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# C.D. Howe Institute COMMENTARY

TAX COMPETITIVENESS PROGRAM

## Growth-Oriented Sales Tax Reform for Ontario:

Replacing the Retail Sales Tax with a  
7.5 Percent Value-Added Tax

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### **In this issue...**

Ontario should scrap its antiquated retail sales tax, and opt for a made-in-Ontario valued-added tax (VAT) that would improve fairness, encourage investment and wage growth, and reduce administrative costs for government and for business.

## 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The federal government has been encouraging the five provinces that employ outdated retail sales taxes to harmonize their sales taxes with the federal goods and services tax (GST).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,<sup>1</sup> 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.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup> 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.<sup>5</sup>

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.<sup>6</sup> 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.<sup>7</sup> 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.<sup>8</sup> 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,<sup>9</sup> 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 billion<sup>10</sup> – 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.<sup>11</sup> 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.<sup>12</sup> 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.<sup>13</sup> 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.<sup>14</sup> 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.<sup>15</sup>

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
<b>Effects on Ontario</b>	<b>Percentage change except where noted</b>					
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
<b>Effects on Canada</b>						
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
<b>Memo items</b>						
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
<b>Effects on Ontario</b>	<b>Percentage change except where noted</b>					
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
<b>Effects on Canada</b>						
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.

































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