

A tale of two provinces—tax policy in Alberta and Ontario

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Provincial governments in Canada account for roughly half of total taxes levied in the country and they have been rather more aggressive, and innovative, in the area of fiscal policy than the federal government. Therefore, it is useful to study the tax policies of provinces that have been successful in stimulating economic prosperity. Such a study can provide important input into changes in federal tax policies that can result in greater prosperity for all of Canada.

While all provinces have instituted fiscal reforms over the past several years, the governments of Alberta and Ontario have led the country in terms of both the timing and scope of fiscal reforms, particularly in the area of tax policy. The genesis of these reforms coincided with the election of Alberta premier Ralph Klein in 1993 and Ontario premier Mike Harris in 1995. Although the approaches to tax reform followed in the two provinces share some common characteristics, in some important and fundamental ways they are also very different. The purpose of this chapter is to compare and contrast the approaches to fiscal reform followed in these two provinces, with an emphasis on tax policy.

I begin by looking at the “big picture” in the two provinces. I then turn to an analysis of specific initiatives in the areas of personal and corporate taxation. The approach I take is to analyze

the tax policy initiatives in the two provinces in terms of their impact on labour markets and capital markets separately. This is, I think, a natural way to think about the implications of the tax initiatives in the two provinces, and a way that yields several important insights.

The big picture

My starting point for the comparison of tax policies in the two provinces is the election of Ralph Klein as premier of Alberta in 1993 and the election of Mike Harris as premier of Ontario in 1995. Even those with a casual awareness of the political scene in Canada recognize the election of Progressive Conservative governments under their leadership as a watershed in the provincial fiscal environment in this country.

Prior to the election of Klein and Harris, the government finances of Alberta and Ontario were in dismal shape: Ontario had a run of five consecutive deficits in excess of \$10 billion prior to 1995, which caused the net ratio of debt to GDP in the province to rise from 22% in 1991/1992 to over 30% in 1994/1995. Prior to 1993, Alberta ran eight consecutive deficits, ranging from \$1.3 billion to over \$4 billion, which caused the net ratio of debt to GDP to rise a staggering thirteen percentage points, from 2% in 1986/1987 to 15% by 1992/1993. In both provinces, these were the high-water mark for their ratios of debt to GDP. Under the Klein government, Alberta moved into a net asset position of over 3% of GDP by 1999/2000, which represents a remarkable eighteen-percentage point turnaround in just seven years. Harris's government oversaw a somewhat less dramatic, but still significant, five-percentage point reduction in the net debt-to-GDP ratio to 25% by 1999/2000.

How were these lower ratios of debt to GDP achieved? There are several ways to answer this question. One is to pore over the budget documents of provincial governments before and after the fiscal turnaround to document the various change in spending and revenue. Since this approach is very time consuming, I take a simpler approach and consider changes made at a more aggregate level. For this purpose, I trace the evolution of the net ratio of debt to GDP

through time to establish the extent to which the improvements occurred through tax and spending changes. Thus, consider the government budget identity:

$$\Delta b_t = b_{t+1} - b_t = (g_t - \tau_t - f_t + (r - \alpha) b_t) / (1 + \alpha) \quad (1)$$

where b is the net debt/GDP ratio, g is government program spending as a percentage of GDP, τ is provincial own-source tax revenue as a percentage of GDP, f is federal transfers as a percentage of GDP, r is the interest rate on government debt and α is the growth rate in GDP.

This equation shows that there are three key sources of change in a provincial government's debt/GDP ratio. One is the primary deficit ($g - \tau - f$). A positive value for the primary deficit indicates that program spending exceeds tax and transfer revenue, which results in a net addition to debt while a negative value implies a net reduction in debt. The second key variable is the interest rate payable on outstanding debt. The higher the interest rate, the higher is the debt servicing cost and therefore the larger is the annual deficit and growth in the debt. The third key variable is the rate of growth in GDP. The more quickly the economy grows, the smaller will be the ratio of debt to GDP. As the equation indicates, it is the relative magnitudes of the interest rate payable on government debt (r) and the underlying rate of growth in GDP (α) that is key. Intuitively, this condition shows that, if the interest rate exceeds the rate of growth in the economy, the ratio of debt to GDP rises because the effect of the higher cost of servicing the debt exceeds the benefits due to the growth in GDP.

I employ this simple budgetary equation in several ways. The first is to use it to obtain an expression for what is known as the *sustainable tax rate* (Blanchard 1993). The sustainable tax rate is the tax rate (tax revenues as a percentage of GDP) required to finance a given level of program spending (as a percentage of GDP) so that the existing debt/GDP ratio is maintained at its existing level. It is obtained by setting $\Delta b_t = 0$ in the above expression and solving for τ_t , which gives:

$$\tau_t^* = g_t - f_t + (r - \alpha) b_t \quad (2)$$

This equation says that to maintain existing program spending as a proportion of GDP (gt) and keep the net debt/GDP ratio from changing, the provincial government's own-source revenues as a percentage of GDP (the sustainable tax rate τ^*t) must cover program spending not financed by transfers from the national government (the amount $gt - ft$) plus the excess of debt service costs over economic growth ($(r - \alpha)bt$). Thus, the higher the program spending not financed by transfers and the higher the cost of debt service relative to the economy's growth rate, the higher will be the sustainable tax rate.

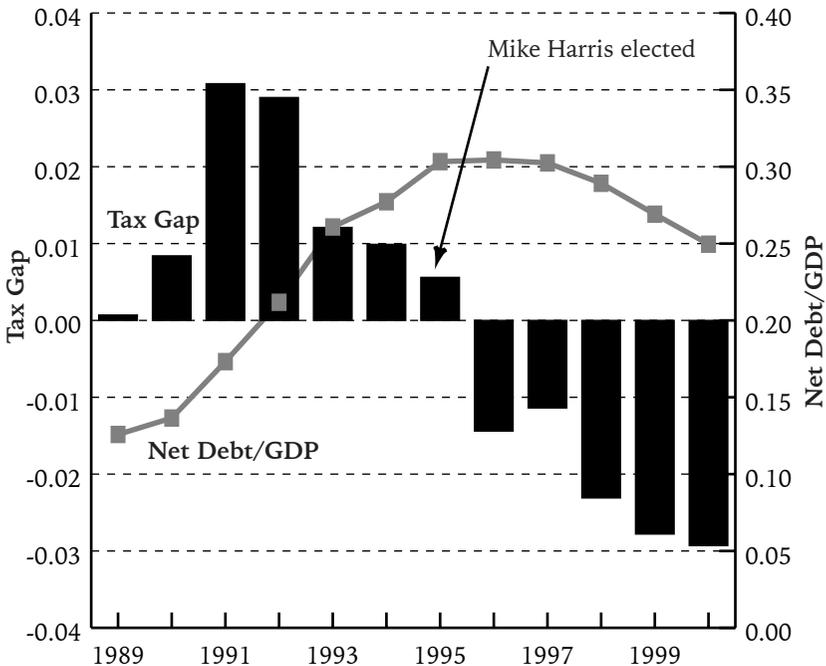
Given the definition of the sustainable tax rate, we can then determine whether existing fiscal policy is sustainable in this sense by comparing the sustainable tax rate, τ^*_t , to the actual tax rate, τ_t (the actual ratio of own-source tax revenue to GDP). If the resulting *tax gap*, $\tau^*_t - \tau_t$, is positive; that is, the sustainable tax rate exceeds the actual tax rate, and the net debt/GDP ratio will increase. If the tax gap is negative, the current fiscal policy reduces net debt/GDP. If they persist indefinitely, neither positive nor negative tax gaps are sustainable in the longer run. An indefinitely persistent positive tax gap means that the debt/GDP ratio will eventually approach infinity, which would lead to an ultimately unbearable tax burden just to finance the debt. An indefinitely persistent negative gap means that the debt/GDP ratio eventually approaches negative infinity, as the government accumulates private assets (rather than debt) in its own portfolio. Of course, neither of these limiting cases will occur in practice, as government policies must necessarily change in response to indefinitely growing debt or assets (relative to GDP). Thus, the existence of either gap for a prolonged period of time implies the need for the government to change its tax policies or its spending policies, or both. Of course, if the tax gap is zero, the current debt/GDP ratio is maintained. The analysis of the tax gap over time thus provides information about the changes in tax and spending policies needed to attain any desired change in the ratio of debt to GDP.

It is important to understand two things from the definition of the sustainable tax rate. The first is that there is no presumption that setting the actual tax rate equal to the sustainable tax rate and, therefore, eliminating the tax gap and maintaining the existing debt/GDP ratio, is in any way an optimal economic policy. For

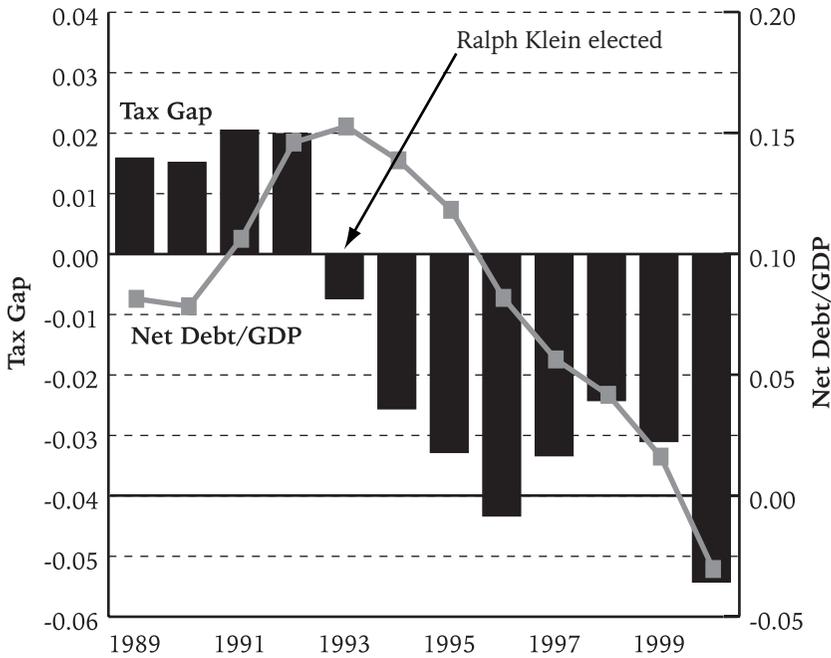
example, it may well be desirable to run negative tax gaps over a period of time in order to reduce the debt/GDP ratio. Indeed, and as we shall see, fiscal policy in Ontario and Alberta throughout the period studied was geared toward doing precisely this. Second, there is also no presumption that positive or negative tax gaps should be eliminated by adjusting tax policy rather than spending policy. The focus on the sustainable tax rate is arbitrary; one could just as easily determine the sustainable spending rate by rearranging the formula. The purpose of the expression is to identify current pressures, tendencies, and directions in fiscal policy, not to determine an optimal configuration of fiscal policy.

Figures 1 and 2 show the net debt/GDP ratio and the tax gap in Ontario and Alberta respectively, from 1988/1989 to 1999/2000. The “Klein Effect” in 1993 and the “Harris Effect” in 1995 are very evident. Prior to 1993, Alberta ran a series of sizable positive tax gaps and, as a result, the debt/GDP ratio rose accordingly. The Klein

Figure 1: Tax Gap and Ratio of Net Debt to GDP, Ontario



Sources: Author’s calculations; Financial Management System data, several years.

Figure 2: Tax Gap and Ratio of Net Debt to GDP, Alberta

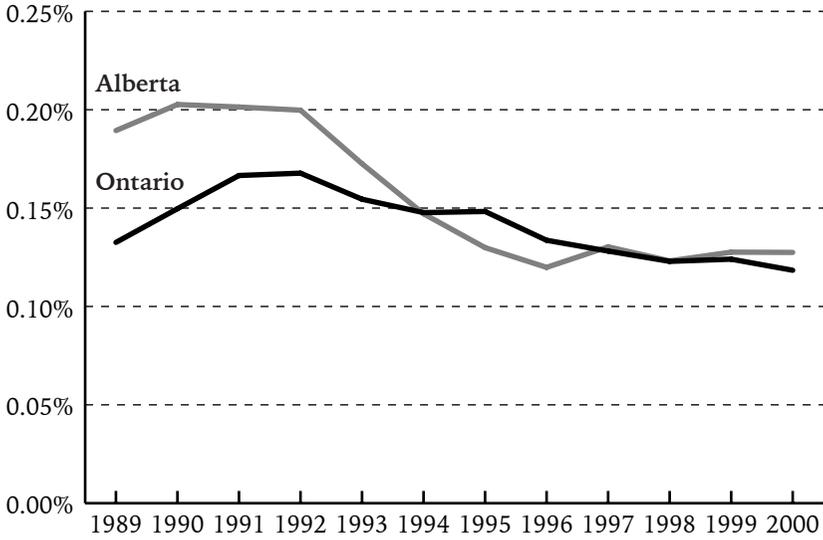
Sources: Author's calculations; Financial Management System data, several years.

government moved quickly to turn things around, as we see a modest negative tax gap in 1993 followed by substantial negative gaps thereafter. As indicated above, the result was a turn-around of 18 percentage points in the debt/GDP ratio by 1999/2000. The Harris government also moved quickly to a negative tax gap, which resulted in a five-point reduction in debt/GDP over the five-year period.

Figure 3 shows the extent to which the turn-around in the tax gap was caused by reductions in program spending (total spending net of debt service) as a percentage of GDP. In Alberta, spending fell from 17.2% in 1992/1993 to 12.7% in 2000. In Ontario, the ratio of program spending to GDP fell from 14.8% in 1994/1994 to 11.8% in 2000. The size of the cut in Alberta is particularly noteworthy.

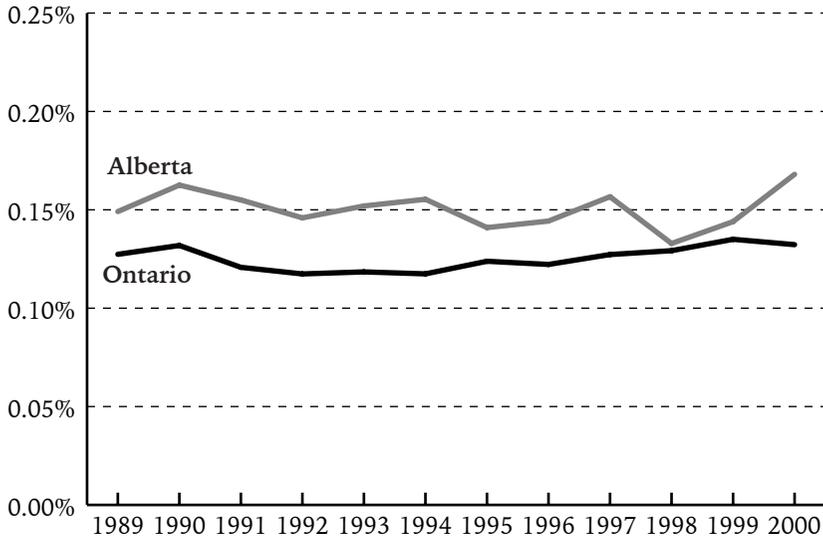
Figure 4 reflects in part the fact that Alberta chose to forgo tax cuts early in the Klein government's first mandate in favour of paying down the debt and instead implemented significant cuts to personal taxes and, to a lesser extent, corporate taxes in 2001, only

Figure 3: Program Spending as Percentage of GDP, Ontario and Alberta



Source: Financial Management System data, several years.

Figure 4: Own Revenue as Percentage of GDP, Ontario and Alberta



Source: Financial Management System data, several years.

after having moved to a net asset position in 2001. Ontario followed a different approach, choosing to implement tax cuts first, primarily for low- and middle-income earners (more on this below). This, of course, delayed paying down the debt and partly accounts for the more modest reduction of the debt/GDP ratio in Ontario.

Recalling that the actual tax rate is given by actual own-source revenues as a percentage of GDP, figure 4 shows that the actual tax rate has been relatively constant under both the Klein and the Harris governments. Indeed, there has been a modest rise in tax revenue as a percentage of GDP in Ontario, despite tax reductions. This rise is due to strong overall economic growth, fueled largely by the lengthy economic expansion in the United States over this period. In Alberta, the fairly large increase in the ratio of revenue to GDP in 1999/2000 was due largely to the rise in oil prices.

Fiscal policy, economic growth, and the debt/GDP ratio

Until recently, the Klein and Harris governments have been fortunate to implement their fiscal reforms in an environment of relatively robust economic growth. An interesting question, then, concerns the extent to which the reduction in the debt/GDP ratio in the two provinces can be attributed to this normal economic growth throughout the period rather than to the discretionary fiscal policies of the government. This issue is of particular interest in the study of the success of the Klein and Harris governments in lowering the ratio of debt to GDP.

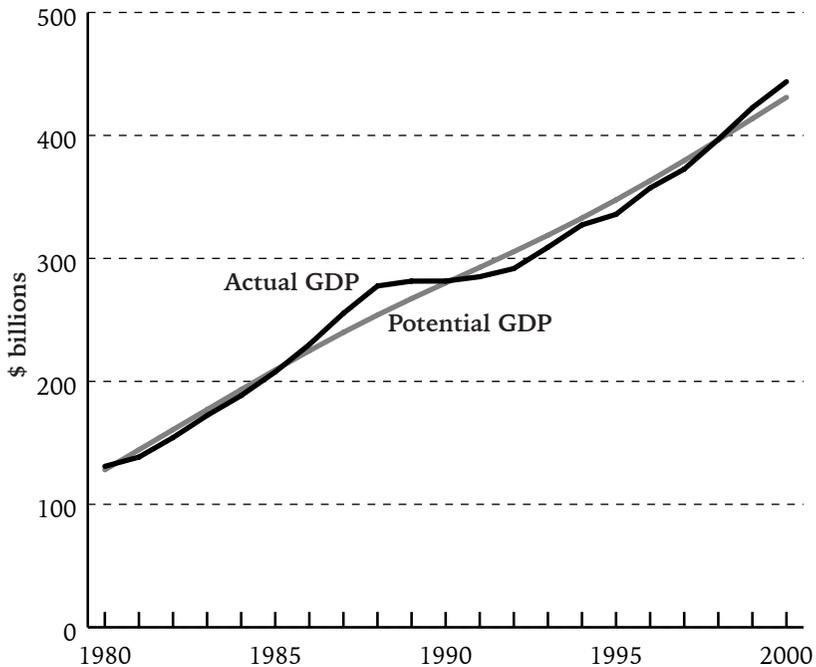
To consider this issue, we can look at two ways in which growth can affect the debt/GDP ratio. First, equation (1) implies quite simply that economic growth decreases the ratio directly simply by increasing the denominator. Second, it is important to establish the extent to which the growth in GDP has been caused by the changes in tax and spending policies themselves. This analysis can be undertaken by using an approach suggested by Pierre Fortin (1996) and refined by Ron Kneebone and Jack Leach (2001) and which uses equation (1) to decompose the change in the ratio into its various constituent parts. To do this, we must come up with an estimate of potential GDP for the two provinces over the periods in question and determine the extent to which actual exceeded potential GDP. This figure reflects the extent to which GDP growth was above “normal.” There are several complicated ways of estimating

potential GDP. Kneebone (forthcoming), however, points out that running a Hodrick-Prescott filter through the GDP series yields an estimate of potential GDP that is very similar to that which arises under more sophisticated approaches.

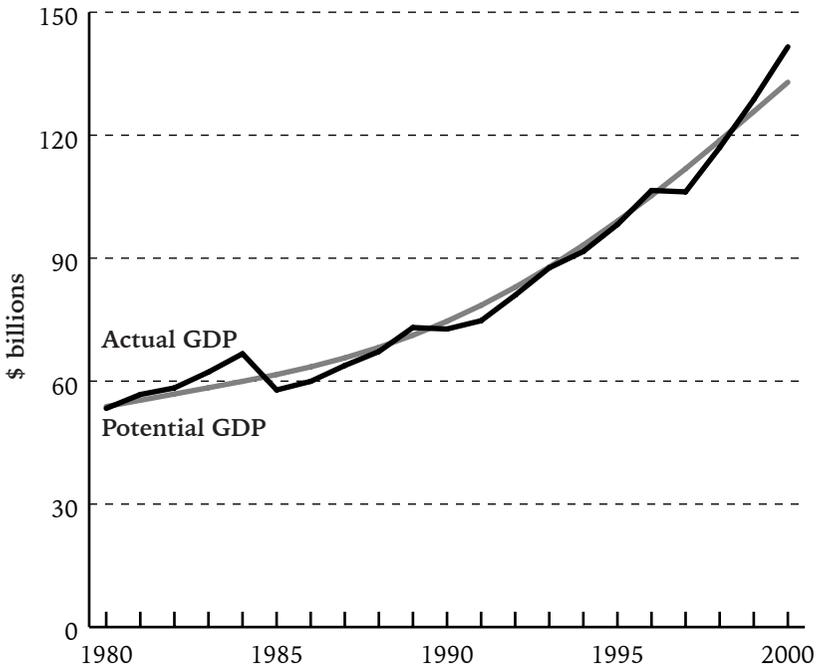
Figure 5 shows actual and potential GDP for Ontario from 1980/1981 through to 1999/2000 using a Hodrick-Prescott filter. Particularly noteworthy is the fact that Ontario GDP was actually lower than potential from 1990/1991 to 1997/1998. Only in the last two years of the Harris regime has Ontario's growth rate been high enough to close the gap so that actual GDP exceeded potential. Alberta's experience throughout the Klein regime has been similar. As shown in figure 6, the province grew roughly at potential from 1992/1993 through 1996/1997, slightly below potential from 1996/1997 to 1998/1999 and above potential thereafter.

Table 1 decomposes the change in the net debt/GDP ratios in Alberta from 1993/1994 to 1999/2000 and in Ontario from 1996/1997 to 1999/2000. The first row shows the actual percent-

Figure 5: Actual and Potential GDP for Ontario



Source: Author's calculations.

Figure 6: Actual and Potential GDP for Alberta

Source: Author's calculations.

age change in the ratio. The second row shows the change due to discretionary fiscal policy, which is measured by the difference between cyclically adjusted program spending and own-source revenues expressed as a percentage of GDP ($g - \tau$). The third row shows the change due to the difference between the interest rate and economic growth ($r - \alpha$) *b*.

As can be seen from table 1, of the 18.30 percentage-point improvement in net debt/GDP in Alberta over the Klein years, fully 13.67 percentage points, or 75%, was due to discretionary fiscal policy, as measured by the primary deficit ($g - \tau$). As indicated above, the bulk of this was due to expenditure reductions. The remainder was due to economic growth and lower interest rates.

Of the 5.49 percentage point turn-around in net debt/GDP ratio in Ontario, 3.03 percentage points, or 55%, was due to improvements in fiscal policy. The remainder was due to economic growth and lower interest rates on government debt.

Table 1: Change in Ratio of Net Debt to GDP in Alberta under Klein and Ontario under Harris

	Alberta (1993/94–1999/00)	Ontario (1996/97–1999/00)
Change in Net Debt/GDP (Δb)	-18.30	-5.49
Due to Fiscal Policy ($g-\tau$)	-13.67	-3.03
Due to Growth ($r-\alpha$) ^b	-4.63	-2.46

Source: Author's calculations.

Of course, all of this leaves unanswered the role that fiscal policy itself plays in actually stimulating provincial growth. The approach reflected in table 1 presumes that potential GDP is itself unaffected by fiscal policy. In small, open economies such as Alberta and Ontario and over the short period of time considered here, this is a reasonable assumption. In the longer term, one might expect fiscal policy in general, and tax policy in particular, to feed through to affect both the level and growth of potential GDP. Regardless, the calculations show that Alberta relied to a significantly greater extent on discretionary fiscal policy, in particular expenditure cuts, to lower their debt/GDP ratio over this period than did Ontario.

The labour market—labour supply and migration

Taxation affects the labour market in two ways. First, according to the argument from *standard labour-market efficiency*, taxation affects the incentive to work. Second, the tax system creates incentives for individuals to move across borders, a phenomenon commonly called the “brain drain” in the popular press though economists usually talk of *fiscally induced migration*. While these two issues are obviously related, for expository purposes I will deal with them separately.

Standard labour-market efficiency

Discussion of tax policy at the provincial level in both Alberta and Ontario has focused not so much on the level of taxes but on the degree of progressivity in the personal income tax, which has important implications for the efficiency of labour markets. A well-

established proposition in public finance states that the more progressive the rate structure associated with raising a given amount of revenue, the greater the disincentive to work and the lower the amount of labour income produced in the economy. These tax-induced inefficiencies directly reduce the standard of living in the two provinces. The argument from standard labour-market efficiency thus implies that the choice of the appropriate degree of progression in the tax system involves, to a large extent, the classic trade-off between equity and efficiency. How much income, or standard of living, is the public prepared to sacrifice in order to pursue distributional objectives and tax high-income earners proportionately more than the low-income earners?

Fiscally induced migration

The effects on migration stemming from taxation and other differences in the fiscal environment are widely debated but no consensus has emerged. Recently, most of the discussion in the popular press has focused on the “brain drain” from Canada to the United States, even though labour is much more mobile intranationally, within Canada and between provinces, than internationally. Indeed, Tanis Day and Stan Winer (1994) provide evidence that Canadians—particularly anglophone Canadians—are quite responsive to differences in net fiscal benefits—the value of government services less taxes—across provinces. Thus, the “brain drain” induced by taxation and other fiscal factors is likely to be a much bigger factor at the provincial than the federal level.

The importance of the international “brain drain” has been the subject of considerable debate. Without entering that discussion directly, I conclude from this debate that the federal personal income tax can be somewhat progressive, though perhaps less than currently, without inducing much international brain drain. On the other hand, fiscally induced migration among provinces is much more sensitive to the progressivity of the income tax. This implies importantly that the use of the personal tax system as a redistributive mechanism should be confined largely to the federal government and that provincial governments should not rely heavily on the tax system to redistribute income. Thus, although the federal government can, and arguably should, impose a progressive rate structure, the provinces should not.

This insight has been put forward before by Jon Kesselman (2000) for Canada and Martin Feldstein and Marian Wrobel (1998) for the United States. The latter authors' empirical results suggest that the high degree of interstate mobility in the United States essentially rules out the use of redistributive tax policy at the state level and that there is in fact no trade-off at the state level between distribution goals and economic efficiency. In addition, changes in the progressivity of personal income taxes at the state level alter the structure of employment and distort the mix of labour inputs used by firms in the state. Thus, changes in such tax progressivity in individual states create efficiency losses without achieving any redistribution.

It is interesting to consider the structure of the tax systems in Alberta and Ontario in this context. As shown in table 2, Alberta has an initial exemption of \$12,900 and taxes all income above this level at a single 10% rate. Ontario uses a lower initial exemption but has marginal tax rates up to just over \$61,000 in taxable income that are less than 10% and therefore lower than Alberta's. For taxable income in excess of roughly \$61,000 Ontario's marginal tax rate is higher, at 11.16%. (Note that all of the following tables are for single, working-age individuals).

But table 2 does not tell the whole story. Unlike Alberta, Ontario levies surtaxes on "high income" individuals. A surtax is a "tax on a tax." Ontario levies two surtaxes, one at 20% on basic provincial

Table 2: Basic Provincial Personal Income Tax Rates in Alberta and Ontario, 2001

	Exemption	Tax Rates	Brackets
Alberta	\$12,900	10.0%	All income
Ontario		6.20%	\$0–\$30,814
	\$7,368	9.24%	\$30,815–\$61,629
		11.16%	\$61,630 and over

Source: Canadian Tax Foundation 2002.

taxes greater than \$3,569, and one at 36% on basic provincial taxes greater than \$4,491. These surtaxes have the impact of increasing the top marginal rate for Ontario from the 11.16% indicated in table 2, to over 17.4%. Table 3 shows the combined federal and provincial marginal tax rates in Alberta and Ontario taking into account basic taxes and the Ontario surtaxes.

The biggest differences emerge in the “upper income” ranges, in excess of approximately \$63,000 in taxable income. For taxable income in excess of \$100,000, the marginal tax rates in Ontario are substantially higher—almost 7.5 percentage points—than in Alberta.

While marginal tax rates are important for the overall efficiency of the tax system, average tax rates are important both for distributional reasons and for location decisions, which are inframarginal

Table 3: Federal and Provincial Income Tax Rates in Alberta and Ontario, 2001

	Taxable Income	Federal	Tax Rates Provincial	Total
Alberta	\$0–\$7,368	0	0	0
	\$7,369–\$12,900	16.0%	0	16.0%
	\$12,901–\$30,754	16.0%	10.0%	26.0%
	\$30,755–\$61,509	22.0%	10.0%	32.0%
	\$61,510–\$99,999	26.0%	10.0%	36.0%
	\$100,000–Max	29.0%	10.0%	39.0%
Ontario	\$0–\$7,368	0	0	0
	\$7,369–\$30,754	16.0%	6.2%	22.2%
	\$30,755–\$53,600	22.0%	9.24%	31.24%
	\$53,601–\$61,509	22.0%	11.088%	33.088%
	\$61,510–\$63,200	26.0%	13.92%	39.92%
	\$63,201–\$99,999	26.0%	17.4096%	43.4096%
	\$100,000–Max	29.0%	17.4096%	46.4096%

Sources: Author’s calculations; Canadian Tax Foundation 2002.

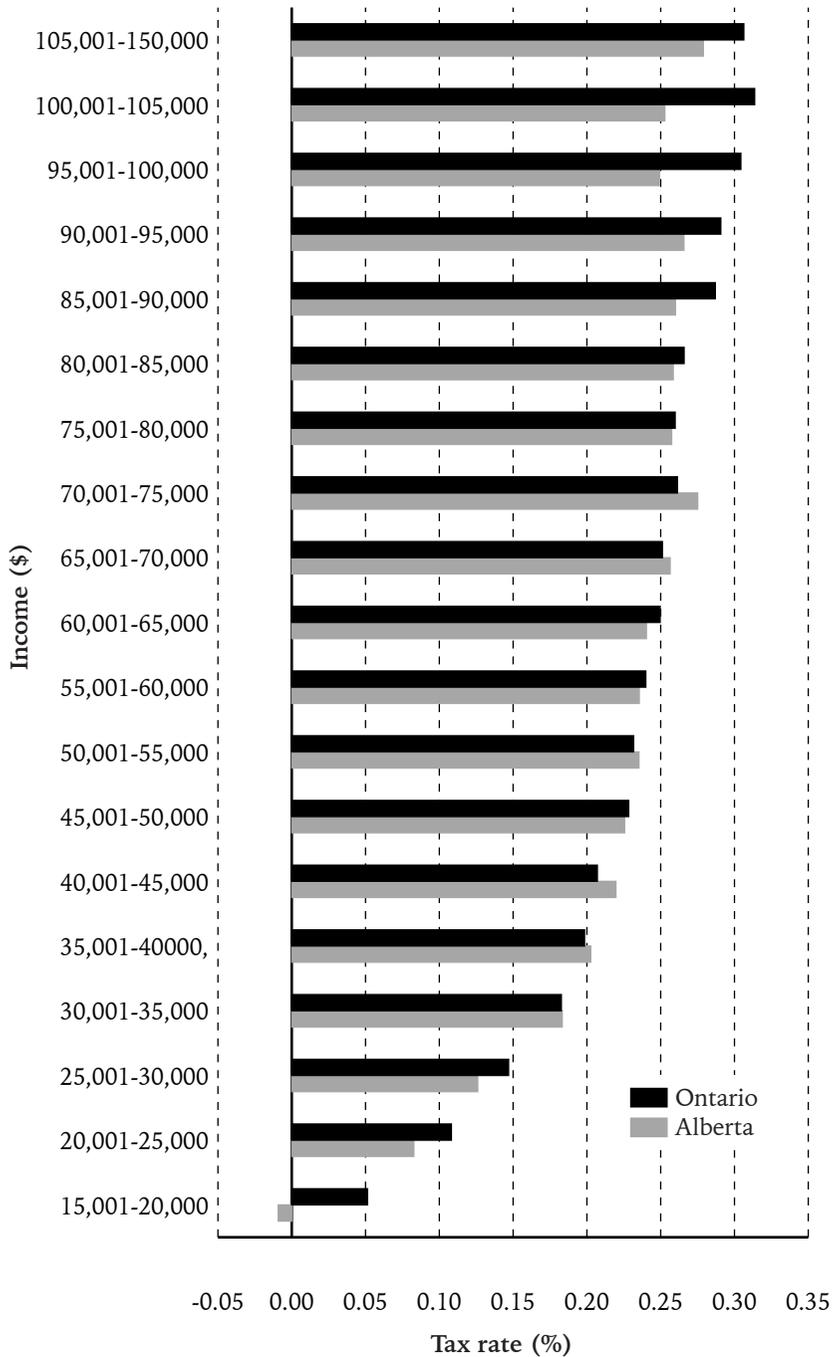
in nature. Under the residence principle of personal income taxation followed in Canada, individuals cannot allocate a portion of their personal income across jurisdictions—it is an all or nothing proposition.¹ Thus, in assessing the “competitiveness” of the tax system in, say, Ontario vis-à-vis Alberta from this perspective, it is the *average* effective tax rate that matters, not the *marginal* tax rate. While the marginal rate structure obviously affects the average tax rate, so too do various other things, most particularly the income exemptions.

Figure 7 shows the average tax rates in Alberta and Ontario for various household income levels. These calculations are based on Statistics Canada’s SPSPD/M model and, therefore, incorporate several aspects of the tax/transfer system other than the personal income tax rates discussed above. As the figure shows, for lower income households the average tax rate in Alberta is lower than Ontario, for middle and upper-middle income households average tax rates are about the same, while for upper-income households the average tax rates in Alberta are again lower.

Studies of the brain drain from Canada to the United States have generally concluded that the net loss of Canadians to the United States is rather small in relation to the Canadian population and labour force. However, of those Canadians who do move to the United States, a disproportionately large number are skilled workers in the higher income ranges—the “best and the brightest.” Some analysts have suggested, therefore, that reductions in the brain drain can be achieved most effectively and cheaply by the use of lower marginal tax rates on high-income earners rather than of across-the-board tax cuts (see Finnie 2001). Given the evidence suggesting that skilled, high-income individuals are the most mobile internationally, we may assume that such individuals are also the most mobile nationally. If this is true, then Ontario’s approach of focusing cuts on lower-income earners is rather curious. As documented above, relative to Alberta at least, high-income earners in Ontario face high marginal and average tax rates, which promote, so the argument goes, both the national and international brain drain.

The discussion of labour markets to this point has focused on the ways these markets are affected by the personal income tax. But corporate income taxes can also affect labour markets in two important ways. First, as will be discussed in more detail below, the

Figure 7: Average Tax Rates, Ontario and Alberta (2001)



Source: Author's calculations based on Statistics Canada, SPSPD/M Model.

long-run incidence of provincial corporate income taxes is likely to fall to a large extent on workers and, in particular, on low-skilled workers. This conclusion is based on the notion that in the long run capital is quite mobile across provinces so that if corporation taxes in one province are higher than elsewhere, capital will leave the high-tax province until after tax incomes are equalized. As a result of the lower capital stock in that province, the demand for labour and wages is lowered so that, in effect, the higher corporation tax rate is paid in part by workers through their lower income.

Second, what is perhaps less widely appreciated is that under the Canadian CIT allocation formula there are some important interactions between labour markets and CIT differentials among provinces. When a company has operations in more than one province, there must be some way to allocate the profits across the provinces in order to apply provincial corporate income taxes. In Canada, we use a formula allocation approach. Under the allocation formula, a corporation with operations in more than one province has to report income for tax purposes in each province according to the corporation's share of sales and wages in each province. Specifically, the allocation formula requires that the share of corporate taxable income allocated to a province is equal to 50% of that province's share of sales plus 50% of its share of the corporate payroll.

In 2000, Ontario announced its intention to lower its CIT rate on larger corporations to 8% over five years (from a general rate of 14% and a manufacturing rate of 12%). Given Ontario's status as the biggest province in the country and the province's disproportionate share of industrial activity, this put tremendous pressure on the other provinces. Alberta responded in 2001 by announcing its intention to lower its CIT rate to 8% as well (from a rate of 13.5% on all large corporations). Alberta's announced cut in the CIT rate was justified in part by the fact that the reduction in the CIT rate in Ontario would act effectively as a tax on new workers employed in Alberta due to the way that the CIT allocation formula works.²

The reason for this is that, if a corporation has activities and, especially, employees, in both Ontario and Alberta, and if the CIT rate in Ontario is significantly lower than Alberta, there is a disincentive for the company to hire new workers in Alberta. This is because the allocation of corporate profits for tax purposes is based, in part, upon the share of the company's payroll in each province. If new workers are hired in Alberta, this increases the share of profits

allocated to Alberta, which means that a greater share of corporate profits will be taxed at the higher Alberta tax rate. This increases the cost of hiring new workers in Alberta relative to Ontario. Because of the way the allocation formula works, if the Ontario CIT rate is lower than the Alberta CIT rate, the result is akin to imposing a tax on new workers hired in Alberta. Moreover, this effective taxation of labour in Alberta is imposed immediately, prior to any outflow of capital from Alberta to Ontario that might be expected to occur in the long run. While Alberta was the first province to react to Ontario's CIT rate cut, no doubt other provinces will follow, to the extent that they can.

The capital market—savings and investment

Provincial taxes also have implications for the savings decisions of individuals and the investment decisions of firms. To address these implications, it is necessary to deal with two issues. One stems from the fact that the existing personal *income* tax structure in Canada makes it very similar to a *consumption* tax. The second concerns the relationship between savings and investment in a small, open economy like that in Canada, which is affected by the relationship between the personal and corporate income taxes

The personal income tax system in Canada is designed to mimic the taxation of consumption in several ways. The most important is the tax-sheltered treatment of RRSP/RPP contributions. Satya Poddar and Morley English (1999) estimate that, because of various tax shelters, most particularly the treatment of RRSPs, as much as 75% of investment income in Canada goes untaxed at the time that it is earned. The deferment of taxes on income from savings due to tax shelters such as RRSPs means that the effective tax rate on this income is zero, as would be the case under a consumption tax.

This does not mean, however, that the personal income tax system does not impinge upon the savings decisions of Canadians. The 75% figure referred to above is an average while economic theory suggests that efficiency costs and distortions should be measured at the margin. In this case, the relevant margin is the effective rate of tax on an additional, or marginal, unit of saving. While the data studied by Poddar and English imply that the *average* effective tax

rate on income from savings is likely very low due to tax shelters, the *marginal* effective tax rate may actually be quite high. Poddar and English also report that over half of taxable dividends and two thirds of taxable capital gains are reported by individuals with assessed incomes in excess of \$100,000, and that the vast bulk of investment income is earned by individuals with income in excess of \$50,000. These high-income earners are most likely to have exhausted the “easy” ways of tax sheltering their investment income as they reach their RRSP/RRP limits. Increases in income from saving are, therefore, quite likely to be subject to taxation and, at the margin, cannot be considered subject to the consumption-tax treatment.

Recent empirical support for this view comes indirectly from a paper by Michael Veall (1999), who investigates whether the flattening of the Canadian personal tax structure in the 1988 tax reform had any effect on RRSP contributions. He found “no convincing evidence that these changes affect RRSP contributions” (Veall 1999: 21). While it is important to emphasize that he examined only the impact on RRSP rather than all savings, Veall’s empirical result is consistent with the interpretation that any increase in savings in Canada in response to reduced taxes on investment income, if it takes place at all, tends to take place in non-RRSP vehicles at the margin.

Table 4 presents marginal effective tax rates on the real return to saving an additional dollar for income in the form of interest, dividends, and capital gains received by individuals in the highest tax brackets in Alberta and Ontario. The rates were calculated under the assumption that the income is fully taxed at the highest marginal tax rate in each province and take into account the

Table 4: Real Marginal Effective Tax Rates on Savings, 2001

	Alberta	Ontario
Interest	54.6%	65.0%
Dividends	33.3%	46.2%
Capital Gains	21.5%	25.7%

Source: Author’s calculations.

Note: Assumes a nominal rate of return of 7%, inflation of 2%, and (for capital gains) a holding period of 10 years.

taxation of the inflationary component of the return to savings, the presence of the dividend tax credit, and the deferral effect of taxing capital gains on realization rather than upon accrual.³ Table 4 shows that the marginal effective tax rate on savings in 2001 was substantially higher in Ontario than in Alberta. The difference in the rates is due mainly to the surtaxes charged on personal income taxes in Ontario, which result in very high marginal tax rates, as discussed earlier. The obvious conclusion is that the more progressive rate structure in Ontario, which generates very high marginal tax rates from those who earn higher income, tends to discourage savings and distort savings decisions much more than the flatter rate structure in Alberta.

Let me now turn to the implications for capital markets of the fact that Canada is a “small, open” economy. This attribute of Canada arises from the fact that savings and investment in the country are only a small share of the world capital market so that they do not influence world interest rates and borrowing costs. These conditions, combined with the absence of severe restrictions⁴ on the ability of Canadians to invest savings or finance domestic investment by borrowing abroad, result in a “disconnect” between the supply (savings) and demand (business investment) sides of the capital market. For this reason, there is no necessary relationship in Canada between domestic business investment and domestic savings that exists in large countries or small countries with severe restrictions on international capital mobility.

It is extremely important to understand the implications of this “disconnect” for tax policy—in particular, for provincial tax policy. If capital is in fact perfectly mobile, it means that on the supply (savings) side of the capital market the before-tax rate of return earned by savers in Canada is fixed from our perspective, determined by the international financial market. On the demand (business investment) side of the market, it means that the after-corporate-tax rate of return that businesses must pay investors in order to attract their savings is also fixed, determined by the international financial market. What this implies is that, unlike a closed economy, or an economy with immobile capital, the savings of Canadians do not necessarily end up being invested in Canadian companies and, even when they do, an increase or decrease in the supply of those savings has no impact on the after-corporate-tax rate of return that businesses must provide to their investors. Rather, decreases or

increases in Canadian savings show up simply as a change in the proportion of domestic business investment financed by Canadians, the remainder being financed by foreign savings. As such, while taxes imposed on the return to savings at the personal level will distort the supply of savings by Canadians, and generate the usual type of efficiency costs associated with these distortions, when capital is perfectly mobile there is no impact on business investment in Canada, and the efficiency costs are confined to the supply side of the capital market. Similarly, changes in the taxation of business investment in Canada will distort capital investment in the country, and generate the associated efficiency costs, but these effects will be confined to the demand side of the capital market and will have no impact on the saving decisions of Canadians.

Importantly, as alluded to previously, perfect capital mobility also suggests that the *burden* of taxes levied on the investment (demand) side of the market will eventually be borne completely by less mobile factors within Canada, such as labour. This is because the after-corporate-tax rate of return on domestic investments is fixed by the international market. An increase in the corporate tax rate on domestic capital will simply drive capital out of the country, in order to keep the after-tax rate of return the same, which will lower the demand for less mobile factors such as labour, which will in turn lower wages. This is particularly true for low-skilled workers, who are less mobile than high-skilled workers. Perfect capital mobility in a small, open economy thus has stark implications for the analysis of the taxation of capital.

Canada—a small, open economy?

The validity of the preceding analysis depends crucially on the assumption that Canadian capital is perfectly mobile. The existence of perfect capital mobility is a matter of some debate. John Helliwell and Ross McKittrick (1999) provide a summary of the issues and argue that, if capital in Canada is perfectly mobile, then there need be no correlation between national savings and investment rates because of the “disconnect” noted above. However, empirical investigations of OECD countries, including Canada, consistently reveal a strong *positive* correlation between domestic saving and investment. Helliwell and McKittrick, for example, estimate a national savings retention rate of around 0.60 for Canada, which is significantly different than zero. This suggests that Canadian savings do

tend to manifest themselves largely in domestic investment, and that Canada is not a completely open, small economy facing perfect international capital mobility. Instead, Canada may be best viewed as a small, open economy with “fairly” high capital mobility. The implications of this characterization have not been fully explored in the literature about public finance, though they suggest to me that domestic taxation of savings and investment have at least some of the unintended consequences on labour income and net foreign indebtedness noted above.

While Canada as a whole may not be a small, open economy with perfect capital mobility, individual provinces within the most certainly country are. This proposition is documented and supported strongly by Helliwell and McKittrick, who show that the correlation between savings and investment in individual provinces is statistically indistinguishable from zero. This finding has important implications for provincial tax policies. In particular, it suggests that individual provinces cannot increase provincial business investment by lowering personal taxes on saving but that they can increase investment through the lowering of taxes on business. Changes to provincial income taxes designed to encourage both savings *and* investment require lower personal income taxes *and* lower corporate income taxes.

Recent studies suggest that corporate taxes have a significant impact on business investment decisions, particularly those of multinational corporations.⁵ Since provincial corporate taxes currently add from 9 to 17 percentage points to the overall basic income tax rate facing corporations in Canada, lower provincial taxes are able to enhance Canada’s competitive position internationally and increase the rate of investment. This is particularly important in light of evidence that technological advances tend to be embodied in new capital (see Cummins 1998).

Competitiveness, the tax base and the marginal effective tax rate

The preceding analysis focused on the rate of taxation of business profits. However, there are two other important differences between Alberta’s and Ontario’s tax policy for business that affect

investment. First, Ontario levies a capital tax on large corporations equal to 0.30% of paid-up capital; Alberta does not levy such a capital tax. Second, Ontario has several special corporate-tax incentives targeted to different sectors; Alberta does not. Examples of such targeted investment incentives in Ontario are for research and development and for the movie industry.

When thinking about the competitiveness of corporate tax systems across jurisdictions, most people focus on *statutory corporate income tax (CIT) rates*. These are the tax rates set out in the Income Tax Act. While important, the statutory CIT rate is only one part of the corporate tax system. Equally important is the *tax base*, which is determined by the various rules that govern the rate and nature of various deductions and write-offs against corporate revenue. There may also be tax credits associated with certain types of investments that further reduce corporate tax liability directly. Generous write-offs and credits can negate the impact of a high statutory tax rate. Moreover, many jurisdictions impose *other taxes* on capital, such as explicit capital taxes, that are not taken into account in a simple comparison of statutory CIT rates. As suggested above, both of these considerations are important in a comparison of corporate taxes in Alberta and Ontario.

Economists have developed a measure designed to reflect the effect of tax rates and the tax base. This measure is called the *marginal effective tax rate (METR)* on corporate capital. It reflects the overall competitiveness of a province's business tax regime. The METR may be considered to measure the rate of return on investment needed to compensate investors for their forgone investment opportunities.

The following numerical example illustrates the concept of the METR and the method for computing it. Consider that a company requires a return of 5% on its assets after taxes to place money into a given project. This rate is commonly called the "after-corporate-tax-hurdle" rate of return. Now consider that the corporate income and capital taxes on that project, at the given statutory rates and after taking into account the various write-offs, deductions and credits allowed under the CIT, amount to 5% of invested assets. Under these assumptions, the firm requires a pre-tax rate of return of 10% to meet its target after-corporate-tax rate of return of 5%. The difference of 5 percentage points between the rate of return before and

after the tax hurdle is called the “marginal tax wedge.” The METR on capital in this example is calculated by dividing this tax wedge by the before-tax-hurdle rate of return, which gives a METR of 50% $((10\% - 5\%)/10\%)$. The METR thus measures the effective rate of tax levied on a marginal investment project that just earns the required hurdle rate of return after the payment of corporate taxes.

It follows from the definition that a positive METR indicates that the tax system discourages investment and that a negative METR encourages investment. In either case, the tax system introduces distortions and consequent inefficiencies into the economy by causing investment to be either lower or higher than it would be in the absence of taxation. A METR of zero means that the tax system has a neutral effect on investment.

The calculation of METRs is useful in assessing the relative competitiveness of the business tax regime across jurisdictions using a single and sensible summary measure. This measure accounts for differences in statutory CIT rates, types of investment, in tax bases due to write-offs and credits, and in direct capital tax rates.

Table 5 shows some METR calculations for Ontario and Alberta for manufacturing and non-manufacturing capital in the light of existing federal and provincial tax regimes and after pending reductions in federal and provincial corporate taxes.

Recall that both before and after the proposed rate cuts, the statutory CIT rates in Alberta and Ontario are very similar. Yet the calculations in table 5 show that the METR on capital in Ontario is substantially higher than it is in Alberta. This reflects the very important role played by capital taxes in the determination of METRs.

Table 5: Federal and Provincial METRs on Capital, Alberta and Ontario

	Alberta	Ontario
Manufacturing—Current	21.0%	25.3%
Manufacturing—Rate Cuts	17.3%	23.1%
Non-manufacturing—Current	29.0%	33.8%
Non-manufacturing—Rate Cuts	19.8%	25.8%

Source: Author’s calculations.

In particular, the presence of Ontario's capital tax adds from four to five percentage points to the overall METR on capital in that province vis-à-vis Alberta.

The METRs illustrated in table 5 are calculated on an aggregation of capital in the two provinces, specifically machinery and equipment, buildings and structures, land, and inventory. As mentioned above, corporate tax policy in Ontario is also characterized by a tendency to offer special incentives for particular sectors. This is evident in the current system in the lower tax rate levied on non-manufacturing corporations (though this will disappear when the rate cuts are fully phased-in). It is also evident in its treatment of R&D expenditures, which receive very generous investment allowances over and above the federal tax credit for R&D. By way of contrast, the approach in Alberta has been to offer a level playing field, with no sector-specific tax rates and no incentives for R&D.

The implications of this in the case of R&D are illustrated in table 6, which presents calculations of the marginal tax wedges (the difference between the pre-tax and post-tax required rates of return on marginal investments) on R&D capital for Ontario and Alberta. The calculations are presented under the assumption that cuts in the provincial corporate income tax rates at both the federal and provincial level are fully phased-in (yielding a combined federal-provincial corporate income tax rate in each province of 29%, consisting of the 21% federal rate and 8% provincial rate).⁶

Table 6 indicates that the marginal tax wedges are negative in both provinces, as expected since generous federal R&D incentives result in lower tax obligations. As a result, the before-tax-hurdle rates of return are 4.6% and 3.2% lower than the required after-tax rate of return for Ontario and Alberta respectively. The gap between the two provinces is due to the fact that Ontario offers substantial incentives for R&D while Alberta does not. The R&D tax incen-

Table 6: Federal and Provincial Tax Wedges on R&D Capital, Alberta and Ontario (percentage points)

	Alberta	Ontario
Tax Wedge on R&D Capital	-3.2	-4.6

Source: Author's calculations.

tives in Ontario no doubt have a positive effect on investment in the province. However, as noted above and in many other studies,⁷ such targeted incentives are distortionary and cause inefficiencies. The problems would be eliminated if the provincial governments discontinued R&D subsidies, lowered overall taxes on corporations correspondingly and relied on federal subsidies to compensate investors for any positive spillover effects created by R&D spending.

Sales taxes

While Alberta and Ontario have in many ways blazed the trail for tax reform in Canada, both provinces have displayed a decided lack of initiative on the issue of sales taxes. Ontario levies a single-stage retail sales tax while Alberta is the only province in the country that has no sales tax at all. These policies fly in the face of much economic theory and empirical evidence that sales and other consumption taxes promote efficiency and growth better than income and other direct taxes.

In some recent studies, McKenzie (2000a) and Dahlby (2000) show that Alberta can completely eliminate its existing personal income tax and replace the lost revenue with a sales tax levied on the federal GST base at a rate roughly comparable to existing sales tax rates in the other provinces. These studies estimate that introducing a sales tax in Alberta in this way—by eliminating the personal income tax—would add about a tenth of a percentage point to the long-run growth rate in Alberta. A similar policy has been recommended for the federal government by Don Drummond of the Toronto Dominion Bank who argued that revenue lost through lower income tax rates should be replaced by an increase in the GST rate.⁸ He estimates that a reduction in personal income taxes by \$10 billion and an increase in the federal GST rate from 7% to 10% would increase the long-run rate of growth in Canada by as much as a half of a percentage point.

While seemingly modest, these estimated increases in the growth rate can compound over time to yield substantial increases in Canadian living standards. For example, the work by Dahlby (2000) and McKenzie (2000a) suggests that the present value of the growth stimulus due to replacing the provincial personal income tax in Alberta with a sales tax is equivalent to each household

receiving an extra year's income (about \$40,000). Despite studies such as these, the government of Alberta has steadfastly refused even to consider the possibility of introducing a sales tax to replace (or reduce) the income tax.

Ontario has also resisted reforms to its system of sales tax. Of particular concern is the failure to replace the existing retail sales tax with a GST style value-added tax. Economists believe that for a number of reasons, not the least of which is the removal of taxes on business inputs, value-added taxes are much more efficient than sales taxes. Politically, the adoption of a value-added tax does not mean the loss of Ontario's sovereignty over the details of the tax system and the base to which the tax is to be applied. The experience of Quebec supports this contention.

Conclusion

This paper has presented a comparative analysis of the tax policies in two provinces, Alberta and Ontario. Each province has implemented fairly substantial fiscal reforms over the past several years on both the tax and expenditure fronts. In Alberta, these reforms coincided with the election of Ralph Klein in 1993 and, in Ontario, with the election of Mike Harris in 1995.

The two provinces have followed very different approaches in carrying out the reforms. Ontario cut expenditures and at the same time implemented cuts in personal income tax very early on in the process. As a result, there was very little reduction in the absolute level of the debt, as the province relied on economic growth and low interest rates to improve its net debt/GDP ratio over time. I calculate that three quarters of the five-percentage-point improvement in the debt/GDP ratio in Ontario during the 5 years following the election of the Harris government was due to economic conditions as opposed to discretionary fiscal policy.

Alberta, on the other hand, made expenditure cuts and used the resulting surplus to pay down the debt for seven years and only then implemented tax cuts. As a result, over half of the 18-percentage-point improvement in the debt/GDP ratio in Alberta that took place since the election of the Klein government was due to discretionary fiscal policy.

In my view, Alberta's approach is superior to that of Ontario, which left a large amount of debt that will cause interest costs to soar when interest rates rise and increase the burden when economic growth falters. Alberta does not face these risks, at least to the same extent.

The two provinces also followed markedly different approaches to the implementation of cuts in the personal income tax. Ontario opted to focus the cuts for low- and middle-income earners, maintaining a highly progressive rate structure with high marginal rates on higher income earners. Alberta opted for cuts across the board, implementing a single rate tax with a high initial exemption. Again, I believe that Alberta's approach is superior. The high personal exemption in Alberta benefits low-income earners directly and results in low average rates for high- as well as low-income earners. Importantly, the much lower average tax rates on high-income earners in Alberta substantially reduces national and international brain-drain pressures and encourages savings. The personal income tax structure in Ontario, by contrast, imposes much higher taxes on high-income earners and thus encourages the brain drain and discourages savings.

Both provinces also implemented significant reductions in their corporate income tax rates. But again, Ontario and Alberta used different approaches. Ontario continues to levy a tax on the stock of corporate capital, in the form of the corporate capital tax. Alberta never had such a tax. The Ontario capital tax increases the effective tax rate on capital in Ontario significantly. Ontario also offers substantial tax incentives targeted to specific industries and types of expenditures, especially with respect to expenditures on R&D. Alberta eschews such targeted treatment, pursuing instead a policy of across-the-board tax relief. I believe that Alberta's strategy is superior to that of Ontario. Targeted tax incentives distort the economic environment and cause businesses to alter the basis upon which they make investments. This departure from tax neutrality generates significant economic costs.

Disappointingly, neither government has shown any initiative in its use of the sales tax. Alberta refuses to levy a sales tax to reduce, or even eliminate, the personal income tax, despite evidence that such a move would significantly increase growth and living standards in the province. Ontario refuses to change its retail sales tax

to a GST-style value-added tax despite evidence that such a tax is more efficient and can be imposed at the provincial level without loss of political sovereignty.

Acknowledgments

I thank Jon Kesselman and Herbert Grubel for useful comments on an earlier draft.

Notes

- 1** Legal stratagems do exist that allow individuals to shift capital gains to other provinces but these are not widely accessible and can be quite costly.
- 2** See Government of Alberta 2000.
- 3** For the methodology behind these calculations, see McKenzie 2000 a, b.
- 4** An obvious exception is the foreign content limitation for RRSPs.
- 5** See Chirinko and Meyer 1997, Wasylenko 1997, Altshuler and Cummins 1997, and Cummins, Hassett, and Hubbard 2000.
- 6** The approach to calculating marginal effective tax wedges for R&D in the table is based on McKenzie 2002.
- 7** See Government of Canada 1997.
- 8** See Beauchesne 2001.

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