An Analysis of the Distributional Impact of the Goods and Services Tax

Grady, Patrick

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Cet article analyse l'effet que le régime proposé de la taxe sur les produits et services (TPS) exercera sur la répartition de la charge fiscale en 1991. Ce régime prévoit non seulement la TPS de 7 pour cent proprement dite, mais également une augmentation du Crédit de taxe de vente (CTV) et une augmentation de la surtaxe pour les paliers de revenus supérieurs. Pour notre analyse nous avons utilisé la Base de données et le modèle de simulation de politique sociale de Statistique Canada (BD/MSPS).

Le remplacement de la taxe de vente des fabricants (TVF) par une TPS de 7 pour cent résultera en une augmentation des prix à la consommation d'environ 1,25 pour cent en 1991. Toutefois le déflateur du Produit intérieur brut augmentera de moins de 0,5 pour cent. L'effet du régime de la TPS sur les déflateurs des prix désagrégés variera d'une diminution de 1,5 pour cent ou davantage des prix des produits et services déjà soumis à des taux effectifs élevés de la TVF, jusqu'à une augmentation d'environ 6 pour cent des prix de certains produits et services exonérés de cette TVF. Le prix des véhicules à moteur neufs et d'occasion et de produits tel que mobilier, tapis et autres qui sont présentement sujets à des taux élevés de la TVF diminueront d'environ 1,5 pour cent. Les produits alimentaires, les boissons non alcoolisées et les soins hospitaliers et médicaux qui sont dans une grande mesure exonérés de la TVF, seront exonérés entièrement de la TPS et diminueront de 0 à 1 pour cent. Le prix de l'électricité et du gaz naturel qui sont présentement exonérés de la TVF mais qui seront sujets à la TPS augmentera d'environ 6 pour cent.

Le remplacement de la TVF par la TPS ainsi que les autres mesures prises dans le cadre de la réforme de la taxe de vente auront pour effet net de réduire le revenu disponible dans le secteur des ménages de 4,6 milliards $, et d'abaisser de plus de 400 $ en 1991 le revenu disponible d'une famille de recensement moyenne. Le revenu

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disponible diminuera parce que le nouvel impôt augmentera non seulement les recettes fiscales en provenance des taxes de vente mais aussi la part des taxes de ventes provenant du secteur des ménages.

L'analyse de la distribution de la charge fiscale que nous présentons dans cet article montre que le remplacement de la TVF par la TPS exercera un effet négatif sur tous les types de familles et tous les niveaux de revenus, et que cet effet sera nettement plus grand que celui qu'avait estimé le ministère des Finances.

En moyenne, le régime de la TPS sera relativement progressif (si l'on calcule la progressivité en termes de la diminution moyenne en revenu disponible comme pourcentage du revenu disponible) jusqu'au niveau de revenu familial de 35 000 $. Pour les revenus dépassant 40 000 $, l'augmentation de l'impôt sera approximativement proportionnelle.

Trois quarts des familles canadiennes paieront davantage d'impôts en 1991 dû à l'introduction du régime de la TPS. L'augmentation du crédit de taxe de vente contribuera à atténuer le fardeau fiscal des contribuables à revenus faibles et moyens, cependant les familles gagnant moins de 30 000 $ paieront en moyenne 20 $ de plus en impôts à cause du régime de la TPS. En effet, 46 pour cent des familles gagnant moins de 30 000 $ devront faire face à un fardeau fiscal plus lourd.

Le gouvernement avait promis que "la réforme de la taxe de vente bénéficierait aux familles gagnant moins de 30 000 $". S'il veut respecter cette promesse, le gouvernement devra augmenter le crédit de taxe de vente.

ABSTRACT

This article presents an analysis of the distributional impact in 1991 of the proposed goods and services tax (GST) package, which includes not only the 7 percent GST itself but also an increase in the sales tax credit (STC) and an increase in the high-income surtax. The analysis uses Statistics Canada's Social Policy Simulation Database and Model (SPSD/M).

The replacement of the manufacturers' sales tax with a 7 percent GST will increase consumer prices by about 1.25 percent in 1991. The GDP deflator, however, will rise by less than 0.5 percent. The impact of the GST package on the disaggregated price deflators will range from declines of 1.5 percent or more for goods and services that are subject to high effective MST rates to increases of about 6 percent for some goods and services that are exempt from the MST. The prices of new and used motor vehicles and of goods in the category furniture, carpets, and other, which are subject to high MST rates, will decrease by about 1.5 percent. Food and non-alcoholic beverages and hospital and medical care, which are largely exempt from the MST and will be wholly exempt from the GST, will decline by between zero and 1

percent. Electricity and natural gas, which are exempt under the MST and will be taxable under the GST, will increase by about 6 percent.

The net effect of the substitution of the GST for the MST and of the other measures in the GST package will be to reduce the consumable income of the household sector by $4.6 billion and to lower the consumable income of the average census family by over $400 in 1991. Consumable income will decline because the new tax will increase both the amount of revenue that is raised through commodity taxation and the share of commodity taxation that is borne by the household sector.

The distributional analysis presented in this article shows a negative impact for all family types and income levels as a result of the substitution of the GST for the MST that is substantially larger than the impact estimated by the Department of Finance.

The GST package will be relatively progressive on average (if one measures progressivity in terms of the average decrease in consumable income as a percentage of consumable income) up to a level of family income of $35,000. At levels above $40,000, the tax increases are roughly proportional.

Three-quarters of Canadian families will pay more taxes in 1991 because of the introduction of the GST package. The increase in the sales tax credit will help to ease the burden on low- and middle-income taxpayers; nevertheless, families that earn less than $30,000 will pay $20 more in taxes on average because of the GST package and 46 percent of families that earn less than $30,000 will face heavier tax burdens.

If the government wishes to live up to its stated commitment "to ensure that families earning less than $30,000 are better off as a result of sales tax reform," it will have to increase the sales tax credit.

This article describes the likely distributional impact in 1991 of the goods and services tax (GST) package, details of which the Department of Finance released in December 1989.[1] The package includes the replacement of the manufacturers' sales tax (MST) by a 7 percent GST, increases in the sales tax credit (STC), and an increase in the high-income surtax.

The analysis uses the Social Policy Simultation Database and Model (SPSD/M).[2] The SPSD/M is a microcomputer-based model developed by

[1] Canada, Department of Finance, *Goods and Services Tax* (Ottawa: the department, December 19, 1989).

[2] The SPSD/M is described in an article in the January-February 1990 issue of this journal. See Michael J. Bordt, Grant J. Cameron, Stephen F. Gribble, Brian B. Murphy, Geoff T. Rowe, and Michael C. Wolfson, "The Social Policy Simulation Database and Model: An Integrated Tool for Tax/Transfer Policy Analysis" (January-February 1990), 38 *Canadian Tax Journal* 48-65.

Statistics Canada for the purpose of analyzing the impact on Canadian families of changes in tax and transfer policy. The model incorporates a database that covers the demographic and socioeconomic characteristics of a large sample of Canadians and their families. The model's demographic and socioeconomic variables include age, province, income, expenditure, household composition, and work history. The SPSD/M also contains effective commodity tax rates, so it is well-equipped for the analysis of commodity tax changes.[3]

THE GOODS AND SERVICES TAX PACKAGE

The federal government imposes the MST on manufacturers' value of sales at four different rates: a general rate of 13.5 percent, a rate of 19 percent on alcohol and tobacco, a rate of 11 percent on telecommunication services, and a rate of 9 percent on construction materials. The GST package will replace the MST with a tax imposed at a uniform rate of 7 percent on all but a few categories of goods and services. The exceptions include basic groceries, health and medical care, education, day care, legal aid services, residential rents, financial services, and municipal services and passenger ferries. The package also contains provisions for adjusting the taxes on alcohol, tobacco, and motive fuels in order to maintain the revenues from these sources at current levels.

In order to compensate families with low and lower-middle incomes for the increase in the cost of goods and services that will result from the introduction of the GST, the new tax will be accompanied by an increase in the sales tax credit. The STC for adults will rise from $140 to $190, and the credit for each dependent child will rise from $70 to $100. The credit will continue to be reduced by 5 percent of family net income (defined as the net incomes of the taxpayer and taxpayer's spouse) in excess of a base amount, though this amount will increase from $18,000 (for the 1990 tax year) to $24,800. In addition, single parents will be allowed to claim the adult credit for the first dependent child, and single taxpayers, including single parents, will be allowed a higher credit equal to the basic credit of $190 plus 2 percent of net income in excess of the basic personal amount (projected to be $6,256 in 1991) up to a maximum of $290.

The GST will also be accompanied by an increase of two percentage points in the existing high-income surtax, and the level of basic tax at which the high-income surtax becomes applicable will be reduced from $15,000 to $12,500.

The present analysis does not take into account the indexing of taxes and family allowances that will be introduced in response to the price increases associated with the imposition of the GST, since this indexing will not begin until 1992. On the other hand, the analysis does incorporate the quarterly indexing of the OAS/GIS, which will begin in the second quarter of 1991.

[3] The calculation of these rates uses the medium-level disaggregation version of a separate input-output model.

ASSUMPTIONS

The analysis uses the SPSD/M 1986 database of individuals, families, income, spending patterns, and taxes. All nominal values in the database were scaled up to reflect growth between 1986 and 1991. The calculation of the increase in the number of individuals and families between 1984 and 1991 uses the 1991 weights supplied by Statistics Canada.

The analysis is performed in terms of census families. Statistics Canada defines a census family as a head, spouse if present, and never-married children at any age sharing the same dwelling. Adults are persons aged 18 or more, including elderly, and elderly are persons aged 65 or more. Children are persons aged less than 18.

The analysis assumes that the full amount of either GST or MST that is levied on consumer goods is borne by consumers and that any change in the amount will be passed on dollar-for-dollar to consumers. This is the most reasonable assumption to make about the long-run incidence of either tax, and it is the assumption that is made in most empirical studies of pricing behaviour. To the extent that the assumption is not valid in the particular case of the GST-MST substitution, however, the impact estimates presented in this article will understate the reality. Many critics of the GST question the validity of the assumption of full forward shifting, particularly as it applies to the passing on of the savings that will result from the elimination of the MST.

The analysis also assumes that the MST levied on investment goods is not passed on to consumers and therefore that the tax burden on consumers will not be reduced by the amount of this tax when the MST is eliminated (the Department of Finance made the same assumption in its analysis). The increase in profits that will result from the removal of the tax on investment will provide business within an incentive to expand capacity, but the analysis makes no allowance for the increase in output and income that will result in the longer run from the efficiency gains associated with a more neutral tax system. This omission is appropriate, given that the analysis deals only with the initial impact of the shift to the GST.

The estimated effective MST rates used in the analysis take into account all changes in the tax rates and base that have been introduced since 1984.

In calculating the effective GST rates from the 7 percent statutory rate, I have made allowances for the tax-exempt or tax-free status of food, financial services, paid and imputed rent, health, medical care and drugs, education, daycare services, and non-profit local transportation. These categories account for about a third of consumer expenditures. The analysis also allows for the proposed 50 percent rebate of GST levied on the operating profits of non-profit organizations.

The analysis excludes the GST levied on residential construction and the housing rebate, since there is no information in the SPSD database on the acquisition of new housing. This omission should not significantly distort the analysis of the distributional impact of the GST, however, since most families will not purchase or rent new housing in 1991.

THE IMPACT ON PRICES

The replacement of the manufacturers' sales tax with a 7 percent GST will increase consumer prices by about 1.25 percent. The GDP deflator, however, will rise by less than 0.5 percent. The increase in consumer prices will be greater than the increase in the GDP deflator because the proportion of the tax base that is attributable to consumer expenditure will be larger under the GST than it is under the MST. The GDP deflator will go up because a 7 percent GST will generate more revenue than would be needed simply to replace the MST.

Table 1 shows how the switch to the GST will affect the prices of various types of goods and services.[4] The changes range from declines of 1.5 percent or more for goods and services that are subject to high effective MST rates to increases of about 6 percent for some goods and services that are exempt from the MST. Thus the prices of new and used motor vehicles and of goods in the category furniture, carpets, and other will decrease by about 1.5 percent. The prices of food and non-alcoholic beverages and of hospital and medical care, goods and services that are largely exempt from the MST and will be wholly exempt from the GST, will decline by between zero and 1 percent. The prices of electricity and natural gas, commodities that are exempt under the MST but will be taxable under the GST, will increase by about 6 percent.

THE DISTRIBUTIONAL IMPACT OF THE GST PACKAGE

Canadian families will experience a net decrease of nearly \$4.6 billion in consumable income in 1991 as a result of the adoption of the GST package. The GST itself will increase the tax burden on families by \$5.8 billion, and the income tax changes in the package will increase it by an additional \$239 million; most of the latter increase will arise from the increase in the high-income surtax. The increase in the STC will account for about \$1.2 billion of the difference between the gross increase in the total tax burden (about \$6 billion) and the net increase (about \$4.6 billion); the indexing of the OAS/GIS will account for the remaining \$200 million or so.

As table 2 shows, the average reduction in consumable income (income after direct and commodity taxes) in Canada as a whole will be \$406 per census family. These averages take into account all household types: couples with children, couples without children, elderly couples, elderly singles, singles, and single-parent families. Provincial averages will range from \$257 in Prince Edward Island to \$482 in Alberta. Some 8.4 million Canadian families will experience a reduction in consumable income as a result of the GST package and 2.6 million will experience an increase. The ratio of losers to gainers will be greatest in the higher-income provinces, such as Alberta and Ontario. No province will have more gainers than losers.

[4] These price impacts are calculated outside of the framework of the SPSD/M, which includes no price variables.

Table 1 Estimated Impact on Disaggregated Price Inflators of the Replacement of the MST by a 7 Percent GST

Categories of consumer expenditure	Percentage change
Food, beverages, and tobacco	−0.2
Food and non-alcoholic beverages	−0.3
Alcoholic beverages	0.0
Tobacco products	0.0
Clothing, footwear, and accessories	5.6
Men's and boys' clothing	5.6
Women's and children's clothing	5.5
Footwear and repair	5.7
Gross rent, fuel, and power	0.8
Gross imputed rent	−0.1
Gross paid rent	−0.5
Other lodging	5.7
Electricity	6.0
Natural gas	5.9
Other fuels	5.2
Furniture, furnishings, and household equipment	0.3
Furniture, carpets, and other	−1.4
Household appliances	−0.5
Semidurable household furnishings	−0.2
Non-durable household supplies	1.0
Laundry and dry cleaning	5.5
Domestic and child care services	0.9
Other household services	5.6
Medical care and health services	−0.2
Medical care	−0.7
Hospital care	−0.7
Other medical expenses	−0.5
Drugs and sundries	0.8
Transport and communications	0.7
New and used motor vehicles	−1.4
Motor vehicle repairs and parts	3.3
Motor fuels and lubricants	0.0
Other automobile-related services	5.4
Purchased transportation	3.4
Communications	0.1
Recreational, entertainment, educational, and cultural services	1.8
Recreational, sport, and camping equipment	−0.1
Reading and entertainment supplies	2.7
Recreational services	5.3
Educational and cultural services	0.5
Personal goods and services	2.8
Jewelry, watches, and repairs	0.6
Toilet articles and cosmetics	0.2
Personal care	5.5
Expenditure on restaurants and hotels	5.6
Financial, legal, and other services	0.0
Operating expenses of non-professional organizations	2.2
Net expenditure abroad	−2.2

The average tax increase of $406 per family will be the net outcome of the following changes: (1) $515 increase in federal commodity taxes as a result of the substitution of the GST for the MST; (2) a $23 increase in federal income tax largely as a result of the increase in the high-income surtax; (3)

Table 2 Estimated Impact of the GST Package by Province, 1991

	Census families, thousands	Average family size	Losers, thousands	Gainers, thousands	Change in consumable income, $ million	Average change in consumable income, dollars
Newfoundland	216	2.7	144	63	−56	−259
Prince Edward Island	53	2.5	37	14	−14	−257
Nova Scotia	372	2.4	266	92	−120	−322
New Brunswick	295	2.5	210	74	−91	−308
Quebec	2,877	2.3	2,073	726	−1,062	−369
Ontario	4,146	2.3	3,168	891	−1,853	−447
Manitoba	462	2.3	332	119	−163	−353
Saskatchewan	426	2.4	315	99	−156	−367
Alberta	1,017	2.4	802	191	−491	−482
British Columbia ...	1,379	2.2	1,049	292	−560	−406
All provinces	11,243	2.3	8,394	2,560	−4,565	−406

Note: A loser is anyone who experiences a decrease in consumable income of more than $10; a gainer experiences an increase in consumable income of more than $10. Consumable income is income, including transfer payments, less all direct and indirect taxes and transfers. A negative amount indicates that families pay more money to the federal government as a result of the introduction of the GST package, a positive amount that they either receive money or pay less.

an offsetting $109 increase in the sales tax credit; (4) a small reduction in net provincial taxes (see table 3).

Table 3 shows that the increase in the sales tax credit will be greater for lower-income families than for higher-income families and greatest of all for families in the $25,000 to $30,000 income group. The increase in the high-income surtax will begin to bite only at the $75,000 income level. For all income groups except the very lowest, the increase in commodity taxes will decline only slightly as a percentage of income. The exemption for basic groceries and other items will make the sales tax increases much less regressive than they would otherwise be. Indeed the GST package as a whole, including the STC, will be relatively progressive on average (if progressivity is measured in terms of the average decrease in consumable income as a percentage of consumable income) up to a level of family income of $35,000. At levels above $40,000, the tax increases, at about 1.6 percent of consumable income, are roughly proportional.

Table 4 shows that two-parent families with children and other two-adult families will experience the largest reductions in consumable income, a result that reflects the relatively high average incomes of families in these categories. Elderly two-adult families too will experience a loss, in spite of their relatively low average income. What is more striking, even single-adult families with children and single elderly will experience reductions in consumable income. On average, single-parent families with incomes of up to $30,000 will be better off because of the adoption of the GST package; families of this kind with incomes in the $15,000 to $20,000 range, however, will be slightly worse off. Two-adult families with children will be worse off at

Table 3 Estimated Impact of the GST Package by Total Income Group, 1991

Total income group, dollars	Average change in STC	Average change in income tax	Average change in federal commodity taxes	Average change in consumable income	Average percentage change in consumable income	Losers	Gainers
			dollars			*thousands*	
0-10,000	79	0	115	−29	0.6	367	308
10,001-15,000	145	2	187	10	0.0	506	783
15,001-20,000	156	3	248	−51	−0.4	505	354
20,001-25,000	262	5	302	−4	−0.1	341	422
25,001-30,000	279	4	343	−45	−0.2	377	312
30,001-35,000	159	4	389	−213	−1.0	544	129
35,001-40,000	84	4	458	−359	−1.4	616	67
40,001-45,000	51	3	499	−434	−1.6	575	43
45,001-50,000	42	3	535	−480	−1.6	577	39
50,001-60,000	34	3	628	−583	−1.7	994	41
60,001-75,000	39	5	731	−684	−1.6	1,146	32
75,001-100,000 ...	53	28	931	−898	−1.7	1,051	20
100,001-150,000 ..	66	87	1,158	−1,169	−1.6	566	8
150,001 + ...	60	620	1,465	−2,024	−1.4	230	1
All income groups .	109	23	515	−406	−0.9	8,394	2,560

[a]Consumable income is income after direct and indirect taxes and transfers. [b]A loser is anyone who experiences a decrease in consumable income of more than $10; a gainer experiences an increase in consumable income of more than $10.

Table 4 Estimated Impact of the GST Package on Consumable Income by Census Family Type, 1991

	Census family type						
Total income group, dollars	With children, 1 adult	With children, 2 or more adults	With elderly, 1 adult	With elderly, 2 or more adults	Other, 1 adult	Other, 2 or more adults	All family types
				dollars			
0-10,000	43	−118	−1	−12	−34	−67	−29
10,001-15,000	38	−110	44	−40	−27	−97	10
15,001-20,000	−12	−129	3	−28	−61	−136	−51
20,001-25,000	46	−119	56	75	−26	−62	−4
25,001-30,000	57	1	−75	61	−116	−41	−45
30,001-35,000	−107	−110	−262	−174	−317	−212	−213
35,001-40,000	−302	−342	−264	−226	−438	−383	−359
40,001-45,000	−443	−481	−324	−290	−483	−393	−434
45,001-50,000	−700	−547	−226	−325	−486	−429	−480
50,001-60,000	−701	−657	−289	−396	−564	−536	−583
60,001-75,000	−774	−751	−300	−456	−693	−639	−684
75,001-100,000	−1,579	−1,001	−528	−672	−824	−821	−898
100,001-150,000	−1,540	−1,243	−881	−1,006	−1,123	−1,129	−1,169
150,001 + ...	−2,488	−2,245	−3,256	−1,636	−2,328	−1,838	−2,024
All income groups	−133	−684	−20	−225	−222	−600	−406

Note: A negative amount indicates that families pay more money to the federal government as a result of the introduction of the GST package, a positive amount that they either receive money or pay less. Consumable income is income, including transfer payments, less all direct and indirect taxes.

virtually all levels of income and on average will be worse off by $684. Elderly one-adult families with incomes of $25,000 or less will be better off, but the average elderly one-adult family will be worse off by $20. Elderly two-adult families with incomes of up to $20,000 will be slightly worse off, and those with incomes in the $20,000 to $30,000 range will be better off. On average, elderly two-adult families will be $225 worse off.

Whether a given family loses or gains as a result of the introduction of the GST package will be determined largely by the proportion of its income that it spends and the composition of its expenditures. The GST will fall most heavily on families that spend a higher-than-average proportion of income or that devote a larger-than-average share of their expenditure to goods and services that will increase in price because of the GST. For instance, families that spend all of their income and purchase a disproportionately large share of newly taxed services will be among the biggest losers; whereas families that have high savings rates and purchase a disproportionately large share of manufactured goods will likely be among the gainers.

For three-quarters of Canadian families, as table 5 shows, the introduction of the GST package will mean a loss of consumable income in 1991. The family type whose members are most likely to be among the losers is that of two-parent families with children; 2.8 million such families, or 90 percent of the total, will be losers. Losers will also be disproportionately numerous among other families with two or more adults. Gainers will be

Table 5 Estimated Percentage of Losers as a Result of the Introduction of the GST Package, by Census Family Type and Income Group, 1991

	Census family type						
Total income group, dollars	With children, 1 adult	With children, 2 or more adults	With elderly, 1 adult	With elderly, 2 or more adults	Other, 1 adult	Other, 2 or more adults	All family types
				percent			
0-10,000	22.3	59.1	30.6	42.6	53.0	60.3	48.6
10,001-15,000	30.2	67.9	27.4	46.0	48.8	68.8	37.2
15,001-20,000	44.4	74.1	38.7	51.5	61.2	74.6	55.9
20,001-25,000	31.1	65.3	30.0	30.5	45.9	54.3	42.8
25,001-30,000	32.2	43.2	56.2	33.9	68.3	49.5	52.9
30,001-35,000	69.3	60.7	91.1	74.9	92.2	80.5	78.7
35,001-40,000	81.5	86.2	95.0	78.9	96.9	89.6	89.3
40,001-45,000	90.4	93.5	99.2	81.7	97.5	89.7	92.4
45,001-50,000	99.3	93.7	70.0	89.1	97.0	93.4	93.3
50,001-60,000	96.7	96.4	96.4	90.1	97.1	95.7	95.8
60,001-75,000	99.7	97.5	94.7	92.9	96.5	97.4	97.1
75,001-100,000	100.0	99.0	100.0	92.5	99.9	97.2	98.0
100,001-150,000	100.0	99.1	100.0	97.6	96.3	98.1	98.5
150,001 +	100.0	99.5	100.0	100.0	100.0	99.0	99.4
All income groups	50.0	89.9	38.3	64.0	70.1	89.3	74.7

Note: A loser is anyone who experiences a decrease in consumable income of more than $10; a gainer experiences an increase in consumable income of more than $10.

most numerous among single-parent families and the single elderly, and only the single elderly will include more gainers than losers.

The effect of the STC increase will be to ensure that the gainers in each family category will be concentrated among its lower-income members and that gainers will be most plentiful among the lower-income members of the categories—single-parent families and the single elderly—that include the largest proportions of gainers overall. Even among lower-income families, however, there will be a significant proportion of losers. Of the 4.5 million census families that earn less than $30,000, 2.1 million or 46 percent will be among the losers. The average loss for families that earn less than $30,000 will be $20.

The distributional analysis presented in this article[5] shows a substantially larger negative impact for all family types and income levels than does the analysis reported by the Department of Finance in its technical paper on the GST.[6] There are two aspects of the Department of Finance estimates that render them suspect.

First, the Department of Finance estimates are not in fact measures of the impact of the GST package in 1991, as they appear to be, but rather hypothetical estimates of the package's impact in equilibrium—that is, estimates of what its impact will be when the indexation of taxes and transfers is complete. Because of the more than one-year lag in the indexation formula, no indexation will be triggered in 1991 (except in the case of the OAS/GIS, which is indexed quarterly).

Second, the Department of Finance analysis uses contradictory assumptions about the extent to which the MST is shifted forward to consumers. In its distributional analysis, the department assumes that the $4 billion in MST that is currently levied on investment goods is fully shifted forward to consumers and hence that with the elimination of the MST households will realize the full $4 billion in the form of lower consumer prices. This assumption is inconsistent with the government's own macroeconomic calculation that only the MST levied on consumer goods is shifted forward to consumers and hence that the imposition of the GST will result in an increase in the consumer price index of 1.25 percent in 1991. The increase in the consumer price index implicit in the department's distributional analysis appears to be only half this amount, even though the same analysis uses the full amount in calculating the indexation of taxes and transfers.

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[5] This anlysis has been confirmed by another study. See Neil Brooks, *Searching for an Alternative to the GST*, Discussion Paper 90.C.1 (Halifax: Institute for Research on Public Policy, February 1990). Brooks too uses the SPSD/M to analyze the impact of the GST. There are two main differences between Brooks's methodology and mine. First, each of us has used slightly different effective GST rates, which we have estimated independently on the basis of information about the structure of the GST. Second, Brooks allows consumer expenditures to decline as a result of the GST-related decrease in disposable income, and this decline in turn reduces the net increase in commodity taxes attributable to the GST.

[6] Supra footnote 1, at 33-35, table 2, column 2.

The tax-shifting assumption that the department makes in its distributional analysis is also inconsistent with the assumption that it makes in its general equilibrium analysis. The shifting assumption in this case is that domestic producers are unable to pass forward the MST levied on business imputs of any kind, not merely the MST levied on investment goods alone, since the prices of traded goods are determined by international markets.[7] The assumption that none of the MST levied on business inputs is shifted forward to consumers is the basis of the department's estimate that the introduction of the GST package will increase the incentive to invest by enough to raise potential output by \$9 billion, or 1.4 percent of GDP.

CONCLUSIONS

The net effect of the substitution of the GST for the MST and of the other measures in the GST package will be to reduce the consumable income of the household sector by \$4.6 billion and to lower the consumable income of the average census family by over \$400 in 1991. Consumable income will decline because the new tax regime will increase both the amount of revenue that is raised through commodity taxation and the share of commodity taxation that is borne by the household sector.

Three-quarters of Canadian families will pay more taxes in 1991 because of the introduction of the GST package. The increase in the sales tax credit will help to ease the burden on low-and middle-income taxpayers; nevertheless, families that earn less than \$30,000 will pay \$20 in taxes more on average because of the GST package, and 46 percent of families that earn less than \$30,000 will face heavier tax burdens.

If the government wishes to live up to is commitment "to ensure that families earning less than \$30,000 are better off as a result of sales tax reform,"[8] it will have to increase the sales tax credit.

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[7] Bob Hamilton and Chun-Yan Kuo, "The Goods and Services Tax: A General Equilibrium Analysis" (Department of Finance, Tax Policy Branch, Working Paper 89-3), 9-11.

[8] Supra footnote 1, at 18.