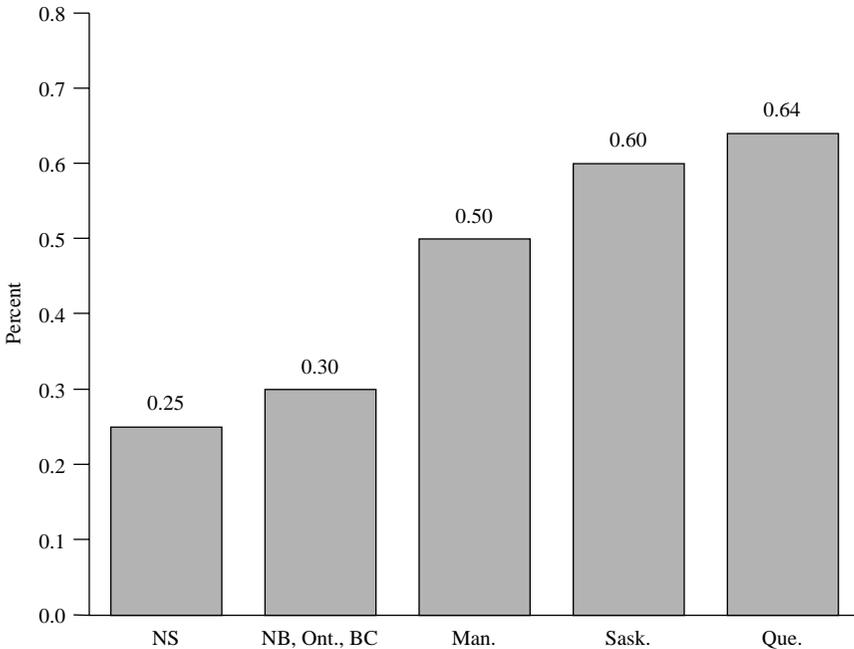
Figure 3 Provincial Corporate Income Tax Rates, 1999

determine. But, more problematic, any measure implemented by a province and administered by the federal government could not in any way impede the free movement of labour, capital, goods, and services. This last criterion has turned out to be quite difficult to apply.

Both the federal government and the provinces had concerns with the guidelines. Provinces regarded the guidelines as too constraining, and at the same time too vague; they created a great deal of uncertainty as to what the federal government would and would not approve. The federal government, for its part, was uncomfortable with the guidelines as written, because they were not transparent enough and they were very difficult to apply. In addition, the federal government's judgments on provincial measures were seen, at times, as being somewhat arbitrary.

Over the past two years, we have worked with the provinces and territories to resolve some of these problems and to try to provide them with the additional flexibility they desire, while maintaining an acceptable level of national tax coordination. Essentially, the approach we have taken has four key components:

- First, in an effort to meet the provinces' need for added flexibility, we have agreed that they can, if they choose, levy tax on taxable income, rather than applying a rate as a percentage of basic federal tax.

Figure 4 Provincial Corporate Capital Tax Rates, 1999

- Second, we have devised with the provinces new guidelines for what the federal government will administer on their behalf.

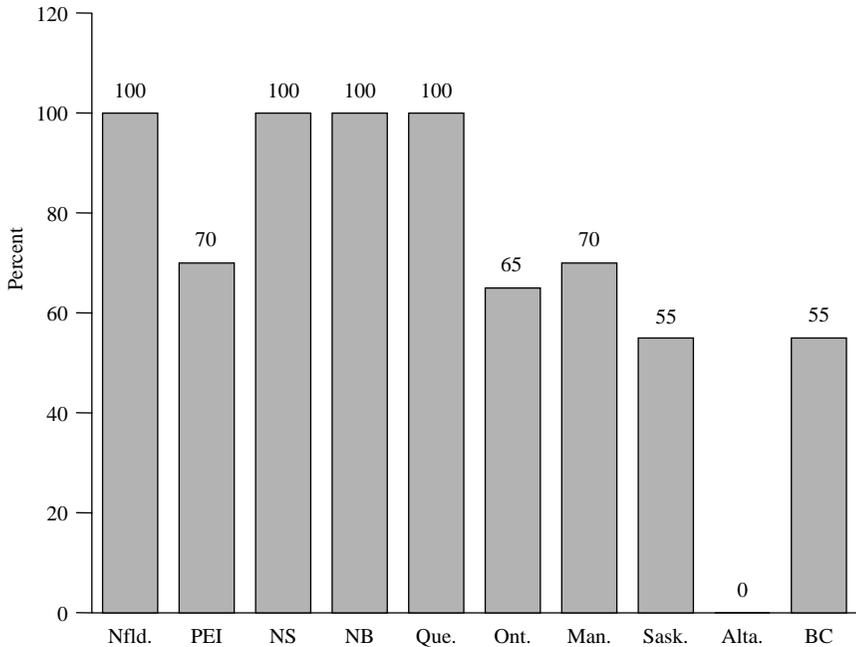
- Third, to pursue our own objectives and provide incentives for coordination, we have introduced a new costing structure for charges to provinces for federal administration of provincial measures.

- Fourth, we have created a new customs and revenue agency, replacing the Department of National Revenue, which promises to be more efficient and to be able to provide a wider range of services to provinces.

We also have our federal-provincial committee on taxation, at the assistant deputy minister level, which meets four or five times a year to discuss tax policies before they are actually implemented. We have been putting a lot more emphasis, in that committee, on discussing with provinces measures that we are considering for the federal budget, for instance, thereby giving them an opportunity to comment and to brief their ministers before meetings of federal and provincial ministers. It is this committee that has been instrumental in developing the new framework for the implementation of provincial measures.

Returning to the first key component listed above, as of the 2001 taxation year, provinces will be in a position to impose their personal income tax on the basis of taxable income, rather than as a single percentage of basic federal tax. Under the tax-on-income approach, a province could have its own tax bracket

Figure 5 Taxation of Consumer Expenditures, Provincial Sales Tax Base Versus GST Base, 1999

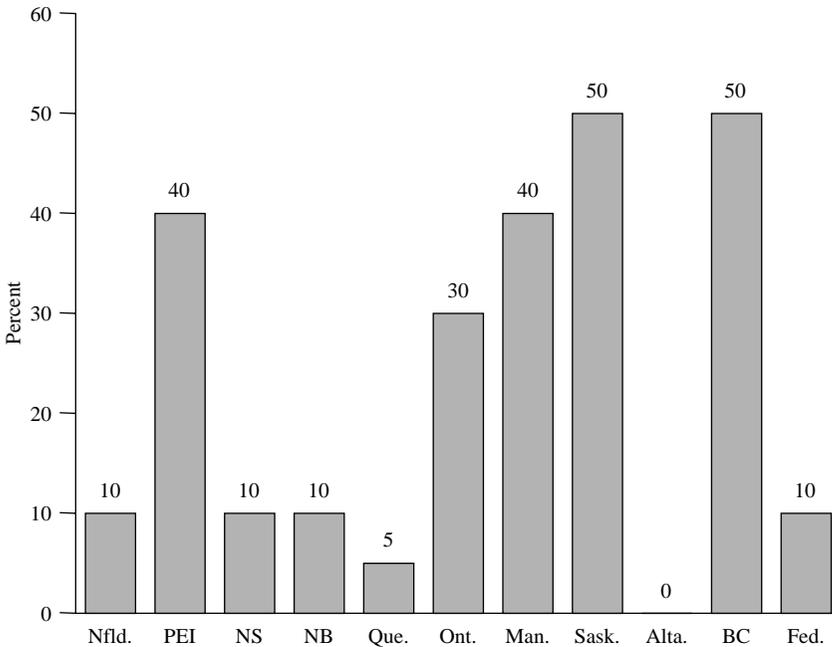


structure, its own rate structure, whatever refundable credits it wants, its own non-refundable credit block, as well as surtaxes and low-income reductions. A province could also use tax credits to modify federal deductions for expense-related items if it so desired. This is the system that Alberta described in its March 1999 budget, which it plans to introduce in 2001. A number of other provinces are quite interested in moving to this system as well.

What is left in terms of constraints? Provinces still have to adhere to the same federal taxable income base. And they cannot use credits to modify the income side of the taxable income calculation. The new guidelines are quite simple: the federal government will administer essentially any provincial measure as long as it is legal and constitutionally viable, and as long as it does not blatantly poach from any other province—that is, by offering a credit to taxpayers from outside a province as a means of enticing them to relocate in that province. The provinces have agreed to this basic criterion.

I mentioned the costing structure. The new Canada Customs and Revenue Agency (herein referred to as “Revenue Canada”), which came into existence in November 1999, will administer a new schedule of fees to provinces for tax administration. Any measure that falls within a policy harmonization agreement—that is, a TCA or a CITCA—and mimics the corresponding federal measure will

Figure 6 Taxation of Business Inputs, Proportion of Provincial Sales Tax Revenues Derived from Business Inputs



be administered free of charge. Any measure that falls within a policy harmonization agreement but has unique design features will be charged the incremental costs of administration, so that there will still be a partial subsidy from the federal government. For any measure that falls outside a policy harmonization agreement, the provinces will pay the full average cost of administration, including all of the overhead related to that measure.

That is the background I wanted to set out for the papers that follow. I will also suggest a few key topics that we think are important to discuss:

- With respect to personal income tax, what do people think of the new structure we have put in place to enhance provincial policy flexibility—specifically, tax on income, the guidelines, the new agency, and the price structure to encourage harmonization?

- On the corporate and capital tax side, how do people think it would be best to balance the objectives of tax policy flexibility for provinces and national coordination/harmonization?

- With respect to sales taxes, does the diverse structure of sales taxation that I have described raise any significant concerns from an economic perspective?

We encourage debate and welcome suggestions on these and other related concerns.

TAX COORDINATION AND TAX EXTERNALITIES

Bev Dahlby³

Introduction

Coordination of tax policies between central and subnational governments is highly advantageous in a federal system of government because, without coordination, the interaction of their tax bases can lead to sub-optimal decision making. In Canada, the provincial-local level of government raises a higher percentage of total tax revenue (excluding contributions to social security programs) than that achieved in any other OECD country except Switzerland.⁴ Hence the need for tax coordination is greater in Canada than in most other countries. Tax coordination refers to measures that facilitate the harmonization of tax policies, including the use of common administrative practices, the adoption of common tax bases, and the assignment of tax bases to the different levels of government.⁵

In this paper, I draw on the theory of tax externalities to discuss the current state of tax coordination in Canada. I begin with a brief description of the various types of tax externalities and their likely consequences for governments' decisions. I then examine whether there is "harmful" tax competition among the provinces according to guidelines on harmful tax preferences contained in a recent OECD report.⁶ I also show how the formula for allocating business income among the provinces can lead to positive and negative horizontal tax externalities. I then assess the tax coordination issues associated with two recent tax reform proposals—the Mintz report⁷ and the "flat tax" proposed by the Alberta government in its 1999 budget. The final section of the paper contains my conclusions.

3 This paper is based on my presentation at the Canadian Public Economics Study Group meeting in Toronto in May 1999. I have benefited, as always, from discussing the tax coordination issues addressed in this paper with Bob Howard, Alberta Treasury, and Jack Mintz, University of Toronto. However, I am solely responsible for any opinions and errors in the paper.

4 Provincial-local (or equivalent) tax revenues in 1996 as a percentage of federal, provincial, and local tax revenues were 52.2 percent in Canada compared to 56.2 percent in Switzerland, 49.8 percent in Germany, and 42.9 percent in the United States. See Organisation for Economic Co-operation and Development, *Revenue Statistics 1965-1997* (Paris: OECD, 1998), table 137.

5 For discussion of current tax coordination issues, see Thomas J. Courchene, "National Versus Regional Concerns: A Provincial Perspective on the Role and Operation of the Tax Collection Agreements" (1999), vol. 47, no. 4 *Canadian Tax Journal* 861-89; Jack Mintz and Finn Poschmann, "Economic Aspects of Personal Income Tax Coordination" (1999), vol. 47, no. 4 *Canadian Tax Journal* 902-26; Munir A. Sheikh and Michel Carreau, "A Federal Perspective on the Role and Operation of the Tax Collection Agreements" (1999), vol. 47, no. 4 *Canadian Tax Journal* 845-60; and the foregoing paper by fellow panelist Robert Henry.

6 Organisation for Economic Co-operation and Development, *Harmful Tax Competition: An Emerging Global Issue* (Paris: OECD, 1998).

7 Supra footnote 1.

Classification of Tax Externalities

A tax externality occurs when a government's tax policy affects individuals in another jurisdiction.⁸ These tax externalities can be either positive (beneficial) or negative (harmful). A private consumption effect occurs when individuals are affected by another jurisdiction's tax policy through changes in the prices of the goods and services that they consume, or changes in the prices of the inputs that they sell. A public consumption effect occurs when the tax policy of one jurisdiction affects the tax revenues (or required expenditure levels) in another jurisdiction because this will necessitate some adjustment in the latter's tax rates or expenditure policy. Finally, it is useful to distinguish between horizontal externalities that occur between provinces and vertical externalities that occur between the federal and provincial governments.

I will briefly discuss each of the three main types of tax externality. Any particular tax may, of course, generate more than one type of externality. An example of a negative horizontal tax externality is a provincial hotel tax that is borne, at least in part, by visitors from other provinces. We expect that provincial governments will tend to place more reliance on taxes at least part of the burden of which is exported and borne by non-voters.

An example of a positive horizontal externality is cross-border shopping induced by differential provincial sales taxes. When a tax base is mobile between provinces, a higher tax rate in one province can cause tax base flight, which expands the tax bases, and therefore the tax revenues, of other provinces. Competition among the provinces puts downward pressure on the tax rates on mobile tax bases, which may distort the provincial tax mix, lead to underfunding of public services, and distort the pattern of trade and investment within a country.⁹

A vertical tax externality can arise when two levels of government occupy the same tax field. An increase in the tax rate by one level of government will reduce the tax revenues received by the other level of government if the tax base shrinks because of tax avoidance, tax evasion, or disincentive effects. If each level of government ignores the effects of its tax policy on the tax revenues collected by the other level of government, excessive levels of taxation may be imposed on the shared tax base.¹⁰ Seventy percent of provincial tax revenues

8 For a more extensive discussion of fiscal externalities, see Jack Mintz and Henry Tulkens, "Commodity Tax Competition Between Member States of a Federation: Equilibrium and Efficiency" (1986), 29 *Journal of Public Economics* 133-72; and Bev Dahlby, "Fiscal Externalities and the Design of Intergovernmental Grants" (1996), vol. 3, no. 3 *International Tax and Public Finance* 397-412.

9 See John Douglas Wilson, "Theories of Tax Competition" (June 1999), 52 *National Tax Journal* 269-304, for a survey of literature on tax competition.

10 See M. Keen, "Vertical Tax Externalities in the Theory of Fiscal Federalism" (September 1998), 45 *International Monetary Fund Staff Papers* 454-85, for a survey of the literature on vertical tax externalities.

come from tax bases that are shared by the federal government, and 96 percent of federal revenues come from tax bases that are shared with the provincial government.¹¹ The high degree of overlap in the federal and provincial tax bases and the independent tax-setting powers of the provinces mean that vertical tax externalities are potentially a very significant problem in Canada. It should be stressed that while some models of tax base overlap predict excessive taxation, it is by no means a necessary consequence. Excessive taxation will not occur if a benevolent federal government takes into account the effect of its tax policies on provincial revenues. Furthermore, Dahlby and Wilson¹² have shown that a shared tax base can generate a positive vertical fiscal externality if ad valorem taxes are imposed on the sellers' side of the market.

Vertical tax externalities are not restricted to situations where both levels of government tax the same base. The interdependence of tax bases, such as the payroll and consumption tax bases, means that the tax policies of one level of government can have positive or negative effects on the revenues of the other level of government even if each level of government has a separate tax base. Another source of revenue interdependence is the deductibility of the provincial payroll, capital, and property taxes from the federal business income tax. Finally, the federal government's control over the definition of taxable income and its setting of the basic federal personal income tax rates has a direct impact on the revenues of the nine provincial governments that are part of the TCAs and impose their tax rates on the basic federal tax.

Tax Competition Among the Provinces

As noted in the previous section, tax base mobility may lead to "harmful" tax competition among the provinces. In practice, it may be very hard to distinguish between a harmful tax regime and one based on the legitimate political decision to have low tax rates and provide low levels of public services. The OECD report *Harmful Tax Competition: An Emerging Global Issue*, which focused only on tax competition between countries, acknowledged that

there are no particular reasons why any two countries should have the same level and structure of taxation. Although differences in tax levels and structures may have implications for other countries, these are essentially political decisions for national Governments. Depending on the decisions taken, levels of tax may be high or low relative to other states and the composition of the tax burden may vary. The fact that a country has modernised its fiscal infrastructure earlier than other countries, for example by lowering the rates and broadening the base to promote greater neutrality, is principally a matter of domestic policy. Countries

11 Ibid., at table 1.

12 Bev Dahlby and Leonard S. Wilson, *Vertical Fiscal Externalities and the Provision of Productivity Enhancing Activities by Sub-National Governments*, Working Paper (Edmonton: University of Alberta, Institute for Public Economics, 1999).

should remain free to design their own tax systems as long as they abide by internationally accepted standards in doing so.¹³

The OECD report went on to identify 10 characteristics of “unacceptable” tax regimes. Below, I use these OECD guidelines to judge the nature and extent of harmful tax competition among the Canadian provinces.

1) *No or low effective tax rates on the relevant income.* The OECD would probably consider the low tax rates that the provincial governments impose on certain sectors of the economy, such as small business and manufacturing and processing, “a matter of domestic policy” because these tax preferences may promote, however inefficiently, some broad social or economic goals. On the other hand, the tax holidays that some provinces provide for certain types of investment would probably represent a harmful tax preference according to the OECD criteria because their success likely hinges on “poaching” investments that would otherwise have occurred in other provinces. To my knowledge, there have been no estimates of forgone revenues from provincial tax holidays that would help to put the seriousness of these preferences in perspective.

2) *Ring-fencing of tax measures. Only non-residents are eligible for tax preferences.* No provincial government has adopted tax preferences that are restricted to non-residents.

3) *Lack of transparency and effective exchange of information in administration of the tax regime.* Revenue Canada’s administration of the personal income tax for all of the provinces except Quebec obviates this form of tax competition. The potential for harmful tax competition through predatory administrative practices is more significant in the corporate income tax field because Alberta, Ontario, and Quebec, which collect 75 percent of provincial revenues, administer their own corporate income taxes. However, to reduce administration and compliance costs, these three provinces adopt, by and large, the federal tax base and use the same formula for allocating business income among the provinces.

4) *Use of an artificial definition of the tax base.* The provincial governments provide tax credits for the film industry, research and development, venture capital, stock savings plans, industrial and fashion design, and training. The forgone revenue from these measures has not been estimated.

5) *Failure to adhere to international transfer-pricing principles.* Transfer pricing may be used to shift profits between subsidiaries operating in different provinces.

6) *Exemption of foreign source income from residence country tax.* This form of tax competition does not occur in Canada because provincial income taxes are levied on a residence basis. Out-of-province source income is not exempt.

13 Supra footnote 6, at 15.

7) *Existence of [banking] secrecy provisions.* Provincial governments cannot use banking secrecy to promote harmful tax competition because banking is under federal jurisdiction.

8) *Access to a wide network of tax treaties.* The existence of a tax treaty network does not contribute to or enhance interprovincial tax competition.

9) *Regimes promoted as tax minimization vehicles.* For obvious reasons, the provincial governments do not promote themselves as tax havens. While Alberta may promote the “Alberta advantage,” this is based on a lower general level of taxation rather than on access to narrow tax shelters.

10) *Regimes that encourage purely tax-driven operations.* Sprung Greenhouses, which set up a hydroponic cucumber operation in St. John’s, Newfoundland, is one example under this heading.

In the absence of detailed empirical research, one cannot come to a definitive conclusion about the degree of harm caused by tax competition among the provinces. However, the OECD’s guidelines indicate that some of the factors that contribute to harmful tax competition at the international level, such as banking secrecy laws, do not come into play at the provincial level. Furthermore, Revenue Canada’s administration of the personal income tax in 9 of the 10 provinces and its administration of the corporate income tax in 7 provinces helps to mitigate tax competition through predatory administrative practices.

Horizontal Tax Externalities and the Allocation Formula

The use of a common system for allocating business income among the provinces is one of the strengths of the Canadian tax system. It limits the occurrences of double taxation, or undertaxation, that would arise if each province had its own way of defining its tax base with respect to income generated from cross-border transactions. However, it is not widely appreciated that the use of the allocation formula produces horizontal tax externalities, intensifies the degree of tax competition among the provinces, and causes the corporate income tax to fall on labour even in the short run.

The following simple model, which builds on the work of McLure,¹⁴ Gordon and Wilson,¹⁵ and Mintz,¹⁶ illustrates these effects. Suppose there are two provinces.

14 Charles E. McLure Jr., “The State Corporate Income Tax: Lambs in Wolves’ Clothing,” in Henry J. Aaron and Michael J. Boskin, eds., *The Economics of Taxation* (Washington, DC: Brookings Institution, 1980), 327-46; and Charles E. McLure Jr., “The Elusive Incidence of the Corporate Income Tax: The State Case” (October 1981), 9 *Public Finance Quarterly* 395-413.

15 Roger H. Gordon and John D. Wilson, “An Examination of Multijurisdictional Corporate Income Taxation Under Formulary Apportionment” (1986), 54 *Econometrica* 1357-73.

16 Jack Mintz, *The Role of Allocation in a Globalized Corporate Income Tax*, Working Paper (Washington, DC: International Monetary Fund, 1998).

The output of a firm in province i is $y_i = f(l_i, k_i)$ where l_i is labour and k_i is capital employed in province i . It is assumed that the output produced in each province is sold within the province. The corporate income tax levied by province i is

$T_i = t_i s_i B$ where t_i is the province's tax rate and s_i is province i 's share of the national tax base, B :

$$(1) \quad s_i = \alpha_Y \frac{Y_i}{Y_1 + Y_2} + \alpha_L \frac{w_i L_i}{w_1 L_1 + w_2 L_2} + \alpha_K \frac{K_i}{K_1 + K_2}$$

where α_j is the weight attached to factor j in the allocation formula and w_i is the wage rate in province i . (It is assumed that the price of output, p , is the same in each province.) Note that $\alpha_Y + \alpha_L + \alpha_K = 1$. In the Canadian system, $\alpha_Y = \alpha_L = 0.5$ and $\alpha_K = 0$. In some US states, $\alpha_L = \alpha_Y = \alpha_K = 1/3$. I will assume that $\alpha_L > 0$ and $\alpha_Y > 0$. For simplicity, it is assumed that the entire return to capital is taxed (that is, there is no debt financing) and therefore $B = p[y_1 + y_2] - w_1 L_2 - w_2 L_2$. The total tax paid by the firm is $T_1 + T_2 = \bar{t} B$ where $\bar{t} = s_1 t_1 + s_2 t_2$ is the average provincial tax rate. Note that the firm's average tax rate will increase (decrease) if it employs more labour (and therefore produces more output) in province i if t_i is greater than (less than) t_j . This has important implications for the cost of hiring an additional unit of labour, as will be demonstrated below.

The firm chooses its inputs and outputs in each province to maximize its after-tax profits, $P = (1 - \bar{t})B - r(K_1 + K_2)$. I will focus on the short run where K_1 and K_2 are fixed. The firm maximizes P by choosing Y_1 and Y_2 and L_1 and L_2 subject to its production constraints in each province. From the first-order conditions for profit-maximization, it can be shown that the firm employs labour in each province up to the point where the marginal product of labour in province i , F_{L_i} , is equal to the real marginal cost of labour in province i , MCL_i , or¹⁷

$$(2) \quad F_{L_i} = MCL_i = \frac{(1 - \bar{t})w_i + B \frac{\partial \bar{t}}{\partial L_i}}{(1 - \bar{t})p - B \frac{\partial \bar{t}}{\partial y_i}} = \frac{(1 - \bar{t})w_i + \alpha_L w_i b_L (1 - s_i)(t_i - t_j)}{(1 - \bar{t})p - \alpha_Y b_Y (1 - s_i)(t_i - t_j)}$$

where $b_Y = B/(Y_1 + Y_2)$ is the tax base per unit of total output, and $b_L = B/(w_1 L_1 + w_2 L_2)$ is the tax base per dollar of total payroll.

As McLure has noted,¹⁸ with formula apportionment the corporate income tax has the characteristics of a payroll and a sales tax, and these characteristics are clearly illustrated in the expression for the MCL_i . The numerator is equal to the after-tax cost of hiring an additional unit of labour $(1 - \bar{t})w_i$ plus the

17 Mintz, *ibid.*, at 21, employs a similar expression for the user cost of capital under formula apportionment.

18 See both articles by McLure, *supra* footnote 14.

additional tax that has to be paid if an additional unit of labour increases the firm's average tax rate. The denominator is the after-tax return from producing an additional unit of output $(1 - \bar{t})p$ minus the additional tax that has to be paid if an additional unit of output increases the firm's average tax rate. Note that if both provinces impose the same tax rate, $t_i = t_j$, the MCL_i is simply the real wage rate, w_i/p . If $t_i > t_j$, then $MCL_i > w_i/p$ because hiring more labour increases the firm's tax burden because a larger fraction of the firm's profits will be taxed at the higher rate in province i . Conversely, if $t_i < t_j$, the $MCL_i < w_i/p$ and the cost of hiring labour is implicitly subsidized because employing more labour in province i reduces the firm's average tax rate.

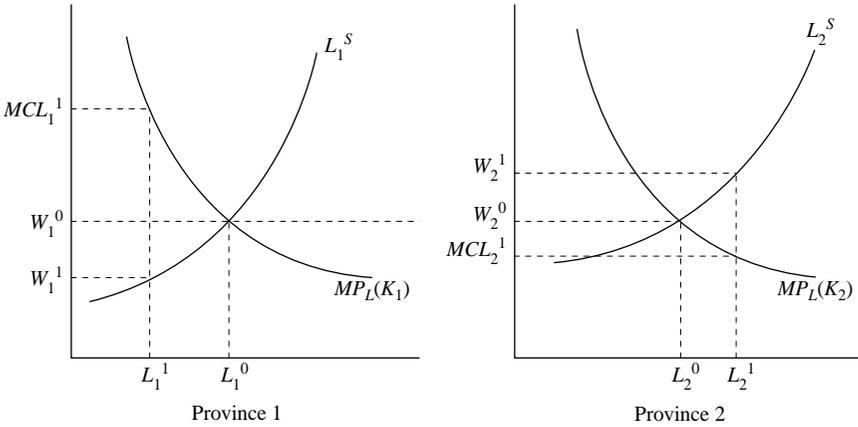
One implication of the allocation formula is that a significant portion of the provincial corporate income tax burden can fall on labour *in the short run*. This is a surprising result. Conventional economic analysis predicts that in a small open economy, which faces a perfectly elastic long-run supply of capital, the burden of the corporate income tax will fall on the relatively immobile inputs, labour and land. However, in the short run, when capital is fixed in supply, the conventional analysis predicts that the corporate income tax burden will fall on capital.

Figure 7 illustrates the short-run shifting of the burden under formula allocation. It is assumed that labour is completely immobile between provinces, but there is an upward-sloping labour supply curve, L^s_i , in each province. Let the price of output be 1. In the initial equilibrium, it is assumed that the provinces impose the same tax rate, $t_1 = t_2$, and therefore $MCL_i^0 = w_i^0$ and the initial employment levels are L_1^0 and L_2^0 . Now suppose that province 1 raises its corporate income tax rate. As a consequence, the MCL increases in province 1 and decreases in province 2. The quantity of labour demanded decreases to L_1^1 in province 1 and increases to L_2^1 in province 2. Assuming a perfectly competitive labour market, the wage rate declines to w_1^1 in province 1 and increases to w_2^1 in province 2. Consequently, raising the profit tax rate in province 1 imposes a burden on labour in province 1 even in the short run when the supply of capital is completely inelastic.

An important implication of this model is that a corporate income tax rate increase in province 1 generates a positive fiscal externality for province 2 *even though no inputs or outputs cross the provincial borders*. Province 2 will collect more tax revenues from its corporate income tax because its share of the corporate income tax base will increase. That is, s_2 will increase because w_2L_2 and Y_2 will increase while w_1L_1 and Y_1 will decrease. Note that the positive fiscal externality would be even stronger than indicated by the change in s_2 because province 2's personal income taxes, payroll taxes, and sales and excise taxes would also increase as a result of the increase in labour income in province 2.

The corresponding decline in these revenues in province 1 means that there may be relatively little total revenue gain to province 1 from increasing its

Figure 7 The Short-Run Incidence of the Corporate Income Tax



corporate tax rate. In other words, the cost to a province in having its corporate income tax rate above the average for other provinces may be very high, and therefore tax competition may be very intense even if capital is immobile between provinces. Therefore, we should not be surprised if the dispersion in provincial corporate income tax rates is relatively low. Of course, other factors may also account for the relatively low dispersion in provincial corporate income tax rates since only 45 percent of corporate income is allocated in Canada. Interprovincial tax competition is enhanced by the possibility of profit shifting through transfer pricing because the corporate income tax in Canada is not imposed on a corporate group basis and by the mobility of capital between provinces in the long run.

The preceding model shows that the allocation formula can produce positive horizontal tax externalities when a provincial corporate income tax rate increases, even in the absence of factor mobility. However, the allocation formula can also generate negative horizontal tax externalities when a province increases a tax that is deductible from the corporate income tax base. Suppose province 1 imposes a deductible capital tax $\tau_1 K_1$. In the short run, province 1's combined corporate and capital taxes increase at the rate $(1 - t_1 s_1) K_1$ while province 2's tax revenues decrease at the rate $t_2 s_2 K_1$. Since $s_2 = 1 - s_1$, the revenue loss by province 2 per dollar of net revenue for province 1 is $(1 - s_1) t_2 / (1 - t_1 s_1)$. Thus, if province 1's share of the corporate income tax base is small, province 2 loses approximately t_2 dollars of tax revenue for every dollar of net tax revenue gained by province 1.

The common allocation formula is an important aspect of tax coordination in Canada. In the United States, by contrast, each state can use its own allocation formula, leading to over- or undertaxation of income generated from interstate transactions. It has also produced interstate competition for jobs through the

manipulation of the allocation formulas. Goolsbee and Maydew¹⁹ have analyzed states' attempts to increase employment by reducing the weights for payroll and property and increasing the weight on sales in the allocation formulas. A state that adopts these measures can increase its employment, but employment in other states is reduced "with the aggregate effects of state apportionment changes approximately equal to zero. The externality creates pressure for states to act first in changing their formulae and may imply that the nation would be better off with uniform state apportionment formulae, as in Canada."²⁰

Recent Tax Reform Proposals

The Report of the Technical Committee on Business Taxation

As a member of the technical committee, I had to confront the tax coordination problems that must be addressed in reforming the Canadian tax system. Any significant reform of business taxation in Canada requires the active participation and agreement of the provinces, if only because the provincial and local governments levy 60 percent of business taxes—corporate income tax, capital taxes, payroll taxes, and sales and excise taxes.²¹ Furthermore, the technical committee's proposals to broaden the corporate tax base and reduce statutory corporate tax rates could be effectively negated if the provinces fail to adopt the base-broadening proposals or raise their corporate tax rates to take up any "tax room" vacated by the federal government.

With regard to specific proposals, the technical committee recommended that

- Alberta, Ontario, and Quebec negotiate corporate income tax collection agreements with the federal government; all provinces harmonize their capital taxes; and capital taxes be included in their TCAs;
- the federal and provincial governments adopt a common neutral corporate income tax base and use a common method for allocating income and capital taxes;
- the federal and provincial governments use tax credits if they wish to provide incentives through the tax system in order to preserve the common corporate income tax base; and
- provincial capital taxes should not be deductible from the corporate income tax and federal capital taxes should continue to be non-deductible.

The technical committee recommended the non-deductibility of capital taxes because of the negative impact that deductibility has on federal revenues and the

19 Austan Goolsbee and Edward Maydew, "Coveting Thy Neighbor's Manufacturing: The Dilemma of State Income Apportionment" (2000), 75 *Journal of Public Economics* 125-43.

20 *Ibid.*, at 19.

21 The technical committee defined business taxes as the taxes that are collected in the first instance from businesses, even though the ultimate burden of the tax might fall on another party, such as consumers or workers. See *supra* footnote 1, at 2.1.

likelihood that this causes the provinces to underestimate the total cost of raising revenue through capital taxes. The technical committee also suggested that the federal government consider limiting the deductibility of payroll and property taxes if these taxes continue to grow faster than corporate revenues.²² The negative impact on other provinces' tax revenues caused by capital tax deductibility was noted in the technical committee's report. The committee considered, but did not recommend, an amendment to the allocation formula so that the burden of capital taxes would fall only on the corporate income tax base of the province imposing the tax.

The Alberta Government's Tax Reform Proposals

In the March 11, 1999 budget, the Alberta government proposed the introduction of a flat rate income tax, imposed at an 11 percent rate on taxable income, by the year 2002.²³ The basic provincial personal exemption and the spousal exemption will be increased to \$11,620 (thereby eliminating the differential taxation of single-earner and dual-earner families with the same total family income), and the basic exemptions will be indexed to inflation. In moving to the flat tax rate, the province will eliminate the 0.5 percent flat tax, the 8.0 percent provincial surtax, and the selective tax reduction for low-income taxpayers. Overall, the tax reform measures will reduce provincial personal income taxes by \$600 million in the year 2002. The provincial income tax will continue to be administered by Revenue Canada, and Alberta taxpayers will have to complete only one personal income tax form.

The Alberta government's decision to adopt "tax-on-income" instead of the current "tax-on-tax" method of calculating provincial income taxes will help to reduce the interaction between federal and provincial taxes. With tax-on-income, a change in the federal basic tax rates will no longer have a direct effect on provincial tax revenues. Furthermore, the tax-on-tax system has evolved into a very complex mix of basic taxes, surtaxes, and flat taxes imposed by both levels of government. As a consequence, it is very difficult for the average taxpayer to know what his marginal tax rate is or how much tax he pays to each level of government.²⁴ Tax-on-income is a potentially simpler system, and it may help to improve transparency and accountability because it should be more apparent to taxpayers how much tax they pay to each level of government. Thus, from the perspective of reducing vertical tax externalities and increasing transparency

22 See Bev Dahlby, Jack Mintz, and Leonard S. Wilson, *The Deductibility of Provincial Business Taxes in a Federation with Vertical Fiscal Externalities*, Working Paper (Edmonton: University of Alberta, Institute for Public Economics, 1999), for an analysis of the conditions under which tax deductibility is desirable.

23 Alberta Treasury, Budget '99, A New Tax Plan for Albertans, March 11, 1999.

24 See Alan Macnaughton, "Compliance and Administration Issues Under the Tax Collection Agreements" (1999), vol. 47, no. 4 *Canadian Tax Journal* 890-901.

and accountability in the tax system, the move to a tax-on-income system for determining provincial income taxes is a welcome change.

Conclusion

The potential for significant horizontal and vertical tax externalities exists in the Canadian fiscal system, given the wide-ranging tax powers of the provinces, the significant amount of tax revenue that is raised at the provincial-local level, and the high degree of overlap in the provincial and federal tax bases. Tax coordination measures are required to ameliorate the effects of these tax externalities. My brief review of these issues indicates that the Canadian tax system has a number of good tax coordination features, including a high degree of harmonization of the bases for the personal and corporate income taxes, the existence of a tax collection agency that provides a common administration for a substantial proportion of the tax system, and the use of a common allocation formula for interprovincial business income. Allowing the provinces to impose their personal income tax rates on taxable income, rather than on basic federal tax, will reduce the interdependence of federal and provincial tax rate policy and help to improve transparency and accountability in the tax system.

A number of measures could, however, be investigated which may help to improve the degree of tax coordination. The degree of tax base overlap would be reduced if only one level of government levied taxes on cigarettes, alcohol, and motive fuels. Transfer mechanisms could be designed to help internalize tax externalities. For example, if the equalization system were converted to a net equalization scheme, which was funded directly by contributions from the "have" provinces, these provinces would have less incentive to engage in harmful tax competition. Finally, more public conferences on the federal-provincial aspects of tax policy and an enhanced role for institutions, such as the Federal-Provincial Committee on Taxation, could help our governments to coordinate their tax policy decisions.

VIVAT, CVAT, AND ALL THAT: NEW FORMS OF VALUE-ADDED TAX FOR FEDERAL SYSTEMS

Michael Keen²⁵

Introduction

At the heart of the remarkable spread of the VAT around the world there is a great irony. One of its main appeals has been the elegance with which it enables tax to be removed from commodities entering international trade. In this way the

25 This paper has been greatly improved by the comments of Richard Bird, Charles McLure, Jack Mintz, Bill McCarten, Victor Thuronyi, Howell Zee, and participants in the 1999 meetings of the CPESG. Views are mine alone, and not necessarily those of the International Monetary Fund.

VAT has done much to foster closer economic integration. As that integration proceeds, however, and trading partners seek to establish a more complete economic union with one another, so the difficulties that arise when VAT powers are allocated to the members of a federation—elaborated on below—become more evident. That is, while VAT is widely heralded as a good tax for countries trading with one another, it is also generally regarded as a bad tax to give to lower-level jurisdictions in a federation. This is most evidently the case in the European Union (EU), of course, where the development of the VAT has been the central tax accomplishment of the member states but has now reached an impasse, with those member states unable to agree on how to design a VAT for the single market that they seek to deepen. The EU experience is merely one instance of a more general question: can the VAT be run in a federal system other than as a federal tax?

This is a key question in many parts of the world. It seems unlikely to be coincidence, for example, that the two largest countries still without a VAT—India and the United States—are both federations. In both Brazil and Argentina, the question of state-level VATs has become a key policy issue. The former states of the Soviet Union have also now struggled for several years with the interactions between their VAT systems. And in Canada the future of the provincial sales taxes and their relation with the federal GST have been a concern for many years.

There is, of course, no particular difficulty in running a VAT at the central level of a federation and sharing the proceeds with lower-level governments, either as part of a broader equalization program (as in Canada) or by applying sharing rules explicitly to VAT revenues (as in Germany). The question is whether lower levels of government can successfully run a VAT that gives each some real discretion over the rates and/or base of the tax. Only in Brazil has a systematic attempt has been made to operate a lower-level VAT of this kind—an experiment that, as Bird puts it, “has usually been taken as a horrible example that proved the point.”²⁶ In some ways more interesting is the experience with the Quebec GST (the QST), which appears to be the only example of a VAT operated on a destination basis by a lower-level government in a federation.

Indeed, Canada is particularly interesting in the context of the debate over the coordination of VATs. The appropriate architecture in terms of the federal GST and provincial sales taxes has led to considerable experimentation, with broadly three models of co-occupation currently in place: the dual VAT of Quebec, with a provincial VAT—whose rate and base²⁷ are at provincial discretion—sitting on

26 Richard Bird, “Rethinking Tax Assignment: The Need for Better Subnational Taxes” (mimeograph, University of Toronto, 1999).

27 In practice, the base has converged substantially with the federal: see Jack M. Mintz, Thomas A. Wilson, and Pierre-Pascal Gendron, “Canada’s GST: Sales Tax Harmonization Is the Key to Simplification” (March 7, 1994), 8 *Tax Notes International* 661-79.

top of the federal VAT; the harmonized sales tax (HST) system in Newfoundland, Nova Scotia, and New Brunswick, which is effectively a common (federally administered) VAT, again superimposed on a federal VAT, with revenues shared among participating provinces by a consumption-based allocation formula; and the combination of provincial retail sales taxes (RSTs) and a federal VAT found in all other provinces except Alberta (which has no provincial sales tax). This variety of arrangements is testament to the continuing importance of the issue, provides a useful well of experience, and perhaps also suggests that equilibrium has not yet been reached.

The purpose of this paper is to evaluate some recent conceptual developments that suggest that the assignment of VAT to lower-level governments may not be as problematic as previously supposed. The focus here is on two schemes: the CVAT proposed by Varsano²⁸ and further developed by McLure;²⁹ and the VIVAT of Keen and Smith.³⁰ Neither is without flaw—though it will become clear, if it is not already, where my own sympathies lie—and there may be better schemes awaiting discovery. The key point, however, is that these conceptual developments have taken us much closer to extending the VAT logic so as to allow the operation of distinct VATs by lower-level governments within federal systems.

The discussion that follows first spells out the problem to which these schemes are addressed and the failings of previous proposals. Then CVAT and VIVAT are described and compared. A final section presents some concluding remarks.

The Problem

What is so hard about allocating VAT to lower-level jurisdictions? (For brevity, I shall refer to these as “provinces”—recognizing that in the EU context they are actually countries—and to the overarching structure as the “federation.”)

Objectives

To see the difficulty, consider the features one would like such a system to have. In addition to the usual canons of equity, efficiency, and minimal collection costs, specific desiderata in the present context would include the following:

28 Ricardo Varsano, *A tributação de Comércio interestadual: ICMS versus ICMS partilhado*, Texto par Discussão no. 382 (Brasília: Instituto de Pesquisa Econômica Aplicada, 1995); and Ricardo Varsano, “Subnational Taxation and the Treatment of Interstate Trade in Brasil: Problems and a Proposed Solution,” in Shahid Javed Burki and Guillermo E. Peary, eds., *Decentralization and Accountability of the Public Sector*, Proceedings of the Fifth Annual World Bank Conference on Development in Latin America and the Caribbean (Washington, DC: World Bank, forthcoming).

29 Charles E. McLure Jr., “Implementing Subnational VATs on Internal Trade: The Compensating VAT (CVAT)” (mimeograph, Hoover Institution, Stanford, 1999).

30 Michael Keen and Stephen Smith, “The Future of the Value Added Tax in the European Union” (1996), 23 *Economic Policy* 375-471 and 419-20.

• *Provincial autonomy in tax setting.* The essence of the exercise, after all, is to preserve real tax-setting powers to the lower-level jurisdictions. Autonomy is, of course, ultimately a matter of degree, since as it may be tempered both de facto by the constraints of operating in a wider world and de jure by forms of coordination voluntarily entered into. But, for example, both the HST agreement in Canada and the scheme most recently proposed by the European Commission³¹—which involve complete harmonization of tax rates—remove any real fiscal autonomy and so violate this first criterion.

• *Taxation on the destination principle.* Tax paid on final consumption should be at the rate specified by, and the revenue should accrue to, the province in which consumption takes place. The theoretical case for the destination principle, which rests on the Diamond-Mirrlees theorem on production efficiency,³² is strong but not absolute.³³ Moreover, the ease with which commodities can be moved across borders in federations—a central objective of policy in itself—means that a significant element of origin taxation is inescapable. Nevertheless, there seems to be some professional consensus in favour of maintaining as much of the destination principle as possible (perhaps supporting it by use of restrictions on distance sales); not the least reason for this is fear of the transfer-pricing problems that potentially arise when VAT is levied by the origin principle.³⁴

• *Minimized scope for game playing by the provinces.* The provinces' exercise of their tax-setting powers may trigger external effects across jurisdictions—intentional or otherwise—with consequent potential for the provinces to do themselves mutual harm. The destination principle in itself goes a long way in this respect: origin taxation, in contrast, creates scope for either exporting taxes onto foreigners or stealing tax base by undercutting rates charged elsewhere. But, as we shall see, other kinds of game playing may be possible under alternative forms of implementing destination taxation.

31 European Commission, *A Common System of VAT: A Programme for the Single Market*, COM (96) 328 (Brussels: the commission, 1996).

32 Or some variant thereof: see Michael Keen, "The Welfare Economics of Tax Co-ordination in the European Community: A Survey" (May 1993), 14 *Fiscal Studies* 15-36; and Michael Keen and David Wildasin, "Pareto Efficiency in International Taxation" (mimeograph, International Monetary Fund, Washington, DC, 1999).

33 See, for instance, the reviews in Keen and Smith, *supra* footnote 30, and Ben Lockwood, "Tax Competition and Tax Coordination Under Destination and Origin Principles: A Synthesis" (mimeograph, University of Warwick, 1998).

34 The difficulty is that levying VAT on an origin basis means, properly speaking, charging the value that is added to a product in different jurisdictions at the rates charged by those jurisdictions. Firms producing in multiple jurisdictions then have an incentive to transfer price value-added into low-tax jurisdictions, for instance by charging high internal prices for intrafirm sales out of them. See Sijbren Cnossen and Carl S. Shoup, "Coordination of Value-Added Taxes," in Sijbren Cnossen, ed., *Tax Coordination in the European Community* (Deventer, the Netherlands: Kluwer Law and Taxation, 1987), 59-84.

- *Identical compliance requirement for inter- and intraprovincial trades.* Ideally, the obligations on taxpayers should be the same wherever in the federation they sell, a condition we refer to as “compliance symmetry.” This has been a particular concern in the EU. In a genuine single market, the argument goes, a trader in Edinburgh need not care, for VAT purposes—indeed, need not know—whether a customer is located in London or Linz; trades within and between member states would be treated identically. The European Commission has been adamant on this point:

The single market should function on the same conditions and in the same way as a domestic market, and this also applies in the field of VAT. . . . Eliminating the distinction between domestic and intra-Community transactions must enable operators to reduce to only two the number of tax systems currently applicable: transactions involving a third country and transactions carried out within the Community.³⁵

It is not clear how substantial a barrier to trading between member states these asymmetries are, or how great a cost saving their elimination would produce. Certainly it is noticeable that such well-established federations as Canada and the United States do not in fact have single markets in this sense, nor do they seem greatly concerned by this. Nevertheless, the criterion has clearly been a very prominent one in the EU.

- *Provision of proper collection incentives within existing tax administrations.* The system should provide tax administrations with the incentives to enforce tax in a manner, and with a vigour, that is appropriate for the federation as a whole. Moreover, implementation should not require the creation of significant new administrative machinery. In the EU, in particular, the creation of a federal tax administration is a long way from practical politics.

- *Preservation of the VAT chain.* A key advantage of the VAT—relative to, for example, an RST—is that it secures revenues by collection throughout the chain of production and sale. Breaks in this chain, reducing or eliminating the tax on commodities at intermediate stages of production, fundamentally compromise the integrity of the VAT.

Can a VAT be found that performs well on all these criteria?

The Trouble with Zero-Rating Exports

The standard treatment of trade under the destination-based VAT is to zero-rate exports and bring imports fully into tax. The mechanics of this treatment are illustrated in table 1, the example there being used throughout this note. It envisages a chain of three firms, with the first two, A and B, located in country I and the third, firm C, in country II. They have value-added of 80, 120, and 280 respectively. The tax rate is 10 percent in country I and 15 percent in country II.

35 European Commission, supra footnote 31, at 14.

With zero-rating of exports, the exporting firm B simply reclaims input tax of 8 (10 percent of 80) charged on its purchases from A. The good thus leaves country I free of VAT. On entry into country II, tax at 15 percent on its value of 200 gives rise to a revenue collection at the border of 30;³⁶ this is then available as a credit against the output tax of 72 (15 percent of the final selling price of 480), so that the total tax paid (all by firm C) is 72.

Why not apply this treatment of sales between lower levels of a federation? Zero-rating enforces the destination principle—in the example, the only tax ultimately collected is the 15 percent tax on consumption in country II—and so minimizes game playing, while evidently retaining some tax-setting power at the lower level. Nor are there any particular incentive difficulties in collecting the tax, since each national tax administration retains in full all the tax it collects. Zero-rating falls foul, however, of the last two of the criteria set out above. It requires taxpayers to treat differently sales to residents in the same province (taxable) and those registered in other provinces (zero-rated). And it breaks the VAT chain by removing tax from traded goods. This last feature puts great pressure on the ability of the tax authorities to control refund claims: limiting the obvious scope for fraud while ensuring prompt refunds for honest traders is one of most difficult aspects of administering a VAT. In developing countries in particular, this has been an area of recurrent difficulty. Even in the EU, fraudulent refund claims are a real concern: and with EUR 70 billion of trade moving in the EU tax-free, the risk to the integrity of the VAT chain is significant even there.

The Trouble with Clearing

An alternative approach—which the European Commission first proposed in the early 1990s and has recently revisited—is to remove the zero-rating of exports, so that exports would be taxed at the same rate as domestic sales, with a credit then available against output tax in the importing country, but to introduce a “clearing house” system by which revenues would effectively be reallocated across provinces so as to preserve the same allocation of revenues as under zero-rating.

This approach is illustrated in the second column of table 1. Now firm B charges output tax at the rate of country I on its export to firm C, giving a charge of 20 (10 percent of B’s selling price, 200) that is then available as a credit against C’s own output tax charge in country II of 72. In order to leave the distribution of final revenues as required by the destination principle—nil in country I, 72 in country II—the output tax that country I collected on its exports to country II must be transferred to country II. The task of the clearing house is to arrange just such a movement of funds.

36 Under a postponed accounting system of the kind in place in the EU and Quebec, importers account for tax not at the border but in their next VAT return. This makes no difference to the argument here.

Table 1 Alternative Treatment of Interprovincial Sales^a

		Zero-rating	Clearing house	CVAT		VIVAT ^c
				State tax	CVAT ^b	
Firm A (value added of 80)	Input tax	0	0	0	0	0
	Output tax	8	8	8	0	8
	Net tax	8	8	8	0	8
Firm B (value added of 120)	Input tax	8	8	8	0	8
	Output tax	0	20	0	24	20
	Net tax	-8	12	-8	24	12
<i>Country I</i>						
<i>Country II</i>						
Firm C (value added of 280)	Input tax	30	20	30	-24	20
	Output tax	72	72	72	0	72
	Net tax	42	52	42	-24	52
Total tax		72	72	72	0	72

^a Rate of tax on final consumption is 10 percent in country I, 15 percent in country II. ^b CVAT rate is 12 percent. ^c Intermediate rate under the VIVAT is 10 percent.

How does this approach measure against the criteria above? On the plus side, it fixes the break in the VAT chain—goods now move between provinces tax-laden—and establishes compliance symmetry. The difficulty is in finding a way of clearing that preserves proper incentives for tax collection.

One possibility, envisaged in the commission's original proposals for VAT in the internal market,³⁷ is to clear on the basis of invoices. That is, each member state would claim repayment by summing across transactions the total input tax claimed in respect of imports from each other member state. This has the apparent appeal of potential accuracy. Even apart from the administrative cost of processing billions of invoices in this way, however, this scheme violates the requirement above of preserving proper collection incentives, as emphasized by Lee, Pearson, and Smith.³⁸ If an importing country is fully reimbursed for all tax credits claimed in respect of imports from another state, it has little incentive to guard against fraudulent claims; the cost of these will be borne elsewhere. High-rate countries would be especially vulnerable, since the gains to fraudulent refund claims are then greatest.

An alternative approach, suggested for the EU in the commission's most recent proposal³⁹ and currently implemented under the HST, is to reallocate revenues

37 Commission of the European Communities, *Completing the Internal Market*, COM (87) 320 (Luxembourg: Office for Official Publications of the European Communities, 1985).

38 C. Lee, Mark Pearson, and Stephen Smith, *Fiscal Harmonization: An Analysis of the European Commission's Proposals*, Report Series no. 28 (London: Institute for Fiscal Studies, 1988).

39 European Commission, *supra* footnote 31.

on the basis of aggregate consumption statistics. This approach reduces the administrative burden but at the cost of creating a different disincentive to collection: to the extent that revenue must be shared with others, there is little point going to the trouble of collecting it.

These difficulties point to a more fundamental problem. For provincial tax administrations to have proper incentives to collect revenues, they must retain the revenues collected in their jurisdiction; but the reallocation of revenues called for with the removal of zero-rating requires, to the contrary, that they in part hand over some of the revenues that they have collected to other jurisdictions.

It is these incentive problems that pose the most severe difficulties for clearing house arrangements. One way to establish proper incentives would be to hand over the administration of the provincial VATs, and the clearing house, to a federal agency. But if—as in the EU—no such apparatus already exists, this solution violates the requirement above that no new tax administration be created. Short of that, one could conceive of incentive mechanisms that go some way toward aligning the narrow self-seeking interests of provincial tax administrations with the wider collective interests of the federation as a whole. The possibility of finessing these difficulties by constructing incentive mechanisms for provincial tax administrations is an important one, and underresearched. In what follows, however, I focus instead on recent approaches that address these issues by reforming the structure of the VAT itself.

New Approaches

Two proposals for structural reform suggest that the VAT may not be quite so difficult to operate in federal systems as has been thought.

The CVAT

The first approach is the “compensating VAT” (CVAT) originally proposed by Varsano⁴⁰ and eloquently advocated by McLure.⁴¹ Bird argues that this “may prove to be one of the key innovations in tax thought of the century.”⁴²

The essential idea is to preserve the zero-rating of interprovincial sales in respect of provincial VATs but to superimpose a “compensating VAT” levied on sales between provinces (including, in McLure’s version, interprovincial sales to households and non-registered traders).⁴³ This compensating VAT is quite distinct from the provincial VAT. It might be, and indeed is proposed as, an add-on

40 Supra footnote 28.

41 Supra footnote 29.

42 Supra footnote 26.

43 Exports to the rest of the world would be zero-rated under both provincial and any federal VAT, and would not be subject to the compensating VAT.

to a federal VAT. But for the purpose of explanation—and thinking through the logic of the idea—it is helpful to think of it, for the moment, as a stand-alone tax.

Thus conceived, the working of the CVAT is shown in table 1. The provincial VAT in each province works exactly as in the third column of the table, with zero-rating of interprovincial exports. The innovation of the CVAT is that the compensating VAT of 24 (12 percent of the selling price of 200) on interprovincial exports is charged to the exporting firm B and recovered by the importing firm C.

One key question is the rate at which the CVAT⁴⁴ should be charged. This issue is discussed by McLure.⁴⁵ With a low CVAT rate, there is an artificial incentive for final consumers to import; with a high CVAT rate, the incentive is to make false refund claims or, for final consumers, to buy within the province rather than import. McLure concludes that it would be best to pitch the CVAT rate at broadly the average of the rates of provincial tax.⁴⁶

How does CVAT measure up against the criteria listed above, and the schemes just described? It preserves the destination principle and

- CVAT strengthens the VAT chain—relative to zero-rating—to the extent of the compensating VAT levied on trade between provinces.

Notice, however, that CVAT does not leave the chain entirely inviolate: it is still necessary to refund provincial tax on interprovincial exports; moreover, it becomes necessary to refund CVAT (unless it is simply offset against a federal VAT).

One attractive feature of the CVAT is clear:

- Since the rate of the CVAT is determined centrally, there is no scope for game playing by provinces through the tax treatment of their exports and imports.

The implications of CVAT for collection incentives are less clear-cut. If, as McLure⁴⁷ assumes, the CVAT is administered by federal authorities—or if, more generally, it can be by some other means locked in a single administration⁴⁸—there is no intrinsic difficulty: the cost of refunding to the importer (whether as cash or as a credit against federal tax) the compensating VAT levied on interprovincial trade provides the right incentive to collect it from the exporter. That is,

44 I use the term “CVAT” to refer to both the scheme in general and the tax on interprovincial trade in particular.

45 *Supra* footnote 29.

46 It seems this might require different CVAT rates on different commodities if there is significant variation across provinces in the rates applied to particular commodities.

47 *Supra* footnote 29.

48 A federal administration, as the term is used in this discussion, could be a confederation of provincial administrations. The important feature is that the interests of this overarching administration are aligned with those of the full set of provinces rather than of any province in particular.

the incentive problems that are associated with clearing between distinct provincial administrations are dealt with by internalizing the transfers within a single administration. The only difficulty that arises is that of sharing out the CVAT collected on interprovincial sales other than to registered traders (which is not recovered)—unless, that is, such revenues are simply allocated to the federal government. If, however, administration of the tax on interprovincial trade is not by some body whose interests overarch those of the provinces, all the incentive and administrative difficulties associated with clearing recur in relation to CVAT revenues: funds must be moved from the provincial authority that collects funds to the authorities that effectively refund them. Thus,

- if administered by a single agency, the most obvious candidate being a federal tax administration, CVAT avoids the incentive and administrative problems associated with clearing between provincial tax administrations.

A clear disadvantage, however, is that

- CVAT violates compliance symmetry, since interprovincial trade (bearing CVAT plus any federal VAT) is treated differently from intraprovincial trade (bearing provincial and any federal VAT).

The VIVAT

The other new scheme is the “VIVAT”⁴⁹ proposed by Keen and Smith.⁵⁰ This requires all provinces to set the same tax rate on all sales to registered traders anywhere in the federation.⁵¹ But the rate(s) applied to final sales—to consumers and other non-registered traders—remains entirely at the discretion of the provinces.

The final column of table 1 shows how VIVAT works. Since both A and B sell to registered traders, they charge tax at the intermediate VIVAT rate, assumed to be 10 percent. Note that both charge the same rate even though one sells only domestically and the other sells across borders. Firm C is selling to a final consumer, and so charges the rate of the country she is located in; tax paid on C’s intermediate purchases is credited in the usual way.

This example points to two other ways in which one can usefully think of the VIVAT. First, in structural terms it is equivalent to a common federal VAT levied at the intermediate rate combined with a series of provincial RSTs levied at a rate equal to the difference between the provincial VAT and the common intermediate rate. In table 1, for instance, the outcome—in terms of aggregate revenues and the effect on consumer prices—is exactly as it would be if there were a federal

49 Standing for “viable integrated VAT.” Or something like that.

50 Supra footnote 30.

51 Exports to the wider world beyond the federation are zero-rated.

VAT of 10 percent and an RST in country II of 5 percent.⁵² Second, the VIVAT is also equivalent to a common withholding tax at the intermediate rate, charged and credited at each stage (and so raising no net revenue), combined with a final sales tax at the rate of the country of destination. Again in table 1, the outcome is equivalent to a creditable withholding tax of 10 percent on all transactions combined with a 15 percent RST in country II.

At what level should this intermediate rate be set? The higher the rate, the greater the protection of revenues through the early parts of the VAT chain. Setting this rate above the rate on final sales, however, would create the possibility of refund claims by those selling to final consumption. Focusing on the latter concern, Keen and Smith⁵³ incline to setting it at the lowest of the rates applied by any province. There is, however, no necessity to do so. Setting a rate that in some provinces implies that inputs are taxed more heavily than final sales will give rise to refunds at the retail stage only if value-added at that stage is sufficiently low. At a final tax rate of 15 percent and an intermediate rate of 20 percent, for example, refunds are payable only if value-added is less than 25 percent of final sales. Thus Laser,⁵⁴ who arrives at a similar scheme, notes that the intermediate rate might be set at the highest of the rates applied by the provinces, and proposes that it be set at the average.

What of the criteria set out above? VIVAT preserves the destination principle and provincial autonomy: the final tax applied to sales depends only on the tax applied at that stage—which remains under provincial discretion—not on the common rate levied at a prior stage. Since that common rate is chosen centrally, there is no new scope created for game playing by the provinces. This scheme also has two other advantages:

- VIVAT preserves the VAT chain on interprovincial trade to an extent that depends on the level of the intermediate rate. It also strengthens the chain on intraprovincial sales if the intermediate rate is set at the highest of the final rates.
- VIVAT ensures compliance symmetry, in that the taxpayer's obligations are the same for inter- and intraprovincial trade.

Some form of clearing will be needed to ensure that tax collected on intermediate interprovincial sales is reallocated in line with the destination principle. This is straightforward if collection and refund of the intermediate tax are

52 As an important special case, if the intermediate rate is set at zero, the VIVAT is essentially equivalent to a series of provincial VATs operated on a suspension basis, as proposed for Canada by Mintz, Wilson, and Gendron, *supra* footnote 27.

53 *Supra* footnote 30.

54 Helmut Laser, "Is a Definitive 'Country of Origin' System Feasible Even Prior to the Introduction of Monetary Union and the Complete Harmonisation of Rates Within the Community?" (mimeograph, Wolfsburg, n.d.).

entrusted to a single agency, a federal tax administration again being the natural candidate. The familiar collection incentive issues arise, however, if implementation is by provincial administrations. Thus,

- if the intermediate tax on sales to registered traders is administered—whether as a withholding tax or wound into a federal VAT—by a single agency (the most obvious candidate being a federal tax administration), the VIVAT avoids the incentive and administrative problems associated with clearing between provincial administrations.

But VIVAT too has potential disadvantages:

- VIVAT weakens the chain on intraprovincial trade in at least one province to the extent that the intermediate rate is set below the highest of the provincial rates.

This problem is not as severe as Keen and Smith originally supposed, since the intermediate rate need not be set at the lowest of the provincial rates; but there is a potential difficulty. More intrinsic to the scheme is that

- VIVAT introduces a new kind of compliance asymmetry: firms must treat their customers differently according to whether they are registered for VAT or not.

How burdensome is this administrative requirement likely to be? Not very. Many VATs already require sellers to distinguish between registered and non-registered purchasers by reporting the VAT number, if any, of their customers.⁵⁵ In the EU, indeed, taxpayers are already required to verify the VAT status of customers located in other member states (in order to determine whether the sale can be zero-rated). It is striking too that recent proposals to deal with indirect tax problems posed by the Internet involve distinguishing between business and other purchasers.⁵⁶ Indeed, the European Commission⁵⁷ discusses the prospects for verifying purchasers' tax status in real-time for online transactions.

COMPARING CVAT AND VIVAT

The CVAT and VIVAT proposals have breathed new life into the discussion of VAT in federal systems. It should be borne in mind that they were developed

55 Nor is the need for such a distinction unique to the VIVAT proposal. Richard M. Bird and Pierre-Pascal Gendron, "Dual VATs and Cross-Border Trade: Two Problems, One Solution?" (1998), vol. 5, no. 3 *International Tax and Public Finance* 429-42, also recommend that sellers report the registration numbers of their customers to support the dual VAT model of Quebec; the proposal of Mintz, Wilson, and Gendron, *supra* footnote 27, referred to above also requires distinguishing between sales to registered and unregistered persons. And the distinction is, of course, commonplace under RSTs.

56 See Charles E. McLure Jr., "Electronic Commerce, State Sales Taxation, and Intergovernmental Fiscal Relations" (December 1997), 50 *National Tax Journal* 731-49; and European Commission, *Indirect Taxes and E-Commerce*, Working Paper of Working Party no. 1 (Brussels: the commission, 1999).

57 European Commission, *supra* footnote 56.

with very different applications in mind: the CVAT for situations, such as those of Brazil and India, in which there is a significant federal tax presence; and the VIVAT for the EU situation in which there is not. In terms of understanding and assessing their intrinsic design, however, it is important to put aside this contextual difference and simply ask: how do CVAT and VIVAT compare as forms of decentralized VAT for federal systems?

There are clearly important similarities between them. In particular, both tax interprovincial exports at a rate that is taken out of the control of the provinces themselves. In this way they fix the break in the chain that is created by zero-rating interprovincial exports in a way that preserves the destination principle without creating any scope for game playing by the provinces.

There is also little difference between CVAT and VIVAT in terms of preserving the VAT chain. With the CVAT at the average of provincial rates and the VIVAT at the lowest, there would be some advantage in this respect to the CVAT.⁵⁸ But, as we have seen, there is no reason in principle why the VIVAT rate should not be set higher.

It is especially important to note, moreover, that there is no intrinsic difference between VIVAT and CVAT in terms of collection incentives and clearing: both require that tax levied on exports from one province be credited/refunded against tax due in another. The distinct nature of this—separable from other parts of the VAT system—may in each case mean that there are in principle ways of implementing this clearing other than through provincial tax administrations, thereby avoiding some of the problems cited above. It is in this respect too that these two schemes may offer an advantage over the clearing house proposal.

To see this key conceptual similarity most clearly, suppose that there exists a federal VAT and—this is the crucial part—a distinct federal tax administration.⁵⁹ The administration of a CVAT on interprovincial sales would then naturally be entrusted to the federal authorities and wound into that of the federal VAT. The federal authorities would collect the CVAT on interprovincial sales and credit it against federal output tax liabilities; if federal tax due exceeded CVAT paid on inputs—as it might well do if the rate of the federal VAT were low relative to provincial taxes (and hence to the CVAT rate)—the federal authorities would provide refunds. The beauty of this is that the incentive problems associated with clearing under the EU models discussed above disappear, since the same body collects the tax as pays for the rebate. Clearing problems are resolved, that is, by internalizing the operation of clearing within a single administration.

The presence of an overarching federal administration enables a similar resolution of the clearing problems that arise under VIVAT: they can be internalized

58 The advantage would be great in Canada, given that the lowest of the provincial sales tax rates is zero.

59 See *supra* footnote 48.

by entrusting the administration of the intermediate rate to the federal authorities. That is, all tax charged to registered traders would be paid to, and registered traders would claim all their credits and refunds from, the federal authority (along with their payments of federal tax). Tax on sales other than to registered traders would be paid to the provincial administration. In effect, the federal administration would implement both the federal VAT and a withholding tax at the intermediate rate; the provincial administration would simply implement, in effect, a tax on sales to non-registered traders.

In either case, of course, most traders would need to deal with two tax administrations: federal and provincial. But that simply reflects the premise of there being an overarching federal VAT. One key difference between CVAT and VIVAT as envisaged in a federal system, however, is that the task of the provincial tax authorities is much simpler under the VIVAT scheme than under the CVAT: since the provincial VAT is effectively converted to a single-stage tax under the VIVAT, the provincial authorities simply collect tax on output, with all refunds of input tax being dealt with by the federal authorities. More fundamentally, however, there would obviously be economies of scope in the implementation of federal and provincial taxes, and significant benefit from close cooperation between provincial and local administrations. Under the CVAT, for instance, some coordination would be needed to ensure that traders presenting themselves to the provincial administration as exporting to another province also present themselves to the federal administration for payment of the compensating VAT.

In summary,

- in the presence of a distinct federal tax administration, both CVAT and VIVAT finesse the collection incentives associated with clearing. If, however, their implementation is through provincial administrations, both face the same qualitative difficulties with clearing.

This key similarity between the schemes has perhaps been obscured by the different contexts in which they have been developed. In quantitative terms there may be some difference in the scales of the problems to be addressed: the compensating VAT would be applied only to a subset of the transactions that would be subject to the intermediate rate under the VIVAT, so that the sheer administrative burden under the latter would be greater to the extent of intraprovincial transactions. But the most burdensome aspects may arise not from the volume of information to be processed, but from the coordination needed with provincial administrations, which—since there is then no logical link between liability to central and provincial taxes—might be less under the VIVAT. The issue of coordination between tax administrations clearly requires closer study under both schemes.

Given their similarity in relation to collection incentives, the key difference inherent in the structures of the two schemes is as follows:

- Under CVAT, traders must distinguish between sales within and between provinces; under VIVAT, they must distinguish between sales to registered and unregistered traders.

It is notable, however, that while there is already considerable and largely unproblematic experience with distinguishing between sales to registered and unregistered buyers, experience with distinguishing sales by the location of purchaser has been one of the most unsatisfactory aspects of the VAT. This point should not be overstated: VIVAT could create stronger incentives than exist at present to misrepresent whether or not one is registered for VAT. The administrative precedents are, however, broadly supportive of the VIVAT.

A complete evaluation of the relative merits of CVAT and VIVAT would, of course, need to look at a host of other considerations, and many detailed aspects of both schemes remain to be developed. In some respects, VIVAT, but not CVAT, clearly improves on present arrangements. For instance, differences in VAT rates across the member states of the EU distort the competitive position of firms that use exempt inputs (such as financial services), since the price they pay for those commodities will reflect unrecovered input tax charged at different rates. Under VIVAT (but not CVAT), these distortions would evaporate since all intermediate purchases in all member states would be taxed at the same rate.

Concluding Remarks

The logic of the invoice-credit VAT is a thing of some beauty. It may be more powerful, indeed, than has yet been fully understood. In the area of financial services, for instance, recent work⁶⁰ has shown its application to be more straightforward than has commonly been thought. Something similar is happening in terms of the potential applicability of the VAT to lower levels of government. New conceptual advances suggest that the prospects for implementing the VAT as a provincial tax within a federation are brighter than previously thought. The ideas of VIVAT and CVAT both provide ways of implementing the destination principle without breaking the VAT chain on interprovincial exports or inducing game playing.

In the absence of an overarching federal administration (or the willingness to create one), however, both schemes run into difficulty in securing appropriate clearing, ensuring that revenue collected on exports from one province is available to finance credits/refunds claimed in another. One approach to resolving this problem, as yet little explored, is to look for mechanisms that provide provincial tax administrations with incentives to provide the appropriate level of effort in terms of their wider collective interests.

60 See, for example, Satya Poddar and Morley English, "Taxation of Financial Services Under a Value-Added Tax: Applying the Cash-Flow Method" (March 1997), 50 *National Tax Journal* 89-111.

The clearing problem may be readily resolved, however, if there is an overarching federal system. For then in either case it is in principle possible to internalize the clearing of taxes on interprovincial sales and so avoid the incentive problems otherwise involved in running clearing through national tax administrations. This is not to say, of course, that a lower-level VAT is appropriate for all federations: in some the provinces will be too small for cross-border shopping to be controlled, or the capacity of provincial tax administrations will be too weak. There is also a range of issues that arise in designing a CVAT or VIVAT that I have not been able to develop here. These conceptual advances have been enough, however, to put the feasibility of lower-level VATs firmly on the tax reform agenda.

STATE AND PROVINCIAL CORPORATE INCOME TAXATION: CURRENT PRACTICE AND POLICY ISSUES FOR THE UNITED STATES AND CANADA

David E. Wildasin⁶¹

Introduction

In both the United States and Canada, subnational governments derive significant amounts of revenue from corporate income taxes. In the United States, state governments collected approximately US\$31.1 billion from this source in 1998, amounting to 6.5 percent of the tax revenue of state governments. In Canada, provincial governments collect taxes on corporate income as well; revenues from the taxation of corporate income (and, secondarily, from taxation of capital) in 1997-98 were Cdn. \$14.7 billion, 10.9 percent of provincial government own-source revenue and 9.3 percent of total revenue.

While corporate income taxes are thus important revenue sources for subnational governments in both the US and the Canadian federations, reliance on these taxes varies substantially among states and provinces. For example, several states—Nevada, Washington, and Wyoming—have no corporate income tax at all, and the corporate income tax contributes less than 4 percent of total revenues for several other states. By contrast, four states—Alaska, Delaware, Michigan, and New Hampshire—derived more than 10 percent of total revenues from this source in 1998. Many states have a single corporate income tax rate,

61 This paper is based on my presentation at the May 1999 meetings of the Canadian Public Economics Study Group, held at the University of Toronto. I am grateful to Jack Mintz for his very helpful detailed review of an earlier draft, and also to A. Castonguay and M. Mansour of the Department of Finance for their valuable comments. I am particularly indebted to Robert Henry, M. Mansour, and S. Gonzalez, all of the Department of Finance, for providing data and answers to many questions concerning Canadian provincial income taxation. None of these individuals, however, bears any responsibility for opinions, errors, or omissions in the following discussion. I also thank the Department of Finance for financial support that made possible my participation in the CPESG conference.

but others apply different rates depending on the level of corporate income. Tax rates in the range of 6 to 8 percent are common, but tax rates of 5 percent or less prevail in a dozen states while as many have rates in excess of 9 percent. There is also substantial variation among the Canadian provinces in the use of corporate income taxes. Provincial corporate income tax rates vary by type of corporation; for large Canadian corporations, they range from a low of 5 percent for manufacturing firms in Newfoundland⁶² to 17 percent for both manufacturing and non-manufacturing firms in Saskatchewan, Manitoba, and New Brunswick.

The implementation of a corporate income tax at the subnational level raises a number of interesting and interconnected issues for economic policy, tax administration, and political economy. These issues are of growing importance in an economic environment characterized by increased interregional economic integration, innovative business organizational structure, and the prospect of more information-based and electronic commerce (“e-commerce”).

The next section of this paper discusses some of the fundamental issues that arise in corporate income tax policy at the subnational level. It also reviews recent experience in the United States and Canada, a comparison that is quite instructive because these two federations, which have many similar economic, social, political, and legal institutions, nevertheless have taken quite different approaches to the implementation of subnational corporate income taxes. In particular, US practice exhibits considerable state-to-state variation, whereas policies in Canada are far more uniform. Of particular interest is the divergence between Canadian and US practice regarding the “nexus” issue—that is, the determination of the conditions under which a given corporation is taxable by a province or state. Under current Canadian practice, provinces can tax only corporations with “permanent establishments” within their jurisdiction. In the United States, by contrast, the nexus issue is at present the subject of a legal and policy controversy, revolving particularly around the question whether states may tax corporations that are not “physically present” within their boundaries. A later section of this paper discusses in greater detail the economic consequences of alternative approaches to this “nexus” issue—that is, to the determination of which corporations may or may not be taxed by state or provincial governments. The final section of the paper presents a brief summary.

Fundamental Issues for State/Provincial Corporate Income Taxation

Corporations differ from natural persons in at least two respects that are particularly important for subnational income tax policy. First, the location of a corporation is often not easily defined. The spatial location of an individual, at any moment in time, is definite and, for most practical purposes, verifiable. A corporation, by

62 There is an even lower 2.5 percent rate for manufacturing firms in Yukon.

contrast, can simultaneously undertake economic activities in several or many places; moreover, although it may as a legal matter have a place of incorporation, its location, like its very existence, is a matter of judicial construction and interpretation, not an obviously verifiable matter of fact. Second, again unlike natural persons, corporations can merge, subdivide, or be acquired, dissolved, and restructured in many ways and to varying degrees. When legally distinguishable business entities are affiliated in some fashion, the question arises as to whether tax liabilities should be determined for each entity in isolation or for several in combination.

These two issues—the location and identification of the tax-paying entity—are often intertwined because legal forms of business organization frequently reflect the spatial organization of corporate functions. For example, a parent corporation may own or acquire, in whole or in part, a corporation with operations in one state or province in which components are fabricated and then shipped to the parent (or another subsidiary's) plant in another state or province; the final product may be marketed through a corporation that manages a network of franchisees or dealers in many states or provinces, with customer purchases financed by a separate corporate entity that engages in other general consumer credit operations. If an expansive definition of the tax-paying unit is utilized, many or all of these potentially separable business activities will be viewed as part of a unified whole, and that whole or aggregate will then be viewed as “present” in a large number of locations. If, however, these units are not aggregated, each may be considered to be located in only one or a few jurisdictions.

Complex structures of business organization present fewer difficulties for tax policy at the national level, provided that all of the activities of a group of affiliated or related corporations occur within a single country and provided that the corporate income tax is applied at a single rate to all income, calculated on a uniform basis and with full offsets for losses. In this case, different groupings of corporations for tax purposes will affect the tax liabilities of individual entities, but not the total amount of taxable income in the corporate sector of the economy or the total amount of tax revenue collected.⁶³ At the subnational level, however, the identification of taxable entities and groups and the apportionment of income among them, especially in the presence of interstate/interprovincial tax rate differentials, becomes of critical importance. The resolution of these issues affects the economic incentives created by subnational corporate income taxes

63 It is an oversimplification to characterize either the US or Canadian corporate income taxes as strictly proportional taxes with full loss offsets. Moreover, intra- and intercorporate multinational business activity is important for both the United States and Canada, raising issues that are substantially similar to those that are the focus of the following discussion. As a matter of degree, however, these issues are more acute at the subnational than at the national level.

and thus their impact on business organization and resource allocation, the amounts of revenue accruing to taxing jurisdictions, and the incentives that subnational governments themselves face in setting their tax policies.

As suggested by the foregoing remarks, there are three basic issues that must be resolved in the implementation of corporate income tax policy at the subnational level:

1) Where is the tax-paying unit located for tax purposes—that is, in which jurisdiction(s) will the taxpayer be taxed?

2) What is the identity of the tax-paying unit? In particular, if there are several corporate entities, are they treated as distinct and separate units for tax purposes or are they combined?

3) If the taxpayer is taxable in more than one jurisdiction, how is the taxpayer's income to be apportioned (or "allocated") among them?

While these issues can be distinguished from one another, they are highly interconnected. The issue of apportionment has, perhaps, attracted the most attention from economists—mainly, however, with an eye to understanding the economic incentives that different apportionment rules create for business activity.⁶⁴

The following discussion describes how these fundamental issues are managed within the current Canadian and US fiscal systems. It focuses especially on the "where" question, a point of significant divergence in US and Canadian practice.

What Is a Tax-Paying Unit and How Is Its Income Apportioned?

Many aspects of the taxation of the income of corporations by subnational governments differ as between the United States and Canada. Before turning to the "where" question, the discussion below briefly summarizes some of the other main features of current US and Canadian practice.

Identifying the Tax-Paying Unit: "Who"

The economic and legal linkages among corporations take a wide variety of forms. Sometimes, one corporation completely owns and controls one or more other corporations. Sometimes, corporations have no direct commercial connection whatsoever with one another. But in many cases, the degree of connection between two or more corporations falls somewhere between these two extremes. Mergers, acquisitions, explicit and implicit long-term contracts, consortiums,

⁶⁴ See, for example, Gordon and Wilson, *supra* footnote 15; K.D. Edmiston, "Optimal Factor Weights in State Corporate Income Tax Apportionment Formulas" (unpublished, Georgia State University, 1998); K.D. Edmiston, "The Manipulation of State Corporate Income Tax Apportionment Formulas as an Economic Development Tool" (unpublished, Georgia State University, 1999); Mintz, *supra* footnote 16; and Goolsbee and Maydew, *supra* footnote 19, and references therein for discussion of apportionment issues.

and innumerable other business and contractual forms give rise, in practice, to almost any conceivable degree of integration between different businesses. For the purposes of state and provincial income taxation, it is critically important to determine where one corporation begins and another ends in order to determine a corporation's taxable income and to determine which corporations are taxable at all by a given state or province. At a conceptual level, it is not obvious how this issue is best resolved for tax purposes, and it deserves more attention from economists than it has so far received. For present purposes, a concise description of existing policy will have to suffice.

First, in Canada, individual corporations are taxed separately; each is liable for corporate tax on its own income.⁶⁵ Corporations and their income cannot be combined for provincial corporate income tax purposes. If related corporations engage in transactions with one another, these transactions must be valued at arm's-length prices in order to determine the income of each individual corporation. Whatever other possible economic merits or demerits it may have, the Canadian approach is quite simple and transparent.

In the United States, by contrast, the definition of the tax-paying unit varies considerably by state, subject to constitutional restraints.⁶⁶ Some states insist on treating affiliated corporations as a single entity, so that (for example) the income of a parent corporation and its subsidiaries must be aggregated for tax purposes. Other states allow or require separate accounting for distinct corporations, analogously to Canadian practice. Of course, from the viewpoint of the system as a whole, it is problematic for different states to apply different rules to individual corporations or corporate groups.

Income Apportionment/Allocation: "How Much"

Whenever a corporate entity is taxable in more than one state or province, the question arises as to how much of its income is taxable in each jurisdiction. In both Canada and the United States, corporations must apportion their income among the taxing jurisdictions.

Under Canadian practice, a corporation must allocate its income among the provinces using a two-factor formula.⁶⁷ The corporation first determines what

65 For information about business taxation in Canada generally, and for some discussion of provincial corporation income taxation in particular, see the Mintz report, *supra* footnote 1.

66 For a discussion of many aspects of state corporate income taxation, see Charles E. McLure Jr., ed., *The State Corporation Income Tax: Issues in Worldwide Unitary Combination* (Stanford: Hoover Institution Press, 1984). Frequently updated information about policies in specific states can be found in Research Institute of America, *All States Tax Guide* (New York: RIA) (looseleaf).

67 Different allocation rules may apply to corporations in certain sectors, such as finance or transportation. See the Mintz report, *supra* footnote 1, for additional details.

portions of its revenues and payrolls are attributable to each province where it is taxable. These two factors are then used, in an equally weighted fashion, to allocate the corporation's income among the provinces. Although individual provinces could in principle depart from this two-factor approach, in fact their policies are harmonized; harmonization is facilitated by the federal government, which assists 7 of the 10 provinces in the administration and collection of their corporate income taxes.

US practice is, again, determined by the individual states, subject to overall constitutional constraints. As revealed in past Supreme Court decisions, these constraints dictate that states use "fair" apportionment rules but do not mandate the use of specific formulas.

About half of the states are members of the Multistate Tax Compact (MTC), which recommends, as a model, that all states should apportion income on the basis of a three-factor formula in which a corporation's share of revenues, payroll, and assets within each state are equally weighted. The MTC's model legislation (the Uniform Division of Income for Tax Purposes Act, or UDITPA), however, is not binding on MTC members.

In part because of the influence of the MTC and in part because of historical practice, this simple three-factor apportionment rule is often viewed as the customary practice in the United States. However, states need not, and most now do not, follow the equally weighted three-factor formula for income apportionment. Increasingly, states have come to rely on the sales factor as a primary determinant of the allocation of income. For example, about 20 states now double-weight the sales factor; some attach a weight of one-half to the sales factor, others a weight of between one-third and one-half. Several states even use sales as the *sole* factor for income apportionment, and a number of states are in the midst of a phased increase in the reliance on the sales factor. Thus, although the "traditional" three-factor formula is sometimes used by states, it would be more accurate to describe the situation in the United States as one where sales are generally used as an apportionment factor, often supplemented by other factors. An interesting question for economic analysis, briefly discussed further below, is to consider why the states may wish to alter their apportionment rules over time.

Nexus: "Where"

If it is difficult to determine what a tax-paying unit is for subnational corporate income tax purposes, and if it is difficult to decide how to divide the income of multijurisdictional entities among states or provinces for tax purposes, one might have thought, at least, that it would be relatively easy to determine whether a particular corporation is or is not taxable by a given state or province. Indeed, as Canadian experience shows, straightforward solutions to this problem are possible; as US experience shows, however, complex solutions also are possible.

Canadian Practice

In Canada, a corporation is liable for income taxation within a province if it has a “permanent establishment” there. This policy is uniform throughout the country. The precise interpretation of “permanent establishment” could perhaps be the subject of some dispute, but the concept is fundamentally quite clear: as described in Revenue Canada’s *Corporation Income Tax Guide*:

A permanent establishment in a province or territory is usually a fixed place of business of the corporation, which includes an office, branch, mine, oil well, farm, timberland, factory, workshop, or warehouse. If the corporation does not have a fixed place of business, the corporation’s permanent establishment is the principal place in which the corporation’s business is conducted.⁶⁸

In particular, it is clear from this definition that a corporation that has no assets, employees, or other tangible presence in a province is not subject to income taxation there.

US Practice

US states, acting independently, have implemented corporate income taxes with varying definitions of the types of business activities that are subject to taxation. These may include activities that produce income from property within the state, those “doing business” in the state, those that are legally incorporated within the state, and so forth. Broadly speaking, the federal government (Congress and the president) have not intervened heavily in state corporate income tax policy. Because the ability of states to tax corporate income is not, for the most part, spelled out in federal statutes, state taxing powers are limited mainly by the US constitution, as interpreted by the courts, especially the US Supreme Court. The courts have proceeded cautiously in elaborating the meaning of the constitution in this area, leaving many questions open for future decisions. Thus, the story of US state corporate income tax policy is inevitably a story of legal decisions and interpretations—treacherous ground for economists, perhaps, but ground that must be covered if the current state of policy and policy controversy, especially regarding the nexus issue, is to be understood.⁶⁹

Under now well-established interpretations of the constitution, state fiscal policies cannot interfere unduly with interstate commerce (this would violate the “commerce” clause),⁷⁰ nor can the states arbitrarily collect taxes from persons (individuals and businesses) located beyond their boundaries (this would violate

68 Revenue Canada, *T2 Corporation Income Tax Guide*, T4012(E) rev. 98, 71.

69 See Richard D. Pomp and Oliver Oldman, *State & Local Taxation*, 3d ed. (Hartford, Conn.: R.D. Pomp, 1998), for a thorough treatment of the constitutional issues involved in state and local taxation and for the text of important court opinions in this area.

70 According to article I, section 8 of the constitution, “[t]he Congress shall have Power . . . [t]o regulate Commerce with foreign Nations, and among the several States.”

the “due process” clause).⁷¹ In particular, the due process clause has been held to imply that a state can tax only businesses or people with a “sufficiently strong” physical or other relevant connection to it.⁷² Without some such requirement, a state could conceivably attempt to tax the income of all individuals and businesses located anywhere in the nation. The term “nexus” is used to describe the connection between a state and a taxpayer. The challenge for jurists and policy makers has been to decide what should constitute nexus.⁷³

The determination of nexus becomes complicated when dealing with corporations whose activities, in some direct or indirect fashion, extend beyond the boundaries of a single state. As a broad generalization, it is accurate to say that a corporation’s exposure to state income taxation is at least as great, under current US practice, as it would be to provincial income taxation in Canada. That is, a corporation that has an “establishment” in a state would have nexus in that state. It is probably also true that the activities of employees or agents of firms in a state may establish nexus more readily than would be the case for provincial corporate income taxation in Canada. For example, the regular presence of employees carrying out the firm’s business activities within a state—which would often but not necessarily be associated with a physical place of business (an “establishment”)—would also typically create nexus. But there are grey areas where matters are more debatable. For example, if a firm’s employees

71 The fifth amendment, in addition to providing well-known protections against self-incrimination, provides that “[n]o person shall . . . be deprived of life, liberty, or property, without due process of law.”

72 This basic principle was enunciated in the Supreme Court’s decision in *Miller Bros. Co. v. Maryland*, 347 US 340 (1954), a case dealing with sales and use taxes rather than corporate income taxation but no less relevant in this context. As to whether a state could tax a corporation, the court wrote, *ibid.*, at 344-45, “Despite the increasing frequency with which the question arises, little constructive discussion can be found in responsible commentary as to the grounds on which to rest a state’s power to reach extraterritorial transactions or nonresidents with tax liabilities. Our [the court’s previous] decisions are not always clear as to the grounds on which a tax is supported, especially where more than one exists; nor are all of our pronouncements . . . consistent or reconcilable. A few have been specifically overruled, while others no longer fully represent the present state of the law. But the course of decisions does reflect at least consistent adherence to one time-honored concept: that due process requires some definite link, some minimum connection, between a state and the person, property or transaction it seeks to tax.” The entire quotation is of interest because it illustrates the sense of ambiguity that pervades US discussions of this and similar issues.

73 It should be noted that, at least from the perspective of economic policy, “nexus” could conceivably be defined as the taxpayer’s having a sufficient link with a state to be subject to the state’s sales tax but simultaneously not to have a sufficient link for the state to subject the taxpayer to income taxation. In the following discussion, the term “nexus” should be taken to mean “nexus for corporate income tax purposes.” Charles E. McLure Jr., “Electronic Commerce and the State Retail Sales Tax: A Challenge to American Federalism” (May 1999), 6 *International Tax and Public Finance* 193-224, offers a recent discussion of the taxation of e-commerce, including the nexus issue, emphasizing the taxation of retail sales.

attend a trade show in a state where the firm has no other activities, or if vehicles owned by the firm pass through a state in which the firm has no other presence, a state might claim the right to tax the firm but a court might view such a connection with the state as insufficient to establish nexus.⁷⁴

Can states tax the income of a corporation by virtue of the fact that the corporation derives revenues from the sale of goods or services within a state? One might have thought that the commerce clause, the due process clause, or both, would protect corporations from income taxation on this basis; otherwise, it would seem that states would be impeding interstate commerce by exposing corporations to income taxation merely for the act of engaging in such commerce. In fact, however, the Supreme Court (in its 1959 decision in *Northwestern Cement Co. v. Minn.*)⁷⁵ rejected arguments to this effect. The court's decisions in this and related cases led Congress to become directly involved in the nexus issue in 1959 when it passed Public Law 86-272, the major statutory feature of current US practice.⁷⁶ This law prevents a state from imposing a tax on the income of a corporation whose only connection with the state is its "solicitation of orders" for *tangible* goods. Thus, for example, a company might send its representatives into a state to facilitate sales without establishing nexus—subject to certain provisos, for example, that orders from such customers "are filled by shipment or delivery from a point outside the [s]tate." Under this statute, mail-order businesses, and presumably businesses engaged in e-commerce transactions involving *tangible* goods as well, can protect themselves from income tax liabilities that would otherwise arise solely because of their participation in interstate commerce. Note that US practice is, in this respect, similar to that in Canada, where businesses that sell goods and services in a province but have no establishment there are exempt from that province's corporate income tax.

While PL86-272 clarifies the nexus issue, it has nevertheless been the subject of significant litigation, in part because of the difficulty of separating "solicitation of orders" from other business activities not protected by the statute. For example, sales representatives of the Wrigley Company working in Wisconsin would stock display racks with chewing gum and, if they encountered stale gum

74 Some states have established "safe harbour" rules that assure corporations that they can undertake certain activities without risking taxation: for example, California has declared that it will not attempt to tax the income of corporations merely because they send employees to participate in trade shows within the state. Under the Canadian "permanent establishment" criterion, it seems clear that provinces could not elect to tax corporations in such circumstances in any case.

75 358 US 450 (1959).

76 An Act Relating to the Power of the States To Impose Net Income Taxes on Income Derived from Interstate Commerce, and Authorizing Studies by Congressional Committees of Matters Pertaining Thereto, Pub. L. no. 86-272, enacted on September 14, 1959.

at retail outlets, would replace it with fresh product. In *Wisconsin Department of Revenue v. Wrigley Co.*,⁷⁷ the Supreme Court found that these activities were not “ancillary” to “solicitation of orders” and that the state could therefore tax Wrigley’s income; a minority, however, considered that these activities were part and parcel of solicitation of orders and that Wrigley therefore could not be taxed on these grounds.

If courts are divided on such issues as the definition of “solicitation of orders,” it will come as no surprise to learn that PL86-272, which makes specific reference to *tangible* goods, does not appear to be of much help in settling another rather closely related issue—that is, whether the fact that a corporation derives revenues from the sale or licensing of *intangible* goods and services results in a tax liability. If a corporation has no establishment in a state, if it has no employees in a state, and if it sells no tangible products in a state, can it possibly have nexus there for corporate income tax purposes?

This issue has attracted renewed attention since the decision by the Supreme Court of South Carolina in *Geoffrey, Inc. v. SC Tax Com’n*.⁷⁸ In this case, an out-of-state corporation (Geoffrey) licensed trademarks to retailers in South Carolina in exchange for royalties. The court held that the corporation’s income (properly apportioned) was indeed taxable within the state. Fundamentally, the same questions would arise in connection with the sale or licensing of any intangible products or assets, such as income arising from financial transactions, patents, and other intellectual property. The delivery of goods or services by electronic means—and thus a large fraction of e-commerce—would presumably also be viewed as sales of intangibles. For example, a corporation that allows customers in other states to download software from its Web site would be engaged in interstate commerce in intangibles. Whereas these sorts of transactions would not in themselves establish nexus if they involved *tangible* goods and services, it is an open question whether federal courts would uphold state courts, such as those in South Carolina, in cases involving intangibles, or whether instead they would see valid commerce clause or due process clause arguments for protecting corporate income from state taxation in these cases. Some of the economic pros and cons of alternative decisions are discussed below.

Intangibles and Nexus in Integrated Economies

The foregoing discussion has identified several important differences between the US and Canadian approaches to subnational corporate income taxation. It also reveals an interesting contrast in the fundamental institutional approaches to policy making. In part owing to the influence of the federal government, Canada’s policies are far more uniform than is the case in the United States. As

⁷⁷ *Wisconsin Department of Revenue v. Wrigley Co.*, 505 US 214 (1992).

⁷⁸ 437 SE 2d 13 (SC 1993).

compared to Canadian provinces, US states have exercised much more latitude in determining basic elements of their corporate income tax policies. Allocation formulas, the treatment of affiliated corporations, and even, to some extent, the fundamental issue of nexus have been left largely under the control of the states, subject, however, to overall constitutional constraints. Since these constraints are quite general in nature, the US experience is characterized by heavy reliance on the courts to determine, in an evolutionary process with gradual accretion of precedent, the framework within which states may set their policies. The greater transparency, simplicity, and uniformity of the Canadian system, on the one hand, and the greater flexibility of the US system, with more latitude for policy experimentation and for variability of policy in accordance with local priorities and economic circumstances, on the other, are no doubt attributable to basic institutional differences in the ways that policy is formulated.

As noted above, the issue of nexus is currently the subject of legal dispute and controversy in the United States. The *Geoffrey* case raises the prospect that corporations may become subject to income taxation in states where they have no physical presence. Ultimately, the US Supreme Court will likely be called upon to resolve this issue in the light of constitutional principles; but, however the issue is resolved in the judicial process, it raises quite intriguing and important questions for economic policy. Indeed, precisely because of the legal uncertainties, this may be an unusually opportune time to review the economic policy implications of the nexus issue.

To indicate the context of the current debate, it should be noted that states vary widely in their treatment of corporations that derive income from intangibles. In particular, the income from intangibles is not taxed in some states, namely, a state such as Nevada, which has no corporate income tax at all, or Delaware, which explicitly exempts from taxation corporations that derive income only from trademarks and similar intangible assets. In accordance with standard models of fiscal competition, it is easy to see why some states might not wish to impose a tax on the income of companies with few or no tangible assets: these companies use few, if any, state-provided services and thus impose few costs on them. In order not to discourage the commercial activity associated with trademark protection companies, a state might well provide preferential tax treatment of these corporations.

But consider the implications of such a policy on the part of one or a few states for the corporate income tax in other states. Suppose, as an example, that a corporation in Georgia derives profits from the sale of a product with a well-known trademark. The firm may have invested heavily in the promotion of the trademark and this may result in a high level of corporate profitability. These profits could result in substantial income tax liabilities in Georgia, with its 6 percent corporate income tax rate. Suppose, however, that the trademark of the Georgia corporation is transferred to a corporation in Nevada, Delaware, or some other state where trademark royalties and other returns to intangibles face

zero or very small tax burdens. If Georgia is unable to tax the income accruing to the out-of-state trademark owner, income that otherwise would have produced tax revenue for Georgia will no longer do so.⁷⁹ Of course, Georgia loses tax revenue in this case whether the corporation receiving revenues from the licensing of its trademark is situated in Delaware, Nevada, or some other state, including possibly a state with a high tax burden on the returns to intangibles; it is obvious, however, that tax considerations, in themselves, would favour the transfer of intangible assets to low-tax jurisdictions.

Against this backdrop, the attempt by states to extend their taxing powers beyond their borders is quite understandable, as is their increasing reliance on the sales factor in apportioning income. Since corporations that are not physically present in a state have no payroll or capital assets, using these factors in an apportionment formula does not help states in taxing the income of out-of-state corporations.⁸⁰ In an economy in which information-based goods and services figure prominently and in which the need for physical contact between buyers and sellers is diminished by the advent of new technologies, it is easy to see that the nexus issues in the *Geoffrey* case have potentially far-reaching implications.

Nexus: Economic Policy Implications

The nexus issue, and specifically the issue of nexus for corporations without physical presence in a jurisdiction, raises several economic policy questions. A full and formal analysis of this issue cannot be undertaken here.⁸¹ In outline, however, there are three main economic dimensions to the nexus issue.

First, from an efficiency viewpoint, subnational governments must have revenue instruments at their disposal that enable them to finance needed public goods and services; constraints on their taxing powers should not make it excessively difficult for them to collect revenues.

Second, subnational governments should also be constrained from imposing taxes that are borne mainly by non-residents, since tax exporting distorts the incentives for efficient public-sector decision making. In the extreme case, if tax burdens could, at the margin, be shifted entirely to non-residents, the self-interest of a given jurisdiction would dictate unlimited public expenditures. To

79 The transfer of the trademark to an out-of-state owner could be a taxable event. If the trademark were correctly valued, and ignoring other complicating factors, Georgia could gain revenue from taxation of the transfer of the trademark equal, in present value, to the revenue that would be obtained from taxation of the stream of income accruing to the trademark owner.

80 Other considerations, of course, come into play in determining the apportionment formula that any one state might prefer; for example, "consumer" states, generally, might have an incentive to rely on the sales factor more heavily than "producer" states.

81 See D.E. Wildasin, "State Corporate Income Taxation: A Normative Approach" (in preparation) for a more detailed analysis.

make this point by means of an extreme example, suppose that the government of Quebec or New York were able to impose taxes on all residents of Canada or of the United States. Quebec and New York would have powerful incentives to expand public service provision for their residents, given that the costs of these services could be shifted to outsiders. If other provinces or states could likewise tax non-residents, their public expenditures would presumably expand dramatically as well. Excessive public expenditures in all jurisdictions—expenditures for which the benefits, at the margin, fall short of costs—would result.

Third, the taxes used by subnational governments should not impose high efficiency costs on the functioning of the national economy, for example by distorting the internal flow of trade in goods and services.

Consider the issues in the *Geoffrey* case from this viewpoint. Note, to begin with, that intangible assets such as patents, copyrights, and trademarks represent the ownership of property rights in innovations, creative works and concepts, brand names, and intellectual property generally. Their creation, development, and marketing often require intensive utilization of human capital, much of it self-directed—skilled researchers, scientists, engineers, technical staff, artists, authors, performers, and the like—and the financial return to these assets is one of the principal economic rewards for entrepreneurship, innovation, and creative activity. E-commerce is, of course, one form of intangibles-intensive activity that appears likely to play a role in these economies, but e-commerce is just one application of information technology more generally, a sphere of activity in which intangibles—including software—are of central importance. In advanced economies with high levels of education and training, like those of the United States and Canada, these activities play an increasingly prominent role in overall economic performance.

Much of the financial return to intangibles takes the form of quasi-rents. Once created, an intangible asset can often be utilized at low marginal cost; for example, the cost of photocopying a book, of duplicating an audio tape or brand-name label, or of copying computer software is often very small in relation to the cost of creating the valuable intangibles embodied in these items. Protection of the quasi-rents that accrue to intangible assets is therefore very important in preserving the incentives to create these assets in the first place, a principle that is well recognized in the traditional treatment of copyrights and patents. A substantial part of the profits of corporations, such as profits attributable to product and process innovations, takes the form of these quasi-rents. In highly integrated economies with free internal markets such as those of Canada and the United States, the return to intangible assets reflects the fact that they can be directly and indirectly used by many firms and individuals in many locations. Thus, the discovery or creation of a new substance (for example, for the making of semi-conductors) may facilitate the development of new devices or processes (such as, computer chips) that are widely employed in several different industries (such as, computer manufacturing) whose goods or services, in turn, are used by many

different types of consumers in different locations (for example, in the distribution or analysis of information). The contractual arrangements by which the creation of a new substance is rewarded can take a wide variety of forms, depending in particular on the degree of vertical integration. They may, for example, take the form of patent royalties accruing to an individual inventor who is many stages removed from the consumers who ultimately pay for the information services that could now be delivered thanks to the original inventive act. Alternatively, an inventor might establish a business that incorporates every intermediate stage of production between the original invention and the ultimate consumer.

Households and firms in any one US state or Canadian province purchase goods and services that directly or indirectly utilize intangible assets that are owned by non-residents. As an empirical generalization, it would be safe to say, in particular, that the returns to intangible assets owned by corporations located outside the jurisdiction are especially likely to accrue to non-residents.⁸² Thus, a state or province that is able to tax the income of non-resident corporations will be taxing income that accrues disproportionately to non-resident individuals. To the extent that this income represents economic rents or quasi-rents, subnational jurisdictions have an incentive to tax that income, since the burden of the tax would then fall on the non-resident owners of the intangibles in question—that is, the burden of the tax would be exported. From a tax-exporting perspective, in other words, a state has a powerful incentive to tax the income accruing to corporations that have no physical presence within the state.

Of course, it is important for a state to incorporate a sales factor for income apportionment if it seeks to capture the rents accruing to non-resident corporate owners of intangibles, since these non-resident corporations may well have no employees or establishments within the state. Indeed, as is clear from the literature on fiscal competition,⁸³ a jurisdiction operating in an open and competitive economic environment may have strong incentives to ease the burden of taxation on the returns to capital or labour since that burden may discourage investment and employment, with consequent adverse effects on wage rates and real estate markets. Thus, states that compete for labour and capital while attempting to

82 Equity markets, of course, make it possible for residents in any one state or province to receive a share of the income accruing to intangible assets used by corporations located in other states or provinces (or countries, for that matter). Cross-ownership of such assets is nonetheless limited, as has been discussed extensively in the literature on integration of international capital markets. Cross-ownership of assets and the incentives for jurisdictions to devise tax policies that capture the rents accruing to them are discussed in David E. Wildasin and John Douglas Wilson, "Risky Local Tax Bases: Risk-Pooling vs. Rent Capture" (August 1998), 69 *Journal of Public Economics* 229-47.

83 See, for example, D.E. Wildasin, *Urban Public Finance* (New York: Harwood, 1986); and John Douglas Wilson, "Theories of Tax Competition" (June 1999), 52 *National Tax Journal* 269-304, and the references therein.

capture rents from non-residents would benefit from reduced reliance on the payroll and capital factors in formula apportionment; in the extreme, a state might shift to sole reliance on the sales factor, consistent with trends now observed within the United States, as described earlier in this paper.

Since tax exporting may be conducive to inefficient public expenditure, there is a good case to be made, on this score, for limiting the taxing powers of states so that they cannot tax the incomes of corporations that are not physically present within their jurisdiction.

While states have an incentive to try to tax out-of-state corporations in order to capture economic rents accruing to non-residents, their ability to do so varies among industries. Specifically, because the degree of vertical integration differs from one industry to the next and because the optimal contract structure for the exploitation of intangible assets may vary, state corporate income taxes create differential effective tax rates on different types of intangibles. For example, authors often are rewarded by royalties paid to them, as individuals, by publishers. Publishers, in turn, market copyrighted works to distributors and, ultimately, to consumers. The reader who buys a novel at a local bookstore implicitly raises the income of the novel's author, but there is considerable contractual and organizational "distance" between a reader and an author. In particular, the state in which the reader resides may impose a tax on the income of out-of-state corporations that derive income from intangibles, as in the *Geoffrey* case, but this tax would not fall on the income accruing to the out-of-state author: too many transactions and business entities separate the original creator of the intangible asset from the state's corporate income tax. In general, the effective implicit rates of taxation on the returns to intangibles created by a state's corporate income tax would vary depending on contractual forms and organizational structures, an unevenness in tax burdens that distorts both trade flows and organizational forms.

It appears, in short, that allowing states to tax corporations with no physical presence within their jurisdiction can distort public-sector decision making, through tax exporting, and private-sector decision making, through uneven effective rates of taxation on the returns to intangible assets. Arguably, however, it might be necessary for states to be able to tax the incomes of out-of-state corporations in order to obtain the revenue that they need to finance public services.

At a purely pragmatic and empirical level, the Canadian experience suggests that a system of subnational corporate income taxation in which nexus requires physical presence is certainly feasible. As observed at the outset, Canadian provinces derive a substantial portion of their revenues from corporate income taxes, even though they can tax only those corporations with permanent establishments within their borders.

Aside from these pragmatic considerations, one can ask more fundamentally what role the corporate income tax should play in the revenue structure of a state

or provincial government. It could certainly be argued that subnational governments need to be able to collect revenue from corporations in order to recover the costs of public services provided on their behalf. Indeed, subnational governments often collect revenues from businesses (both corporate and non-corporate) through various sorts of licences, fees, and charges. In addition, taxes other than the corporate income tax, such as local property taxes, provide other means by which businesses can be made to compensate governments for the costs of public services. To the extent that subnational governments provide impurely public (or congestible) goods and services to businesses, the presence of these businesses necessitates additional expenditures on the part of these governments, and “locational efficiency” requires that businesses (and, for that matter, households) pay for the incremental costs that their presence generates. Of course, it is difficult to measure with precision the costs that businesses or individuals impose on a jurisdiction; for example, the deterioration of highways associated with their use by a business will depend on the types of vehicles used by the business, the cargo that they carry, the frequency and length of trips, and other characteristics that differ from one business to another but that are not easily observed by revenue authorities. With a variety of revenue and regulatory instruments at their disposal, subnational governments can to some extent assess different tax-prices to different types of businesses depending on the extent to which they congest local public goods and services, but a precise match between congestion costs and revenue contributions is normally infeasible.

Despite the general difficulty of determining the public-service provision costs that a corporation or other business may impose on a jurisdiction, it is clear on a priori grounds that corporations with no physical presence within a jurisdiction cannot impose meaningful congestion costs on it. For example, although it may be difficult to determine exactly how much wear and tear a corporation’s trucks cause to local highways, it is obvious that there is no wear and tear at all if the corporation has no physical assets, including trucks, located within the jurisdiction. The same is true for other public infrastructure and, indeed, for all other goods and services provided by a subnational government. Consequently, it cannot be argued that a state government must be able to tax the income of out-of-state corporations with no physical presence within the state in order to be able to internalize the congestion costs that these corporations might generate.

In brief summary, basic economic principles can help to shed light on how the nexus issue for state corporate income taxation should be resolved, at least from the perspective of economic efficiency. Corporations that have no connection with a state other than the fact that they derive revenues from the sale or licensing of intangible assets there are not suitable targets for state corporate income taxes. States may indeed seek to tax such corporations, in the interests of their residents, but their attempt to do so distorts their incentives to choose appropriate levels of public expenditure. Such taxes can also distort private-

sector resource allocation because they bear unevenly on different types of goods and services and the intangible assets embedded within them, as well as on organizational and contractual forms. Finally, because corporations that have only an intangible connection with a subnational jurisdiction cannot congest local public services, there is no need for that jurisdiction's government to impose explicit or implicit tolls on the corporation in order to recover the incremental costs of public goods.

Conclusion

Subnational governments in both the United States and Canada impose taxes on the incomes of corporations. In both countries, this taxing power requires that fundamental policy and administrative problems be addressed. Which corporations or corporate entities can a state or province tax? Must the tax-paying unit, however defined, have some "presence" within the taxing jurisdiction, and if so, must it be physically present? How is income to be divided, for tax purposes, among taxing jurisdictions? And, at a deeper institutional level, how are the answers to these questions to be decided: by central government authorities, by courts, or by some combination of the two? The United States and Canada have answered these questions in rather different ways. The Canadian system is characterized by fairly simple and harmonized policies, achieved partly by coordination and cooperation among the provincial and federal governments. The US approach is much less precisely specified, with states exercising substantial policy independence within broad constitutional constraints requiring frequent judicial interpretation and clarification.

One of the important issues now facing policy makers and courts in the United States is the question of nexus, especially with reference to corporations that do not have any physical presence within states that attempt to tax them. This issue has been resolved by statute in Canada: a corporation with no "permanent establishment" within a province cannot be subject to corporate income taxation there. The courts in the United States will ultimately decide this issue in accordance with their interpretation of the meaning of the constitution. But however the problems of judicial interpretation are ultimately resolved, one can inquire, from the viewpoint of economic analysis, what the implications of alternative decisions might be.

A complete analysis of all aspects of this question is beyond the scope of this paper. However, established principles of public finance in a federal system suggest the desirability of limiting the taxing powers of subnational jurisdictions so that they cannot impose taxes on the incomes of corporations beyond their boundaries. Indeed, these principles suggest that states would have incentives to impose such taxes in order to export the burden of taxation to non-residents. While such tax exporting (or rent capture) serves the interest of each state acting independently in the interests of its residents, it does not promote efficiency in the functioning of the national economic system as a whole.

An interesting issue for investigation concerns the implementation of corporate income taxes in an international setting.⁸⁴ From an analytical viewpoint, the taxation of multinational corporations by national governments is analogous to the taxation of corporations within a country by subnational governments, and it is clear that somewhat analogous principles should guide policy in these two contexts. There are, however, some significant differences between the two. In particular, it is quite reasonable (and certainly commonplace in the literature) to evaluate institutional and policy regimes in a federation like that of Canada or the United States from the perspective of economic welfare within the nation as a whole. In the international context, one could by analogy evaluate alternative policies and institutions from the perspective of world economic welfare. While such an approach is certainly of interest, it is more customary to think of the nation rather than the world as the natural unit for policy evaluation. The development of multinational institutions such as the EU suggests that still other lines of analysis—starting from the perspective, say, of a regional trading bloc or an emerging economic union—would be fruitful. These and other issues must await further study.

SUMMARY OF QUESTIONS AND ANSWERS

On the question whether the presence of national government in a particular tax area supports subnational taxation in the same area, Jim Davies (of The University of Western Ontario) put forward two examples from Canadian experience. First, when the federal government vacated the estate tax in the early 1970s, the provinces, which had also had a presence in the field, left also. This example seems to suggest that just having a federal presence, even if the federal and provincial systems are not integrated, has some role in anchoring what the provinces are doing and preventing outright tax competition. The second example is a comparison of corporate taxation in Canada and Europe. In Europe, there currently seems to be very fierce competition over reduction of corporate income taxes, whereas in Canada the fraction of overall tax collections from corporate tax has been rising. This appears to be another case where having a national government imposing a particular tax in addition to the provinces makes a difference.

Gordon Myers (of Simon Fraser University) pointed out the vertical tax externality that occurs when governments occupy a common tax base and asked whether the effect of the externality can be so bad that there is a possibility of getting to the “wrong side” of the Laffer curve. Has there been any work on this issue?

84 Charles E. McLure Jr., “U.S. Federal Use of Formula Apportionment To Tax Income from Intangibles” (March 10, 1997), 14 *Tax Notes International* 859-71, discusses the international dimensions of corporate income taxation, drawing numerous parallels with the experience of US states.

Mick Keen responded that there is some evidence for the suggestion of Davies and Myers that common tax bases lead to higher taxes, and referred to recent papers by Tim Besley and Harvey Rosen,⁸⁵ and by Robin Boadway and others.⁸⁶ It might be that a federal presence is necessary for harmonizing tax bases, as opposed to tax rates. At first glance, in Quebec the movement of the QST base toward the federal GST base seems to be an example of spontaneous coordination of tax bases. However, closer study suggests that it is more likely the result of positive action on the part of the federal government to coordinate policies with the provinces. As a counter-example, there has been quite effective coordination of the VAT base in the EU since 1977, but clearly with no federal presence. On balance, it seems that a federal government presence is neither necessary nor sufficient for this kind of spontaneous coordination.

Jay Wilson (of Michigan State University) suggested that, if political-economic factors mean that governments do not always act in the best interests of their residents, tax competition may have a beneficial role in constraining government officials. Such competition would have to be balanced against the usual externality arguments. Stan Winer (of Carleton University) added that similar issues arise when, because of majority-rule decision making, governments adopt policies that redistribute income through policies that are not Pareto-efficient. Tax competition can alleviate this problem. Is there some way of reconciling this political economy approach to the issue of tax coordination with the conventional analysis?

Mick Keen noted that one can construct models in which governments care partly about the surplus they extract and partly about the welfare of consumers. Using these models, it is possible to make some statements about whether coordination is beneficial or not. Thus, there is a way to seek some middle ground in modelling between traditional views of tax competition and public choice approaches. Bev Dahlby said that it is very hard to define what is good tax competition and what is bad tax competition. He discussed the recent OECD report on tax competition⁸⁷ and the difficulties that the OECD had had with just that question. The report contains an eloquent defence of tax competition in an addendum by Switzerland and Luxembourg, explaining why they do not want to be part of the agreement, but their dissent was largely based on their banking secrecy provisions. This is an area where there is room to develop more analytical

85 Timothy J. Besley and Harvey S. Rosen, "Vertical Externalities in Tax Setting: Evidence from Gasoline and Cigarettes" (December 1998), 70 *Journal of Public Economics* 383-98.

86 Robin Boadway, Maurice Marchand, and Marianne Vigneault, "The Consequences of Overlapping Tax Bases for Redistribution and Public Spending in a Federation" (June 1998), 68 *Journal of Public Economics* 453-78.

87 *Supra* footnote 6.

knowledge, such as that which Mick Keen has developed, which might get us closer to resolving these sorts of questions.

Dave Wildasin noted that the points made by both Wilson and Winer turned on whether competition among jurisdictions affects the ability of one group in society to exploit the interests of others for its own benefit. Behavioural margins of adjustment limit the ability of the public sector to extract rents from people. If, for example, a minority is being exploited but can move, members of that minority have an exit option that is going to discipline the behaviour of the majority. Often, on the other hand, the levers of power are controlled by a minority that attempts to exploit a majority, including those that are not residents of the jurisdiction but own resources there. In either case, the ability to use government policy to transfer resources among agents is constrained by the mobility of the resources across jurisdictional boundaries. The argument is reminiscent of Hirschman's "exit-voice" dichotomy. Non-residents of a jurisdiction cannot participate in the jurisdiction's political process and so do not have much voice. But insofar as they own resources that can move among jurisdictions, they do not really need voice because they have a great exit option. Since there will always be some resources that are relatively less able to escape taxes by moving to another jurisdiction, competition among jurisdictions can never eliminate the possibility for political conflict. But the battleground will be over rents that accrue to those resources within the jurisdiction that are immobile.

Ken McKenzie (of the University of Calgary) noted that tax bases that are mobile across jurisdictions within a federation also tend to be mobile internationally, and that this factor should be considered in judging whether or not tax competition within a federation is cause for concern. One idea that had emerged in the general discussion was that special tax preferences might be more desirable than complete harmonization, since they allow governments to confine tax competition to tax bases that are highly mobile. McKenzie mentioned that this idea was quite similar to the Ramsey rule, which prescribes that highly elastic tax bases should be taxed at lower rates than relatively inelastic ones. Mick Keen said that he thought the issue was more to do with strategic interaction rather than the Ramsey rule, but that nonetheless the upshot was broadly similar.