

THE STUDY IN BRIEF

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The federal government has been encouraging the five provinces that employ outdated retail sales taxes to harmonize their sales taxes with the federal goods and services tax (GST). This *Commentary* examines the case of Ontario, and concludes that a made-in-Ontario value-added-tax (VAT), compatible with the GST, is the best option.

Existing retail sales taxes have serious drawbacks: i) they result in uneven effective tax rates on consumption because many nondurable goods and services are not taxed; ii) they impose cascading business taxes on business inputs that are eventually borne by consumers in the form of higher prices; and iii) retail sales taxes make it more difficult for businesses to compete in global markets and to invest in capital. In Ontario, the largest province that still retains an antiquated sales tax, a third of the tax is levied on intermediate and capital goods.

This study concludes that, for Ontario, the federal GST's exemptions and zero rating for some goods and services, and its treatment of housing and financial services, make fully harmonizing with the federal tax a less desirable reform than adopting a distinct value-added tax, nearly harmonized with the federal tax base, and set at a rate of 7.5 percent.

A made-in-Ontario VAT could capture most of the benefits of an internationally competitive sales tax, and it would reduce distortions caused by the existing sales tax, encourage investment, improve fairness, and help to reduce compliance and administrative costs associated with tax collection.

Macroeconomic simulations suggest that a 7.5 percent Ontario VAT would substantially eliminate the sales tax burden on capital goods and exports, resulting in an increase in real personal income and labour productivity over the medium term. An even lower rate of 7 percent could be achieved by broadening the tax base to include more services and by initially maintaining some taxation of business inputs.

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INDEPENDENT • REASONED • RELEVANT

In the past three budgets and a recent economic update (Canada 2007), the federal government has encouraged the five provinces with retail sales taxes (RSTs) – British Columbia, Manitoba, Ontario, Prince Edward Island, and Saskatchewan – to adopt a provincial sales tax that is harmonized with the federal goods and services tax (GST).

The purpose would be to improve competitiveness and fairness and to replace an outdated sales tax regime that cannot keep up with economic growth and public financing requirements. Current sales taxes result in uneven effective tax rates on consumption because many nondurable goods and services are not taxed and because cascading business taxes are borne by consumers through higher prices. Furthermore, retail sales taxes – now abandoned as a form of taxation in most parts of the world, but not in North America – make it more difficult for businesses to compete in global markets and to invest in capital. In Ontario, a third of these taxes are levied on intermediate and capital goods.

Ottawa is right to encourage the provinces to reform their sales taxes. Quebec, New Brunswick, Newfoundland and Labrador, and Nova Scotia have already abandoned their retail sales tax regimes in favour of a value-added tax (VAT), similar to the GST, that is now widely used in more than 140 countries. The three Atlantic provinces have adopted a harmonized sales tax (HST) that has the same base as the GST and a provincial tax rate of 8 percent, while Quebec's sales tax is a VAT that differs somewhat from the federal GST. The other provinces should now consider reforming their sales taxes to enhance competitiveness and improve their medium-term fiscal prospects.

In this *Commentary*, we discuss the policy issues and distributional questions surrounding the case for sales tax reform in Ontario – the largest province that still retains an antiquated retail sales tax. In particular, we look at the macroeconomic impact of Ontario's adopting a provincial VAT fully harmonized with the federal tax base at a rate of 7.5 percent. An even lower rate of 7 percent could be achieved by broadening the tax base to include more services and by initially maintaining some taxation of business inputs. Such a rate would not necessarily lead to revenue losses, given the off-setting effect of the recent reduction in the federal GST rate and a possible transfer of revenue from Ottawa, funded in part from federal fiscal gains resulting from provincial sales tax reform. A made-in-Ontario VAT could capture most of the benefits of a fair, broad-based, and internationally competitive sales tax. It would reduce distortions caused by the existing Ontario sales tax, encourage investment,¹ improve fairness, and help to reduce compliance and administrative costs associated with the collection of the tax.

The federal GST applies broadly to most consumer goods and services, but businesses (both incorporated and unincorporated) receive a refund for tax they pay on business purchases. Ontario's RST, in contrast, applies more narrowly to goods and excludes most services. Ontario does provide exemptions to registered businesses for products which are used in producing taxable goods, and also provides exemptions for production machinery. However, many intermediate business inputs and capital goods are subject to sales tax. Indeed, Ontario raises more than one-third of its RST revenues – of which it expected to collect \$16.7 billion in fiscal year 2007/08 – by taxing business purchases of intermediate and capital goods.² However, since business inputs that are used in producing such products as clothing, consumer appliances, automobiles, and computers

1 Smart (2007) estimates that, if one fully disentangles the impact of replacing the RST with the HST in New Brunswick, Newfoundland and Labrador, and Nova Scotia from growth in the oil and gas industry especially in the latter two provinces, the reform increased investment in machinery and equipment by 12 percent.

2 Ontario's RST revenues have grown at a rate of about 3 percent per year over the past five years – more slowly than gross domestic product (GDP) – which compromises the fiscal flexibility the province needs. By comparison, federal GST revenues grew by 5.1 percent annually over the years 2001 to 2005, slightly faster than nominal GDP growth (Bird, Mintz, and Wilson 2006). Over longer periods, such as between 1991 and 2005, however, the GST and RST growth rates were similar.

are subject to the RST, which is generally hidden from consumers, such goods are taxed more highly than Ontario's 8 percent statutory tax rate. This tax on business inputs hurts the province's international competitiveness, because Ontario businesses must absorb the tax in face of international competition in export and import markets. Furthermore, the RST is levied on capital purchases, with twice the impact that the Ontario capital tax has in raising the effective tax rate on capital (Chen, Mintz, and Tarasov 2007).

The federal GST, while superior in design to provincial RSTs, is not necessarily the best sales tax, given its exemptions and zero rating for some goods and services and its treatment of housing and financial services. For example, the high price of housing in Ontario might justify setting a higher exclusion from tax on new homes. Moreover, since financial services are generally exempt from GST – meaning that input credits are not available for those services to the businesses that supply them – Ontario might wish to rebate some or all of the sales taxes paid by such businesses by zero rating financial services, as Quebec has done. Such a reform could also assist very small businesses by setting a higher threshold above which they would be required to participate in the VAT system.³ These considerations suggest that a made-in-Ontario VAT could be a better choice than full harmonization with the federal GST.

What Ontario should not do is seek to apply special, politically favoured exemptions from the GST base. Commonly mentioned examples are books and home heating fuels, which are sometimes treated as merit goods, deserving of special treatment because they are good for residents or because they are necessities – indeed, given the environmental issues involved, some might question regarding home heating fuel as a merit good. However, such exemptions are unfair because they would relieve high-income consumers from the tax. Moreover, exemptions would com-

plicate the VAT by requiring businesses to keep track of special exclusions. In addition, given the need to raise sufficient revenue to fund desired services, exemptions would mean that other merit goods or necessities would be more highly taxed. For these reasons, exemptions to the VAT (or GST) base in Ontario generally should be avoided except for sound economic reasons or as transition measures. Rather than exemptions, other approaches could be used, such as refundable tax credits for low-income consumers or grants for home heating.

Sales Tax Harmonization Efforts in Canada

In 1991, the federal government replaced its narrowly based manufacturers' sales tax with the broadly based GST, at a 7 percent rate. In doing so, it adopted the invoice-credit method used in most countries with VATs, under which a business charges tax on sales to consumers and claims a refund for VAT charged on business purchases, remitting the difference to the government and claiming a refund if tax credits exceed the amount of tax collected.

The GST is applied to most goods and services, although groceries and medical supplies are generally zero rated, meaning that no tax is collected on sales and that input tax credits are refunded. Exports are also zero rated, while imports are subject to GST at the border, since the intent is to tax goods and services consumed, rather than produced, in Canada.⁴ Rental housing, nonprofit institutions, most financial services, and nonregistered small traders (with sales less than \$30,000) are exempt – in these cases, no tax is charged on sales but no input tax refunds are provided. Universities, schools, and hospitals charge no tax on sales but may claim a partial rebate of taxes (about two-thirds for universities and schools and five-sixths for hospitals) on purchased inputs. Municipalities charge no tax but

3 Under most VAT systems, small businesses are exempt below a particular threshold – for the federal GST, it is currently \$30,000 of sales and other taxable revenues. Ontario could choose a higher threshold to reduce costs without harming efficiency by giving an advantage to small businesses – see Keen and Mintz (2004).

4 This is the so-called destination principle for sales taxation. The alternative would be to tax goods and services on the basis of origin – that is, production would be taxed, whether consumed in Canada or exported, while imports would be free from tax.

may claim a full rebate of tax. Charities are able to claim a refund equal to 50 percent of GST paid on their inputs. New houses sold at a price greater than \$472,500 are fully subject to GST; sellers of houses priced below \$361,200 receive a rebate that lowers the effective tax rate to 3.2 percent; and sellers of houses priced between \$361,200 and \$472,500 receive partial rebates.⁵

At the same time that the federal government introduced the GST, Quebec developed its own tax, the Quebec Sales Tax (QST), to replace its former RST. Rather than harmonizing fully with the federal GST, however, Quebec entered into an agreement with Ottawa whereby the province would administer both the GST and QST for Quebec-based businesses. Initially, the QST was levied at a rate of 8 percent on goods and 4 percent on services (applied to prices inclusive of the federal GST). Quebec also prohibited the use of “input tax refunds” – a term synonymous with the federal “input tax credit” – on a selective basis, which continues in modified form today.⁶ Unlike the federal GST, Quebec zero rates financial services and, therefore, refunds taxes paid on inputs. These and other differences from the federal GST were initially criticized for complicating the sales tax’s design, causing undue compliance and administrative costs. Over time, however, the QST has moved closer to the federal GST, including the adoption of a uniform tax rate on goods and services and several harmonized administrative practices. In 1994, the rate on goods and services was equalized at 6.5 percent, and increased to 7.5 percent in 1998.

As the Quebec case illustrates, harmonization of the federal and provincial sales taxes has always been

an important issue. When the Liberal government was elected in 1993, it had undertaken to replace the GST with a new tax. The House of Commons Finance Committee that studied the issue recommended that the replacement tax should be a sales tax harmonized with the provincial sales taxes, thus retaining the GST in its basic form. The federal government subsequently invited the provinces to convert their RSTs into taxes harmonized with the GST using the same base and a uniform provincial rate of 8 percent.⁷ Alberta (with no sales tax), British Columbia, Manitoba, Ontario, Prince Edward Island, and Saskatchewan all spurned the offer, but New Brunswick, Newfoundland and Labrador, and Nova Scotia accepted a one-time payment of close to \$1 billion to replace their RSTs with a Harmonized Sales Tax collected by the federal government. The HST was originally set at a rate of 15 percent (a 7 percent federal rate plus an 8 percent provincial rate), with revenues allocated to the three provinces according to their provincial share of taxable goods and services.⁸ Following two cuts to the federal rate, the current HST rate is 13 percent.

Given the lack of subsequent progress in persuading others to join the three Atlantic provinces, it seems that the federal position, which required full harmonization of both the base and rate among all provinces, was too inflexible. Even though it would be a significant benefit for many provinces, in terms of minimizing compliance and administrative costs, no province has been willing to adopt the same approach. In part, although sales taxes on business inputs are largely shifted forward onto consumers,⁹ the other provinces have shied away from explicitly removing taxes on business inputs and expanding the tax to include more

5 The effective tax rate for new houses priced at \$361,200 or less is 3.2 percent. As the price rises above \$361,200, the tax rate increases, reaching 5 percent at a price of \$472,500.

6 No input tax refunds are given for telecommunications (except for toll-free and Internet access), motor vehicles weighing less than 3,000 kg and related services, and electricity, gas, and fuel. These limitations on input tax refunds apply to businesses with more than \$10 million in sales and to all financial businesses.

7 Since Quebec’s tax is levied on prices inclusive of the federal GST, its current rate of 7.5 percent is effectively close to 8 percent.

8 The agreement, however, also imposes rigidity in setting tax rates: currently, none of the three provinces may raise its rate by more than half a percentage point without the agreement of one other province or lower its rate without the agreement of the other two provinces.

9 Ontario’s small, open economy means that business taxes will generally be shifted forward onto consumers facing higher prices, as suggested by evidence in Smart (2007), or backward onto immobile labour in some industries. Taxes are less likely to be shifted back onto mobile capital, however, since Canadian investors could shift their investments to international markets if the return on their domestic savings fell below international returns.

consumer goods and services. Perhaps doing so would be more attractive if the tax rate could be reduced at the same time, but the current HST framework provides little leeway for the provinces to differentiate their tax rates or bases – freedom that might be needed to win political acceptance for tax reform.

Why Ontario Needs Sales Tax Reform

The aim of taxation is to raise revenue with the least pain. Taxes should treat individuals and families fairly, by imposing the same burden on taxpayers with similar resources and by adjusting the tax burden to suit individuals' abilities to pay. Tax policy should also minimize distortions by taxing goods and services similarly so that resources are free to flow to their best use. Finally, taxes should be set to keep compliance and administrative costs as low as possible. Ontario's current RST, however, leaves both consumers and businesses worse off as a result of several economic distortions:

- Consumer decisions are distorted and residents are unfairly treated because sales tax rates vary across products, owing to exemptions and the cascading of taxes – whereby taxes apply to products already exposed to indirect input taxes in production; such cascading means that consumer products, even those that presumably are exempt from taxation, are more expensive than they otherwise would be.
- Higher production costs impair the competitiveness of Ontario businesses in international markets because their costs include the payment of the RST on many inputs; taxes on inputs also make it more difficult for Ontario businesses to compete against imports.
- The imposition of the RST on capital inputs substantially increases the effective tax rate on capital, which impairs investment and results in lower labour productivity, ultimately lowering the Ontario economy's performance and reducing the earnings of residents of the province.

The variation in effective Ontario RST rates is substantial, driven in part by differences across industries in the composition of their capital and other business inputs and by the amount of processing done within the province. The effective tax rates, hidden in business costs, are 3.6 percent for nonresidential construction, for example, and 4.5 percent for machinery and equipment (see Table 1). Consumer durables such as automobiles and furniture tend to embody relatively high effective tax rates, while legal and accounting services embody slightly lower ones.

Ontario's RST on capital investment significantly increases the effective tax rate on marginal investment (the marginal effective tax rate, or METR) from 28.1 percent to 37.0 percent. By comparison, the capital tax, which is now being phased out, raises the METR by about four percentage points (Chen, Mintz, and Tarasov 2007). The long-run effect of the RST is to reduce capital stock by 9 percent, implying that removing it in favour of a tax system that did not bear on business inputs would boost Ontario's capital investment by \$36 billion¹⁰ – an effect that is roughly equivalent in scale to the estimated impact on investment in New Brunswick, Newfoundland and Labrador, and Nova Scotia after those provinces adopted the HST in 1997 (see Smart 2007).

The advantage for Ontario of replacing its RST with a VAT is the potential for the new tax to improve fairness and reduce economic distortions. A VAT would apply more generally to most goods and services, which would be fairer and less distortionary across individuals and families. Moreover, if businesses were able to reclaim taxes paid on upstream business inputs, the Ontario sales tax regime would also be more competitive internationally. In principle, the RST should operate as a tax on consumers, similar to any VAT. The RST could be applied more generally on goods and services, and general exemptions could be put in place to relieve businesses from paying the tax on intermediate and capital inputs, which would make the RST more closely mimic a VAT. Indeed,

10 Assuming an elasticity for the response of capital to the METR of -0.7 and net capital stock of \$412 billion (net capital stock, total components, geometric depreciation, in Ontario, 2006). This result does not take into account other factors that could ultimately impact on investment such as changes in interest rates and budgetary balances that are picked up in the macro-economic model that is presented later.

Table 1: Retail Sales Tax Revenue and Effective Tax Rates, by Component, Ontario 2003

	Sales tax revenue \$Millions	Effective tax rate Percent
Machinery and equipment, non-government sector	1,425	4.5
Machinery and equipment, government sector	115	2.9
Construction excluding housing, non-government sector	432	3.6
Housing construction, non-government sector	892	3.1
Construction, government sector	308	3.6

Note: The RST for construction assets includes tax paid on the intermediate inputs embedded in a building or in other types of structure, and paid by the construction industry.

Sources: Department of Finance, Statistics Canada (Input-Output data for 2003), C.D. Howe Institute.

in recent years, some provinces have expanded their RST base to include more services, such as insurance; British Columbia has also extended exemptions from RST to business capital purchases, thus cutting the effective tax rate on capital. These attempts to improve the RST have generally failed, however, to achieve a fair and efficient sales tax regime. The reason is that it is virtually impossible to develop a system of exemptions that eliminates most RST on business inputs without its becoming highly complex and subject to significant monitoring costs. For the RST to be removed on business inputs, a registered business would have to provide an exemption registration number to the vendor to indicate that no tax should be levied on the product.¹¹ Given that many products, such as motor vehicles and computers, can be used for both consumption and business purposes, it is problematic for governments to monitor the awarding of exemptions to ensure that tax is collected on consumption. Furthermore, tax evasion could be quite significant, as taxpayers who are exempt from collecting tax on business sales could buy tax-free goods and services and sell them without tax in the underground economy.¹² A VAT, under which vendors levy the tax on all customers and reg-

istered businesses claim refunds, provides a better system for relieving business inputs from taxation.

The VAT is not perfect. For example, unlike the RST, which applies only at the final stage of production and therefore does not involve other producers in the economy, the VAT must be collected at every stage of production. Also, in many countries, the VAT is levied at multiple rates, and there are exemptions that lead to inefficiency and unfairness (Keen and Lockwood 2007). A VAT can also be subject to tax evasion, as when businesses do not collect tax on sales to consumers even though they receive a credit for VAT paid on their business inputs. Further, under the invoice-credit refund system, businesses that mainly sell goods and services to other businesses have an inducement to register to collect VAT in order to obtain refunds of tax on their inputs, which raises compliance costs because more registrants participate in the system than might otherwise be required. Nonetheless, as so many countries have discovered, the VAT is a more efficient mechanism for collecting consumption taxes, since vendors need not distinguish between registered and nonregistered consumers because all sales are taxed, and only registered businesses can claim a refund for taxes paid on their inputs.

11 Under the "suspension approach" used in the VAT system for some products, vendors do not collect tax that purchasers are unable to claim for credit. Under the federal GST, for example, provinces are exempt from paying tax because, for constitutional reasons, the federal and provincial governments cannot tax one another.

12 The Ontario RST must be collected by all vendors regardless of size in order to minimize tax evasion and avoidance.

The Economic Effects of a VAT in Ontario

What would be the economic implications of introducing a VAT in Ontario? Here, we examine a made-in-Ontario VAT that entails harmonization with the federal GST and a half a percentage point reduction in the sales tax rate to 7.5 percent, taking into account recent reductions in the federal GST.¹³ Importantly, improvements in economic activity in Ontario would help smooth the path to provincial sales tax reform. Moreover, as we will see below, a transfer based on federal revenue gains from Ontario sales-tax harmonization would ensure that the province's revenue losses would be small, even if it were to lower its sales tax rate to 7.5 percent.

Harmonization Issues

Harmonizing the provincial RST and the federal GST would change the sales tax burden across the major categories of expenditure and possibly alter the total tax take. From this point spring the three principal issues that concern us in modelling the economic effects of harmonization.

The first issue is the extent to which removing the sales tax burden from investment and intermediate goods would improve the productivity and international competitiveness of the Ontario economy. Currently, the RST is levied on a number of intermediate and capital goods and, as a cost, passed through into the prices of many exports and investment goods.¹⁴ Harmonizing the RST and the GST would largely remove this tax burden on business, and the prices of exports and investment goods should fall. Lower business costs

should increase Ontario's competitiveness in international markets, while cheaper investment goods would encourage more investment and, therefore, a higher capital stock for Ontarians to work with, improving their future labour productivity. In the long run, therefore, harmonization should add to Ontario's GDP by expanding productivity and competitiveness.¹⁵

The second issue relates to the effects of harmonization on consumer prices, while the third issue concerns "revenue neutrality" – the two issues are closely related. If tax were removed from intermediate and investment goods, then revenue would be lost – that is, harmonization would not be revenue neutral – or other taxes would have to be raised, or the harmonized sales tax burden on consumption and residential investment would have to be increased, in which case harmonization would show up as an initial increase in consumer prices and a corresponding reduction in consumers' purchasing power. In fact, these effects would occur even if sales tax reductions on business inputs were eventually and completely passed through to consumers. Our model also assumes complete pass-through of sales tax reductions on capital goods to business purchasers, but the resulting stimulus to capital formation and labour productivity takes a number of years to be fully realized. Unfortunately, since a rise in the consumer price index (CPI), even temporarily, also would mean an increase in a key measure of inflation, the Bank of Canada would need to be careful how it reacted to this price increase, given that a rise in the measured cost of living might be passed through to wage demands, which would touch off a (limited) wage-price spiral. The Bank's policy is to target the rate of inflation of the core

13 Additional simulations in the Appendices explore the sensitivity of the results to the harmonization rate and consider the joint effect of harmonization and recent reductions in the GST. All the model simulations involve complete harmonization with the federal GST. However, as noted below, a strong case can be made for having the Ontario VAT deviate from the GST.

14 Bird and Smart (2008) find that in the long run, on average, business input taxes raise consumer prices by an amount equal to the tax.

15 By itself, harmonization would not change the "full employment" or "natural" unemployment rate in the province nor, in our models, does it have any effect on population or labour participation. In the longer run, the models tend toward the full employment rate; combined with no change in the labour force, that means there is little long-run effect on employment. Since the long-run result of harmonization would be to increase real wages, an increase in labour participation might be forthcoming and add to the positive economic effects, but the labour force equations we use in our models reveal no significant real-wage effects. It is certainly possible, however, that harmonization could further increase Ontario's GDP in the long run by inducing more individuals to participate in the labour market.

CPI, which excludes the effects of indirect-tax changes but which would show an impact if wage pass-through occurred. Our macroeconomic model can assist in disentangling these effects and gauging their size, and a revenue-neutral rate can be determined (it turns out to be just above 8.1 percent for 2008) or the revenue losses initially assessed if a lower rate were chosen.

One specific issue not captured in this type of model is the distortion of choices that results from the uneven effective tax rates on various consumer goods and services and business inputs. Reducing such differences would make consumers better off and increase business productivity, because products and inputs would be chosen for economic reasons, rather than as a result of the vagaries of the Ontario sales tax system. Because these factors are not included in the macroeconomic model, our estimates of potential economic gains from Ontario sales tax reform are understated.

Modeling the Effects of Harmonization

In modeling the effects of harmonizing Ontario's RST and the federal GST, we consider two simulations, both of which use a provincial rate of 7.5 percent. This rate is our preferred alternative since, although it would result in a net loss of provincial revenue, it would reduce short-term transition costs to the economy. As we show below, a rate of 7.5 percent would also generate in a few short years additional federal revenues from improved economic output such that a good portion of the revenue lost to the province could be made up by federal transfers with no net effect on the federal budget balance.

The first simulation thus measures the effects of harmonization at a rate of 7.5 percent; the resulting harmonized rate, therefore, would be 12.5 percent: a provincial rate of 7.5 percent plus the current GST rate of 5 percent. The second simulation examines the harmonization effects of the Bank of Canada's choosing to ignore the modest CPI inflationary effects that would occur and to keep nominal interest rates unchanged from the no-harmonization "base case." To demonstrate

the sensitivity of the results, Appendix 2 considers two additional simulations, one that simulates harmonization at 8 percent, and one at 7 percent.

SIMULATING RST-GST HARMONIZATION AT 7.5 PERCENT: Briefly, our simulation of harmonization at 7.5 percent is a story of longer-term economic gain following some modest short-term economic loss (see Table 2). Removing most of the sales tax burden from intermediate and investment goods improves both competitiveness and productivity, although productivity takes some years to be realized as stronger investment gradually builds up a bigger capital stock. By the 10th year of the simulation, nearly all indicators are positive: output is up by about half a percentage point per year (\$3.3 billion in 1997 dollars), employment is slightly up, and labour productivity is up by 0.4 percent. Real wages are down, but very slightly, because of the heavier sales tax burden on consumer goods and services. Inflation is not increased in the long run, although the CPI level is somewhat higher due to the temporary inflation increase that occurs as harmonization is introduced.

While the economic gain is relatively clear, there is still a period of short-term loss, as mentioned. In the first year of harmonization, Ontario's GDP is 0.3 percent below the base case and estimated employment declines by just over 9,000 relative to the base case. In the second year, the GDP loss is estimated to be smaller (0.18 percent of the base case), but the employment loss is somewhat larger at 16,000 (since employment responds with a lag to output changes). Positive GDP gains finally begin in the fifth year of harmonization, although there are still small employment losses through that year. The effects on both Ontario and national CPI inflation are limited by the Bank of Canada's response to the initial tax effect. A monetary rule targeted on inflation results in a small rise in interest rates relative to the base case in the first year of harmonization, followed by a small decrease, then effectively a return to the base-case levels. Under the impact of a sustained increase in machinery and equipment investment (of which a significant amount is imported), there

Table 2: RST-GST Harmonization with Provincial Rate of 7.5%

	2008	2009	2010	2011	2012	2017
Effects on Ontario	Percentage change except where noted					
Real provincial product	-0.30	-0.18	-0.03	0.00	0.14	0.48
Consumption	-0.39	-0.46	-0.36	-0.35	-0.25	0.18
Goods	-0.43	-0.49	-0.40	-0.42	-0.31	0.19
Services	-0.37	-0.45	-0.35	-0.32	-0.23	0.16
Private investment	0.46	1.52	2.10	1.76	1.84	1.75
Residential construction	-1.81	-1.00	0.04	-0.50	0.00	-0.05
Nonresidential construction	1.08	1.80	2.48	2.65	2.67	3.35
Machinery and equipment	2.38	3.82	3.97	3.63	3.37	3.01
Exports	-0.12	-0.10	-0.03	0.09	0.17	0.35
International exports	-0.17	-0.13	-0.06	0.10	0.22	0.49
Exports to the rest of Canada	0.01	-0.02	0.05	0.05	0.03	0.00
Imports	0.12	0.20	0.29	0.26	0.22	0.20
CPI, Ontario	0.42	0.44	0.48	0.47	0.41	0.44
CPI inflation rate, Ontario (<i>percentage points</i>)	0.42	0.03	0.04	-0.01	-0.06	0.05
Ontario GDP deflator	0.03	0.03	0.06	0.04	0.00	0.10
Unemployment rate (<i>percentage points</i>)	0.09	0.15	0.11	0.13	0.10	-0.05
Employment	-0.14	-0.24	-0.17	-0.20	-0.16	0.07
Employment (<i>thousands</i>)	-9.3	-16.0	-12.0	-14.1	-11.3	5.5
Real capital stock	0.09	0.46	0.88	1.23	1.49	2.19
Wages, private sector	0.06	0.04	0.10	0.08	0.07	0.42
Real wages, private sector	-0.35	-0.40	-0.37	-0.39	-0.34	-0.02
Labour productivity	-0.16	0.05	0.14	0.20	0.30	0.40
Real personal disposable income	-0.40	-0.47	-0.41	-0.38	-0.29	0.13
Consolidated government balance (<i>\$ millions</i>)	-1,248	-1,402	-1,292	-1,548	-1,573	-1,538
Federal balance in Ontario (<i>\$ millions</i>)	-52	-45	134	168	319	1,421
Provincial balance (<i>\$ millions</i>)	-1,172	-1,294	-1,373	-1,647	-1,829	-3,001
Ratio of provincial debt to GDP (<i>percentage points</i>)	0.16	0.34	0.49	0.69	0.89	1.99
Effects on Canada						
Real GDP	-0.10	-0.08	0.02	0.04	0.08	0.19
CPI	0.15	0.18	0.21	0.25	0.27	0.34
CPI inflation rate (<i>percentage points</i>)	0.15	0.03	0.04	0.04	0.02	0.01
90-day interest rate (<i>percentage points</i>)	0.19	-0.06	0.05	0.05	0.03	0.02
Exchange rate (US\$/C\$)	0.21	0.03	-0.12	-0.24	-0.25	-0.43
Memo items						
Ex ante effect						
on Ontario sales tax revenue (<i>\$ millions</i>)	-1,385	-1,515	-1,635	-1,757	-1,882	-2,542
Ex ante CPI effect, Canada	0.14	0.14	0.14	0.14	0.14	0.14
Ex ante CPI effect, Ontario	0.38	0.38	0.38	0.38	0.38	0.39

Note: Effects are percentage changes from base case.

is a gradual depreciation of the Canadian dollar after the second year, reaching just over 0.4 percent relative to the base case by the 10th year of the simulation.

There are at least two reasons for the model's reported short-term loss in GDP and employment. First, it takes longer for investment and exports to respond to the positive opportunities made available by harmonization than it does for consumption (and, to a lesser extent, residential housing) to react negatively to the relative price increases that harmonization causes for these categories. Second, the CPI shock caused by shifting the indirect tax burden to consumption under harmonization leads to attempts by workers, who are trying to maintain the real purchasing power of their earnings, to raise nominal wages – note in Table 2 how nominal wages rise somewhat but the real purchasing power of wages still falls. Since employers enjoy no corresponding price increase to match the higher nominal wage demands, however, they respond by cutting back output and reducing their work force relative to the base case. Moreover, since the Bank of Canada is following a policy of validating only the initial effect of the tax shift on the CPI, in the face of rising wage and price pressures it permits interest rates to rise slightly and the exchange rate to appreciate, further suppressing aggregate demand. This is why exports do not appear to respond to improved competitiveness in the first three years of the simulation.

After several years of somewhat higher unemployment, however, workers come to accept the real wage losses inherent in raising indirect taxes on consumption, and base-case employment levels can be restored with no additional inflationary pressures. With a lag, the estimated real wage losses due to the tax-burden shift begin to be eroded by the improved labour productivity from the higher induced capital stock. By the 10th year of the simulation, real wages are almost back to base-case levels and are continuing to catch up to the labour productivity gains (over 0.4 percent relative to the base case) achieved by that year. Overall, real personal disposable income is above the base case by the 10th year and continues to rise in later years.

Results for government balances in our simulation require some explanation. The portion of the federal government's balance attributable to Ontario worsens slightly in the initial years of the simulation as real output falls and unemployment rises, then improves in later years as real output rises above the base case and employment returns approximately to base-case levels. There is, of course, a negative effect on the provincial government balance, since harmonization at 7.5 percent involves an overall tax cut. As can be seen in the memo items at the bottom of Table 2, the *ex ante* revenue effects of harmonization at 7.5 percent, as estimated by the model, are about \$1.5 billion on average in each of the first three years of the simulation. In the full simulation, however, this negative effect is moderated somewhat by the fact that the reduction in the sales tax burden on capital expenditures (and, to some extent, on current expenditures) at the municipal level is translated into reduced transfers by the province to the municipalities. In effect, the revenue "lost" from harmonizing this component is thus not really lost but simply recouped in lower transfers, softening the revenue effects of harmonization for the province. In later years, however, despite the improvement in output and employment, the shift in the tax base through harmonization causes revenue losses for the province at an increasing rate, and the overall effect is a reduction in the balance of over \$3 billion in the 10th year of the simulation – slightly higher than the *ex ante* revenue losses. The revenue gains from the stronger economic performance by the 10th year are offset by higher interest payments on the additional debt accumulated in the intervening years.

It is also important to note, however, that, by the 10th year, the federal government's balance in Ontario improves by more than \$1.4 billion, or just under half the deterioration in the provincial government's balance. There is clearly ample room here for the federal government to compensate partially the provincial government for harmonization, at no long-term cost to its own balance. For example, if the federal government were to increase transfers to the province by \$800 million per year over the first four years, the effects on the

Table 3: RST-GST Harmonization at Provincial Rate of 7.5% and No Change in Interest Rates from Base Case

	2008	2009	2010	2011	2012	2017
Effects on Ontario	Percentage change except where noted					
Real provincial product	-0.03	0.17	0.21	0.18	0.20	0.49
Consumption	-0.35	-0.27	-0.26	-0.28	-0.24	0.15
Goods	-0.35	-0.26	-0.26	-0.32	-0.30	0.13
Services	-0.36	-0.29	-0.27	-0.27	-0.22	0.15
Private investment	1.22	2.30	2.48	2.18	1.94	1.89
Residential construction	-0.06	0.16	0.32	0.04	-0.18	-0.12
Nonresidential construction	1.36	2.82	3.31	3.27	3.27	4.07
Machinery and equipment	2.40	4.15	4.26	3.84	3.53	3.09
Exports	0.03	0.13	0.27	0.37	0.43	0.50
International exports	0.03	0.16	0.33	0.47	0.56	0.67
Exports to the rest of Canada	0.03	0.08	0.09	0.09	0.08	0.05
Imports	0.10	0.27	0.40	0.43	0.42	0.36
CPI, Ontario	0.46	0.58	0.74	0.84	0.89	0.90
CPI inflation rate, Ontario (<i>percentage points</i>)	0.47	0.12	0.17	0.10	0.05	0.01
Ontario GDP deflator	0.05	0.16	0.35	0.47	0.55	0.69
Unemployment rate (<i>percentage points</i>)	0.02	-0.02	-0.02	0.04	0.08	-0.01
Employment	-0.03	0.04	0.03	-0.07	-0.12	0.02
Employment (<i>thousands</i>)	-2.2	2.4	2.0	-4.8	-8.3	1.2
Real capital stock	0.09	0.49	0.97	1.36	1.64	2.36
Wages, private sector	0.12	0.26	0.48	0.61	0.71	0.96
Real wages, private sector	-0.34	-0.31	-0.26	-0.24	-0.18	0.06
Labour productivity	0.00	0.14	0.18	0.24	0.31	0.47
Real personal disposable income	-0.40	-0.32	-0.30	-0.33	-0.29	0.11
Consolidated government balance (<i>\$ millions</i>)	-690	-387	-303	-625	-906	-1,688
Federal balance in Ontario (<i>\$ millions</i>)	262	547	809	869	966	1,963
Provincial balance (<i>\$ millions</i>)	-952	-938	-1,130	-1,501	-1,877	-3,737
Ratio of provincial debt to GDP (<i>percentage points</i>)	0.10	0.19	0.31	0.47	0.68	2.08
Effects on Canada						
Real GDP	0.01	0.12	0.15	0.14	0.15	0.24
CPI	0.18	0.27	0.38	0.48	0.56	0.67
CPI inflation rate (<i>percentage points</i>)	0.19	0.08	0.12	0.10	0.07	0.00
90-day interest rate (<i>percentage points</i>)	0.00	0.00	0.00	0.00	0.00	0.00
Exchange rate (<i>US\$/C.\$</i>)	-0.08	-0.26	-0.44	-0.56	-0.62	-0.78

Note: Effects are percentage changes from base case.

provincial balance would be reduced by about two-thirds. Given this support, Ontario would be able to manage any shortfalls arising from the over half-point tax rate reduction with an astute fiscal plan.

SIMULATING RST-GST HARMONIZATION AT 7.5 PERCENT WITH NO BANK OF CANADA RESPONSE: As we have just seen, harmonization at 7.5 percent is a story of some short-term loss for definite economic gain. Part of the short-term loss occurs because the negative effect of higher consumption and residential taxes occurs faster than the positive effect of lower taxes on investment goods and exports. Part is also due to the tendency of the Bank of Canada to lean into the inflationary effects of harmonization to mitigate the pass through of second-round inflation from rising wages. Thus, a useful second simulation is to consider what would happen if the Bank were to ignore the potential inflation effects of harmonization and keep nominal interest rates unchanged from the base case (see Table 3). The Bank might well do this if overall inflation rates were below their targets when harmonization occurred or if it were to take into account that harmonization would increase aggregate supply in the economy in the long term and eventually reduce inflationary pressure.

The simulation results show that, if the Bank accommodates harmonization in this fashion, the negative effects on Ontario's GDP are very small and limited to the first year. On average, employment effects are estimated to be only slightly negative in the first five years. At the same time, the 10-year estimated gains to GDP and productivity are at or slightly above those obtained when the Bank works to contain the inflationary impact. There is, however, something of a cost to be paid in terms of higher inflation: by the 10th year, the effect on the level of the CPI is roughly double that of the first simulation at both the provincial and national levels. But because of harmonization's positive stimulus to the supply side of the economy, inflation rates in both Ontario and Canada are effectively back to base-case levels by the 10th year; there is no permanent increase in the inflation rate.

The better economic performance in the earlier years of the simulation means that the negative effect on the provincial balance in these years is not as large as in the first simulation. However, higher inflation itself gradually worsens the provincial balance so that by the 10th year, the effect is actually somewhat worse than in the first simulation. Nonetheless, the improvement in the federal balance is even greater, meaning again that there is ample room for the federal government to offset a large share of the provincial revenue loss from harmonization.

Design Issues for a 7.5 Percent Ontario VAT

Our simulations, we believe, make a strong case for the introduction of a 7.5 percent VAT in Ontario that would substantially eliminate the sales tax burden on capital goods and exports. Our analysis shows that such a tax reform would result in an increase in real personal income and labour productivity over the medium term – a result that, as we noted earlier, would parallel the effect of the implementation of the federal GST. We focus now on two sets of policy issues: how to implement sales tax reform in a way that minimizes any transitional adverse economic effects, and how to design the new sales tax system to improve tax administration, efficiency, and fairness.

Transition Issues

Our results indicate that possible adverse short-term economic effects of introducing a VAT could be mitigated by reducing the sales tax rate to 7.5 percent. Such a rate could entail a small reduction in provincial revenues, but, at the same time, it would generate an increase in federal revenues, derived from the expansion of real output. Ontario's revenue loss could be virtually eliminated if the federal government were to give back to the province some or all of the revenue gains that would otherwise accrue. The long-term benefits suggest that a comparison of sales tax reform and alternative uses of potential government revenue favours tax reform.

Another important aspect of introducing a VAT is the income-redistribution effects of increased taxes on consumer spending. For many low-income families and individuals in Ontario, the adverse effects on their real income would be offset by increases in transfer payments triggered by indexation. This offset, however, would be only partial,¹⁶ and low-income wage earners would not be fully compensated. In order to prevent an initial erosion of the real incomes of lower-income Ontarians, an increase in refundable Ontario sales-tax credits would be appropriate. We estimate that if these credits were doubled, they would largely offset the transitional adverse effects of the sales tax reform on low-income Ontarians.¹⁷

Another transitional issue relates to inventories and building materials that were subject to the RST prior to the implementation date of a VAT. Thus, in order to avoid cascading the new VAT on the old RST paid, transitional credits would need to be put in place. Such transitional credits were used to deal with this problem when the GST replaced the manufacturers' sales tax.

Taxing Business Inputs: Getting Here from There

Clearly, a significant advantage of a VAT is that it would relieve businesses from paying the existing Ontario sales tax on intermediate and capital inputs. A perceived political disadvantage is that taxes would be shifted from business inputs to previously exempt consumer services that would become subject to VAT. A strong argument can be made that taxes on business inputs should be shifted forward to consumers since businesses do not pay taxes – people do. Smart (2007) finds evidence that this happened in the three Atlantic provinces that replaced their retail sales taxes with the HST. Nonetheless, the perception that consumers would be more highly taxed has led past Ontario governments to hesitate to shift to a VAT.

As a temporary measure, in order to lower the new VAT rate below 7.5 percent, it might be

appropriate for Ontario to consider maintaining some business taxes on inputs, which would be removed over time. This would allow the provincial government to begin the VAT system with a lower tax rate, although at some cost to economic efficiency. This approach would be one similar to that of Quebec, which denies tax refunds for some inputs for larger businesses (including motor vehicles, motor vehicle parts and services, electricity, gas, fuel, telecommunications (except toll-free and Internet access) and provides for only a 50 refund of input taxes related to meals and entertainment. The difficulty that businesses have found with claiming tax refunds on selective inputs is that invoices must be marked accordingly.

A second approach would be to deny a small portion – say, 3 to 5 percent – of all input tax credits and to increase the refund ratio over time as fiscal room permits. A general denial of input tax credits would be simpler to apply than selective input tax credits and would be more neutral across all goods and services within the province, although it would be quite complex to administer if denial rates varied by province.

Either way, however, fiscal support from the federal government is a reasonable expectation if Ontario chose to proceed. If the federal revenue transfer were sufficiently large, Ontario might wish to provide a full tax credit on all inputs, which would allow it to introduce the VAT at a lower rate and thereby win greater acceptance of the tax on the part of consumers.

Specific Design Issues

Our recommended rate of 7.5 percent for an Ontario VAT could be achieved by harmonizing the Ontario tax base with the federal base. Certainly, compliance and administrative costs would be significantly reduced if federal and provincial bases were identical and if only one level of government collected the tax. The federal GST base, however, is not necessarily the best for

16 Since government transfer payments are indexed to the national CPI, the real value of transfer payments in Ontario would decrease if sales taxes on consumption were to increase.

17 For households with disposable incomes of \$20,000 or less, the switch from the RST to a 7.5 percent VAT would initially reduce their purchasing power by about 1.3 percent. The proposed higher sales-tax credits and indexing would largely offset this reduction.

Ontario, so variations of both the base and the rate under an Ontario VAT should be considered to achieve a rate equivalent to 7.5 percent. In this section, we discuss a number of issues that should be considered in designing an Ontario VAT and that could lead to some practical deviations from the GST base.

FINANCIAL SERVICES: Banks, insurance companies, and other financial providers play a significant role in the economy by enabling lenders and borrowers to transact among each other. Financial services' value added is associated with payments to the labour and capital used in the financial intermediary process, and the value of such services is the spread between loan charges and fees and the deposit interest paid to depositors and other bondholders. Under VAT systems in other countries, however, governments have had trouble taxing financial services because of the difficulty in assessing tax on a service whose value is not explicitly priced.¹⁸ For this reason, except for some items, such as advisory fees, most financial services are treated as exempt – no tax is applied to sales and no refund is provided for input taxes – and, in some countries, might be subject to a special tax regime.

Views differ on whether and how financial services should be taxed (see, for example, Bird and Gendron 2007). One view is that, since financial services are not a final product but an intermediary service for businesses or households to improve the return to savings, they should be zero rated (Whalley and Fretz 1990). An alternative view is that, since households pay for financial services just like other commodities in order to reduce the time required to transact funds, such services should be fully taxed (Auerbach and Gordon 2002). Under the federal GST, financial services are exempt, a treatment that is consistent with

neither argument, while the QST zero rates most financial services.

In our view, it would be appropriate to tax financial services associated with the household demand for products such as housing and automobiles, but business services should be zero rated. However, it would be complex to apply VAT to financial services sold to households, because that would require loans and borrowings to be included in the VAT system.¹⁹ Hence, Ontario might prefer the zero-rated approach, similar to that of Quebec. Certainly, a strong case can be made that the province should be sensitive to the competitiveness of its financial sector when designing a made-in-Ontario VAT.

HOUSING: The application of a VAT to housing is another thorny design issue. In principle, the purchase cost of a house is equivalent to the time value of rental services provided to consumers of the product. Either rent or a residence's purchase price could be taxed. For owner-occupied housing, no rents would be assessed, as the VAT would be paid only at the time of sale.²⁰ New homes and renovations would be fully taxed and resales would remain exempt, because the VAT would have been paid on the price of the asset at the time of sale instead of on future rents – further taxation of resold goods would be discriminatory and would discourage turnover of assets. On instituting a VAT, a valuation day could be adopted for existing housing so that it could be taxed fully on subsequent service – an approach New Zealand used. Such a method, however, would require significant administrative effort to determine property values, and would result in a one-time but significant tax on owner-occupied housing.

The federal GST currently exempts rental residential housing – input taxes are not refunded – and new homes are subject to tax, which is reduced by a 36 percent rebate if the house is sold

18 One method is to tax the net margin – the difference between lending and borrowing costs – earned by financial intermediaries as part of the value-added tax. This would require both an input tax credit to registered businesses that use financial intermediary services and a mechanism to determine the appropriate input tax credit. See, for example, Zee (2004).

19 The Meade Report (1978) suggested including both real and financial transactions as part of the base. No government has moved entirely in this direction, although some consideration was given to doing in the European Union but only for large financial institutions.

20 Both the land and the structure would be taxed, since the house and its location (as reflected in land rents) provide consumption value.

for less than \$361,200 and phased out if the house sells for more than \$472,500. Quebec follows a similar approach, although the thresholds are lower (\$200,000 and \$225,000, respectively), reflecting lower market-value assessments. In Ontario, higher average house prices would warrant a higher threshold for this rebate.

Although efficiency and fairness might suggest that rental housing should be subject to a VAT like any other commodity, it is likely that Ontario would exempt it, as with the federal GST. Ontario might wish to choose higher thresholds for tax rebates than those in Quebec, however, reflecting Ontario's higher housing prices.

MUNICIPALITIES, UNIVERSITIES, SCHOOLS, HOSPITALS, AND CHARITIES: Services provided by public bodies in the municipalities, universities, schools, and hospitals (MUSH) sector and charities receive special treatment in VAT systems because governments wish to avoid adding to the cost of providing such services. When the federal GST was implemented in 1991, services sold by the MUSH sector and charities were generally exempt from tax, and a partial refund was provided for taxes paid on purchased inputs.²¹ In 1997, the federal government shifted to providing a full refund for GST paid on books to schools, universities, and charities engaged in education, and in 2003 it added a full refund of input taxes for municipalities.²² Quebec provides no refunds to municipalities but does refund about half the input taxes paid by other sectors.

An argument in favour of taxing the MUSH and charitable sectors, where possible, or providing a full refund of tax rests on the principle of equal treatment across sectors. Ontario might wish to vary its refund rates for both the MUSH and charitable sectors, especially if it were to follow the

federal government's transitional strategy of keeping the revenues collected on inputs roughly the same as they were before the reform. In Ontario's case, the refund rates need not be the same as the federal rebates.

THE THRESHOLD FOR SMALL BUSINESSES: The threshold at which small businesses should be subject to the VAT would have to be set with opposing objectives in mind. On the one hand, there is the need to minimize administrative and compliance costs by exempting small businesses from having to collect VAT on sales or tracking input taxes eligible for refunds. On the other hand, there is the need to ensure a level playing field whereby all businesses, regardless of size, collect VAT on sales.²³ In attempting to strike a balance, the federal government established a \$30,000 threshold below which businesses would not be required to collect GST.²⁴ In other countries with VAT systems, thresholds vary widely, from as low as \$9,000 in Greece to more than \$100,000 in Japan and Singapore (see Ebrill et al. 2001; and Bird and Gendron 2007).

Ontario's current RST has no threshold, as all businesses must collect the tax on their sales. Under the federal GST and the QST, the annual sales threshold under which a business is exempt from collecting the tax is \$30,000 – an amount that was set when the GST was implemented in 1991 and that has not been indexed or adjusted for inflation – although smaller firms with sales below this threshold may choose to register for tax purposes. The Ontario government might appropriately choose a higher threshold, while allowing smaller firms to voluntarily register for the VAT, if those firms wished to avoid the complexity arising from being registered for GST but not Ontario VAT.

21 The refund was based on the notion of maintaining sales tax revenues that the federal government would have received from the manufacturers' sales tax applied directly and indirectly on purchases in the MUSH sector, once it was replaced by the GST.

22 Refund rates under the federal GST are 68 percent for schools, 67 percent for universities and colleges, 83 percent for hospitals, and 50 percent for charities and other qualifying nonprofit organizations.

23 Keen and Mintz (2004) show that the optimal threshold depends on the distribution of firms in the economy: greater concentration of sales in large companies with a large number of small companies operating at the fringe suggests that the threshold should be set quite high.

24 Businesses may choose to register, if it is to their advantage because of input credits. The federal government also allows smaller businesses (sales below \$200,000) to choose the so-called 'quick method', which permits businesses to charge GST on sales and remit only a portion of the tax collected (in lieu of input credits).

SPECIAL EXEMPTIONS: When the federal GST was originally planned, the intention was to apply the tax widely on all goods and services with no exemptions and to provide a refundable tax credit to help low-income Canadians cope with the tax. At its inception, however, groceries and medical products were zero rated and several other products were exempted, including residential rents, education tuition fees, and most financial services, with the refundable tax credit providing support to low-income Canadians.

In general, it would be best to apply a VAT on a wide variety of products with few exceptions and to provide an enhanced low-income credit, as under the GST, to avoid distorting consumer decisions and granting unnecessary relief for higher-income Canadians, whose ability to pay the GST is not at issue. A made-in-Ontario VAT could also have more leeway to zero rate certain products – in particular, financial services – in addition to those zero rated under the GST, which arguably would be better than simply exempting financial services, as the GST does. Otherwise, most exemptions, including the existing GST treatment of financial services, or zero rating such goods as food would distort consumer decisions, unfairly relieve high-income consumers from tax, and complicate the system. It would be far better to provide relief to low-income consumers by enhancing the Ontario refundable sales tax credit that is currently in place.

VARIATIONS IN THE BASE: SOME IMPORTANT ADMINISTRATION ISSUES: The choice regarding the nature and extent of any variations in the VAT base has important implications for the costs of administration and compliance, and for the willingness of the federal government to agree to having the Canada Revenue Agency (CRA) administer the tax, rather than leaving it to the province, as in the case of Quebec. In New Brunswick, Newfoundland and Labrador, and Nova Scotia, for example, the federal government currently collects the HST at a rate of 13 percent

of sales, and remits to these provinces a share based on their estimate of taxable sales within each province. This relieves businesses of the compliance burden associated with two distinct taxes and relieves the provincial governments of the costs of administering two taxes. Quebec, on the other hand, administers both its own tax and the federal GST collected in the province, and remits a portion to the federal government. The result is somewhat more costly in administration and compliance, given that businesses with operations inside and outside Quebec must deal with both the federal and Quebec tax authorities.

Very large savings could be achieved for Ontario consumers, businesses, and the provincial government if the VAT base were sufficiently close to that of the GST to permit the CRA to administer the tax without cost to the province. The CRA is governed by guidelines that describe the circumstances that permit it to administer such a tax without charge, or at low cost, but to meet those guidelines, the tax base must be essentially the same as the federal tax base and any variations must not be injurious to the economic union (Mintz and Poschmann 1999).

We should emphasize here that the federal government is strongly motivated, precisely because of its interest in a strong economic union, to seeing that the remaining RST provinces adopt a VAT similar to the GST. Because Ontario, owing to the size of its economy and its interlinkages with other provinces, is the most important of them, it would be in the federal government's interest to be flexible with respect to administration issues. That said, if variations in an Ontario VAT from the GST base were significant – exempting entire classes of goods, for example – then the gains to the economic union would be diminished as would Ottawa's interest in playing an accommodating role. Zero rating some goods or services, or offering less-than-complete input credits, would also raise concerns on this score, but not as significant as in the case of exemptions.²⁵

²⁵ Arguably, Ontario's adoption of a better VAT treatment for financial services could nudge the federal government to do the same, with a different national standard base and better national outcomes overall.

An alternative would be for Ontario to arrange with the federal government an agreement similar to that with Quebec. We believe that harmonization would achieve the greatest gains if a single tax authority were to administer any Ontario VAT. Nonetheless, regardless of how it is administered, a made-in-Ontario VAT would be far better than continuing to rely on the existing RST, which should be replaced entirely to improve Ontario's overall tax system.

Conclusion

Given the recent reductions in the federal GST rate, Ontario's adoption of a VAT largely harmonized with the GST at a rate of 7.5 percent would increase the province's GDP by expanding the capital stock and improving its international competitiveness. Our results indicate that a rate reduction would considerably reduce the possibility of adverse transitional effects of implementing a harmonized Ontario sales tax on consumer goods and services. Were the Bank of

Canada to permit a modest pass through of any additional inflation resulting from harmonization, the short-term negative impacts would be further reduced, and the stimulus to aggregate supply would ensure that there would be no permanent increase in the inflation rate.

The chief drawback of a rate reduction, of course, would be some loss of provincial tax revenue, even though the federal GST rate cut has already contributed to a better fiscal situation for the province. As the federal government would be a net beneficiary of Ontario sales tax reform, however, there would be ample room for it to help finance the reform. The advantages of introducing a made-in-Ontario VAT – including the generation of an additional 0.5 percent of provincial GDP over the medium term – suggest that the revenue cost of the package would weigh favourably against alternative uses of the revenues through new spending initiatives or increased spending on existing programs. In our view, part of any future Ontario fiscal dividend should be used to cover the revenue costs of sales tax reform.

Appendix 1: Our Model of the Effect of Harmonization

In our analysis of the effect of introducing a made-in-Ontario VAT, we used the FOCUS and FOCUS-Ontario macroeconomic models of the national and Ontario economies, respectively, developed and maintained at the University of Toronto's Institute for Policy Analysis (see Dungan and Murphy 2003; Dungan, Jump, and Murphy 2006). These models have been used several times in the past to examine the impact of RST-GST harmonization, most prominently for the Ontario Fair Tax Commission in 1994 (see Dungan 1994). Additional unpublished studies were conducted in the mid-1990s for both the Ontario Ministry of Finance and the federal Department of Finance. This *Commentary* follows the methods of these earlier studies quite closely. In the interim, however, the models have undergone considerable revision, and the structures of the national and Ontario economies have also shifted. This study is based on the most currently available data for RST and GST tax incidence and on estimates based on input-output data that have also changed over time.

Even though the tax harmonization would be Ontario-specific, it was necessary to use the FOCUS model of the Canadian economy, in addition to the FOCUS-Ontario model, because the policy would have effects on national variables such as the exchange rate, the national CPI, and interest rates, and because monetary policy is not regionally differentiated. The description below concentrates on how harmonization was treated in the FOCUS-Ontario model, but parallel changes were also required in the national model.

The study required a projection or base case for the national and Ontario economies in which it was assumed that the RST system would continue as at present.²⁶ Then, beginning arbitrarily at the start of 2008, the equations of the models were altered to change the Ontario sales tax base from its current form to the federal GST base. An appropriate tax rate was selected and an assumption made about the Bank of Canada's response to

any effects of harmonization on consumer prices, and a new simulation was run for a 10-year span. Differences between the two model simulations, in terms of GDP growth, employment, inflation, government balances, and other key indicators, are due solely to the introduction of harmonization at the selected tax rate, and therefore constitute a model-based estimate of the macroeconomic effects of harmonization.

How would the tax base change under harmonization? In aggregated models such as FOCUS and FOCUS-Ontario, we make use of the principle that, although some sales taxes are paid, and often rebated, on intermediate inputs by businesses, eventually all sales taxes are paid by purchasers in the different categories of final demand. For example, under the RST, the sales tax on cars is obviously paid by the final consumer. Under the GST, car manufacturers pay GST when they buy steel or glass and auto retailers pay GST when they purchase from auto manufacturers, but each of these tax payments is rebated, so again it is the final consumer who ultimately pays the GST on cars.

If a firm that produces investment goods such as machine tools, or intermediate goods, pays RST for some of its inputs (office supplies or computers, for example), then these costs under open competition must eventually find their way into the prices of the investment goods and the tax is, in reality, "paid" by the final purchasers of these goods. In the case of exports, producers might have to absorb the tax for many products, which depresses their incentive to export.

Using input-output tables and associated industry and final-demand tax data from Statistics Canada, we were able to assign weights to the categories of final demand that reflect the extent to which they are taxed under the RST and the GST. Note that, by using input-output methods, we can account for any taxes paid on intermediate inputs as well – indeed, these are the primary reason there is any RST revenue from exports. The most

²⁶ The base case used was developed by the Policy and Economic Analysis Program of the Institute for Policy Analysis as part of its ongoing forecasting program. The particular forecast used was developed late in 2006.

current basic data available from these sources are for 2002 or 2003, but adjustments have been made for more minor changes in GST or RST components since that time.

The weights we used are shown in Table A-1. In modelling harmonization, the model switches from the RST to the GST weights by final-demand category, although, of course, a different tax rate might be applied depending on revenue needs or other policy considerations. A quick review of the weights in Table A-1 indicates where the gains and problems of harmonization would occur. As can be seen, if weights are switched from those of the RST to those of the GST, the tax burden would actually fall slightly on consumer durables and semi-durables (the former because sales of used vehicles are taxed only on “value added” under the GST, not on the full sale price). There would be an increase in the sales tax burden on consumer nondurables – electricity and heating fuels, for example, are taxed under the GST but not under the RST – and the burden would also increase somewhat for consumer services, although there would be important shifts internally within this sector since various personal services, such as haircuts, are taxed under the GST but not under the RST, while for some financial services it is the other way around. Without any adjustments, residential investment (which includes renovations) would be taxed considerably more heavily under harmonization. Of course, there would be a major reduction in the sales tax burden on business investment in both nonresidential structures and machinery and also on government capital expenditures. It is worth noting in passing that almost all the RST burden on machinery and equipment is from direct taxes, rather than from taxes on intermediate inputs. Finally, although the RST burden on exports is not huge, coming largely from the RST on intermediate inputs, it would fall virtually to zero under harmonization.

Some Caveats and Cautions

As with any study of this sort, caution must temper conclusions that are based on the assumptions and features of the model we use to conduct the analysis.

One caveat has to do with the effect of harmonization on improved productivity and competitiveness. In aggregate models such as FOCUS and FOCUS–Ontario, we must assume that the burden of the current RST on investment goods or exports is, in effect, spread evenly across all such types of goods. Then, if the RST is removed, more of the “average” investment goods will be bought and added to the capital stock, with “average” effects on productivity. Moreover, the price of the average export good will decline, leading to an increase in exports at the average rate. At the same time, however, the effect of the RST varies widely across investment goods and exports – indeed, this is one of its faults. Thus, it is possible that the RST burden falls primarily on particular investment goods the demand for which responds little to price changes or which have very little impact on measured productivity.²⁷

Similarly, it is possible that the RST burden falls most heavily on exports, the demand for which is very insensitive to price. The net result of this unevenness of RST burden – which the model cannot address – is that we might be overestimating the effect on productivity and export competitiveness of removing the RST. Of course, it is also possible for the caution to go the other way – that is, because the burden of the RST is unevenly distributed, we might also be *underestimating* the effect of removing the RST. And the more uneven is the RST burden on exports and investment goods, the greater the potential for one-time productivity gains from increasing efficiency by eliminating tax distortions across goods – which, again, the aggregate macro model does not take into account.²⁸

27 For example, the burden of RST on investment goods might fall much more heavily on company automobiles than on computer-controlled machine tools. If the RST burden were lifted, one might ask how many new company cars would be bought, and if so, how more company cars would add to productivity in comparison with adding new machine tools.

28 The argument here is that, if some types of investment goods are taxed and others are not, then producers will be buying relatively too much of the untaxed goods and too little of the other. If the tax distortion were to be removed, which it would be if all taxes are zero, firms would gradually restructure their production to use somewhat more of the formerly taxed good and relatively less of the untaxed good, obtaining more output or productivity for a given investment dollar. The potential productivity gains from removing tax distortions across different kinds of investment goods cannot be estimated in an aggregate model but would add to the productivity estimates obtained in our model work.

Table A-1: RST and GST Tax Base Weights

Final-Demand Category (weight)	RST	GST
Consumer durables	1.120	1.000
Consumer semi-durables	0.880	0.985
Consumer nondurables	0.376	0.583
Consumer services	0.310	0.374
Residential investment	0.362	0.866
Investment, nonresidential structures	0.410	0.091
Investment, machinery and equipment	0.611	0.139
Government current expenditures	0.072	0.038
Government capital expenditures	0.430	0.098
Exports, international	0.063	0.013
Exports, interprovincial	0.036	0.004

The model also cannot pick up the gains to consumers resulting from adopting a VAT that eliminates the cascading of retail sales taxes on business inputs as products move through the chain of production. With effective tax rates more similar across products, consumer choices would be less distorted, making Ontarians better off.

Another caution has to do with the current state of the provincial RST system and its relationship to the so-called underground economy. There is some evidence (see, for example, Spiro 1993) that the introduction of the GST pushed some economic activity underground or into an unreported state. It is possible that further increasing the sales tax burden on services or other items previously not taxed before the GST might push additional economic activity underground. The aggregate macro models cannot estimate the extent of additional underground activity that might result

from harmonization, and, obviously, any increase in underground activity would affect the estimates for economic impacts and of “revenue-neutral” tax rates.

Finally, the change in relative prices caused by harmonization also might set off structural changes because some industries would benefit and others lose, and the existing stock of physical and human capital would shift to the now relatively more profitable sectors. In the long run, this would mean efficiency gains, but the changeover can be time consuming and, in the interim, some workers and capital might be underemployed or unemployed and output lost. Unfortunately, the models do not permit us to measure these effects, but it is important to recall that some structural change is always in progress, and a modest additional amount need not be severely disruptive.

Appendix 2: Further Results

This appendix presents two additional simulations to illustrate the sensitivity of the results in the paper.

The first alternative simulation shows the effect of harmonizing a VAT and the federal GST at an 8 percent provincial rate, and the second shows the effect of harmonization at a rate of 7 percent.

RST-GST Harmonization at a Provincial Rate of 8 Percent

As we present in the main paper, RST-GST harmonization at a 7.5 percent provincial rate would offer significant long-term gains in economic growth and productivity, but at some short-term cost in GDP and employment and with a long-term reduction in the provincial budget balance. If the Bank of Canada were to ignore the modest and temporary additional inflation from harmonization at this rate, the short-term economic costs would be virtually eliminated, but the cost to the provincial treasury would remain.

These results naturally raise the question of what the effect would be if Ontario were to harmonize at a higher rate. The first simulation (Appendix Table A-2) considers harmonization at a rate of 8 percent instead of 7.5 percent. The positive aspects of this simulation include a long-run impact on GDP and productivity similar to that of the 7.5 percent harmonization – in both simulations, the long-term benefits would arise from completely removing the RST on investment and intermediate goods and exports. Moreover, the negative effect on the provincial balance would be much reduced, averaging a worsening of the budget balance of less than \$400 million in the first four years. Even by the 10th year, the reduction in the balance would be less than \$1 billion.

These more positive results would come at the cost of a longer and deeper period of short-term loss, including, for example, an estimated reduction of just under 38,000 jobs in the

second year. These effects could be mitigated, but not eliminated, by a more accommodating stance by the Bank of Canada, because they are, in part, simply a result of shifting a higher tax burden to consumers and residential construction.

Based on its much-reduced short-term negative effects, we prefer a 7.5 percent harmonized rate (or its equivalent in terms of exemptions), but if the effect on the provincial balance cannot be accommodated, then harmonization at 8 percent would still lead to strong long-term gains in GDP and productivity and should therefore be pursued.

RST-GST Harmonization at a Provincial Rate of 7 Percent

As suggested above, some of the exemptions that have been suggested as part of a harmonization package could amount in value closer to a harmonized rate of 7 percent even if the official provincial rate were 7.5 percent. This appears to be the case if, for example, among the exemptions was all household use of energy, including gasoline. Moreover, if the Bank of Canada were unwilling to accommodate the modest additional inflation from harmonization, one could argue that harmonization at 7.5 percent would still involve a degree of short-term loss to achieve the longer-term real gains. We therefore simulate the effect of Ontario's harmonizing at the equivalent of a 7 percent provincial rate. The results are shown in Appendix Table A-3.

The additional stimulus of the sales tax cut would yield estimated positive GDP effects right from the initial year, with roughly the same 10-year effect on GDP and the capital stock, and a slightly more favourable effect on real wages. There would be, however, an impact on the provincial balance, which would decline by just under \$2 billion in the initial year, and the losses would mount in succeeding years, despite

positive effects on GDP, both for the underlying base-case reasons and because of the accumulation of interest on the debt. A 7 percent rate, therefore, could be accommodated if the province were to contemplate a fiscal stimulus in the face of an economic downturn or obtained some offset revenue from the federal government

– which Ottawa would certainly be able to afford from the revenue it would gain from Ontario's actions. An alternative is simply to consider that a 7 percent harmonized rate would be a good use of a fiscal dividend that could well re-emerge in Ontario over the next several years.

Table A-2: RST-GST Harmonization with Provincial Rate of 8.0%

	2008	2009	2010	2011	2012	2017
Effects on Ontario	Percentage change except where noted					
Real provincial product	-0.66	-0.46	-0.11	-0.10	0.08	0.49
Consumption	-0.75	-0.90	-0.66	-0.63	-0.51	-0.04
Goods	-0.87	-1.02	-0.77	-0.80	-0.65	-0.10
Services	-0.67	-0.84	-0.60	-0.55	-0.46	-0.05
Private investment	-0.14	1.19	2.13	1.51	1.76	1.76
Residential construction	-2.88	-0.85	0.62	-0.84	0.26	0.10
Nonresidential construction	0.73	1.11	2.44	2.79	2.60	3.52
Machinery and equipment	2.10	3.19	3.54	3.31	3.00	2.86
Exports	-0.20	-0.15	-0.02	0.14	0.20	0.43
International exports	-0.28	-0.19	-0.07	0.16	0.28	0.60
Exports to the rest of Canada	0.01	-0.05	0.10	0.08	0.00	-0.01
Imports	0.10	0.08	0.17	0.12	0.08	0.04
CPI, Ontario	0.67	0.67	0.69	0.64	0.54	0.53
CPI inflation rate, Ontario (<i>percentage points</i>)	0.68	0.00	0.02	-0.04	-0.10	0.04
Ontario GDP deflator	0.26	0.20	0.20	0.15	0.06	0.10
Unemployment rate (<i>percentage points</i>)	0.23	0.36	0.21	0.20	0.16	-0.05
Employment	-0.35	-0.55	-0.32	-0.30	-0.24	0.08
Employment (<i>thousands</i>)	-23.2	-37.8	-22.1	-21.1	-17.0	5.9
Real capital stock	0.08	0.38	0.74	1.08	1.33	2.03
Wages, private sector	0.07	-0.04	0.03	-0.04	-0.09	0.23
Real wages, private sector	-0.60	-0.70	-0.65	-0.68	-0.63	-0.29
Labour productivity	-0.32	0.09	0.21	0.20	0.32	0.42
Real personal disposable income	-0.74	-0.93	-0.74	-0.66	-0.57	-0.12
Consolidated government balance (<i>\$ millions</i>)	-910	-1,149	-574	-806	-756	-134
Federal balance in Ontario (<i>\$ millions</i>)	-462	-599	-255	-240	-116	862
Provincial balance (<i>\$ millions</i>)	-382	-402	-208	-438	-514	-974
Ratio of provincial debt to GDP (<i>percentage points</i>)	0.09	0.15	0.12	0.17	0.22	0.54
Effects on Canada						
Real GDP	-0.25	-0.22	0.03	0.03	0.04	0.19
CPI	0.25	0.27	0.31	0.37	0.38	0.41
CPI inflation rate (<i>percentage points</i>)	0.25	0.03	0.04	0.05	0.02	0.00
90-day interest rate (<i>percentage points</i>)	0.25	-0.19	0.06	0.07	-0.02	0.00
Exchange rate (<i>US\$/C\$</i>)	0.35	0.01	-0.19	-0.30	-0.28	-0.48
Memo items						
<i>Ex ante</i> effect on Ontario sales tax revenue (<i>\$ millions</i>)	-304	-387	-459	-532	-607	-983
<i>Ex ante</i> effect on CPI, Canada	0.24	0.24	0.24	0.24	0.24	0.25
<i>Ex ante</i> effect on CPI, Ontario	0.62	0.62	0.63	0.63	0.63	0.64

Note: Effects are percentage changes from base case.

Table A-3: RST-GST Harmonization at Provincial Rate of 7%

	2008	2009	2010	2011	2012	2017
Effects on Ontario	Percentage change except where noted					
Real provincial product	0.07	0.09	0.05	0.10	0.19	0.46
Consumption	-0.03	-0.01	-0.07	-0.07	0.01	0.40
Goods	0.02	0.05	-0.02	-0.05	0.03	0.47
Services	-0.07	-0.06	-0.11	-0.09	0.00	0.37
Private investment	1.07	1.86	2.09	2.03	1.93	1.75
Residential construction	-0.75	-1.15	-0.53	-0.16	-0.28	-0.19
Nonresidential construction	1.43	2.50	2.52	2.53	2.78	3.20
Machinery and equipment	2.67	4.47	4.42	3.97	3.76	3.17
Exports	-0.03	-0.05	-0.04	0.05	0.13	0.28
International exports	-0.06	-0.08	-0.05	0.05	0.16	0.38
Exports to the rest of Canada	0.02	0.01	-0.01	0.02	0.05	0.01
Imports	0.14	0.33	0.42	0.39	0.38	0.37
CPI, Ontario	0.16	0.23	0.29	0.30	0.29	0.36
CPI inflation rate, Ontario (<i>percentage points</i>)	0.17	0.06	0.06	0.02	-0.01	0.05
Ontario GDP deflator	-0.20	-0.13	-0.06	-0.05	-0.05	0.11
Unemployment rate (<i>percentage points</i>)	-0.05	-0.06	0.02	0.07	0.05	-0.04
Employment	0.07	0.09	-0.03	-0.10	-0.08	0.07
Employment (<i>thousands</i>)	4.6	5.8	-2.1	-7.3	-5.8	5.0
Real capital stock	0.10	0.53	1.02	1.39	1.67	2.37
Wages, private sector	0.06	0.13	0.19	0.22	0.25	0.62
Real Wages, private sector	-0.11	-0.10	-0.09	-0.09	-0.04	0.26
Labour productivity	0.00	0.01	0.08	0.20	0.27	0.39
Real personal disposable income	-0.06	-0.01	-0.09	-0.11	-0.02	0.38
Consolidated government balance (<i>\$ millions</i>)	-1,594	-1,650	-2,001	-2,276	-2,379	-2,941
Federal balance in Ontario (<i>\$ millions</i>)	359	519	533	591	770	1,995
Provincial balance (<i>\$ millions</i>)	-1,970	-2,192	-2,541	-2,861	-3,149	-5,042
Ratio of provincial debt to GDP (<i>percentage points</i>)	0.22	0.53	0.87	1.21	1.56	3.46
Effects on Canada						
Real GDP	0.04	0.04	0.01	0.05	0.12	0.19
CPI	0.05	0.08	0.11	0.13	0.15	0.26
CPI inflation rate (<i>percentage points</i>)	0.05	0.03	0.03	0.02	0.02	0.02
90-day interest rate (<i>percentage points</i>)	0.13	0.08	0.03	0.03	0.07	0.05
Exchange rate (<i>US\$/C\$</i>)	0.07	0.05	-0.05	-0.18	-0.22	-0.38

Note: Effects are percentage changes from base case.

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