REFORMING THE TAX MIX IN CANADA

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SUMMARY

Periodically, tax systems need major reforms to remove the "barnacles" that accumulate under the short-term pressures of political expediency and to adapt to the long-term forces of technological and economic change. The current fiscal and economic problems that confront the provinces require an assessment of much-needed reforms. Raising tax revenue imposes large costs on our society, not only because of the administration and compliance costs of collecting taxes, but because taxes distort economic decisions in the private sector. This is especially true of provincial corporate income taxes. Taxing highly mobile corporate capital and corporate profits encourages firms to shift their investments and profits across provincial and international boundaries. The provinces would enjoy significant boosts to economic growth and efficiency gains by enacting a revenue-neutral switch from corporate to sales or personal income taxes. For Alberta, such a shift would yield up to $40 per dollar of tax revenue shifted from corporate to personal income taxes; for fiscal year 2011-12, this would amount to a per-capita welfare gain of roughly $19,000. Other options for tax reform are also discussed in this paper, including the adoption of a penny tax to the GST to fund infrastructure spending by municipalities. However, we think this would saddle the private sector with significant compliance costs and create major economic distortions between neighbouring municipalities by creating an incentive to shop where the penny tax proposal was not adopted. In surveying the most pressing tax reform issues facing Canada, we offer policymakers a firm basis for coming to grips with them, so they can treat tax dollars with the care and foresight Canadians expect.

1. INTRODUCTION

Tax systems are always changing under the short-term pressures of political expediency and the long-term forces of technological and economic change. Lawrence Summers, a former Secretary of the Treasury, has likened the evolution of a tax system to a family's garage. When the family moves into a new home, the garage is uncluttered and easily accommodates the family's vehicles. But over time, the family starts to use the garage to store more and more things, like boxes of books, bicycles, and surplus building materials from renovation projects. Eventually, it becomes difficult to park the car in the garage because of all the clutter, so the family resolves to discard the things that are no longer needed and have a garage sale. Fundamental tax reforms are a lot like garage sales, occasions when a country discards the policies that prevent the tax system from doing its main task, raising revenues to finance government spending in a fair and efficient manner. The 20th anniversary of the GST, which was a fundamental change to the Canadian tax system, is an occasion when we should contemplate whether our tax system needs a thorough overhaul.

In this paper, I try to identify some areas where tax reform is needed. It is by no means a complete and exhaustive catalogue of potential reform options, but it is focused on changes to the provincial governments' tax mix and especially their reliance on corporate income taxes and sales taxes. Other important tax reforms are discussed in the University of Calgary, The School of Public Policy papers by Firth and McKenzie[1] and Smart.[2] I begin in Section 2 by setting the stage for the discussion of tax reform options involving the federal and provincial sales taxes — the Goods and Services Tax (GST), the Harmonized Sales Tax (HST), the Quebec Sales Tax (QST), and the Retail Sales Tax (RST). I briefly describe some economic models of the optimal taxation of the returns on investment and savings. These theoretical models can be interpreted as providing some highly qualified support for low, or even no, taxation of the returns on capital or the return on savings. To buttress these theoretical insights, I describe some of my recent research with Ergete Ferede on the growth effects and efficiency losses from the provincial corporate income tax (CIT), provincial personal income tax (PIT) and provincial sales tax (PST). Consistent with other empirical research from around the world, we find that the provincial CITs inhibit economic growth and that sales taxes, especially value-added sales taxes (VATs) like the GST and HST, cause the least economic damage in terms of lost output from disincentives for employment, investment, and growth. I use the econometric results in Ferede and Dahlby[3] to simulate the growth effects of lowering the provincial CIT in Alberta and replacing the lost revenue with an HST. This change in the tax mix in Alberta would stimulate growth and have a tremendous long-term impact on per-capita output. I also use the econometric results in Dahlby and Ferede[4] to estimate the marginal cost of public funds (MCF) for the provincial governments' CIT, PIT, and PST. The MCFs are used to measure the efficiency gains

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[1] Firth, M. and K. McKenzie. 2011."The GST and Financial Services: Pausing for Perspective," paper presented at the 2nd Symposium on Tax and Economic Growth, The School of Public Policy, University of Calgary, November 2-3, 2011.

[2] Smart, M. 2011. "Departures from Neutrality in Canada's Goods and Services Tax," paper presented at the 2nd Symposium in Tax and Economic Growth, The School of Public Policy, University of Calgary, November 2-3, 2011.

[3] Ferede, E. and B. Dahlby. forthcoming. "The Impact of Tax Cuts on Economic Growth: Evidence From Canadian Provinces," *National Tax Journal*.

[4] Dahlby, B. and E. Ferede. forthcoming. "The Effects of Tax Rate Changes on Tax Bases and the Marginal Cost of Public Funds for Canadian Provincial Governments," *International Tax and Public Finance*.

in Alberta from reducing the provincial CIT rate and introducing an HST. This approach to measuring the efficiency gain leads to the same conclusion as the growth rate simulations — there would be a huge welfare gain for Albertans in shifting the tax mix from the CIT to the HST. While these analyses of the gains from changes to the tax mix are carried out for Alberta, the basic results would apply to any provincial government in Canada.

In Section 3, I consider a number of other proposals for changing the tax mix in Canada, especially the federal, provincial and local tax mix. I begin by evaluating Ken Boessenkool's proposal to eliminate the federal GST, cut back on federal transfers to the provinces by an equivalent amount, and allow the provinces to increase their HSTs, or to introduce HSTs, to take up the sales tax room vacated by the federal government. The main motivation for Boessenkool's proposal is the need to reduce what he sees as an undesirable fiscal imbalance between the federal and provincial governments. In his view, a fiscal imbalance arises from the fact that the provinces can finance spending on provincial services without having to be responsible for raising all of the necessary tax revenues because they receive funds from the federal government. My main objection to Boessenkool's proposal has to do with his interpretation of the concept of a fiscal imbalance. I develop at length an alternative definition of fiscal balance in a federation, one that is based on the efficiency of the allocation of resources between a central government and subnational governments. I argue that in most federations, including the Canadian federation, lump-sum transfers from the central government to subnational governments are necessary to achieve a fiscal balance.

Having emphasized in Section 2 the economic losses imposed by the provincial CITs, I consider in Section 3.2 the possibility of a tax reform that would see the provincial governments vacate the CIT field, with the federal government increasing its CIT rate and lowering the GST to around two percent. The provinces could increase their HSTs or introduce HSTs to make up for the lost CIT revenues. Although the details of this change in the federal-provincial tax mix would have to be developed in more detail, it holds out the promise of a substantial welfare gain because CITs at the provincial level seem to be more damaging than a federal CIT. However, this proposal would face many obstacles including the resistance by some provinces, especially Quebec, because of the loss of fiscal sovereignty that it would involve.

In Section 3.3, I consider the adoption of the Australian model for financing intergovernmental grants, i.e., using all of the federal GST revenues to fund the federal equalization grant program. I do not think that this would be a desirable option because it would result in an unwarranted increase in total equalization payments, and it would effectively freeze the federal GST at five percent, when we would hope that the federal GST rate will be eventually increased to fund a larger share of federal expenditures.

Some have advocated a one percentage point increase in the GST rate in order to provide the cities with an additional source of tax revenue. In Section 3.4, I consider the so-called Penny Tax Proposal that has been advocated by Casey Vander Ploeg of the Canada West Foundation, the Mayor of Calgary, and prominent business leaders. After reviewing the details of the Penny Tax proposal, I consider a number of the problems with its implementation and question whether it is necessary. I find that the main justification for this add-on to the GST — that the property tax is an inadequate source of tax revenue for funding municipal infrastructure — is not supported by trends in property tax collections and is at odds with the OECD's recent endorsement of property taxes as among the best sources of additional tax revenues for governments.

Given the current political resistance to changes in provincial sales taxes, as evidenced by the BC referendum results, the last tax reform proposal that I consider does not involve changes to the GST or HST. Instead, I consider converting the provincial corporate income tax into a business value tax (BVT). The BVT is a tax on the difference between a firm's revenues and its purchases of current inputs from other firms and its depreciation expenditures. It would be collected from incorporated and unincorporated businesses. The tax base for the BVT is the income generated by the business sector — wages and salaries, the return on equity investment, interest paid on debt, and pure profit or economic rent. Since the base for the BVT is much larger than the CIT base, it can be imposed at a lower tax rate, and this can lead to a reduction in the marginal effective tax rate on investment and thus promote economic growth. A number of the obstacles and issues connected with substitution of provincial BVTs for the provinces' CITs are discussed, but in the words of Bird and McKenzie, the BVT seems to be a more "desirable way of taxing business than the provincial corporate income tax, and improv[ing] Canada's fiscal competitiveness."[5]

The final section contains a few brief remarks on tax reforms.

2. TAXING THE RETURN ON INVESTMENT AND SAVINGS

We begin by asking two basic questions. *What tax rate should a small open economy, such as a province, levy on the return on capital located within its borders?* Second, *what rate of tax should a government levy on the rate of return on its residents' savings?* We begin by briefly describing the main theoretical models that economists have developed to address these questions. Then we report some measures of the effects of taxes on economic growth rates and economic efficiency and the gains from tax reforms.

2.1 The Optimal Taxation of the Return on Investment and Savings

Theoretical models by Gordon[6] and Bruce[7] have shown that a small open economy should not impose a tax on the return to capital if it can set other taxes (such as destination-based consumption taxes, wage taxes, and taxes on pure profits) at their optimal values. This proposition is based on the argument that if capital is perfectly mobile, any source-based capital tax will increase the cost of capital to the economy by the full amount of the tax because investors will have to be compensated for the tax. Otherwise, they will not invest in the economy. The increase in the gross return to capital means that less capital will be invested and total output will decline. The demand for labour and other inputs such as land (resources) will decline, and wage rates and rents will fall. This means that the burden of a source-based capital tax will be shifted to the relatively immobile inputs — labour and land. Since the same effective tax burden could be achieved by directly taxing the returns to labour and land, with less distortion to production decisions, it is more efficient to tax labour and land and eliminate source-based taxes on return to capital.

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[5]   Bird, R. M. and K. J. McKenzie. 2001. "Taxing Business: A Provincial Affair?" *Commentary* No. 154. C.D. Howe Institute. P. 25.

[6]   Gordon, R. 1986. "Taxation of Investment and Saving in a World Economy," *Quarterly Journal of Economics* 97: 567-86.

[7]   Bruce, N. 1992. "A Note on the Taxation of International Capital Income Flows," *Economic Record* 68: 217–21.

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This is a very strong proposition. It implies that small open economies, such as provincial governments in Canada or state governments in the US, should not levy a corporate income tax, which is a source-based tax on the return to equity capital invested in the economy. The continued reliance on these taxes might be justified if capital is mobile, but not perfectly mobile, or if there are constraints on the ability of the governments to tax the location-specific economic rents that firms can earn by producing in their jurisdictions. Either departure from the assumptions of the basic model implies that the optimal tax rate will generally be quite low.[8]

If the government of a small open economy should not impose a tax on the return on capital invested in the economy, should it tax the return that its residents receive on their savings, whether invested abroad or in the domestic economy?[9] Two basic theoretical frameworks have been adopted to try to answer this question. One framework is the so-called overlapping generations framework in which several generations are alive at one time and each generation has a finite life. In such models, the motivation for saving is to smooth consumption over the individual's lifetime. The Atkinson and Stiglitz model[10] showed that if all individuals have identical preferences over consumption and labour supply, and those preferences have the property that the willingness to trade off between increasing consumption and supplying more labour is independent of the rate of return on savings, then the rate of return on savings should not be taxed and the government should only rely on taxing labour income, which is equivalent to taxing consumption in their framework. Atkinson and Sandmo[11] generalized this result and showed that the return to savings could either be taxed or subsidized depending on whether a reduction in the net rate of return on savings induces individuals to supply more or less labour. Since we know very little about the effects of interest rates on labour supply, these theoretical models give policy makers little clear advice on whether the return on savings should be taxed or not, although we might infer that the optimal tax rate or subsidy rate might be quite low if labour supply is relatively insensitive to the return on savings.

Another branch of this literature has examined the optimal savings rate in models where individuals have infinite lives (or they care a lot about the welfare of their distant descendants). Models using this framework by Chamley[12] and Judd[13] also indicate that the optimal tax rate on savings should be zero, because a tax on the return on savings is like a tax on future

[8] See Mintz, J. and H. Tulkens. 1996. "Optimality Properties of Alternative Systems of Taxation of Foreign Capital Income," *Journal of Public Economics* 60: 373-99; Huizinga, H. and S. Nielsen. 1997. "Capital Income and Profit Taxation with Foreign Ownership of Firms," *Journal of International Economics* 42: 149-65; Keen, M. and M. Marchand. 1997. "Fiscal Competition and the Pattern of Public Spending," *Journal of Public Economics* 66: 33-53; and Dahlby, B. 2008. *The Marginal Cost of Public Funds: Theory and Applications*. Cambridge, MA: MIT Press, Chapter 7 for the optimal CIT rate in a small open economy where location-specific rents cannot be captured through other taxes.

[9] For recent survey of model of the optimal taxation of wealth and the return on savings see Cremer and Pestieau 2010. "Wealth and Wealth Transfer Taxation: A Survey," Working Paper 10-17, International Studies Program, Andrew Young School of Policy Studies, Georgia State University.

[10] Atkinson, A.B. and J.E. Stiglitz. 1976. "The Design of Tax Structure: Direct versus Indirect Taxation," *Journal of Public Economics* 6: 55-75.

[11] Atkinson, A.B. and A. Sandmo. 1980. "Welfare Implications of the Taxation of Savings," *Economic Journal* 90: 529-549.

[12] Chamley, Ch. 1986. "Optimal Taxation of Capital Income in General Equilibrium with Infinite Lives," *Economics*, 54: 607-622.

[13] Judd, K.L. 1985. "Redistributive Taxation in a Simple Perfect Foresight Model," *Journal of Public Economics* 28: 59-83.

consumption and the tax rate grows exponentially the further in the future that consumption occurs. Since the efficiency loss from taxation varies with the square of the tax rate, the efficiency loss from taxing all future consumption grows even faster than the tax rate. Consequently, these infinitely lived individuals would be better off with only a tax on their labour incomes and no tax imposed on their savings.

While none of these models can give a definitive answer to the question, they indicate that the tax rate on savings should not be the same as the tax rate on labour income, and that distortions induced by taxing the return on savings may justify a lower tax rate or even a zero rate. The increasing difficulty that governments have in taxing the return on savings, if individuals can shift some or all of their wealth offshore, only strengthens this conclusion and was the main motivation behind the Nordic countries' adoption of a dual income tax system, whereby investment income is taxed at a flat rate that is lower than the rate on labour income.

2.2   Empirical Studies of the Growth and Welfare Effects of Taxes

While theoretical models provide some basis for recommending consumption taxation over income taxation, there is mounting empirical evidence that supports the view that consumption taxation has less harmful effects on economic growth and a smaller impact on economic well-being than income taxes, especially corporate income taxes. Here we will briefly survey some of the previous results before turning to our own recent research on the growth and welfare effects of taxes in Canada.

Taxes can affect growth through their impacts on factor accumulation and total factor productivity. With regard to the first channel, taxes can raise the cost of capital and reduce investment. To the extent that higher tax rates discourage investment, economic growth will be adversely affected. Taxes can reduce productivity growth by distorting the allocation of resources between activities that are taxed at different rates and by discouraging risk-taking and entrepreneurial activities. There is now a relatively large body of econometric studies which indicates that taxes, and especially corporate income taxes, have a negative effect on investment, entrepreneurship, and economic growth.[14]

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[14] See for example Kneller et al. (1999 "Fiscal Policy and Growth: Evidence from OECD Countries," *Journal of Public Economics* 74: 171-190); Bleaney et al. (2001 "Testing the Endogenous Growth Model: Public Expenditure, Taxation and Growth over the Long Run," *Canadian Journal of Economics* 34: 36-57); Gentry and Hubbard (2000 "Tax Policy and Entrepreneurial Entry," *American Economic Review* 90: 283-287); Lee and Gordon (2005 "Tax Structure and Economic Growth," *Journal of Public Economics* 89(5-6), 1027-1043); Cullen and Gordon (2007 "Taxes and Entrepreneurial Risk-Taking: Theory and Evidence for the US," *Journal of Public Economics* 91: 1479-1505); Reed (2008 "The Robust Relationship between Taxes and US State Income Growth," *National Tax Journal* 61(1), 57-80); Parsons (2008 "The Effect of Corporate Taxes on Canadian Investment: An Empirical Investigation," Department of Finance Working Paper, 2008-01); and Djankov et al (2010 "The effect of corporate taxes on investment and entrepreneurship." *American Economic Journal: Macroeconomics* 2: 31–64).

2.3 Simulating the Growth Effects of Tax Reform in Alberta

Advocates of tax reform usually argue that it will boost economic growth. In this section, we simulate the growth rate effects of a reduction in the Alberta's corporate income tax rate from the current 10 percent to five percent and combined with the introduction of an eight percent HST in Alberta to offset the loss of tax revenue from the CIT. Ideally, we would like to model a revenue-neutral tax reform whereby the provincial CIT rate is cut and the reduction in revenue is offset by introducing an HST in Alberta. However, it is difficult to determine the revenue-neutral HST rate to offset the CIT rate reduction for three reasons. First, CIT revenues fluctuate from year to year because the corporate tax base is more volatile than other tax bases, making it difficult to determine the revenue-neutral HST rate even in a static context. Second, any CIT rate reduction is likely to be phased in over a number of years, whereas it would be best to introduce the HST at its steady-state rate. Thus the time paths of the revenue streams from the two taxes might imply an increase in total revenues initially, followed by a reduction in revenues, such that the present value of total tax revenues is maintained. Third, if we reduce the CIT rate from 10 percent to five percent, we do not expect CIT revenues to fall by 50 percent, because the rate reduction will induce an expansion in the CIT base from increases in corporate investment, productivity improvements, and some tax-base shifting from other jurisdictions. For these reasons, it is very difficult to determine the revenue-neutral combinations of a CIT rate cut and the introduction of an HST in Alberta. We believe that our scenario — a phased reduction in the provincial CIT rate from 10 to five percent, combined with the introduction of an eight percent HST — is a very conservative estimate of the tax rate combinations that would be roughly revenue-neutral in present value terms.

The policy simulations are based on the methodology for simulating the growth effects of a provincial tax rate cut outlined in Ferede and Dahlby,[15] using parameter estimates from their preferred growth and investment regressions. Their econometric models indicate that a higher provincial CIT rate reduces economic growth by reducing productivity and by lowering investment. In contrast, the econometric results indicate that the provincial PIT rate does not affect the growth rate of the provincial economy or the rate of investment. (However, an increase in the provincial PIT rate has other adverse economic effects, which are reflected in the MCF for the PIT, to be discussed below.) The Ferede and Dahlby study found that a retail sales tax (RST) reduces provincial economic growth and investment because of the taxation of capital investments and current business inputs under an RST. Consistent with previous research by Smart and Bird,[16] Ferede and Dahlby found that replacing a RST with an HST boosts investment. As well, they found that substituting an HST for other (non-CIT and non-PIT) sources of tax revenue increases investment.

The simulations of the effects of a CIT rate cut capture both the direct productivity-enhancing effect of a CIT rate cut on economic growth, as well as the indirect effect on growth caused by an increase in investment. We assume that the five-percentage point CIT rate cut is phased in, with a one-percentage point reduction in the CIT rate each year for five years, whereas an eight percent HST is introduced in the first year of the CIT rate cut. It is assumed that in the absence of this tax reform, the Albertan economy would grow at an average annual rate of 1.12 percent, which is the average growth rate for the period 1989-2009.

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[15] Ferede and Dahlby forthcoming. Op. cit.

[16] Smart, M. and R. Bird. 2009. "The Impact on Investment of Replacing a Retail Sales Tax with a Value-Added Tax: Evidence from Canadian Experience," *National Tax Journal* 62: 591–609.

As Figure 1 indicates, this tax reform would result in a substantial and long-lasting, although ultimately temporary, increase in the growth rate. Although the increase in the growth rate is temporary, it takes a very long time for the economy to return to the baseline growth rate, at least 100 years.[17] Figure 2 shows that the GDP output per capita with the CIT rate cut and the introduction of an HST in Alberta would be about 48 percent higher after 130 years. One way of measuring the potential improvements in Albertans' standard of living from the CIT rate cut is the calculation of the present value of the increased output that would occur over time. With the HST-financed CIT rate cut, the present value of the increase in the stream of output, based on a five percent discount rate, is 6.9 times current output per capita. The implication is that there is an enormous potential benefit for Albertans from cutting the corporate income tax and introducing an HST. This conclusion is completely in line with the policy advice in OECD[18] where corporate income taxes are characterized as much more detrimental for economic growth than value-added sales taxes.

FIGURE 1: SIMULATED GROWTH RATES WITH A REDUCTION IN THE ALBERTA CIT RATE FROM 10 TO FIVE PERCENT AND THE INTRODUCTION OF AN EIGHT-PERCENT HST
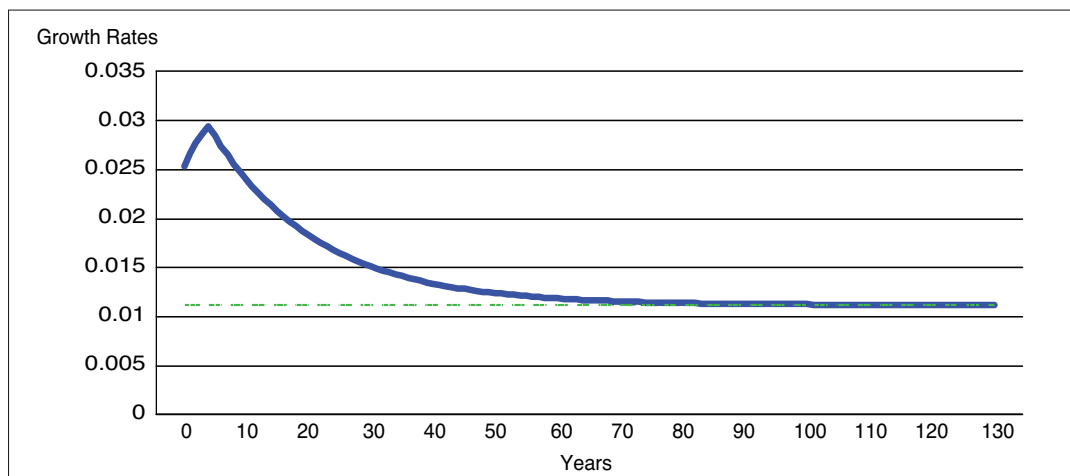
FIGURE 2 RELATIVE OUTPUT WITH A REDUCTION IN THE ALBERTA CIT RATE FROM 10 TO FIVE PERCENT AND THE INTRODUCTION OF AN EIGHT-PERCENT HST

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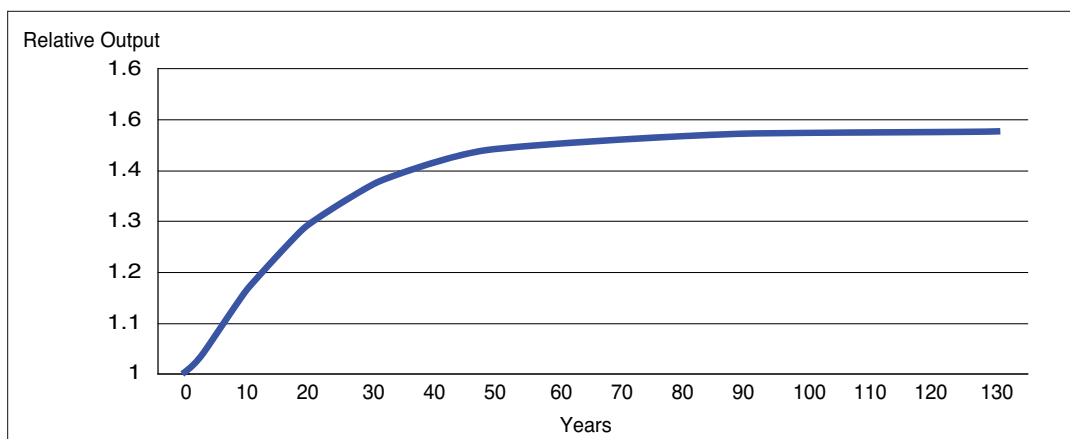
[17] The temporary nature of the impact on the growth rate is consistent with the predicted effect of fiscal policy changes in the context of neo-classical growth.

[18] OECD. 2010. *Tax Policy Reform and Economic Growth*, OECD Tax Policy Studies No. 20, OECD Publishing, Paris.

2.4   The Marginal Cost of Public Funds for Provincial Governments in Canada

Dahlby and Ferede[19] have used the concept of the marginal cost of public funds to measure the welfare costs of the corporate income taxes, personal income taxes, and sales taxes imposed by the Canadian provincial governments. Taxes distort a range of economic decisions, including where and how much to work, save, and invest, which generally results in a less productive allocation of resources. This reallocation of resources along with the compliance and administration costs of levying and collecting the tax constitutes the *excess burden* of taxation. For many fiscal policy issues it is more important to know the marginal cost of raising additional tax revenue, not just the average or total cost, because governments can only expect to make marginal adjustments in their tax rates during their period in office, and because differences in marginal costs indicate the directions where beneficial reforms could take place. The marginal cost of public funds (MCF) measures the welfare loss caused by the tax-induced reallocation of resources when a government raises an additional dollar of tax revenue through a tax rate increase. For a user-friendly description of the marginal cost of public funds concept, see Dahlby and Ferede.[20] For a more rigorous description of the concept and a wide-range of policy applications, see Dahlby.[21]

The MCF concept can help governments make better tax policy decisions. The basic idea is that governments should try to raise revenue from the least costly sources of tax revenue, bearing in mind that different taxes have different compliance and administration costs and may fall on different segments of the population. If the MCF from one source of tax revenue, say the personal income tax, is higher than the MCF for another source of tax revenue, such as the sales tax, then there is a potential efficiency gain from a revenue-neutral tax reform which would lower the personal income tax rate and raise the sales tax rate. For example, if the MCF of the personal income tax is 1.50 and the MCF for a sales tax is 1.25, then a slightly lower income tax rate and a slightly higher sales tax rate would result in a net gain for the society of 0.25, if a dollar of tax revenue was shifted from the income tax to the sales. Of course, the change in the distribution of the tax burden should be taken into account in assessing the overall impact of the tax reform, but a large differential in the MCFs for various taxes indicates that there are potentially large efficiency gains from tax reforms which would justify measures, such as refundable tax credits for low-income individuals, that would ameliorate any undesirable changes in the distribution of the tax burden.

Before describing the results of our study, it is important to emphasize several points. First, the magnitude of the MCF for a tax is closely related to the shape of its Laffer curve — the curve that shows the amount of tax revenue that can be raised at various tax rates. The Laffer curve is often portrayed as an inverted U-shape, with a higher tax rate generating more tax revenues when the tax rate is relatively low; however total tax revenue reaches a maximum at some critical tax rate and further tax rate increases reduce total tax revenues because the shrinkage of the tax base more than offsets the increase in the tax rate. At the critical tax rate where total tax revenues are a maximum, the MCF is infinite because a small tax rate harms taxpayers, but

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[19] Dahlby and Ferede. forthcoming. Op. cit.

[20] Dahlby, B. and E. Ferede. 2011b. "What Does It Cost Society to Raise a Dollar of Tax Revenue? The Marginal Cost of Public Funds," *Commentary* No. 324, C.D. Howe Institute.

[21] Dahlby 2008. Op. cit.

does not generate additional tax revenues for the government. In other words, at the revenue-maximizing tax rate, the harm imposed in trying to raise an additional dollar is infinite because revenues do not increase when the tax rate increases. On the negatively sloped section of a Laffer curve, the MCF is not well-defined because a tax rate reduction would benefit taxpayers and generate more tax revenue for the government. The main point is that the government's tax rates should put it on the upward-sloping section of the Laffer curve, and that the MCF will be lower when the Laffer curve has a steeper slope, and the MCF will be higher when the Laffer curve has a lower slope.

A second point is that in measuring the welfare cost of taxes, we need to take into account the long-term consequences of the tax rate changes. As the study of provincial economic growth by Ferede and Dahlby[22] indicated, tax rate changes can have long-lasting effects that accumulate over time. It is important to incorporate these long-term effects of tax rate changes in our measures of the welfare gains or losses from taxation, even though many policy decisions are often based on the short-run effects of tax rate changes. Furthermore, it is the long-run impact of tax rate changes on a government's tax revenues that will determine the sustainability of a government's tax and expenditure policies. For this reason, we measure the effects of tax rate changes on the present value of the government's total tax revenues and the MCF measures the present value of the harm caused by a permanent tax rate increase, which increases the present value of the government's total tax revenues by one dollar.

A third point is that we need to consider is the interactions between the government's tax bases when it increases a tax rate on any particular tax base. In general, an increase in the tax rate on one base may either increase other tax bases, as taxpayers substitute away from the higher-taxed base to other lower-taxed activities, or reduce other tax bases, perhaps because of negative income or disincentive effects. The study by Dahlby and Ferede[23] attempted to measure the interactions between the CIT, PIT, and PST tax bases. The only statistically significant interaction that the study found was that a higher CIT rate tends to increase the PIT base. This effect could arise if a higher CIT rate discourages the formation of corporations, so that business activity is taxed under the PIT, rather than the CIT. See Da Rin et al[24] for recent study of the effects of higher CIT rates on the formation of new corporations in Europe.

Dahlby and Ferede[25] measured the MCFs for the corporate income, personal income, and sales taxes imposed by Canadian provincial governments by estimating the tax sensitivity of these three provincial tax bases to tax rate increases. The details of that econometric study will not be reviewed here, and we will only report, in Table 1, the computed values of the MCFs based on the 2011 provincial tax rates.[26] First of all, focusing on Alberta, the MCF for the corporate income tax is 81.61, the MCF for the personal income tax is 1.44, and the MCF for a sales tax, which the province does not impose, would be 1.00. We will consider the MCFs for each of these taxes in Alberta in turn.

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[22] Ferede and Dahlby. forthcoming. Op. cit.

[23] Dahlby and Ferede. forthcoming. Op. cit.

[24] Da Rin, M., M. Di Giacomo, and A. Sembenelli. 2011. "Entrepreneurship, Firm Entry, and the Taxation of Corporate Income: Evidence from Europe," *Journal of Public Economics*, 95: 1048–1066.

[25] Dahlby and Ferede. forthcoming. Op. cit.

[26] For a more detailed analysis of the MCFs in Alberta, see Dahlby and Ferede 2011a "The Marginal Cost of Raising Tax Revenue: Implications for Tax Policy Options in Alberta," Working Paper, Department of Economics, University of Alberta.

TABLE 1   THE MARGINAL COST OF PUBLIC FUNDS FOR THE PROVINCIAL AND FEDERAL GOVERNMENTS IN 2011

	Marginal Cost of Funds		
	Corporate Income Tax	Personal Income Tax	General Sales Tax
British Columbia	5.93	1.82	1.26
Alberta	81.61	1.44	1.00
Saskatchewan	139.17	1.86	1.17
Manitoba	2.89	2.15	1.26
Ontario	***	2.15	1.31
Quebec	3.62	3.81	1.33
New Brunswick	2.23	1.64	1.31
Nova Scotia	***	2.82	1.42
Prince Edward Island	10.95	2.30	1.42
Newfoundland & Labrador	***	1.69	1.31
Federal Government	1.45	1.17	na

Source: Computations by the author based on parameter values in Dahlby and Ferede (2011b).

The extremely high MCF for the CIT in 2011 means that the Alberta government is close to the peak of its Laffer curve for total tax revenue curve with respect to the provincial CIT rate. As noted above, a government that is acting in the interests of its residents should not be trying to maximize tax revenues because at the margin the cost of additional revenues, in terms of lost investment, employment, lower wage rates, and other incomes is very high — much higher than the plausible marginal benefit from additional spending on public services. The very high MCF for the CIT in Alberta is consistent with the negative growth effects of a CIT rate increase that were reviewed in the previous section based on the econometric study in Ferede and Dahlby.[27] It is also consistent with the other studies such as Mintz and Smart,[28] which have shown that the provincial corporate income tax bases are highly sensitive to tax rate increases because some corporations can use debt placement and other strategies to shift the tax base to lower-taxed provinces.

Why is the MCF for the CIT so high in Alberta, when the province's CIT rate is among the lowest in Canada? There are two reasons for this result. First, the province is more dependent on CIT revenues than other provinces because Alberta does not collect any sales tax revenues. Therefore reductions in the corporate tax base in response to a CIT rate increase have a larger impact on Alberta's finances than in other provinces. (In more technical terms, the MCF for any tax base is increasing in the share of total tax revenue derived from that tax base, and the CIT share of total tax revenue is higher in Alberta than in other provinces.) Second, our econometric results indicate that higher CIT rates are associated with a higher PIT base. This means that an increase in the CIT rate increases PIT revenues, which tends to reduce the MCF for the corporate income tax. Because its PIT rate in Alberta is relatively low, this additional tax revenue is relatively modest and therefore has only a slight moderating effect on the MCF for the CIT.

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[27] Ferede and Dahlby. forthcoming. Op. cit.

[28] Mintz, J. and M. Smart. 2004. "Income Shifting, Investment, and Tax Competition: Theory and Evidence from Provincial Taxation in Canada," *Journal of Public Economics* 88 (6): 1149–68.

The MCF for the personal income tax in Alberta, at 1.44, is broadly in line with previous estimates on the MCF using simulation models based on labour supply elasticities and other key parameter values. See Dahlby[29] and Baylor and Beauséjour.[30] An MCF of 1.44 implies that a public expenditure program, financed by higher personal income taxes, that does not generate an additional 1.44 in benefits when an additional dollar is spent on it, would not pass a cost-benefit test.

The MCF for a sales tax in Alberta is 1.00 because that province does not levy a general sales tax. The econometric results in Dahlby and Ferede[31] indicate that an increase in provincial sales tax does not have a statistically significant effect on other provincial tax bases, implying that, in Alberta, the MCF from introducing a small sales tax would be 1.00, much lower than the MCF for either the corporate or personal income tax in that province.[32] However, as we will see in some of the computations below, the MCF for a sales tax increases as the tax rate increases.

Turning to the calculations of the MCFs for the other provinces, we see that there are a wide range of values for the MCF for the CIT. For Ontario, Nova Scotia, and Newfoundland, the MCF is not calculated because our model indicates that these provinces are on the downward-sloping sections of the Laffer curve. Mintz[33] also concluded that the CIT Laffer curve peaks at a relatively low tax rate, although in the Mintz study the Laffer curve was defined with respect to annual CIT revenues, whereas in our model the Laffer curve is defined in terms of the present value of total provincial revenues. In these three provinces, a reduction in the CIT rate in 2011 would make taxpayers better off and would increase the present value of the provincial governments' total tax revenues. In the other provinces, the MCFs for the CIT vary from 139.17 in Saskatchewan to 2.23 in New Brunswick. The MCFs differ across provinces because of variations in CIT rates, in the shares of the CIT revenues in the provinces' total tax revenues, and in the impact on PIT revenues. Because the corporate profits can fluctuate a great deal from year to year, their share of tax revenues varies from year to year. As a consequence there is a lot of variation in our estimates of the provincial governments' MCFs for the CIT even when we use five-year averages for the tax shares in computing the MCFs. Nonetheless, our computations indicate that the MCFs for the CITs are higher that the MCFs for the PITs in all provinces except Quebec. In the case of Quebec, the MCF for the CIT is below the MCF for the PIT mainly because its PIT rate is so high. This is partly due to the Quebec abatement, whereby the federal personal income tax rate is reduced by 16.5 percent and Quebec receives a lower federal transfer in exchange for increased tax room. The Quebec government levies a relatively high marginal personal tax rate, and this is reflected in a high MCF for the provincial personal income tax.

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[29] Dahlby, B. 1994. "The Distortionary Effect of Rising Taxes" in *Deficit Reduction: What Pain; What Gain?*" edited by R. Robson and W. Scarth, The C.D. Howe Institute, 44-72.

[30] Baylor, M. and L. Beauséjour. 2004. "Taxation and Economic Efficiency: Results from a Canadian CGE Model," Working Paper 2004-10. Ottawa: Department of Finance.

[31] Dalhby and Ferede. forthcoming. Op. cit.

[32] The MCF for the first dollar of sales tax revenue in Alberta may be greater than one because labour income is taxed and the introduction of a sales tax would increase the tax wedge on labour income. The Dahlby and Ferede econometric study found that an increase in the sales tax rate reduces the income tax base, which is consistent with the notion that the sales tax affects labour income as noted above, but the coefficient estimate was not statistically significant. In the computations of the MCFs, only the statistically significant coefficients for the own and cross-base effects were used. Therefore the interaction between the sales tax rate and the income tax base is ignored in these calculations and the MCF is equal to one for Alberta, because the current sales tax rate is zero.

[33] Mintz, J.M. 2007 "Tax Competitiveness Report: A Call for Comprehensive Tax Reform", *Commentary* No. 254, C.D. Howe Institute.

While there is considerable variation in the MCFs for the CIT across the provinces, the point to be emphasized is the MCF for the CIT is very high in most cases and much higher than the MCFs for the PIT and the PST. The MCFs for the provincial PITs in 2011 ranged from 1.44 in Alberta to 3.81 in Quebec. Ontario, Canada's industrial heartland and a conventional benchmark for measuring fiscal capacity of the provinces, has an MCF of 2.15, which is in the middle of this range. The lowest MCFs were that for provincial sales tax, ranging from 1.00 in Alberta to 1.42 in Nova Scotia and Prince Edward Island.[34] While the MCFs for the provincial sales taxes are low, the paper presented in this conference by Michael Smart[35] indicates that the base for the GST is relatively narrow. Measures that would expand the range of goods and services that are taxed under the GST and HST would reduce the MCFs for these taxes.

In summary, our computations indicate that the provincial corporate income taxes have the highest MCFs, followed by the MCFs for the provincial income tax, and sales tax had the lowest income taxes. This ranking of the MCFs is consistent with research on the distortionary effects of taxes in Arnold[36] and Johansson et al.[37] and consistent with the OECD rankings[38] of corporate income taxes as the most damaging for economic growth, followed by personal income taxes, with general sales taxes and taxes on real property as the least damaging. It should be noted that our study did not include the tax sensitivity of the property tax base, and we have not calculated the MCFs for property taxes.

2.5   Computing the Gain From Reducing Provincial Corporate Income Taxes

Our results indicate that there would be significant welfare gains from reductions in provincial corporate income tax rates in Ontario, Nova Scotia, and Newfoundland. In the other provinces, a revenue-neutral switch from the provincial corporate income tax to provincial sales or (except in Quebec) to provincial personal income tax would be efficiency-enhancing. To illustrate the magnitude of the welfare gains from these changes in the tax mix, we consider two scenarios for Alberta. In the first scenario, we compute the welfare gain from reducing the provincial corporate income tax rate from 10 percent to five percent with an offsetting increase in the personal income tax rate from 10 percent to 13 percent (a roughly revenue-neutral scenario). As described in Dahlby[39] the gain per dollar of tax revenue shifted from the high-cost CIT to the lower-cost PIT can be approximated as

$$\frac{1}{2}\left[\left(MCF_{CIT}^{0} - MCF_{PIT}^{0}\right) + \left(MCF_{CIT}^{1} - MCF_{PIT}^{1}\right)\right]$$

where MCF_{CIT}^{0} and MCF_{PIT}^{0} are the MCFs for the corporate and personal income taxes at the

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[34] As previously noted, Alberta's MCF is low because that province does not levy a general sales tax.
While the econometric results in Ferede and Dahlby (forthcoming) confirmed previous studies which indicated that provincial RSTs more distortionary than HSTs and reduce economic growth and investment, the econometric results that provide the basis for the calculations of the MCF for the provincial sales tax did not incorporate these differential effects. As a consequence, we have probably underestimated for the MCFs for the provincial RSTs.

[35] Smart. 2011. Op. cit.

[36] Arnold, J. 2008. "Do Tax Structures Affect Aggregate Economic Growth? Empirical Evidence from a Panel of OECD Countries," OECD Economics Department Working Paper 643. Paris: Organisation for Economic Co-operation and Development.

[37] Johansson, A., C. Heady, J. Arnold, B. Brys, and L. Vartia. 2008. "Tax and Economic Growth." OECD Economics Department Working Paper 620. Paris: Organisation for Economic Co-operation and Development.

[38] OECD. 2010. Op. cit.

[39] Dahlby 2008. Op. cit. Chapter 2.

initial, pre-reform tax rates, and MCF^1_{CIT} and MCF^1_{PIT} are the MCFs at the final post-reform tax rates. From Table 1, $MCF^0_{CIT} = 81.61$ and $MCF^0_{PIT} = 1.44$. At the post-reform tax rates, our model predicts that the MCF for the corporate income tax would decline to $MCF^1_{CIT} = 1.56$ and the MCF for the personal income tax would increase to $MCF^1_{PIT} = 1.67$. (Note that with the post-reform tax rates, the MCFs for the CIT and PIT would be almost equal, indicating that the gains from rebalancing the tax mix from the corporate income tax to the personal income tax would be exhausted, indeed taken a bit too far). The resulting calculation indicates that there would be a gain of approximately $40 per dollar of tax revenue shifted from the corporate income tax to the personal income tax. Since the CIT revenues in Alberta in 2011-12 are projected to be $3.6 billion dollars, the per-capita welfare gain would be roughly $19,000. By any standard, this would be an enormous welfare gain. Even if our model has overestimated the current MCF^0_{CIT} by a factor of 10, shifting the tax mix from the CIT to the PIT would produce a significant gain.

While the model indicates that there are clear efficiency gains for Alberta and other provinces in lower provincial corporate income tax rates, and replacing the foregone revenues with higher personal income taxes, the option of raising provincial sales tax revenues instead should not be overlooked. In the case of Alberta, this would involve the introduction of a provincial sales tax. While there would seem to be little prospect for such a reform in the current political environment, we think it is worthwhile to demonstrate the potential efficiency gains from lowering the provincial CIT rate to five percent and introducing an eight percent HST in Alberta. Using the same formula as above to compute the gain per dollar of tax revenue shifted from the CIT to a provincial HST, but with $MCF^0_{CIT} = 81.61$ and $MCF^1_{CIT} = 1.71$ and $MCF^0_{HST} = 1.00$ a $MCF^1_{HST} = 1.31$, yields a per-capita welfare gain of $19,300. Again, the efficiency gain from reducing reliance on the provincial corporate income tax is enormous, although not much greater than the gain obtained by replacing CIT revenues by increasing the PIT rate. However, the MCF with an eight percent HST at 1.31 would still be lower than the MCF with a five percent CIT at 1.71, indicating that there would be further efficiency gains from further reducing the CIT rate and increasing the HST rate.

In summary, our research indicates that there would be tremendous welfare gains, measured either in terms of the faster economic growth, higher per-capita output, and improved resource allocation and incentive effects in Alberta and the other provinces from lowering provincial corporate income taxes and shifting the burden to higher provincial sales taxes. We will now consider some alternative tax policy options for expanding the role of provincial sales taxes.

3. IMPROVING THE TAX MIX IN CANADA

Having identified provincial corporate income taxes as high-cost sources of tax revenues and provincial HSTs as low-cost sources of tax revenue, we will discuss a number of tax reforms that will improve the tax mix in Canada.

3.1 Shifting the Sales Tax Base to the Provincial Governments

Boessenkool[40] has proposed that the federal government vacate the sales tax field, allowing the provinces to take up the tax room by increasing their provincial sales taxes.[41] In turn, the federal government would reduce its intergovernmental grants, the Canada Health Transfer (CHT) and the Canada Social Transfer (CST), to the provinces. The main rationale given for shifting responsibility for levying sales taxes from the federal to the provincial governments, with a concomitant reduction in the intergovernmental grants, is to reduce the fiscal imbalance between the two orders of government. This fiscal reform should be carefully considered even though the federal government has announced its plan for increases in transfers to the provinces over the next 10 years.[42]

Under the Boessenkool proposal the federal government would eliminate its five percent GST across Canada. The provincial governments would take up the vacated tax room by increasing their provincial HSTs in the provinces that current have them, introducing HSTs in the five provinces (PEI, Manitoba, Saskatchewan, Alberta, and BC) that current do not have them, and with an equivalent tax rate adjustment in the Quebec Sales Tax (QST). While the federal government would no longer levy the GST, it would continue to administer and collect it (except in Quebec where the provincial government currently administers both the QST and the GST) to ensure that a more or less uniform sales tax base was applied across the country. A common administrative apparatus is important because as Bird and Gendron[43] have stressed, a subnational VAT is only workable if the central government levies a similar tax, so that the federal collection system reduces compliance costs and limits opportunities for evasion of the subnational VAT. Provinces would be free to set their own HST rates although initially most provinces would likely just increase their current rates by five percentage points. In Alberta, there would be no direct impact on consumers or businesses because the five percent federal GST would just be relabelled a five percent Alberta HST. The other four provinces would have to convert their current RSTs into HSTs.

In exchange for the increase in sales tax room, the federal government would eliminate the CHT and reduce the CST so that the impact on the federal government is fiscally neutral. The GST base varies across the provinces, with Alberta having 132 percent of the national average GST base and Newfoundland having only 81 percent in 2007.[44] Thus in the absence of other adjustments, the transfer of the GST to the provinces would increase revenues to Alberta and reduce revenues to Newfoundland and other provinces because the CST cash is an equal per-capita grant to all of the provinces and the CHT will be equal per capita in 2014. The unequal distribution of the net revenues from lowering the equal per-capita cash transfers in exchange for the transfer of five sales tax points would disadvantage those provincial governments with below-average consumption per capita, and they would be expected to strongly oppose this measure.

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[40] Boessenkool, K. 2010. "Fixing the Fiscal Imbalance Turning GST Revenues Over to the Provinces in Exchange for Lower Transfers," *SPP Research Papers* 3 (December), The School of Public Policy, University of Calgary.

[41] The Seguin Report on Fiscal Imbalance also recommended the reduction in federal GST, higher provincial sales taxes, and a cut in federal transfers.

[42] The federal government announced on December 19, 2011 that the CHT will continue to grow at six percent a year until 2016-17. Starting in 2017-18, it will grow at a three-year moving average of nominal GDP growth, with a minimum increase of three percent per year. The CST will continue to grow at three percent annually. The funding of the CHT and CST will be reviewed in 2024. Equalization will continue to grow in line with the rate of growth of nominal GDP.

[43] Bird, R.M. and P-P. Gendron (1998) "Dual VATs and Cross-Border Trade: Two Problems, One Solution?" *International Tax and Public Finance*, 5: 429-442.

[44] Boessenkool 2010. Op. cit. P 11

This situation is reminiscent of the 1977 income tax point transfer, and Boessenkool proposes two alternative forms of associated equalization that would equalize the net per-capita revenue transfer across the provinces by adjusting each province's per-capita CST. Associated equalization has been a controversial and complicating feature of our intergovernmental transfer system. Arguably, it is not necessary if the grants to the recipient provinces under the formal equalization grant program increase in response to the increase in total provincial tax revenues, and the measured disparities in the per capita sales tax base. However, in the past our equalization system would not fully equalize the revenue shift because Alberta and the other "have" provinces are not equalized down, and under the current equalization program the total amount of equalization in any year is fixed and grows at the same rate as nominal GDP. The sales tax point transfer would only alter the distribution of the equalization grants among the recipient province and would not compensate them for an equal per-capita reduction in the CHT and CST. Some form of associated equalization would seem to be a politically necessary component of any sales tax point transfer involving a reduction in the CHT and CST.

What would be gained from shifting the sales tax base to the provinces and reducing federal transfer payments? In Boessenkool's view, it would reduce the fiscal imbalance that arises when provinces are not responsible for raising all of the revenues that are used to finance provincial spending. In his view, the federal transfers to the provinces encourage spending and inhibit them from trying to find solutions to ever-increasing health-care costs.

I take a somewhat sceptical view of these concerns. While the CHT and CST grants have increased at a rapid rate over the past decade, so have other forms of federal spending. It is true that rising CHT and CST grants have allowed provincial governments to spend more on health care and other provincial services without increasing their tax rates, but these grants only cover a fraction of provincial spending and they are fixed in any year. This means that at the margin, the provincial governments are responsible for funding any increase in health care or other provincial services, giving them at the margin responsibility for balancing higher spending with higher provincial taxes.

Since correcting the vertical fiscal imbalance is at the heart of the Boessenkool proposal, we need to examine more closely this slippery concept. In most federations, the central government transfers funds to regional and local governments. The difference between the sub-national governments' spending and their own tax revenues is known as the vertical fiscal gap. There is no commonly accepted definition of the term "vertical fiscal imbalance". In some studies, such as OECD,[45] the term "vertical fiscal imbalance" is synonymous with a vertical fiscal gap while in others, such as Breton,[46] it is defined as a mismatch between a government's spending responsibilities and its access to tax revenues, although the meanings of the terms "spending responsibilities" and "access to tax revenues" are never clearly defined, let alone quantified. In Australia and Canada, there have been major political clashes over whether vertical fiscal imbalances exist or not, and these debates have been made more contentious because of the lack of a common definition of vertical fiscal balance or any agreement on what constitutes an optimal vertical fiscal gap.

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[45] OECD. 2007. "Fiscal Equalisation in OECD Countries," Working Paper COM/CTPA/ECO/GOVERNMENT/WP(2007)4, OECD, Paris.

[46] Breton, A. 1996. *Competitive Governments*. Cambridge: Cambridge University Press

In Dahlby,[47] I have argued that it is important to distinguish between a vertical fiscal gap, which is an accounting measure of the difference between a subnational government's expenditures and its own source revenues, and a vertical fiscal imbalance, which can be considered a measure of imbalances in the *allocation of spending* between two levels of government. To measure an imbalance in the allocation of resources between two levels of government, we first need to define what would constitute a vertical fiscal balance. For this purpose, a vertical fiscal balance can be defined as occurring in a federation when the ratios of the marginal benefit of the public services provided by the subnational governments and by the central government are equal to their relative marginal costs of production. Defined in this way, a vertical fiscal balance implies that the residents of a subnational government are indifferent between having one more dollar spent on public services provided by the central government and one less dollar spent on public services provided by subnational governments, or vice versa. Equalizing the ratio of the marginal benefits from spending on central and subnational public services requires that the marginal cost of public funds be equalized between the two orders of government, since welfare-maximizing governments (and even Leviathan governments) will equate the marginal benefit of spending an extra dollar on their public services with their marginal cost of public funds. In most federations, achieving a vertical fiscal balance requires lump-sum transfers from the central government to the subnational governments because the subnational governments have narrower, or more tax-sensitive, tax bases than the central government. In other words, in the absence of lump-sum transfers from the central government to subnational governments, the MCFs of the subnational governments would exceed the MCF of the central government, and their provision of local public services would be constrained by their high MCFs, such that there would be under-provision of local public services relative to those provided by the central government. In this view, the optimal vertical fiscal gap equates the marginal cost of public funds across the two levels of government, and it generally requires lump-sum transfers from the central government to subnational governments.[48]

This way of defining vertical fiscal balance means that we cannot simply use the public accounts data to identify a vertical fiscal imbalance. We need to determine whether there is too much or too little provincial spending relative to federal spending. This task is no doubt very difficult, although it might be answered by surveys asking individuals about their preference for a reallocation of spending between the federal and provincial governments. However, some clues about the existence of vertical fiscal imbalances can be gleaned from our calculations of the MCFs for the CIT and the PIT for the federal and provincial governments. Our computations in Table 1 indicated that not only are the MCFs for the provincial CITs very high, they are substantially higher than the MCF for federal CIT. Similarly the MCF for the federal PIT is much lower than the MCFs for the provincial PITs. These results are consistent

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[47] Dahlby, B. 2005. "Dealing with the Fiscal Imbalances: Vertical, Horizontal, and Structural," C.D. Howe Institute Working Paper; 2008. Op. cit; 2011. "An Optimal Taxation Approach to Intergovernmental Grants," Working Paper, Department of Economics, University of Alberta.

[48] We assume that equalizing the MCFs of the two levels of government through transfers from the central government to the subnational government level does not lead to a corner solution, where all taxes are collected at the national level and subnational governments are completely dependent on transfers to finance their expenditures. In Canada, it seems very unlikely that equalizing the MCFs between the federal and provincial governments would lead to a corner solution, given that the provinces are relatively large economic units and most tax bases are not extremely sensitive to interprovincial tax rate differentials.

with the notion that the CIT and PIT tax bases are much more tax-sensitive at the provincial level than at the federal level because it is easier to shift tax bases across provincial boundaries than across international boundaries. While the equalization grant program might lower the perceived MCFs of the recipient provincial governments, the results that we have obtained from our calculations of the MCFs of the two levels of government make us hesitant to call for a reduction in federal transfers to the provinces.

3.2   Shifting the Corporate Income Tax Base from the Provinces to the Federal Government

If there is a fiscal imbalance that needs to be addressed, it is the high cost of raising tax revenues through the provincial corporate income tax. Although the MCFs for the provincial CITs in Table 1 vary, they are all high and exceed our estimate of the MCF for the federal CIT. A shift of the corporate income tax base from the provinces to the federal government would be welfare-improving by eliminating interprovincial distortions in the allocation of capital and reducing the compliance and administration costs in having 11 separate corporate income taxes. A shift in the corporate income tax base from the provinces to the federal government might be accomplished in the following manner. The provinces could agree to eliminate their CITs and the federal government could increase its CIT by, say, 10 percentage points, so that in 2012 it would be 25 percent instead of 15 percent. This would leave the total corporate income tax rate (for large firms) unchanged in BC, Alberta, and New Brunswick. In the other provinces the total CIT rate would decline by between 1.5 percentage points in Ontario to 4.0 percentage points in Nova Scotia and PEI. Over the period 2005 to 2009, provincial CIT revenue averaged $19.8 billion per year. On average, this revenue loss could be offset by lowering the federal GST rate by three percentage points from five percent to two percent and allowing the provinces to take up this tax room as in the Boessenkool proposal. Since the federal government would still have some "skin in the game" from the GST, it would still be a player in the administration and collection of the HST, and therefore satisfy the Bird-Gendron conditions for good dual VAT administration. Perhaps more importantly, it would keep open the door for future federal GST increases because the one thing that our analysis of the MCFs for the sales taxes indicates, and which is confirmed in Cnossen's international tax comparisons,[49] that the VAT is under-utilized in Canada and that future increases by either level of government would be warranted.

The tax switch that we have outlined might be roughly neutral for the two levels of government as a whole. More detailed analysis, including behavioural responses to the tax rate changes, would be required before it could be confident in this assessment. However, for particular provinces the effects might not be neutral. For example, 80 percent of the corporate income tax base is in Ontario, Quebec, Alberta, and BC, and these provinces would lose more revenue per capita than other provinces. On the other hand, Alberta and BC have relatively high consumption per capita and would benefit more than other provinces from three percentage points of the sales tax. Quebec would probably object to the loss of fiscal sovereignty and Ontario to the loss of revenue. In all cases, however, they would be losing revenue from a high-cost source and replacing it with revenue from a low-cost source. Even if

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[49]   Cnossen, S. 2011. "Taxing Consumption or Income: Plus la Même Chose?" paper presented at the 2nd Symposium in Tax and Economic Growth, The School of Public Policy, University of Calgary, November 2-3, 2011.

the four largest provinces were net revenue losers, the long-term benefits from a more efficient tax mix at the provincial level would surely trump the short-term revenue losses. While it is highly likely that Quebec would not agree to withdraw from the corporate income tax field because of the loss of fiscal sovereignty, this should not prevent the other provinces from participating in this tax-room switch. The federal CIT rate could be lower and the GST rate could be higher in Quebec than in other provinces, and this would just be one more asymmetry in our federal fiscal system. Obviously much more thinking and analysis is required to flesh out the implications of this change in the federal-provincial tax mix, but it is hoped that this brief analysis will stimulate further interest and discussion of this proposal.

3.3   Using GST Revenues to Fund Equalization: The Australian Model

Instead of turning GST tax room to the provinces, the revenue from the GST could be earmarked to fund a particular program. In particular, Canada could follow the Australian example and use GST revenues to fund its equalization grant system. In contrast to the Canadian equalization system, which is funded out of the federal government's general revenues, the Australian system is funded by earmarking the Commonwealth government's GST revenues and grants are paid to all of the states and territories based on computations of the relative fiscal needs and relative fiscal capacities. In 2011, the 10 percent GST levied by the Commonwealth government funds the $AUD 50 billion that is transferred to the six states as well as the Australian Capital Territory and the Northern Territory.

In Canada, since November 2008, total equalization payments to the provinces have been fixed, effectively converting the open-ended grant recommended by the O'Brien Report, into a closed-ended grant.[50] In 2011-12, six provinces — Quebec, Ontario, Manitoba, New Brunswick, Nova Scotia and PEI — are scheduled to receive $14.7 billion in equalization payments. Total equalization payments will increase annually based on a three-year moving average of GDP growth. As Smart[51] notes, having a limit to total equalization payments is a common feature of the equalization grant systems of other countries.

Would it make sense to earmark federal GST revenues to fund equalization? The short answer is no. Federal GST revenues are currently in the region of $30 billion and therefore allocating all of this revenue to the equalization program would effectively double the amount of equalization. Although the recipient provinces would welcome this, as Smart has shown,[52] equalization payments in recent years, measured as a percentage of the recipient provinces' GDPs, are in line with historical normal. A major increase in the equalization grants does not seem warranted, and it would aggravate the current federal deficit. Earmarking the GST to fund equalization payments as well as other transfers, such as the CST, would create political and economic rigidities because it would make increases in the GST highly unpopular in the non-recipient provinces. This might effectively freeze the GST rate, when increased reliance on the sales tax revenues at the federal and provincial level is the desirable direction for tax policy

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[50] See Smart (2010) for a detail discussion of the changes to the equalization system in Canada since the 2006 release of the O'Brien Report.

[51] Smart, M. 2010. "The Evolution of Federal Transfers Since the O'Brien Report," in *The 2009 Federal Budget: Challenge, Response, and Retrospect* edited by C.M. Beach, B. Dahlby, and P. Hobson, J.D.I. Institute, Queen's University, 199-221.

[52] Op. cit. P. 220, Figure 1.

changes. The experience of other countries such as Brazil, where the central government is obliged to transfer 22.5 percent of its income tax and sales tax revenues to municipal governments is enlightening. These provisions have biased the central government's tax policies in favour of increasing its reliance on its non-shared revenues, and it may have contributed to excessive pro-cyclic spending by subnational governments. For these reasons, I would not recommend the earmarking of the GST, or other sources of federal tax revenue, to fund grants to the provinces.

3.4   Using the GST to Fund Cities: The Penny Tax Proposal

Given the evidence presented in the previous section that GST/HST is a cost effective way for governments to generate tax revenues, one might expect an endorsement of the penny tax proposal that has been advocated by Casey Vander Ploeg of the Canada West Foundation, Mayor Nenshi, and prominent Calgary businessmen.

The penny tax proposal has been described in detail by Vander Ploeg.[53] Briefly, in municipalities adopting the tax, one percentage point could be added to the federal GST. (Vander Ploeg also suggests that a 0.25 percent or a 0.50 percent tax rate could be adopted.) The penny tax would require voter approval in a referendum, and the revenues generated by the tax would be earmarked for spending on infrastructure projects. A sunset clause might be added so that the tax would terminate after a specified number of years unless extensions were approved in subsequent referenda. To offset distributional concerns about higher sales taxes, low-income offsets like the GST rebates could be adopted.

The main argument made by the proponents of the penny tax is that the property tax is not adequate to fund the new spending responsibilities of the municipalities and therefore a new municipal tax source is needed to fund infrastructure, especially in the major cities. It is argued that the property tax base does not expand or increase in line with the expenditure needs of the municipalities, forcing them to make politically unpopular tax rate increases in order to raise the required revenues. The advantage of a sales tax is that "growth in sales tax revenue does not have to be achieved by intentionally increasing tax rates year over year."[54] (The alleged inadequacies of the property will be discussed in greater detail below). A second argument used to justify a local sales tax is that cities' infrastructure and services are used by the residents of other municipalities when they visit the major cities for work, shopping, and recreation. It is argued that a local sales tax would shift some of the burden from local taxpayers to the "freeloading" visitors.

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[53] Vander Ploeg, C.G. 2011. "The Penny Tax: A Timely Tax Innovation to Boost Our Civic Investments," Canada West Foundation Economic Research Series.

[54] Op. cit. P. 25.

3.4.1 PROBLEMS WITH THE PENNY TAX SOLUTION

Adoption of a penny tax would face considerable legislative hurdles as the provincial governments would have to pass legislation to allow the municipalities to adopt the tax and the federal government would have to agree to collect and remit the tax on behalf of the provincial and municipal governments. In Alberta there may be additional hurdles because the Alberta Taxpayer Protection Act requires approval in a province-wide referendum for the adoption of a general sales tax. The advocates argue that local sales taxes have been implemented in the US and in a number of other OECD countries such as Portugal, Spain, Hungry, Austria, Japan and Turkey.[55] (We might want to pause before deciding to join this list of countries that rely on local sales taxes because all of the countries except Austria and Japan have unsustainable fiscal policies and Austria and Japan have very high debt-to-GDP ratios. Is there something about the politics in these countries with unsustainable fiscal policies that causes them to choose local sales taxes?)

The administrative and compliance costs associated with the penny tax would be very high, relative to the amount of revenue raised, especially if some municipalities adopted different rates — 0.25 percent, 0.50 percent, or up to 1.00 percent has been suggested — along with municipality-specific low-income rebates. Realistically, only a single rate without a rebate would be practical. With some municipalities adopting the penny tax and others refraining, cross-border shopping would become an issue. Suppose Edmonton adopted a penny tax, but Sherwood Park did not. Goods and services sold to customers in the Sherwood Park Mall would be slightly cheaper than in West Edmonton Mall, inducing some Edmontonians to shop in Sherwood Park. Cross-border shopping would become especially important for large-ticket items. Commercials advertising the fact that cars cost less in Wetaskiwin would be on every Edmonton radio station. Other arrangements that would reduce incentives for cross-border shopping might be adopted, such as firms charging different GST rates within the province based on the purchaser's address, but this would be greatly increase firms' compliance costs and the Canada Revenue Agency's administrative costs.

The infrastructure projects that could be supported under a Penny Tax Fund include police, fire, and emergency medical response services, roadways and public transit systems, recreational facilities (including a Sydney Opera House for Calgary) and other public buildings. Is it desirable or feasible to earmark revenues for infrastructure projects? Many economists are sceptical about the efficacy of earmarking tax revenues for particular types of expenditures. They argue that it can lead to imbalances in spending when one group of expenditures have automatic access to funds, and other projects have to complete for funding from general revenues. In their view, it is better to review all spending together and to compare their relative benefits in making budget decisions. Even if a case could be made that infrastructure spending should be earmarked, if only to give the penny tax the political credibility that it would need to win support in a referendum, earmarking may not boost spending on infrastructure by the amount of revenue generated by the tax because money is fungible. Projects that would have

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[55] Brazil, another country with a local sales tax, also has a costly and inefficient tax system. Furthermore, as Jack Mintz has pointed out, all of the local sales taxes are gross receipts or retail sales taxes, not value-added taxes, indicating that it is very difficult to provide business input tax credits at the municipal level.

been funded out of general revenues prior to the introduction of the Penny Tax Fund could now be added to the list of earmarked projects. The slippage in infrastructure spending, which would be difficult to monitor, might be used to fund current government services or property tax reductions. The federal government and the provinces might also see less need to support municipal infrastructure when cities have access to a Penny Tax Fund earmarked for infrastructure. In my view, we should be very cautious in adopting earmarking of any revenue sources.

3.4.2 IS THE PROPERTY TAX INADEQUATE FOR FUNDING MUNICIPAL SERVICES AND INFRASTRUCTURE?

The main argument for the need for a penny tax is that the property tax is not adequate for funding municipal services and infrastructure and that the municipalities need to diversify their sources of tax revenues in order to provide the services and facilities that modern cities need. The inadequacy of the property tax has been a constant theme of municipal politicians and one that has been reflected in a publication by the Canada West Foundation.[56] The disparaging of the property tax by municipal politicians and the Canada West Foundation is in sharp contrast to the strong endorsement that the OECD has given to property taxes as one of the best sources of tax revenues.[57]

Indeed, the Canada West Foundation's analysis of trends in property taxation, and in Western Canada in particular, suggest that there is plenty of room for increases in property taxes, at least judged by historical standards since, according to Vander Ploeg, "property taxes are currently at some of the lowest levels seen in the past 45 years." From 1990 to 2007, real per-capita property taxes in the six largest western Canadian cities grew by only 0.3 percent per year, and declined from 3.6 percent of disposable income to 2.9 percent.[58] See also Figure 3. Furthermore, residential property taxes are generally lower in Alberta than in other western provinces. The intercity comparison of taxes in the government of Saskatchewan's 2012-13 budget indicate that an average family will pay $2,114 in property taxes in Calgary compared to $2,721 in Vancouver, $2,614 in Saskatoon, and $2,728 in Winnipeg. These data hardly portray the property tax as a tapped-out source of revenue.[59]
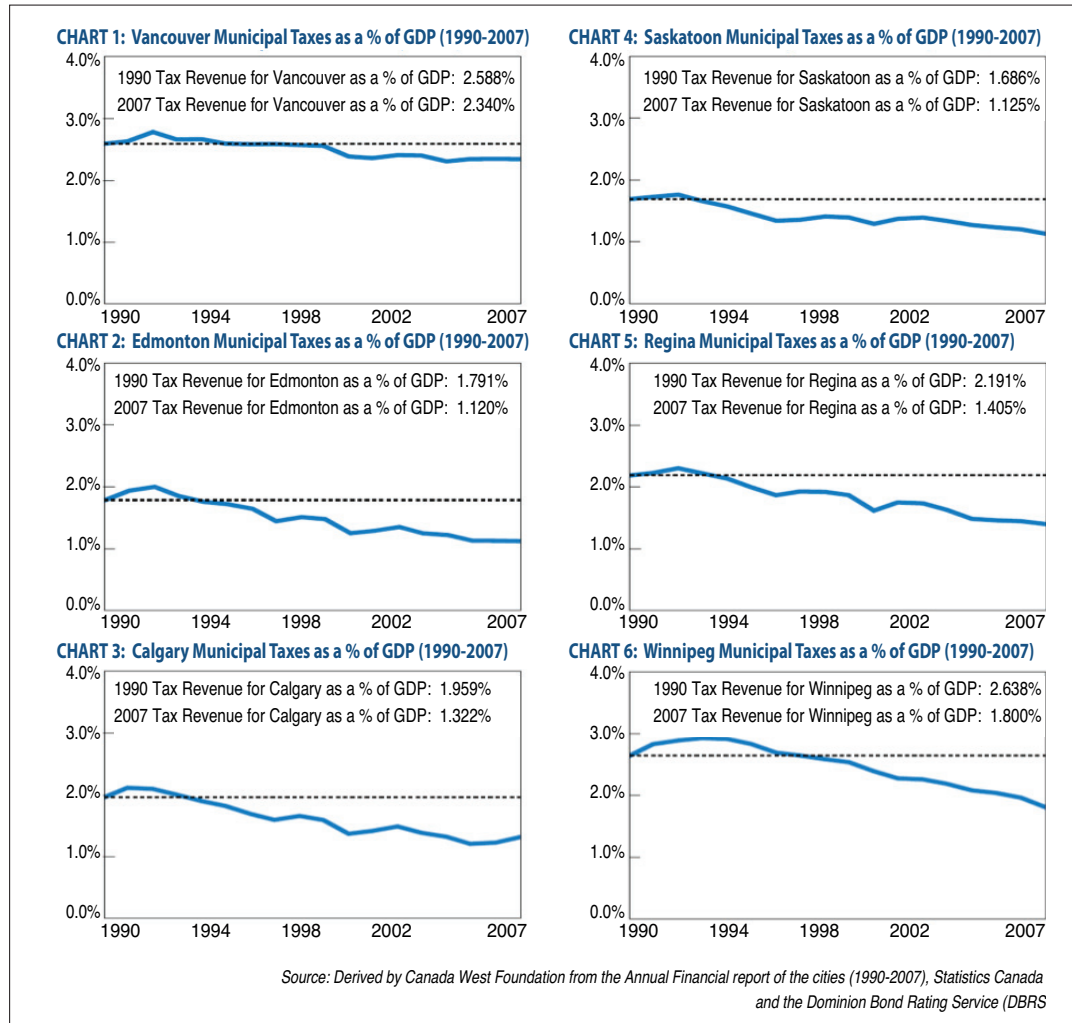
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[56] Vander Ploeg, C.G. 2008. "Problematic Property Tax: Why the Property Tax Fails to Measure Up and What to Do About It," Western Cities Project, Canada West Foundation.

[57] OECD. 2010. Op. cit.

[58] Vander Ploeg. 2008. Op. cit. P. 22-23),

[59] Government of Saskatchewan (2012), *Keeping the Saskatchewan Advantage*, Provincial Budget Summary 2012-13, Regina, Saskatchewan.

FIGURE 3 TRENDS IN MUNICIPAL PROPERTY TAX REVENUES IN SIX WESTERN CANADIAN CITIES

CHART 1: Vancouver Municipal Taxes as a % of GDP (1990-2007)

1990 Tax Revenue for Vancouver as a % of GDP: 2.588%
2007 Tax Revenue for Vancouver as a % of GDP: 2.340%

CHART 2: Edmonton Municipal Taxes as a % of GDP (1990-2007)

1990 Tax Revenue for Edmonton as a % of GDP: 1.791%
2007 Tax Revenue for Edmonton as a % of GDP: 1.120%

CHART 3: Calgary Municipal Taxes as a % of GDP (1990-2007)

1990 Tax Revenue for Calgary as a % of GDP: 1.959%
2007 Tax Revenue for Calgary as a % of GDP: 1.322%

CHART 4: Saskatoon Municipal Taxes as a % of GDP (1990-2007)

1990 Tax Revenue for Saskatoon as a % of GDP: 1.686%
2007 Tax Revenue for Saskatoon as a % of GDP: 1.125%

CHART 5: Regina Municipal Taxes as a % of GDP (1990-2007)

1990 Tax Revenue for Regina as a % of GDP: 2.191%
2007 Tax Revenue for Regina as a % of GDP: 1.405%

CHART 6: Winnipeg Municipal Taxes as a % of GDP (1990-2007)

1990 Tax Revenue for Winnipeg as a % of GDP: 2.638%
2007 Tax Revenue for Winnipeg as a % of GDP: 1.800%

Source: Derived by Canada West Foundation from the Annual Financial report of the cities (1990-2007), Statistics Canada and the Dominion Bond Rating Service (DBRS

Source: Vander Ploeg (2008, p.29)

Any discussion of the advisability of increasing reliance on municipal property taxes to finance local spending should distinguish between residential property taxes and commercial and industrial property taxes. Residential property taxes are often viewed as good sources of tax revenues from the perspective of the benefit principle because many, although not all, municipal services provide benefits that are closely associated with the consumption of housing services. Examples are fire protection services, streets, parks and recreation facilities. Also from an optimal tax perspective, the property tax is a low-cost source of tax revenues because the demand for housing services is relatively price-inelastic and a substantial proportion of a pure residential property tax increase is shifted to land, which in urban areas is in relatively inelastic supply. Hence one would expect relatively little additional distortion in the allocation of resources when a residential property tax is increased. Indeed, it can be argued that because new housing is taxed at lower rates than most goods and services under the GST/HST, and existing housing is not taxed, the property tax helps to offset the distortion in favour of the consumption of housing created by our tax system. See for example Skinner[60] for computation of the loss from the favourable tax treatment of housing in the U.S.

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[60] Skinner, J. 1996. "The Dynamic Efficiency Cost of Not Taxing Housing," *Journal of Public Economics* 59: 397-417.

Property taxes levied on commercial and industrial property may not be so benign. Although the benefit principle can be used to justify some level of business property taxation, in many communities the level of taxation probably exceeds that what could be justified on that basis. Excessive business property taxation at the local level is encouraged by the expectation that some of the burden will be exported to non-residents through higher prices for locally produced goods and because business property taxes are deductible from provincial and federal corporate income taxes, which shifts part of the local tax burden to taxpayers across the country and across the province. Property taxes on commercial and industrial property increase the marginal effective tax rate on capital, discouraging investment in structures, and reducing the competitiveness of the business sector.

Vander Ploeg's main argument against increased reliance on property taxes to fund municipal services and infrastructure is that the property tax base does not increase in line with the expenditure needs of the municipalities, forcing municipal politicians to raise tax rates in order to raise the required revenues. Several points should be made here. First, no evidence is presented that over long periods of time, the property tax base, which we take to be the market value of residential, commercial and industrial property, grows at a slower rate than the other major tax bases — wage and salary income, corporate profits, interest income, and consumption spending. Slower growth of the property tax base would mean that the stock of housing and other structures would be declining over time relative to other forms of capital and GDP. In the absence of any evidence of this trend, we have to be sceptical about the alleged lack of growth of the property tax base for municipal governments in general. Of course, economic conditions in some communities at certain times could result in stagnant or even declining property values. However, the other tax bases that a local government might tap, such as sales of goods and services, would also be constricted under these circumstances.

Even if it were true that the property tax base grows more slowly than GDP or the other major tax bases, would that be a problem? Of course, politicians do not like to have to raise tax rates and would rather increase spending from increasing revenues at constant tax rates. But if spending is driven up by buoyant tax revenues, as happens at the provincial level when there is an upswing in non-renewable resource revenues, than projects of marginal value will likely be funded. What is wrong with forcing politicians to justify higher spending by requesting tax rate increases? It might be argued that raising tax rates leads to larger economic distortions and efficiency losses. However, these losses are likely to be small in the case of the property tax, where at least the residential property tax base is relatively price-inelastic.

3.4.3 HOW SHOULD MUNICIPAL INFRASTRUCTURE BE FUNDED?

Although the penny tax proposal is, in my view, seriously flawed and not really needed, it does raise the question of what mechanisms should be used to fund municipal infrastructure. Whether or not the municipal infrastructure gap is as large as claimed by the Canada West Foundation or municipal officials, federal and provincial infrastructure grants have become a key component of our intergovernmental transfer system.[61] Snodden and Hobson[62] have argued

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[61] For a skeptical view of the municipal infrastructure gap, see Mintz, J.M. 2011. "Municipal Mythologies." *Financial Post*, December 5, 2011.

[62] Snoddon, T. and P. Hobson. 2010. "Cost Sharing and Federal-Provincial Fiscal Relations," in *The 2009 Federal Budget: Challenge, Response, and Retrospect* edited by C.M. Beach, B. Dahlby, and P. Hobson, J.D.I. Institute, Queen's University, 181-198.

that the federal infrastructure grants have become the fourth component of the federal transfers, along with equalization grants, the Canada Health Transfer and the Canada Social Transfer. Matching grants from senior levels of government is an appropriate fiscal tool to correct the direct benefit spillovers from local public services and facilities, and from the indirect revenue externalities that occur when local spending boosts productivity, thereby raising the tax revenues of the senior levels of government. Well-designed infrastructure grant programs can alleviate many of the problems with the provision of municipal infrastructure that are behind the call for an earmarked penny tax for infrastructure. As well, local governments should be able to use debt financing for large, lumpy projects so that tax rates do not have to be jacked up during the construction period in order to finance them. A well-functioning property tax system can serve as the basis for financing the interest and debt repayment for major infrastructure projects. As Vander Ploeg has noted,[63] most municipalities have relatively low levels of tax-supported debt, and therefore could take advantage of the current low interest rates to finance long-term infrastructure projects.

While the residential property tax is a much-maligned but under-utilized source of tax revenue, it is always worth considering whether there are other sources of tax revenue that municipalities might tap. In Ontario, cities levy property transfer taxes in addition to residential property taxes. However, a study by the CD Howe Institute indicates that these taxes affect the volume and location of housing sales and relocations, and are potentially quite distortionary.[64] Again, it is not clear why property transfer taxes have to be added to the municipal arsenal when the residential property tax is probably less distortionary and arguably under-utilized. Vehicle registration taxes can also be levied by municipal governments and can be justified to a certain degree by the benefit principle, since the construction and maintenance of streets and roads is a major expenditure by most local governments. However, vehicle registration taxes are not based on the usage of the road system and therefore cannot be fine-tuned to the benefits that individuals derive from the streets and roads or to their contribution to congestion when they travel at peak hours. Personal income taxes are an important source of revenues for local governments in Scandinavian countries where local income taxes are piggybacked on the national income tax. This system could be adopted in Canada, with perhaps less economic distortion from variations in local income tax rates than from equivalent variations in local sales tax rates, but in Canada we already have two levels of government levying personal income taxes; adding a third level might add even more complexity and reduce accountability and transparency.

Residential property taxes are much-maligned because they are highly visible, at least for owner-occupants, and not easily avoidable. From an economics perspective, this makes them good taxes and in my view, they should remain a primary source of funding for municipal governments. Current levies on commercial and industrial property are more problematic. A new Premier of Alberta with a new cabinet should make the review of grants to municipal governments and the provincial and municipal property tax a priority.

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[63]   Vander Ploeg. 2008. Op. cit. P. 58.

[64]   See Dachis, B, G. Duranton, and M.A. Turner. 2008. "Sand in the Gears: Evaluating the Effects of Toronto's Land Transfer Tax," *Commentary* 277, C.D. Howe Institute.

3.5   Utilizing a New Provincial Tax Base

> Many politicians, and indeed the public in most countries, appear to think that business taxes, especially those on large corporations, are not among the worst, but rather the best of all taxes…Governments go against popular perceptions of who should pay how much, and in what way, only at their peril… If the *political* cost of raising taxes from corporations is low, even if the *economic* cost is high, it may be perfectly rational [from the politician's perspective] to impose those taxes.[65]

Although there has been a remarkable reduction in the combined federal and provincial corporate income tax rates over the last decade, the recent and upcoming CIT rate reductions were opposed by the opposition parties in the last federal election. The referendum results in BC indicate that large sections of the population are opposed to broadening the sales tax base by switching from the RST to the HST. The federal reductions in the GST have had popular support. Given the common atavistic urge to make corporations pay their "fair share" and given that the four Western provinces are not going to adopt value-added sales taxes in the near future, the economically sensible goal of reducing provincial CIT rates and increasing federal and provincial value-added sales taxes seems unattainable. Thus it is advisable to consider alternative reform options for the provincial income tax; there are several on offer. Countries around the world have been considering alternatives to the classic corporate income tax in light of the growing importance of foreign investment and financial flows, the completion for internationally mobile activities such as R&D and patenting, and the heightened awareness among policy advisors of the deleterious effects of the corporate income tax on employment, investment, and growth. Among the options that have received the most attention by the tax policy community are the Allowance for Corporate Equity (ACE), the Comprehensive Business Income Tax (CBIT), and the Cash-Flow Tax (CFT). However, rather than consider these reform alternatives, I would like to examine another option.

About 10 years ago, Bird and Mintz[66] and Bird and McKenzie[67] raised the idea of replacing provincial corporate income taxes with a Business Value Tax (BVT). Recently McKenzie has resurrected this idea.[68] What is a BVT? It is a tax levied on all business enterprises, both incorporated and unincorporated. The base for the BVT is the firm's revenues minus its purchases of current intermediate inputs and depreciation allowances for capital. In contrast to the conventional CIT, there would be no deduction for the wages and salaries paid by the firm or its interest expenses. As such, the BVT is a tax on the incomes generated by business activity, namely wages and salaries, the return on equity investment, interest payments on debt, and pure profits or economic rents. In contrast, the conventional CIT is a tax on the return to equity investment and economic rent. The BVT differs from a VAT in two ways.[69] It is a tax on income, not on consumption, and it is an origin-based tax and not a destination-based tax, i.e., it is a tax on where the income is generated and not on the residence of the recipient of the income. If the BVT replaces conventional provincial corporate income taxes, one origin-based tax would be replaced by another origin-based tax.

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[65] Bird, R.M. 2003. "A New Look at Local Business Taxes," *Tax Notes International* (May): 695-711. P. 698.

[66] Bird, R. M. and J.M. Mintz. 2000. "Tax Assignment in Canada: A Modest Proposal," in Harvey Lazar, ed., *Canada: The State and the Federation* 1999/2000, 263-92.

[67] Bird and McKenzie. 2001. Op. cit.

[68] McKenzie, K.J. 2009. "Business Taxation in Western Canada: Settling for a Personal Best?" *Going For Gold: The Western Canadian Economy in The International Arena*, The Canada West Foundation, Calgary.

[69] The Business Value Tax (BVT) should be distinguished from the Business Transfer Tax (BTT), which is a VAT calculated using the subtraction method. The BTT differs from the BVT by deducting capital spending instead of depreciation. A BTT would be more favourable to new investments.

A BVT would have several advantages over the current provincial corporate income taxes. First, the BVT is neutral with respect to debt-versus-equity financing decisions, whereas corporate income taxes, by allowing a deduction for interest payments on debt, favours debt financing over equity financing. This distorts capital markets and contributes to excessive leverage, which the financial crisis has highlighted as a source of economic instability. The BVT would also be neutral with respect to decisions concerning hiring workers versus investing in machinery and equipment. The CIT, by taxing the return to equity, imposes a tax on the return to capital, raising the pre-tax return that capital has to earn in order to justify its investment, whereas wages and salaries are a fully deductible expense. The distortion in firms' input decisions is reflected in the marginal effective tax rate on investment (METR). A third advantage of the BVT is that because the base for the tax is much larger than the conventional CIT base, it could raise an equivalent amount of revenue at a much lower tax rate. Bird and McKenzie[70] estimated that a two to three percent provincial BVT could replace the provincial CIT in most provinces. Because of the low rate, the BVT would reduce the marginal tax rate on the return to capital compared to the CIT. Bird and McKenzie estimated that the BVT would have reduced METRs by 6.0 to 7.5 percentage points in 2000. (An updating of the METR calculation for a two to three percent BVT in 2011 is needed in order to calculate its current ability to reduce the METRs now that CIT rates have been reduced.) Furthermore, because of the low tax rate and because interest payments would not be deductible, the BVT tax base would not be as susceptible to tax base erosion through financial planning or transfer pricing strategies.

The flip side of the reduction in the METR is that the BVT would increase employers' cost of hiring workers. A 3.0 percent BVT would be equivalent to a 3.1 percent employer payroll tax. While employer payroll taxes can reduce employment by increasing the cost of hiring workers, in most labour markets a significant proportion of the tax would be shifted back to workers through lower wage rates, given that the supply of labour is less elastic (i.e., wage rate sensitive) than the demand for labour. As such, the effective tax rate on firms' costs of production would likely fall in most industries, making them more internationally competitive and more competitive compared to firms in other provinces that do not adopt a BVT. Computations of the marginal effective tax rate on the marginal cost of production, a measure of the impact of all taxes on firms costs of production developed by McKenzie, Mintz, and Scharf,[71] would allow us to verify whether the combined effects of the BVT on the cost of capital and the cost of labour would increase firms' competitiveness.

Also, the reduction in the tax rate under the BVT would lower the taxes on economic rents. However, in most industries, pure profit or economic rent is only a small fraction of corporate profits. In industries where there are large location-specific rents, such as the resource industries, there are more efficient ways for governments to capture economic rents, such as imposing cash-flow taxes or through bonus bids for the right to explore and develop the resources.[72]

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[70] Bird and McKenzie. 2001. Op. cit.

[71] McKenzie, K.J., J.M. Mintz and K.A. Scharf. 1997. "Measuring Effective Tax Rates in the Presence of Multiple Inputs: A Production Based Approach," *International Tax and Public Finance* 4: 337-359.

[72] McKenzie, K.J. 2011. "Plucking the Golden Goose: Higher Royalty Rates on the Oil Sands Generate Significant Increases in Government Revenue," *SPP Research Papers* 3 (September), The School of Public Policy, University of Calgary; Busby, C., B. Dachis, and B.Dahlby. 2011. "Rethinking Royalty Rates: Why There is a Better Way to Tax Oil and Gas Development," *Commentary* No. 333, C.D. Howe Institute, Toronto. http://www.cdhowe.org/pdf/commentary_333.pdf

There is some international experience relevant to how BVTs would operate. Japan, Hungary, France, and Italy have business taxes with BVT characteristics. The Italian experience with a BVT is most interesting because it is levied at the regional level. *The Imposta Regionale sulle Attività Produttive* (Regional Tax on Productive Activities or IRAP) was introduced in 1998 at 4.25 percent on the revenues minus current purchases of intermediate inputs and depreciation expenses of businesses and the self-employed. (The farming sector is taxed at 1.9 percent.) The IRAP replaced five business-level taxes and according to PWC,[73] it represents about 10 percent of the taxes paid by the standard firm that PWC uses in its analysis of tax systems around the world. By contrast, the Italian corporate income tax is 23 percent and social security contributions are 51 percent of the taxes paid by this typical Italian firm. The IRAP rate was reduced in 2008 to 3.9 percent and, in response to the economic crisis in Italy, social security contributions have been made deductible in order to reduce the cost of higher labour and encourage business employment. See Manzo and Monteduro for an analysis of the IRAP.[74]

Although a BVT has a number of desirable characteristics that make it a leading candidate for replacing provincial corporate income taxes, it has features which will make it controversial, and there are many details that would have to be worked out before it could be wholeheartedly recommended. The BVT's impact on hiring costs has already been noted, and critics might focus on the increase in the tax on labour income. However, the employment effects might be small, especially as much of the burden is likely to be shifted to labour. As well, it should be stressed that much of the current provincial CIT burden is borne by workers through lower real wage rates. So the net impact of switching from a provincial CIT to a provincial BVT tax burden on labour is likely to be small, or the tax burden might even be reduced to the extent that the reduction in the METR on capital increases investment, labour productivity and wages. The introduction of a BVT would have a greater impact on labour-intensive debt financed firms — i.e., the small business sector. Since the small business tax rate is already lower than the standard rate, they might benefit less from the elimination of provincial corporate income taxes than large firms. However, the analysis in Chen and Mintz[75] indicates that by trying to shelter small business from the full burden of the CIT, we may be creating a welfare wall by imposing high marginal effective taxes on small business with growth potential. Shifting to a BVT may reduce the fiscal obstacles that hinder the growth of innovative start-ups. Related to this concern, is the fact that the BVT would have to be paid by many firms when they are in a loss position, since the BVT is based on the factor payments of the firm, and not whether it is in a profit or loss position. Again, the impact of a BVT on start-ups would need to be investigated more fully. Other issues include whether deductions are permitted for EI and CPP premiums, property taxes, and resource royalties. For firms that have permanent establishments in more than one province, an allocation formula would have to be applied to the firm's BVT base. Since the BVT is an origin-based tax, the allocation formula should probably be based on the shares of labour and capital in the provinces where the firm has permanent establishments and no weight should be given to sales. (As far as I know, there is no optimal allocation formula for the CIT base or the BVT base.) Finally, it is unrealistic to expect that all businesses,

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[73] PWC. 2011. *Paying Taxes 2011: The Global Picture*. www.pwc.com/payingtaxes

[74] Manzo, M. and M.T. Monteduro. 2010. "From IRAP To CBIT: Tax Distortions and Redistributive Effects," Working Paper, University of Pavia.

[75] Chen, D. and J.M. Mintz. 2011 "Small Business Taxation: Revamping Incentives To Encourage Growth," *SPP Research Papers* 4 (May), The School of Public Policy, University of Calgary.

corporations as well as partnerships and the self-employed, would be included in the BVT net. Businesses currently part of the underground economy would have even more reason to stay underground, and the incentives for others to join them might be increased. Some sectors, such as farmers, might get exemptions or reduced rates, as in Italy. In addition, like the GST/HST, it may be advisable to have a threshold to reduce compliance and administration costs from trying to collect the tax on small firms. The Canadian threshold for the GST has not been altered since it was introduced, and it can be argued that that threshold is too low. Research on the optimal BVT threshold would be an interesting application of the Keen and Mintz (2004) model[76] of the optimal VAT threshold.

All of these issues would have to be investigated in more detail before the BVT can be endorsed as a suitable replacement for provincial corporate income taxes, but in the words of Bird and McKenzie, it seems to be a more "desirable way of taxing business than the provincial corporate income tax, and improv[ing] Canada's fiscal competitiveness. These are no small virtues."[77]

4. A CONCLUDING REMARK

Tax reforms are always controversial, but Canadians have seen major changes in the tax system in the last 20 years; the introduction of the federal GST with over two-thirds of Canadians living in provinces with VAT-type provincial sales taxes, the virtual elimination of capital taxes, and the reduction in CIT rates — all are examples of fundamental and beneficial tax reforms. In this paper, I have tried to identify other areas where further tax reform is needed. My research with Ergete Ferede points to the urgent need to reduce or eliminate provincial corporate income taxes and make greater use of the GST and HST in funding public expenditures. I also think that residential property taxes could be more fully utilized in funding municipal governments' infrastructure and services. The taxes that I would like to see expanded are ones that are highly visible and not easily avoided. That is why they are popular with an economist and why they are unpopular with the general public. Academics are constantly reminded that their role is to tell truth to power. But perhaps more importantly, we need to tell truth to people. That is what I have tried to do in this paper.

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[76] Keen, M, and J.M. Mintz. 2004. "The Optimal Threshold for a Value-Added Tax," *Journal of Public Economics* 88: 559– 576.

[77] Bird and McKenzie. 2001. Op. cit. P. 25.

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