

DEPARTURES FROM NEUTRALITY IN CANADA'S GOODS AND SERVICES TAX*

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SUMMARY

With recent accessions to the federal-provincial Harmonized Sales Tax, provinces with value-added taxes (VATs) now comprise over two-thirds of the national economy. While Canadian VATs are economically superior to the taxes they replaced, they are not as well designed as in other countries. An efficient VAT is a uniform tax on all consumer (but not business) purchases. Although the OECD has reported that Canada's VAT is one of the most efficient in the world, that assessment was based on data shown here to be misleading. In reality, Canada's VATs have large exemptions, rebates and rate preferences that reduce revenues and hamper productivity. If all these tax preferences were eliminated, government VAT revenues would increase by as much as \$39 billion, or more than 50 percent. Moreover, taxing consumer commodities at a single rate reduces opportunities for tax evasion, simplifies tax compliance, and in most cases increases economic productivity. Given the fiscal and productivity challenges currently facing Canadian governments, a new look at VAT design is clearly warranted. This paper offers a detailed assessment of the effects of the tax on the economy, and it proposes a number of specific, feasible reforms to the GST-HST system.

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1. INTRODUCTION

Now in its 21st year, the Goods and Services Tax (GST) may be said to have come of age. While the headline federal tax rate of five percent remains one of the lowest in the world among countries with value-added taxes (VATs), the decision of many provinces to adopt provincial VATs modelled on the GST has vastly increased the importance of VAT in Canada. At present, five Canadian provinces have replaced their retail sales taxes with the Harmonized Sales Tax (HST), administered by the Canada Revenue Agency together with and on essentially the same base as the federal GST. While collected by the province, the Quebec Sales Tax (QST) is also structured to be very similar to the federal GST. Among the six provinces with VATs, the combined rate of tax ranges from 12 percent in British Columbia to 15 percent in Nova Scotia; aggregate VAT revenues now exceed \$60 billion annually; and these provinces comprise fully 80 percent of national consumption.¹ While it now appears certain that British Columbia will abolish the HST and revert to retail sales taxation by 2013, VAT provinces will still make up more than 67 percent of the national economy.

But the recent success of value-added taxation in Canada brings new concerns. While economists agree that HST/QST is a better-designed tax than the retail sales taxes it replaced, specific design problems in the tax base create economic distortions for consumers and productivity losses for business. As I discuss in detail, the GST base incorporates a variety of exemptions and reduced tax rates that change economic choices of consumers and businesses. As the VAT rate has roughly doubled in the HST/QST provinces since 1991, these distortions have increased in importance. The standard rule of thumb is that the cost of economic distortions is proportional to the square of the tax rate, which would imply that distortions are about four times larger now in HST/QST provinces than when the GST base was originally designed.

In this paper, I provide a review of the literature on the appropriate design of a VAT, and I apply its insights to an analysis of the GST base in Canada. The plan of the paper is as follows.

- Section 2 describes how a VAT functions, and it defines an ideal VAT benchmark against which the GST may be judged. In brief, an ideal VAT is a consumption tax, which taxes all consumer purchases at the same rate, but which exempts business inputs from taxation. Somewhat confusingly, exempting business inputs means that businesses should not themselves be exempt from VAT.
- Section 3 describes the structure of the GST, emphasizing the way it departs from an ideal VAT, discussing the magnitude of the associated tax expenditures² relative to revenues collected, and relative to other OECD countries with VATs. GST tax expenditures prove to be large. While the OECD has recently reported Canada's VAT to be one of the most efficient in the world, this turns out to be based on data that are highly misleading. Based on a corrected calculation, I find that Canada's VAT tax base ranks poorly relative to other OECD countries.

¹ Under an agreement announced by governments on September 30, 2011, the QST base will be further harmonized with the federal GST, although both taxes will continue to be legislated and collected in Quebec by the provincial government. By 2014, the remaining differences between the two taxes will be small. In addition to provincial government. By 2014, the remaining differences between the two taxes will be small. In addition to the provinces listed here, Alberta has no retail sales tax, so that the consumption rate there is the 5 percent federal GST rate.

² Tax expenditure is defined as the estimated change in tax revenue resulting from the departure of the legislated tax base from a benchmark or ideal tax base. In the case of VAT, as discussed below, tax expenditures may be either positive or negative.

- Section 4 lays out in detail the economic arguments for and against an ideal VAT. I present the economic, administrative, and political arguments in favour of uniform taxation of consumption, and I discuss some important caveats.
- Section 5 offers some specific proposals for how the GST base in Canada might be improved. I focus on four issues in the current GST base:
 - Non-taxation of food and agricultural products;
 - Preferential taxation of housing;
 - Exemption and rebates available to public sector bodies;
 - The taxation and exemption of small traders.
- Section 6 concludes the paper.

Because of departures from the ideal VAT, the revenues lost to federal and provincial governments are now about \$39 billion annually. Clearly, this is not a small issue. Among the specific problems addressed in Section 5 of the paper, it is worthwhile emphasizing food and agricultural products. Non-taxation of food is often perceived in Canada as a progressive tax measure, but I show that much of this tax benefit accrues to high-income families; there are more direct and effective ways to help the needy through the tax system. As elaborated below, the estimated revenue lost to federal and provincial governments due to this measure exceeds \$8 billion annually; the efficiency cost to the economy is on the order of \$1 billion annually. These considerations clearly suggest it is time to look at the policy again.

2. A PRIMER ON VAT

The federal Goods and Services Tax is a value-added tax (VAT) of the invoice-and-credit type. In its ideal form, a VAT taxes all sales of goods and services in the economy, whether the purchase is made by consumers or businesses, but it allows businesses to claim a credit for tax paid on inputs purchased for production. As such, it is a tax on value added at each stage in the production process. Since businesses can claim input tax credits (ITCs) for taxes paid, but final consumers cannot, it is easy to see that despite its apparent complexity a VAT is equivalent in economic effects to a tax at the same percentage rate on consumption purchases alone.

This describes an ideal VAT, in which all transactions are taxed at a common rate, and all producers receive a credit for input taxes paid. An ideal VAT has two key features, different from other systems of sales taxation:

- First, **an ideal VAT ensures that production costs are untaxed**, and so production decisions are undistorted. As I argue in the next section, leaving business inputs untaxed is almost certainly part of an ideal tax system.
- Second, **an ideal VAT is a uniform tax**, which raises the prices of all goods and services purchased by consumers, but leaves their relative prices unchanged. Uniform taxation of consumer purchases has a key neutrality property, since it means that consumers make consumption decisions in response to the true differences in economic costs of what they purchase, rather than differences in tax rates.

While these are the main theoretical justifications for VAT as an efficient tax, it also has practical advantages:

- **VAT easily ensures that business inputs are ultimately untaxed**, because of its system of explicit taxation and crediting for VAT-registered traders. In contrast, although a retail sales tax system is, for example, also intended to tax only purchases by consumers, the lack of an explicit crediting mechanism for input taxes paid by taxable businesses results in a very high proportion of its revenues being derived from business purchases.³
- **VAT may increase tax compliance.** An invoice-and-credit VAT is charged on the full value of purchases at each stage of the production chain and only credited to registered businesses. Therefore, a tax-evading business may escape at most the tax due on its value added in production, but is liable for the tax paid on production inputs and not creditable for the evader. This tends to raise production costs for evaders and it discourages other, registered businesses from dealing with evaders, since the tax charged by a registered supplier is creditable by a taxable purchaser, whereas the higher costs of an evading supplier are not.
- **VAT facilitates tax collection.** VAT is formally creditable to taxable purchasers only if they are in possession of an invoice from the supplier indicating that VAT was paid on the purchase, and these invoices can in principle be cross-checked by revenue authorities to detect evasion. In other words, just as VAT turns all sellers in the economy into tax collectors, it turns all taxable purchasers in the economy into tax auditors as well.

In practice, Canada's GST departs from the ideal by taxing many transactions and many suppliers in a different way, or not taxing them at all. In particular:

- **Some goods and services are exempt from tax**, meaning that no tax is due under GST on these supplies, and also that no tax credit is paid for inputs purchased to produce them. For example, most services supplied by financial institutions including most deposit and loan services are GST-exempt. Thus no GST is charged to consumers of these services, and financial institutions cannot claim ITCs for the corresponding taxable purchases such as computers, legal services, commercial rents, and so on.⁴
- **Some goods and services are taxable at reduced rates.** While the use of reduced rates is common in the VAT systems of some countries, in Canada the only positive reduced rate is for purchases of new housing.
- **Some goods and services are zero-rated**, meaning that businesses do not charge GST on these supplies, but still they may claim a credit for GST paid on inputs purchased to produce the supplies. For example, most food and prescription drugs are zero-rated under GST. (The name makes sense when one realizes this is exactly as if the supply was treated as taxable, but at a reduced rate of zero percent.) Thus zero-rated supplies are truly tax-free, whereas for exempt supplies, tax is payable at a lesser rate reflecting the share of taxable inputs in the total value of production, but this tax is hidden from the final consumer.⁵

³ For example, Bird and Smart ((2009b), "The impact on investment of replacing a retail sales tax by a value-added tax: Evidence from Canadian experience," *National Tax Journal* 62, 591-609) report that about 40 percent of revenues from provincial retail sales taxes are paid on business inputs.

⁴ When a business produces a mix of taxable and exempt services, as in the case of financial institutions, a percentage of inputs taxes equal to the percentage of taxable sales in the total sales of the business is creditable.

⁵ We may further distinguish between the zero-rating of supplies destined for domestic consumption, which is here treated as a tax expenditure, and zero-rating of international exports, which is a conventional part of most VATs around the world. See the discussion below.

All these special treatments create economic problems, compared to an ideal VAT under which all transactions are taxable at a common rate. These problems and the economic case for a broad-based, neutral VAT are the subject of the next two sections of the paper.

3. THE GST BASE AND VAT EFFICIENCY IN CANADA

a) Non-neutralities in the GST

There is an extensive list of ways that the GST departs from an ideal VAT — whether through exemption or reduced tax rates. The main non-neutralities are listed in Table 1. To give a sense of the relative importance of each non-neutrality, the table includes an estimate of the revenue lost due to each measure. The source of most of these figures is the federal Department of Finance's *Tax Expenditures and Evaluations* report for 2007, which reports estimates of federal revenue loss only based on a detailed input-output model of the Canadian economy. The published tax expenditure estimates measure only the impact of the measures on the federal portion of revenues. I also report in Table 1 estimates of tax expenditures for provincial VAT revenues in Quebec and the five HST provinces.⁶ Since the provincial bases largely conform to the federal base, the provincial figures largely mirror the federal ones, adjusted for the different provincial VAT rates, and for the share of the VAT provinces in the national economy.⁷

TABLE 1. TAX EXPENDITURES UNDER THE GST AND PROVINCIAL VATS

	Estimated Revenue Loss	
	Federal GST	Provincial VATs
	(2011 \$ millions)	
Zero and reduced tax rates		
- Basic groceries	3,499	4,607
- Medical devices and Prescription drugs	901	1,186
- Reduced rate for New housing	760	1,521
Exemptions		
- Financial services	-	-
- Residential rents	1,298	1,660
- Education	478	612
- Non-profits and Charities	778	995
- Health care	735	941
- Municipal services	399	511
- Other	147	188
- Small traders + other business	485	547
Input tax rebates	3,710	3,617
Memorandum Items		
- Standard tax rate (weighted average)	5.0%	5.6%
- Estimated potential VAT revenues, 2011 ^a	49,230	55,156
- Actual VAT revenues, 2010-11 ^b	32,205	33,143

Source: 2010 Federal and Quebec Tax Expenditures, Department of Finance, and own calculations.

^a Estimated revenues from applying the statutory rate to aggregate private consumption expenditures.

^b Public Accounts basis.

⁶ The provincial estimates are imputed based on the statutory tax rates in VAT provinces and their share of output and value added in Statistics Canada input-output data. The provincial rebates for public sector bodies are derived from public accounts data.

⁷ The consumption-weighted average provincial VAT rate in 2011 is 5 percent, including British Columbia (statutory rate 7 percent), Newfoundland and Labrador, New Brunswick and Ontario (8 percent), Nova Scotia (10 percent), and Quebec (approximately 8.9 percent, rising to 9.5 percent in 2012). The average effective provincial VAT rate will likely fall in future since the government of British Columbia has recently committed to replacing its VAT with a retail sales tax.

Goods and services destined for domestic consumption that are zero-rated include:

- **Basic groceries**, which includes most supplies of food and beverages marketed for human consumption, including sweetening agents. However, soft drinks, candies, and snack foods are taxable, as are prepared foods sold in stores and restaurants;
- **Agricultural and fishery products**, including unprocessed foods and livestock;
- **Prescription drugs and medical devices**, such as hearing aids and prescription eyeglasses;
- **International transportation services**. While almost all countries with VATs do zero-rate exports of goods and services based on the destination principle, Canada is unusual in zero-rating cross-border transport for both domestic residents and foreigners, and regardless of what portion of the travel actually occurs within Canada.

In contrast to many other countries with VATs, Canada does not make widespread use of various reduced rates of VAT for certain purchases. More precisely, the only reduced rate in much use under GST is the zero-rate category just discussed. The one exception is sales of **new housing**, which are eligible for rebates of GST to purchasers that reduce the effective tax rate paid from the usual five percent to approximately 3.2 percent for homes valued at \$350,000 or less.⁸ The taxation of housing is discussed in detail below.

This describes the use of zero-rating of supplies for domestic consumption in Canada. In addition, as in almost all countries with a VAT, international exports are zero-rated. Zero-rating of exports is often seen as a key advantage of VAT, since it permits embedded taxes on production inputs to be removed from international trade. When all countries with VATs zero-rate exports and tax imports, then all consumer purchases are taxed at the rate applying in the country where they are consumed, rather than at some mix of the tax rates in the destination and origin countries.⁹ In this paper I take zero-rating of exports as part of the definition of the ideal VAT, and I concentrate on departures from neutrality in the domestic tax base alone.

Exempt goods and services under the GST include:

- **Health, medical, and dental services** other than cosmetic medical services, including most services performed by physicians, nurses, and dentists;
- **Child-care services** up to age 15; **legal aid services**; and **bridge, road, and ferry tolls**;
- **Educational services**, including courses provided by universities, colleges, and vocational schools, as well as private music lessons and tutoring services. As well, meals served in school cafeterias and university residences are exempt;

⁸ The reduced rate is recaptured on sale prices between \$350,000 and \$450,000, so that sales above the latter amount are taxed at the full five percent rate. See Dahlby et al. ((2009), "New housing and the Harmonized Sales Tax: Lessons from Ontario," C. D. Howe Institute, *Background* no. 119.) and the discussion below for more detail. Note that the structure of provincial new housing rebates under the HST is different.

⁹ Related, zero-rating is often seen as ensuring that a nation's exports remain internationally competitive. In fact, from a national perspective, there is probably not much difference in the economic effects of taxing on the destination principle (i.e., zero-rating exports) rather than the origin principle (i.e., taxing production for domestic consumption and export alike). If all commodities are taxed at a uniform rate, then standard general equilibrium models predict that a move from origin to destination basis results in a rise in nominal wages or exchange rates that fully offsets the removal of export taxes, leaving the real economy unchanged. See e.g. Bird and Smart ((2011), "Financing Social Insurance in Latin America," working paper, University of Toronto) for a discussion.

- Most services provided by **financial institutions and investment dealers** are exempt, even if a fee is charged for the service. **Insurance** policies and the related services of insurance agents and brokers are likewise exempt;
- Most goods and services provided by **charities**, and many recreational and cultural activities of **non-profit organizations** and **municipal governments**, even when they are fee-based. There are also specific exemptions for municipal transit, water, and garbage collection services;¹⁰
- **Residential rents, sales of used residential properties, and sales of vacant land and farmland** in most cases. Short-term residential rents are taxable. Of course, the imputed rents to owner-occupied housing are also exempt from GST, but sales of new (previously unoccupied) residential properties are taxable at a reduced rate. Further detail on the taxation of housing is provided below;
- **Small traders**, defined as those with worldwide taxable supplies up to \$30,000 annually, are exempt from GST unless they choose to register. Additionally, businesses with supplies up to \$200,000 annually are eligible for certain special GST rules, intended to lower compliance costs, that are very similar to exemption. (See below.)

INPUT TAX REBATES. As noted, exemption in the language of VAT does not mean tax-free, because exempt suppliers pay tax on taxable purchases, and they do not receive input tax credits as do taxable suppliers. Under the GST, however, certain exempt suppliers — essentially all public service bodies like schools and hospitals— are entitled to rebates of input taxes at various rates ranging from 50 percent to 100 percent of input taxes paid (see the detailed discussion below). Since rebates are legally but not economically different from input tax credits, and since the rebate rates are high, the input tax distortions for most public sector bodies are smaller than exemption usually entails.

The tax expenditure estimates in Table 1 give a rough sense of the magnitude of the various non-neutralities. Zero-rating of food, and drugs and medical devices are particularly important, reducing federal GST revenues by approximately 10 percent and three percent respectively. The exemption for rental housing is also a significant line item, but this is offset by the revenue obtained by taxing (albeit at a reduced rate) the construction of new rental housing — see the discussion below. Finally, exempt treatment (and, with the input tax rebates, near zero-rating) of the broader public sector is a significant departure from a full value-added tax.

Note that the various line items in Table 1 cannot be added to obtain an aggregate measure of non-neutralities, because the special treatment of various sectors interact with each other. For example, the exemption of financial services is more expensive due to the exemption accorded to other sectors, because other sectors purchase financial services that would be subject to non-recoverable input taxes if financial services were taxable, and so on. However, a simple measure of the aggregate effect of non-neutralities is provided at the bottom of Table 1.

¹⁰ For constitutional reasons, provincial governments are exempted from paying GST on any purchases of supplies that would otherwise be taxable. The exemption extends to most provincial agencies, boards, commissions, and Crown corporations other than those involved in commercial activities. But some provinces have concluded reciprocal agreements with the federal government to make equivalent payments in lieu of taxation. See CRA, *GST/HST Memorandum* 18.2, May 2010, and Gendron ((2010), "How should the U.S. treat government entities, non-profit organizations, and other tax-exempt bodies under a VAT?," *Tax Law Review*, 63, 477-713).

Actual GST revenues in 2010-11 were \$32.2 billion, as recorded in the Public Accounts. In contrast, a notional five percent tax on non-government final consumption would have raised about \$49.2 billion, suggesting an overall federal tax expenditure of about \$17 billion annually.¹¹ On the same basis, the aggregate provincial tax expenditure is even larger, at roughly \$22 billion, reflecting again the fact that the magnitude of provincial VATs now outweighs the federal GST.

The figures reported do not include the federal GST credit available to low-income families, estimated at \$3.9 billion in 2011. Unlike the other measures, the GST credit does not change relative prices of purchased goods and services and so it is probably best regarded as an income tax measure, rather than a GST tax expenditure. However, it does of course reduce the net revenue received from the GST.

In this sense, the departures from uniform taxation in the current GST are large. If private consumption were fully taxed, it would be possible to reduce the GST rate in a revenue-neutral fashion from the current five percent to approximately three percent. Since the provincial tax base in HST-participating provinces (and largely in Quebec) mirrors the non-neutralities of the federal base, these effects are magnified. In Ontario, for example, broadening the base would allow the current 13 percent combined federal-provincial rate to be reduced to about 7.5 percent. Of course, base-broadening need not be accompanied by rate reduction, and governments might opt to maintain a higher rate while increasing income tax credits to offset some of the cost to taxpayers, while retaining additional revenues for other purposes. Nevertheless, these calculations demonstrate that base broadening could have attractive features to governments, and it is a useful metric for gauging the magnitude of the issue.

b) International comparisons

Although it is common for economists to decry exemptions and reduced tax rates, most countries with VATs do of course employ them. It is therefore interesting to ask whether the non-neutralities in Canada's GST are large or small by international standards.

Many of the exemptions listed in Table 1 are employed to some extent in other countries. Indeed, exemptions for hospital, medical and dental care, for charities, education, and non-profit cultural activities, for insurance and financial services, and for municipal services are so common among OECD countries that they are simply referred to as the "standard exemptions" in the organization's biennial *Consumption Tax Trends* survey of VAT systems.¹² Likewise, many countries exempt residential rents, and many countries apply a reduced rate of tax or an exemption for some housing construction, for historical and social policy reasons.¹³ In addition, many countries apply a reduced VAT rate to some food and agricultural products, as well as to some medical supplies and cultural activities. But Canada's extensive use of zero-rating for food and medicine is quite rare in the world.¹⁴

¹¹ This estimate of the aggregate federal revenue loss is similar to the sum of published federal tax expenditures reported in the table, which equals \$13.2 billion. But the published figures exclude the value of exemption for financial services, due to the methodological difficulties. Therefore the two approaches are not directly comparable.

¹² OECD, (2010), *Consumption Tax Trends*.

¹³ OECD op. cit. lists the standard exemptions as: "postal services; transport of sick/injured persons; hospital and medical care; human blood, tissues and organs; dental care; charitable work; education; non-commercial activities of non-profit-making organisations; sporting services; cultural services (except radio and television broadcasting); insurance and reinsurance; letting of immovable property; financial services; betting, lotteries and gambling; supply of land and buildings; certain fund-raising events".

¹⁴ In the OECD, only Australia, Canada, and the United Kingdom zero-rate food, for example.

A common way to gauge the overall departures from neutrality is to calculate the ratio of actual VAT revenues to the revenues that would notionally be generated in a country by applying the standard tax rate to the aggregate of all private consumption. (This measure was called the “C-efficiency ratio” by Ebrill et al.¹⁵ and the “VAT revenue ratio” by the OECD.¹⁶) To the extent that the computed C-efficiency ratio is below 100 per cent, this reflects the undertaxation of some components of the value added in domestic consumption, relative to the uniform taxation benchmark, as well as the possible effects of non-compliance with the tax.¹⁷

The C-efficiency ratio for high-income OECD countries is presented in Table 2 for a number of years, based on the figures reported by the OECD in the 2010 edition of *Consumption Tax Trends*. The OECD statistics show VAT efficiency rising in Canada from 44 percent in 1992 (the year after the GST was introduced), to 74 percent in 2008. By this measure, Canada’s GST ranked fifth among high-income OECD countries in 2008, with VAT efficiency well above the unweighted average of 56 percent. The statistics reflect the common notion that Canada’s GST is a relatively well designed tax by international standards, among the second-generation VATs introduced more recently in countries like New Zealand, Switzerland, and Japan, which have broader bases and more uniform rates of taxation than the first-generation VATs introduced in the 1950s and 1960s by France and other countries in the European Community.

TABLE 2. VAT C-EFFICIENCY IN SELECTED COUNTRIES

Country	Year					Rank (2008)
	1992	1996	2000	2004	2008	
Australia	-	-	0.46	0.54	0.50	22
Belgium	0.49	0.47	0.51	0.49	0.49	25
Finland	-	0.54	0.60	0.60	0.58	13
France	0.52	0.51	0.49	0.50	0.49	24
Germany	0.62	0.60	0.60	0.55	0.56	17
Ireland	0.46	0.53	0.59	0.63	0.53	20
Italy	0.39	0.40	0.45	0.40	0.41	29
Japan	0.68	0.71	0.69	0.70	0.68	6
Luxembourg	0.47	0.56	0.68	0.82	0.94	2
New Zealand	0.95	0.97	0.96	1.03	0.98	1
Spain	0.57	0.45	0.53	0.54	0.45	27
Sweden	0.41	0.50	0.52	0.53	0.58	14
Switzerland	-	0.70	0.78	0.75	0.77	3
United Kingdom	0.48	0.49	0.49	0.49	0.46	26
OECD average	0.49	0.50	0.52	0.53	0.51	
Canada – OECD calculation	0.44	0.58	0.66	0.67	0.74	5
Canada – corrected calculation	0.45	0.47	0.50	0.51	0.51	20

Source: DECO, *Consumption Tax Trends, 2010*, and *National Accounts data*.

¹⁵ Ebrill, L. P., M. Keen, J.-P. Bodin, and V. Summers, (2001), *The Modern VAT*, Washington DC: International Monetary Fund.

¹⁶ OECD, (2010), op. cit.

¹⁷ At the same time, the absence of ITCs in exempt sectors tends to increase the ratio. Thus it is an imperfect measure of the non-neutralities of a VAT.

But the OECD statistics may be surprising to those familiar with the structure of Canada's GST — particularly given the dramatic rise in the reported efficiency measure since the early 1990s, despite the absence of any substantial reforms in the tax base or structure. Indeed, closer inspection shows that the OECD data are highly misleading for Canada. Under the OECD's methodology, the VAT efficiency ratio is defined as the ratio of total government VAT revenues to the notional revenues obtained by applying the standard tax rate to consumption in the national accounts. In Canada, total government VAT revenues comprise provincial as well as federal government value-added taxes, and thus include revenues of the Quebec Sales Tax beginning in 1993, and of the three Atlantic provinces adopting the Harmonized Sales Tax in 1997. However, the OECD defined the standard VAT tax rate in Canada to be simply the federal GST tax rate. Consequently, the numerator of the efficiency ratio has grown for Canada as more provinces have replaced their retail sales taxes with value-added taxes, while there is no corresponding change in the denominator. The resulting picture of VAT efficiency in Canada is misleading, to say the least.

A more accurate measure of VAT efficiency for Canada is therefore to divide federal GST revenues by the notional revenues obtained from taxing national consumption at the federal GST rate.¹⁸ The final row in Table 2 reports results of this corrected calculation for Canada, using data from the National Accounts that is comparable to that used by OECD for other countries.¹⁹ The resulting VAT efficiency ratio is more stable over time, rising from 45 percent in 1992 to just 51 percent in 2009, at which point Canada ranks 20th in the OECD's league table, just behind Ireland, and about the same as France, where the VAT is known to exhibit many departures from neutrality.

At the risk of confusing matters further, I note that the corrected version of the OECD revenue ratio for Canada in Table 2 is, at 51 percent, well below the ratio of 69 percent implied by the estimates reported in Table 1. This is because the OECD measures the potential base for VAT in all countries to include government current expenditures on goods and services, whereas my estimates in Table 1 define the potential base to be consumption expenditures of private households alone. By either measure, Canada's VAT efficiency however remains below average for the OECD.

The VAT efficiency ratio is no more than a crude measure of the neutrality and uniformity of a country's value-added tax system. The ratio may be higher or lower in a country due to a variety of factors, including the magnitude of revenues obtained by taxing inputs in exempt sectors (which increases the ratio despite the implied non-neutralities), the sectoral composition of value-added, and the extent of compliance with the tax law. Despite these caveats, the implications of the calculations are fairly clear: Canada ranks poorly among countries with second-generation VATs. Exemptions, rebates, and reduced ratings are extensive in the Canadian system, and the resulting tax base is similar to that of European countries with first-generation VATs that are notorious for their non-neutralities.

¹⁸ For other countries, the OECD's use of total government revenues in the numerator makes sense, since it ensures that the efficiency measure is invariant to the ways in which VAT revenues are shared between central and subnational governments. But in those countries there is a single standard VAT rate that applies throughout the country; in the OECD, only Canada has variable rate subnational VATs. (For Canada, the other possible approach is to use a weighted average federal-provincial statutory rate in the denominator of the ratio, rather than adjusting the numerator as I have done here.)

¹⁹ GST revenues in the national accounts are recorded as net of GST rebates to public sector bodies, but the cost of the federal GST income tax credit is not deducted.

4. THE ECONOMIC CASE FOR A NEUTRAL VAT

In Section 2, I noted the standard arguments for an ideal VAT as a uniform tax on consumer but not business purchases. In this section, I provide the detailed economic case for these properties, and I discuss the economic distortions that arise in the GST because its base departs from an ideal VAT.

a) The case for exempting business inputs — and the problem with GST exemptions

Taxes can of course be levied on business purchases as well as final consumption goods, and doing so would raise additional revenue. Economists typically argue for making the base of a tax as broad as possible, so that the desired revenues can be raised with a tax rate that is as low as possible. In spite of this, the standard economic arguments are clear: business purchases should not be taxed. Taxing inputs tends to change business decisions about which inputs to purchase and whether inputs are purchased in markets or produced in-house.²⁰ Furthermore, business input taxes raise producer costs and so are typically passed on to consumers in the form of higher purchase prices. As a result, input taxes cascade from one stage of the production process to another, and the effective tax rate on some consumer purchases tends to be much higher than for other purchases, in a way that is essentially arbitrary. In a celebrated result in the formal theory of optimal taxation, Diamond and Mirrlees²¹ showed that, for these reasons, it is quite generally undesirable to tax production inputs.²² Production taxes should be removed, so that production inefficiency and tax cascading is eliminated, and consumer prices will adjust to the change in business taxes. Consumer tax rates can then be adjusted if desired to offset any distributional effects of the change in business taxes.

While not taxing business inputs is in this sense economically desirable, exempting an industrial sector from tax under an invoice-and-credit VAT is not. When a producer is VAT-exempt, no tax is charged on its outputs, but no credit is accorded for tax paid on its inputs. Therefore, production inputs are taxed under VAT in exempt sectors.²³ Observe therefore that exemption is very different from zero-rating. In fact, exemption does not always result in a lower effective tax rate on production than does full taxation of production. When the supply is made directly to final consumers, exemption typically results in a lower rate of tax than full taxation. But where exempt products are sold to other taxable businesses, the VAT paid on inputs in the exempt sector is in addition to tax payable on value added further down the production chain, and the effective rate of tax is higher than it would be in the case of full taxation.

²⁰ In particular, producing in-house, or “self-supply” as it is called in the literature, allows the business to avoid the sales tax that would apply to equivalent purchased inputs.

²¹ Diamond, P., and J. A. Mirrlees, (1971), “Optimal Taxation and Public Production I: Production Efficiency, II Tax Rules,” *American Economic Review*, 61, 8–27 and 261–78.

²² The intuition is simple: any system of input taxes gives rise to some pattern of consumer prices through the embedding of taxes in prices, and it also causes losses in the efficiency of private production. Therefore, input taxes can be removed, and consumer tax rates adjusted, in such a way that consumer prices remain the same and production increases. With greater production efficiency, government revenue can be increased and the revenue redistributed in a way that makes all citizens better off than in the presence of input taxes. Note that the result requires assuming that pure rents to production are also fully taxed. See Bird and Smart ((2009a), The economic incidence of replacing a sales tax with a value-added tax: Evidence from the Canadian experience,” *Canadian Public Policy* 35, 85-97) for a further discussion of production efficiency and the GST.

²³ Indeed, under Australia’s GST, the terms “input tax paid” and “tax-free” are used in place of “exempt” and “zero-rated.”

This creates various economic distortions, specifically:

- **Input distortions:** An exempt producer will be inclined to reduce its market purchases of taxed inputs, in order to avoid tax. Where possible, it will substitute untaxed inputs for taxed inputs. A key example of this is the tendency to self-supply by exempt sectors under VAT. Since an exempt producer pays tax on its taxable inputs but not on its value-added, there is an incentive to move production in-house, in the form of purchases of untaxed labour and capital services, instead of market purchases of taxable inputs. For example, under the GST, most financial services are tax-exempt,²⁴ but most legal services are taxable. Financial institutions may therefore be induced to produce legal services using in-house legal staff, rather than purchasing them from separate law firms. In this way, self-supply reduces the revenues that can be obtained from exempt sectors under GST. More importantly, it means that exempt producers are making production decisions to reduce tax payable rather than to maximize pre-tax profit, which tends to reduce the productivity of the Canadian economy. An additional problem is the absence of a level playing field where exempt businesses compete with taxable ones. Where sales are made to final consumers or exempt businesses, an exempt supplier has a tax advantage over a taxable supplier. Conversely, where sales are made to taxable businesses, exempt suppliers are in fact at a cost disadvantage, relative to taxable suppliers.
- **Tax cascading:** Exemption of some sectors introduces tax cascading under VAT, since the taxes paid on purchases by exempt producers are embedded in their production costs, which raises the prices paid by other producers further down the production chain in a way that is not recoverable through input tax credits. The importance of tax cascading therefore depends on where in the production chain exemption occurs. Since financial services are a key input to production in many sectors of the economy, exemption of financial services may be creating complex cascading effects and production distortions. In contrast, exemption of goods and services purchased mainly by final consumers may be undesirable, because of its effects on input distortions, on tax revenues, and on the taxes embedded in consumer prices; but it does not create tax cascading to the same degree as for more primitive commodities.
- **Administrative and compliance costs:** Exemption adds complexity to the system, which can increase the costs of collecting VAT for governments and taxpayers — and can increase the potential for tax evasion as well. Businesses that sell both taxable and exempt products in particular must keep detailed accounts and allocate input tax costs between taxable and exempt lines of business according to tax rules that are sometimes complex.

The conclusion is that exemption is generally a bad idea; it breaks the VAT chain which creates non-neutralities; it increases collection costs; and it often does not reduce the effective tax rate on final consumption all that much. Exemption is widely used in Canada and elsewhere, however. In some cases, exemption may appear politically attractive to governments — it is a way of taxing production in a sector without appearing to do so. As with other hidden taxes, this temptation should be avoided.

²⁴ Most countries with VATs also exempt financial services, because of the difficulties associated with accurate measurement of value added in the sector; see McKenzie and Firth (2011). But exemption nevertheless creates input distortions in the financial sector, as in other exempt sectors.

b) The case for uniform taxation — and against reduced tax rates in GST

The second key property of an ideal VAT is that it is a uniform tax, levied at the same percentage rate on all consumer purchases of goods and services. When the tax is uniform, it raises the prices of all purchased commodities in the economy, but leaves their relative prices unchanged. This seems like a desirable property — often termed neutrality — since it means that the tax system does not favour some marketed commodities over others. In fact, neutrality in this sense is not always a desirable property of tax systems. For some commodities, a convincing case can be made that economic efficiency is enhanced if they are taxed at rates considerably higher — or sometimes lower — than for other commodities. For example, it may be desirable to tax things like tobacco, fossil fuels, and urban automobile use more heavily, in order to compensate for the costs their consumption imposes on other people.²⁵ It may be desirable to tax more lightly other things like education, work training and child-care services, because it enhances people's work productivity and so increases income tax revenues. Conversely, it may be desirable to tax more heavily things that are consumed together with leisure time, because taxing complements to leisure increases labour supply and so increases income tax revenues.

While this central intuition is strong, formal results on the structural of optimal tax rates are difficult in general. It is known that uniform taxation of all commodities is optimal only if all commodities have the same degree of substitutability with labour/leisure in preferences.²⁶ In highly stylized economic models,²⁷ it can be shown that it is desirable to depart from uniformity by taxing more than average a commodity (like ski equipment) that is complementary with leisure. Nevertheless, a full, formal description of the optimal tax structure has eluded economists. An alternative approach is to study tax reforms that are desirable (though not necessarily optimal). Smart,²⁸ building on the tax reform model of Ahmad and Stern,²⁹ showed that a reform moving towards greater uniformity of tax rates increases economic welfare when consumers' ability to substitute between taxed commodities is large, and ability to substitute between taxed commodities and leisure is small. The intuition is that taxing close substitutes at different rates creates tax avoidance opportunities that reduce government revenue and increase economic distortions of the tax system.³⁰

In spite of the theoretical ambiguities, for most commodities, uniform taxation is a reasonable benchmark for an efficient tax system. Again, a key intuition is that taxing all commodities in

²⁵ Cnossen, S., and M. Smart, (2004), "The taxation of tobacco," in *The Economics of Excise Taxation*, ed. S. Cnossen, Oxford University Press.

²⁶ Atkinson, A. B., and J. E. Stiglitz, (1976), "The Design of Tax Structure: Direct versus Indirect Taxation," *Journal of Public Economics*, 6, 55–75; Deaton, A., and N. Stern, (1986), "Optimally Uniform Commodity Taxes, Taste Differences and Lump Sum Grants," *Economics Letters*, 20, 263–6.

²⁷ Corlett, W. J., and D. C. Hague, (1953), "Complementarity and the excess burden of taxation," *Review of Economic Studies*, 21, 21–30.

²⁸ Smart, M., (2002), "Reforming the direct–indirect tax mix," *International Tax and Public Finance*, 9, 141–153.

²⁹ Ahmad, E., and N. Stern, (1984), "The theory of reform and Indian indirect taxes," *Journal of Public Economics*, 25, 259–298.

³⁰ Furthermore, economic losses from non-optimal taxation are approximately quadratic in tax rates. So larger departures from the optimal tax system are more than proportionately worse.

the same way permits revenue to be obtained while keeping the tax rate low for all. Uniform taxation alleviates certain practical difficulties in tax administration as well. In particular, operating a VAT with differentiated tax rates creates:

- **Administrative and compliance problems:** With differentiated rates, businesses must keep careful track of purchases and sales and apply the right tax rates to each one — and governments must provide clear distinctions through statute or regulation, while ensuring compliance through audit practices. Inevitably, there are grey areas that are difficult for tax authorities and taxpayers to deal with, which create a potential for tax evasion through misclassification, and which may lead to arbitrary and inequitable differences in taxation of economically similar activities;
- **Political difficulties:** The introduction of differentiated rates creates strong political incentives for interested groups to lobby to maintain tax preferences, even when their purpose is outdated, and to expand them to other commodities. Once rate differentiation is admitted, it is often the case that the genie is out of the bottle, and special treatment tends to multiply. Naturally, rate preferences for some commodities leads other interest groups to lobby for comparable treatment of their own sectors and activities. This process has been quite visible in the history of sales tax reform in Canada — consider for example the last-minute introduction of zero-rating for food and agricultural products for the GST;³¹ the preservation of existing tax preferences for housing, gasoline, books, and children's clothing, among others, when Ontario and British Columbia acceded to the HST, and so on.

EQUITY CONSIDERATIONS. In Canada, reduced rates of tax apply for domestic purchases of new housing, food, certain drugs and medical services (the latter two categories are in fact zero-rated). A common justification for these tax expenditures is equity. These commodities typically constitute a larger proportion of the household budgets of low-income families and, as such, reduced rates are seen by some as a means of increasing equity in the VAT system.³² But closer inspection shows that the case for reduced rates to enhance equity is weaker than it first appears. There are two key counterarguments:

- **Vertical equity:** Differentiated sales tax rates turns out to be a very imprecise — and very expensive — way to assist needy families. It is true that commodities like food are necessities that constitute a larger budget share for poorer households; in this sense, reduced taxation of food increases equity. But equity can be addressed at a lower cost in economic efficiency — and to the treasury — through the income tax system, through the use of means-tested tax credits that compensate low-income households for the consequences of taxing necessities. In other words, the distributional effects of sales taxes should not be considered in isolation from the effects of the income tax system. A progressive income tax system can vary with income and family characteristics and target the needy much more effectively than the sales tax system. The existing GST credit serves this purpose and, with appropriate adjustments to the credit amounts and claw-back rates, the case for exemption and zero-rating on equity grounds is probably unsustainable.

³¹ Bird, R. M. (2009), "The GST in Canada: Plus Ça Change, Plus C'est La Même Chose?" *Bulletin for International Taxation*, August/September, 414-423.

³² A related but different argument is specific egalitarianism. It is sometimes held that access to food and medicine is a basic right, and society should do more to ensure equal access to these things than it does to redistribute spending power in general. In the end, the implications of specific and general egalitarianism for the GST base are largely the same, and the same critique applies in both cases.

- **Horizontal equity:** When different tax rates apply to different commodities, then some consumers are discriminated against on the basis of their tastes in a way that is essentially arbitrary. To paraphrase an example favoured by Joe Stiglitz, to tax chocolate and not vanilla ice cream would be grossly unfair to chocolate lovers, and no one would propose it. By the same argument, zero-rating in the GST discriminates in favour of those who, for reasons of preference, devote a large budget share to food, compared to others of similar incomes. The equity basis for doing so seems distinctly weak.

REDUCED RATES, LABOUR-INTENSIVE SERVICES, AND SELF-SUPPLY. The preceding discussion emphasized that the theoretical case for or against a uniform consumption tax depends on the degree of substitutability in consumer preferences between taxed commodities and leisure time, in essence because taxing commodities changes work-leisure choices, which in turn affect government revenues from the income tax.

While these considerations may appear to non-economists to be somewhat abstract, they have a more practical analogue: taxes on purchased commodities can distort households' time allocation more generally, and in particular taxes on labour-saving services may lead people to devote more time to home production activities, at the expense of less time in market work and lower purchases of taxed commodities. This suggests a case for taxing commodities that are close substitutes for home production — such as home repair services and restaurant meals — at lower rates than other things. Thus Piggott and Whalley argue that the decision to broaden the base to tax services in the GST may have reduced economic welfare rather than increased it, because of its effect on self-supply through home production choices.³³ Kleven, Richter and Sørensen construct a theoretical framework which also suggests substitutes for home production should be taxed at preferential rates in a VAT.³⁴ Similar arguments have recently been used to rationalize reduced rates of VAT on “locally supplied services” in the European Union.³⁵

While self-supply through home production is a form of legal tax avoidance that governments should seek to minimize, related considerations arise in the analysis of (illegal) tax evasion. For labour-intensive services — including home repair activities of small traders, retail trade, and so on — value added is a high proportion of sales compared to purchased inputs, and sales are mainly to consumers rather than taxable businesses. This implies that the ITCs lost by failing to register for VAT are small compared to the tax evaded on the firm's own value added, so that incentives to evade VAT are stronger than in other sectors of the economy. In this sense, Emran and Stiglitz argue, VAT may encourage the development of an “informal sector” of small, labour-intensive businesses that have lower productivity than formal-sector businesses, but which have a comparative advantage in tax evasion.³⁶ Again, the implication is that taxing labour-intensive services at the same rate as other commodities may be welfare-reducing.

³³ Piggott, J., and J. Whalley, (2001), “VAT Base-Broadening, Self-Supply, and the Informal Sector,” *American Economic Review*, 91, 1084–94.

³⁴ Kleven, H. J., W. Richter, and P. B. Sørensen, (2000), “Optimal Taxation with Household Production,” *Oxford Economic Papers*, 52, 584–94.

³⁵ European Commission, (2007), “Communication from the Commission to the Council and the European Parliament on VAT rates other than standard VAT rates,” COM(2007) 380 final.

³⁶ Emran, M. S., and J. E. Stiglitz, (2005), “On selective indirect tax reform in developing countries,” *Journal of Public Economics*, 89, 599–623.

These considerations are important, but the economics literature as yet offers no concrete evidence on the magnitude of the associated economic distortions, and it offers few practical prescriptions on how to design consumption tax systems to minimize them. Existing evidence is probably not sufficient to justify departures from broad-based taxation of goods and services under a VAT. Further research is clearly needed.

5. ASSESSMENT AND OPTIONS FOR REFORM

The upshot of the foregoing general discussion is that the economic justification for the current system of zero-rating, exemption, and rebates under the GST is weak. In what follows, I offer some more specific discussion of possible areas for reform.

a) Food and agricultural products

The rules defining the ambit of zero-rated and taxable foodstuffs are complicated. For example, most beverages are taxable, unless they contain milk or at least 25 percent fruit juice. Uncarbonated water is taxable if sold in bottles of less than 600 mL and zero-rated otherwise, but carbonated water is always taxable. Potato chips are taxable but crackers are zero-rated. Under a Tax Court decision, prepared foods are zero-rated as groceries if the customer must reheat them in a microwave for at least three minutes, but otherwise are deemed taxable as restaurant catering. While perhaps none of the case law in Canada has approached the absurdities of legal determinations in the UK of whether a particular brand of cookies should properly be regarded as a cake, or whether heating a sandwich should change its tax rate, it is clear that the current system creates ambiguities, confuses consumers, and is prone to abuse. The principles underlying these distinctions are at times hard to discern.

Zero-rating of food is often seen as a key measure to preserve equity under the GST. Poor households spend a larger proportion of total expenditure on necessities like basic foods. As such, reduced taxation of food reduces the average tax rate more for poor households than rich households. However, as argued above, it turns out to be a very expensive way to achieve increased equity. Rich households also benefit from zero-rating, so that from a social policy objective much of the associated tax expenditure is wasted on the rich. Indeed, although the rich spend a smaller budget share on food, they spend a larger absolute amount on it than the poor. In this sense, the benefits of non-taxation accrue disproportionately to the rich, not to needy households. If there were no other way to target tax assistance to the needy, then non-taxation of food might be a sensible approach. But income tax measures can be better targeted to the needy than sales tax measures, and so can likely achieve the desired degree of redistribution at lower cost in revenues and economic efficiency.

The data in Table 3, from the 2008 Survey of Household Spending (SHS), give a sense of the magnitudes of these effects. The first column of numbers reports average expenditures on “Food purchased from stores”³⁷ for households in each decile of the distribution of adult-equivalent

³⁷ As noted, most, but not all, food purchased from stores is zero-rated under the GST. This discrepancy does not affect the subsequent analysis, as long as the proportion of food purchased from stores that is zero-rated is the same for rich and poor households alike.

income,³⁸ and the middle column reports these expenditures as a percentage of total expenditures of the households. Consistent with intuition, the budget share of food decreases with income, from 17.0 percent in the poorest decile of the population to 5.2 percent in the richest decile. But the first column shows that the level of expenditure is higher for poor families — in effect because the distribution of income in Canada is more unequal than the distribution of food expenditure. In this sense, much of the benefit from zero-rating food accrues to rich families. The third column reports the share of aggregate food expenditure in the SHS data accounted for by households in the decile — a rough measure of the distributional impact of the tax expenditure. Thus, for example, the policy might typically be thought to be targeted to households up to the third decile, where average household income is just over \$31,500 and the budget share of food is 13.7 per cent. But Table 3 shows that fully 78.4 percent of the tax benefit accrues to households above the third decile. Indeed, 25.9 percent of the benefit accrues to households in the top quintile, where average household income is more than \$157,000.

TABLE 3. HOUSEHOLD EXPENDITURES ON FOOD PURCHASED IN STORES

Decile	Household average:		Decile share of aggregate tax expenditure
	Annual food expenditure \$	Expenditure share of food	
1 (Poorest)	3255.3	17.0%	6.1%
2	4311.4	15.5%	7.1%
3	4735.7	13.7%	8.4%
4	5373.3	11.6%	9.4%
5	5621.6	10.7%	9.8%
6	6122.4	9.3%	10.9%
7	6170.3	8.1%	10.7%
8	6657.6	7.5%	11.8%
9	7004.2	6.7%	12.6%
10 (Richest)	7935.7	5.2%	13.3%

Source: Survey of Household Spending (2008)

As shown in Table 1, the revenue cost of zero-rating food now exceeds \$8 billion annually for Ottawa and the VAT provinces. This lost revenue does not of course represent the economic cost of the tax measure, but rather a transfer between government and taxpayers. Based on standard excess burden calculations, it is possible to estimate that, if food were fully taxed, and households in each income class were compensated for the additional sales taxes paid, net revenues would still rise by about \$1 billion annually.³⁹ In this sense, the economic cost of the policy is large.

³⁸ Rich families are larger on average than poor families, so that total household expenditures increase with income. To get a better measure of family welfare, I divide to pre-tax household income by the square root of household size to arrive at a measure of adult-equivalent income.

³⁹ This is a standard first-order approximation to the excess burden of non-uniform taxation of food relative to other commodities, and it assumes a compensated own-price elasticity of food demand of -0.25, and a compensated wage elasticity of food demand equal to -0.1. Details of the calculation are available on request.

In summary, the case for non-taxation of food and agricultural products under the GST as a redistributive policy is weak. A reform that introduced taxation of food, together with compensating changes in income taxation, would increase equity and economic efficiency at a lower cost to the treasury. Since food expenditures are increasing in household income, equity would increase even if compensation were in the form of a demogrant that was not means-tested, for example through enhancements to the Basic Amount and the Universal Child Benefit. But means-tested compensation, for example an increase in the existing GST income tax credit, would of course be more progressive. The problem with these alternatives is likely political rather than economic: there is some evidence that taxpayers respond negatively to highly visible sales taxes on day-to-day purchases like groceries, and they may not perceive a link between sales tax base-broadening and enhancement of income tax credits. For this reason, the income tax credit, however it were structured, would perhaps best be called the Food Tax Rebate.

b) Housing

Taxation of housing under the GST is complex. Residential rents other than for short-stay accommodation are GST-exempt, as are the consumption benefits (imputed rents) that owner-occupiers derive from living in their houses. The construction and sale of new housing is taxable under GST, but purchasers receive a 36 percent tax rebate for houses purchased at prices up to \$350,000, reducing the effective GST tax rate to about 3.5 percent. The rebate is phased out on sale prices between \$350,000 and \$450,000, so that houses selling for prices above this level are fully taxable at the standard rate.⁴⁰ For home renovations, supplies of building materials and contractors' services are fully taxable.

The correct treatment of housing under the GST is an important issue. By conventional estimates, housing consumption comprises more than 25 percent of all consumption in most industrial economies, and so a concomitantly large share of the potential base for value-added taxes and other broad-based consumption taxes. But many countries with VATs exempt housing from taxation, or tax it at substantially reduced rates.⁴¹ Taxing new houses comprises a large proportion of GST revenues, and for HST provinces, taxing houses is by far the largest single difference between the HST base and the provincial retail sales taxes it replaced.

It is commonly argued that an ideal VAT would tax all sales of houses at the standard VAT rate, with a credit paid (plus interest) to the seller for taxes previously paid in the case of resale.⁴²

⁴⁰ Provincial rebate policies under the HST and QST are different. New Brunswick and Newfoundland provide no housing rebates, and the rebate of 18.75 percent in Nova Scotia is available only to first-time buyers on houses and is capped at \$1500; there is no phase-out of the rebate. Since the provincial HST rate is current 10 percent, the reduced tax applies in effect to the first \$80,000 of the purchase price. In Quebec, the rebate is also 36 percent of QST, but the rebate is phased out at the lower level of prices between \$200,000 and \$225,000. In the newly acceding HST provinces, the rebates are much larger: in Ontario, the rebate reduces the effective tax rate from eight percent to two percent of the purchase price up to \$400,000, and in British Columbia it reduces the tax rate from seven percent to two percent of the price up to \$525,000. There is no phase-out of the rebate in either province.

⁴¹ Poddar, S. (2010), "Taxation of Housing Under a VAT," *Tax Law Review* 63, 443–713

⁴² Bradford, D. F. (2000), *Taxation, wealth, and saving*. MIT Press; Ebrill et. al. (2001), op. cit.

This would generate more revenue than the current system; it would avoid changing relative prices of new versus resale houses, and it would result in the tax burden being more fairly shared among successive house owners. Operating such a tax would however be administratively complex. There is often a decades-long gap between a purchase and subsequent sale of a house, so that recordkeeping for such a tax would be difficult. More important, the tax would apply in full to sales of existing homes at the time of introduction of the tax — with no credit for tax paid on the earlier purchase, since there was no VAT at the time — which would no doubt generate considerable political opposition from existing homeowners.

In short, such an ideal VAT is clearly impracticable, and no country with a VAT attempts to do so. Instead, a one-time tax on the full sale price of new homes serves as a “prepayment” tax on the discounted sum of expected future consumption benefits from the asset, which is approximately equivalent to the cash-flow approach.⁴³ But exempting resale while taxing new houses creates a different set of economic issues. Since newly built homes are subject to tax while resale homes are not, if the two goods are close substitutes (they should be), owners of existing homes at the introduction of the tax will receive a windfall gain in the value of their homes. This is evidently unfair to future taxpayers, but since future taxpayers do not vote today, they are frequently on the short end of transition arrangements like this.

I have recently analyzed these issues in a formal model of optimal taxation.⁴⁴ The fundamental problem is that a VAT on new houses alone increases the price of resale houses through arbitrage, which creates an economic distortion in the market. But this distortion generates relatively little revenue for the government because houses are long-lived assets; the windfall gains accruing to existing owners will for many years outweigh the revenue actually received by government from taxing sales of new houses. It turns out therefore that the appropriate treatment of housing within the VAT depends in a fundamental way on the planner’s preferences for redistribution across generations. In the formal theory, the optimal tax rate on new housing is generally less than that for other consumption goods over a long transition period, but it does converge to the standard VAT rate in the long run. Moreover, the appropriate housing tax rate in the transition is increasing in the distributional weight assigned to (or equivalently the political influence of) older generations, relative to the young and unborn. In this sense, the observed undertaxation of housing in real-world VATs is consistent with the theory of optimal taxation.

Housing is fundamentally different from other things in the theory because it is both a consumption good and a capital good. As emphasized recently by Buitert and others, the dual nature of housing implies that, for most households, changes in housing prices are nearly irrelevant for welfare and for life-cycle consumption decisions.⁴⁵ In my model, agents who are young or unborn are in a net short position in housing assets, and their welfare is decreasing in housing tax rates. Older agents in contrast are approximately neither net short nor net long in housing, so that housing prices have only second-order effects on their welfare — though housing tax revenues increase their welfare. It is this difference that drives the distributional conflict in the model. It should be clear that the associated intergenerational transfers are large.

⁴³ Bradford, D. F. (2000), *op. cit.*

⁴⁴ Smart, M. (2011), “Why do VATs tax housing so little?,” *Working Paper*, University of Toronto.

⁴⁵ Buitert, W. H. (2008), “Housing wealth isn’t wealth,” *Working Paper* 14204, National Bureau of Economic Research.

The market value of the stock of residential real estate in Canada is about \$2 trillion, or more than double annual personal consumption expenditures. The implicit transfer to older generations from exempting existing houses from a housing tax is therefore large.

The implications for the treatment of housing in the GST and HST are clear. Reduced taxation of newly built housing makes economic sense as a transition measure to reduce the implicit transfer to the existing generation of homeowners from the young and yet unborn. The appropriate magnitude of such rebates depends upon society's attitudes to redistribution between generations.

As a transition measure, however, new housing should be phased out over time to eliminate the long-run distortion in the prices of housing and other consumption. While the proportional GST rebate rate has remained unchanged for 20 years, the de facto policy of keeping the sale price thresholds for the rebate fixed in nominal terms makes sense. Similarly, the decision to offer enhanced rebates in the new HST provinces of Ontario and British Columbia in 2010 can be justified by the desire to give similar compensation to future homeowners in those provinces. This fact notwithstanding, the introduction of larger provincial rebates offers no justification for enhancing the rebates in the federal GST commensurately — as some in the housing industry have recently argued.

c) Public sector bodies

While the GST was initially designed to be more inclusive of non-profit and public sector activities than the older VATs of the European Union, the reality is that public sector bodies are largely untaxed. While much of the sector is formally GST-exempt, meaning that taxes are paid on inputs rather than value added, there are a variety of additional reliefs built into the system. For example:

- In the **education** sector, tuition payments are exempt, and rebates are granted at prescribed rates for GST paid on purchases by schools (68 percent), and non-profit colleges and universities (67 percent), as well as a 100 percent rebate for books purchased by public institutions.
- **Health-care** services are GST-exempt, and the input tax burden on health-care production is alleviated through rebates of input taxes to hospitals (83 percent) and long-term care facilities (50 percent).
- **Municipal services** including public transit, water, and garbage collection are exempt. Municipalities have since 2004 been eligible for a 100 percent rebate of input taxes paid, meaning that the sector is in fact zero-rated rather than exempt.
- Certain activities of **non-profit organizations and charities** are exempt, and a 50 percent rebate of input taxes is payable in respect of these activities.

The various rebate rates were chosen at the inception of the GST so that tax burdens on these sectors would be the same as estimated under the Manufacturers' Sales Tax of the status quo ante. Through long use and what may be the natural persistence of such special policy measures, the rebate rates have for the most part remained unchanged.

The complexity of the current system should be clear. Most public sector bodies like universities are engaged in both taxable and exempt activities. Careful accounting is required to keep the business lines separate, and input tax credits and rebates must be prorated accordingly. Perhaps more important, the system of exemption and partial rebating creates incentives for self-supply that distort organizational decisions in the broader public sector. Prior to the introduction of the 100 percent rebate for municipalities, the GST was an explicit barrier to contracting out services to the private sector, where economic or political considerations would otherwise have dictated it. Similarly, in the health-care sector, GST rebates create an economic incentive to provide services through hospitals or government agencies (since provincial governments are not subject to GST), rather than through doctors' offices or other non-traditional health-care facilities that are GST-exempt but not eligible for rebates. This non-neutrality might be having important effects on how health care is delivered in Canada.

These various distinctions become more murky, and more costly, as the size of the broader public sector grows as a share of the economy, and the methods of service delivery evolve beyond traditional forms of production through government organizations to encompass contracting out, privatization, and public-private partnerships. Arguably, the distinctions in the GST are no longer well-adapted to the reality of public service provision. The result is that various organizations doing similar things are taxed quite differently from each other, production decisions are distorted, and for-profit and non-profit organizations do not compete on a level playing field. (In general, the direction of these distortions in competition is unclear. The current system clearly favours organizations that are eligible for rebates over competitors that are not. But it also tends to favour taxable organizations that are eligible for input tax credits over exempt organizations that receive less than 100 percent rebates of input taxes.)

A number of alternative solutions could be contemplated for these problems. The simplest is to make these activities taxable under GST, as is the case in New Zealand and Australia, thus correcting both the supply-side distortions resulting from incomplete rebating of input taxes and the demand-side distortions from undertaxation of outputs. The revenue implications of the change would be comparatively small. In some cases, tax paid by a supplier would actually fall, if current unrebated input taxes exceed tax payable on currently exempt supplies. Furthermore, since most of these organizations are principally financed through transfers from governments, the revenue impacts of the tax could be compensated through changes in grants. The chief objection to full taxation is again likely political: governments might be reluctant to be seen to be taxing services like health care, even in a revenue-neutral fashion. If that is the case, zero-rating seems like a preferable alternative to the current system of exemption and rebates. It would eliminate supply-side distortions, and it would simplify the system by eliminating the need for explicit rebates and the complex accounting associated with them.

d) Small traders

Exemption and reduced rating are also applied to so-called small traders, regardless of the goods or services that they supply. Traders whose worldwide taxable supplies (i.e., sales) do not exceed \$30,000 in any year are exempt from GST; however, they may optionally register to be taxable. Other special provisions are also designed to reduce compliance costs to small businesses. Traders whose taxable sales do not exceed \$200,000 annually are eligible to opt for the Quick Method of remitting GST, under which they calculate their net tax liability by multiplying their taxable sales by a specified rate that is lower than the standard rate of tax;

those using the Quick Method are not eligible for input tax credits.⁴⁶ Additionally, suppliers with taxable purchases less than \$500,000 in the previous year are eligible to use the Simplified Method of accounting, under which ITCs can be claimed by multiplying the total value of taxable purchases by a specified percentage (for example, 13/113 for supplies received in the province of Ontario), instead of accounting for GST/HST on each invoice separately.⁴⁷

In total, the number of traders using these systems appears to be small,⁴⁸ and the proportion of value added affected is of course even smaller. As a result, the estimated tax expenditure for small traders, reported in Table 1 is also small — though perhaps surprisingly so. Although the registration threshold has been fixed in nominal terms since 1991, it is still around the midrange of those applying in other OECD countries⁴⁹ — though well below the thresholds of approximately USD \$100,000 applying in the UK, France, and Japan. As well, many suppliers below the threshold choose to register in order to receive input tax credits, particularly those mainly supplying other taxable traders, for which tax payable on the supplies is in turn creditable against output GST.

In effect, the Quick Method converts the GST/HST from a VAT into a turnover tax without ITCs for small traders, albeit at a reduced rate, and the Simplified Method reduces compliance costs at the possible expense of tax auditors seeking a paper trail linking ITC claims to suppliers' GST/HST remittances. Exemption under the threshold or through the Quick Method creates supply-side distortions for the affected businesses, since they will seek to avoid unrecoverable input taxes. Exemption below the threshold also results in an unlevel playing field for these businesses in their output markets — on the one hand, giving them an advantage over taxable businesses if they mainly supply final consumers, but disadvantaging them if they mainly supply other taxable businesses.

These problems and distortions must be weighed against the advantages of the methods in terms of compliance costs saved for small business, and collection costs saved for government. Analyzing this tradeoff in a formal model of optimal taxation, Keen and Mintz derive a simple analytical formula for the optimal VAT threshold.⁵⁰ Simulations suggest that the threshold should be in the range of \$100,000 or even substantially higher, and that a large proportion of businesses should optimally be left unregistered for VAT. This suggests at least a prima facie case for increasing the GST threshold and indexing it to inflation.

⁴⁶ For example, the quick method reduces the effective tax rate under GST/HST in Ontario from 13 percent to 4.4 percent for retailers and 8.8 percent for certain services businesses. The Quick Method remittance rates vary in complicated ways depending on the good or service supplied, the province of residence of the supplier, and the province in which the supplies are deemed to have been made.

⁴⁷ The Quick Method and Simplified Method are described in "General Information for GST/HST Registrants," RC4022(E) Rev. 12/2010, an 83-page guide from the Canada Revenue Agency. Clearly, at CRA, "simplified" is a term of art.

⁴⁸ Bird, R. M., and P.-P. Gendron, (2009), "Sales taxes in Canada: The GST-HST-QST-RST `system,'" *Tax Law Review*, 63.

⁴⁹ OECD, (2006), *Consumption Tax Trends*.

⁵⁰ Reference not listed.

Of course, these conclusions depend in substantial degree on assumptions about the economic costs of input and output distortions stemming from exemption, as well as the magnitude of GST compliance costs for small traders. Indeed, the compliance cost savings from the small trader exemptions may in part be illusory. Mirrlees et al. note that because exemption is optimal, businesses have an incentive to compute their net tax liabilities under all of the methods for which they are eligible — exemption, the Quick Method, and full taxation — and to choose whichever method is most profitable.⁵¹ Indeed, many accountants and tax advisers routinely insist on computing all methods in order to avoid the risk of professional liability if the wrong method is chosen. Thus the optional nature of exemption may actually increase compliance costs for small business, even though its explicit intent is to reduce them.

The remaining advantage of the Quick Method is that it creates an incentive for small and medium-size businesses to register and remit GST/HST, rather than evading the tax by remaining unregistered. Under the Quick Method, businesses are legally required to charge the full amount of GST/HST to customers (though the economic incidence of the tax may of course be partially shifted backward), but they remit only a fraction of that amount to CRA. For labour-intensive small businesses, the tax charged but not remitted almost certainly exceeds the ITCs foregone under the Quick Method. In effect, for these businesses, the Quick Method acts as a financial incentive to register and remit some tax instead of evading it entirely.

Economic analysis in this area is still quite conjectural, and policy recommendations are therefore subject to more qualifications than on other matters. While a case can be made for increasing and indexing the registration threshold, too little is yet known about compliance costs, lost revenues, and the incentives for registration and tax evasion among small traders.

6. CONCLUSIONS

The recent expansion of value-added taxation in Canadian provinces is regarded by most economists as a substantial policy success. But the expansion of VAT in Canada brings new concerns. While economists agree that provincial VATs are preferred to the retail sales taxes they replaced, specific design problems in the tax base create economic distortions for consumers and productivity losses for business. As the VAT rate has roughly doubled in adopting provinces since 1991, these distortions have increased in importance. The standard rule of thumb is that the cost of economic distortions is proportional to the square of the tax rate, which would imply that distortions are about four times larger now in adopting provinces than when the GST base was originally designed.

The principal conclusions of this paper are as follows:

- The cost of tax expenditures under provincial VATs in Canada has not previously been reported. I estimated that incorporating provincial VATs roughly doubles the tax expenditure estimates published by the federal Department of Finance.
- Notwithstanding recently published data from the OECD, as conventionally measured, the C-efficiency of Canada's VATs is well below the average of OECD countries.
- Several specific reforms should be contemplated.

⁵¹ Mirrlees, J. A. et al. (2011), *Tax by Design*, Oxford University Press.

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