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Provincial and Federal Sales Taxes: Evidence of Their Effect and Prospect for Change

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The goal of this paper is to examine some of the issues arising from the use of retail sales taxes by the provinces and from the use of sales and excise taxes by the federal government. The first part of the paper deals with issues related to provincial taxes; the second, issues related to federal taxes. For each set of taxes, the available evidence is reviewed. In addition, three original contributions are made to the literature on provincial sales taxes. These are:

1) Results on the incidence, by income group, of the retail sales tax for cities in the 1970s;

2) An examination of the impact on taxable sales of the federally funded retail sales tax cut of 1978; and

3) A test of the hypothesis that tax differences in border cities (in this case Ottawa and Hull) have an impact on retail sales levels in both cities.

Provincial Sales Taxes

This section of the paper is divided into three parts. The first part presents evidence on the economic impact of retail sales taxes in Canada. We focus particularly on studies of the incidence of the sales tax and the effect of retail sales taxes on economic activity. The second part presents new evidence on the incidence of the sales tax and on the impact of sales tax cuts on economic activity. Estimates are also presented, based on 1971 retail sales census data, of the impact on 1970 retail sales of the difference in sales tax rates between Ontario and Quebec. Finally, the third part explores some of the policy implications of our results.

Economic Impact

The Incidence of Retail Sales Taxes

The study of the incidence, by income group, of the various retail sales taxes in Canada goes back more than 25 years. Due's pioneering work in 1953[2] was followed by ten other studies. These provide the focus of discussion for this section.

[1] We wish to thank Christian Beauregard and André Roy for their research assistance and the Centre de recherche en développement économique for financial support.

[2] John F. Due, *Provincial Sales Taxes: report of a survey of retail sales taxes in Canada*, Canadian Tax Papers no 7 (Toronto Canadian Tax Foundation, 1953).

Authors of such studies must make four choices when deciding on their research strategy. The first two are the area covered by the study and the year for which the study will be carried out. These are fairly simple choices, and they are often decided by the data available. The other two are more controversial and warrant further examination: the first is the choice of type of income to be included; the second is the choice of technique for identifying the taxable share of expenditures. We shall discuss these in turn.

Researchers have usually chosen one (or two) of the following three income concepts: money income, broad income, and adjusted broad income. These may be defined as follows:[3]

1) Money income is the total amount of money received by a family or individual in a given period of time. It includes wages and salaries, self-employment and investment income, and transfer payments; and it is gross of taxes. It is the income concept reported by Statistics Canada in its expenditure surveys.

2) Broad income (or pre-government income) is obtained from money income as follows:

a) First, add to money income the imputed income from owner-occupied housing, self-produced food and fuel, imputed banking services, and investment income of life insurance companies and industrial pension funds. The income so obtained is labelled personal income.

b) Second, add retained corporate earnings, the unshifted portion of the corporation income tax, and the backward-shifted part of social security taxes. The income so obtained is labelled full income or adjusted personal income.

c) Finally, subtract government transfers and, since 1969, labour income induced by the Department of Regional Economic Expansion.

3) Adjusted broad income (or post-government income) is obtained by adding government transfers and expenditures to broad income and subtracting taxes. In both cases, incidence assumptions must be used.

Hence, money income is cash in hand, whatever its source, gross of tax. Broad income is income in hand, cash or noncash, and earned income, excluding government transfers. Adjusted broad income takes into account the impact of government.

Those using money income rarely justify that choice, save on the grounds of expediency, because it is easily available. Those using the broad income concept prefer it because it represents command over goods and resources, rather than money income alone—an economically correct view. And some authors who use the adjusted broad income concept argue that it is a superior choice because it "is the best measure of the economic welfare"[4] (although its quantification may

[3] The descriptions given here are, broadly speaking, the same for all studies. Data problems may, however, produce small differences between studies.

[4] James A. Johnson, *The Incidence of Government Revenues and Expenditures: a study prepared for the Ontario Committee on Taxation* (Toronto: Queen's Printer, 1969), 10.

introduce a number of serious impurities[5]). Gillespie[6] and Maslove,[7] however, suggest that "[from the] standpoint of economic theory. . .the two procedures are both consistent and correct."[8]

Given these claims, which income concept should one use? One could argue for the broad income concept, even though such a choice leads to greater regressivity than occurs with adjusted broad income.[9] But in empirical studies, the measurement problems and errors associated with calculations of broad income are often too great to permit its use.[10]

The second difficult choice, mentioned earlier, is how to calculate the sales tax paid by each income group. Two techniques are available. One requires the use of a detailed expenditure classification (559 items in 1969, for example) so as to determine whether each expenditure item is taxable using the exemption list of the appropriate tax law. The other uses a broad expenditure classification (with items such as food, shelter, clothing–numbering between 10 and 20 altogether) and assumes that a given percentage of each expenditure category is taxable. The second technique is less accurate than the first, as it assumes that the taxable share of a given type of expenditure is invariant across income groups. This assumption is very unlikely to hold in practice. The technique has been used either by researchers who presumably had no other choice given the data available or by researchers whose main goal was other than to establish the incidence of retail sales taxes. The first technique described has been used in most recent studies referred to here. Table 1 summarizes the research characteristics of the retail sales tax incidence studies carried out to date.

What are the findings of these studies? In our view, the best way of presenting the main conclusions is to quote them directly from the studies themselves. The following summary cites the various studies in chronological order:

1) Due states that "the most striking feature of the results is the relatively proportional pattern of distribution, except at the lowest and highest income groups."[11]

[5] See G. C. Ruggeri, "On the Regressivity of Provincial Sales Taxation in Canada" (Summer 1978), 4 *Canadian Public Policy* 364, at 367.

[6] W. Irwin Gillespie, *The Incidence of Taxes and Public Expenditures in the Canadian Economy*, Royal Commission on Taxation study no. 2 (Ottawa: Queen's Printer, 1964).

[7] Allan M. Maslove, *The Pattern of Taxation in Canada* (Ottawa: Information Canada, 1973).

[8] Ibid., 9.

[9] For example, using the 1961 data found in Johnson (supra footnote 4, at 121), one can calculate that the ratio of post-government income (adjusted broad income) to total money income is 1.34 for the group with the lowest income (under $2,000) and 1.06 for the group with the highest income ($10,000 and over). See also Ruggeri's results, supra footnote 5.

[10] We note in particular the problems brought about by bracket jumpers (see supra footnote 7, at 11). These cannot be corrected when aggregate data are used. Users with access to microdata could, however, make the necessary correction. See Michael C. Wolfson, "Tax Incidence in Canada" (Summer 1980), 2 *Canadian Taxation* 123.

[11] Supra footnote 2, at 122.

Table 1.—Research Characteristics of Eleven Studies of the Incidence of Sales Taxes in Canada, 1953-1978

Characteristics	Study: Due (1953)	Goffman (1962)	Gillespie (1964)	Johnson (1969)	Nelson (1970)	Maslove (1972)	Bardecki (1973)	Gillespie (1976)	Vaillancourt Berthiaume (1978)	Ruggeri (1978)	Gillespie with Wurts (1979)
Coverage	New Brunswick, Quebec, Saskatchewan, British Columbia	Canada	Canada	Ontario	Toronto and Ottawa[a]	Canada and six regions[b]	Ontario	Canada	Ontario and Quebec	All 10[c] provinces	Canada
Expenditure year	1947-1948	1957	1958-1959[d]	1959	1964	1969	1969	1969	1969	1969	1947-1948[e]
Tax code year	1952	1957	1961	1961	1968	1969	1973	1969	1970	1976	1951
Income concept	Money income[f]	Money income[f]	Broad income	Post-government income	Money income	Broad income	Money income	Broad income	Money income	Broad and adjusted broad income	Broad and adjusted broad income
Expenditure classification used	Broad	Broad	Broad	Broad	Detailed	Broad	Detailed	Detailed	Detailed	Detailed	Broad

[a] Nelson indicates that his study is for Ontario. Expenditure data, however, were available only for Ottawa and Toronto in 1964. Presumably, the author used both cities.

[b] Atlantic, Quebec, Ontario, Manitoba-Saskatchewan, Alberta, British Columbia.

[c] Detailed expenditure data are available only for British Columbia, Ontario, and Quebec in 1969. The author had to calculate expenditure patterns for Newfoundland, Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, and Saskatchewan. Alberta had no retail sales tax in 1969.

[d] 1958 for farm families and 1959 for urban families.

[e] For upper income groups, data for 1959 were also used.

[f] Presumably: this is not made clear in these studies.

Sources: Nancy Bardecki, "Analysis of the incidence of the retail sales tax" (mimeograph, Ontario Ministry of Treasury, Economics and Intergovernmental Affairs, 1973); John F. Due, *Provincial Sales Taxes: report of a survey of retail sales taxes in Canada*, Canadian Tax Papers no. 7 (Toronto: Canadian Tax Foundation, 1953); W. Irwin Gillespie, *The Incidence of Taxes and Public Expenditures in the Canadian Economy*, Royal Commission on Taxation study no. 2 (Ottawa: Queen's Printer, 1964); W. Irwin Gillespie, "On The Redistribution of Income in Canada" (July-August 1976), 24 *Canadian Tax Journal* 419; W. I. Gillespie with B. Wurts, "Fiscal Incidence in Canada, 1951-1969," Technical Appendix (mimeograph, Carleton University, 1979); Irving Jay Goffman, *The Burden of Canadian Taxation*, Canadian Tax Papers no. 29 (Toronto: Canadian Tax Foundation, 1962); James A. Johnson, *The Incidence of Government Revenues and Expenditures: a study prepared for the Ontario Committee on Taxation* (Toronto: Queen's Printer, 1969); Allan M. Maslove, *The Pattern of Taxation in Canada* (Ottawa: Information Canada, 1973); Orland E. Nelson, "Progressivity of the Ontario Retail Sales Tax" (September-October 1970), 18 *Canadian Tax Journal* 411; G. C. Ruggeri, "On the Regressivity of Provincial Sales Taxation in Canada" (Summer 1978), 4 *Canadian Public Policy* 364; and François Vaillancourt and Jacques Berthiaume, "A Comparative Analysis of the Incidence of Retail Sales Tax in Ontario and Quebec, 1970" (September-October 1978), 26 *Canadian Tax Journal* 596.

2) Goffman's conclusion is that "the general sales taxes are distributed on the basis of taxable expenditures, which are somewhat progressive since such items as food, fuel and housing are exempt."[12]

3) Gillespie finds, for the early 1960s, that the provincial sales and excise taxes are regressive.[13]

4) Johnson finds that the sales tax "is proportional throughout most of the scale."[14]

5) Nelson finds that "the Ontario retail sales tax as of July 1st 1968 was at least slightly progressive."[15]

6) Maslove states that "the provincial general sales taxes are regressive on the entire income span."[16]

7) Bardecki finds that "the results of the sales tax analysis support the contention that this tax by itself is regressive."[17]

8) Gillespie finds for 1969 that the retail sales taxes are regressive.[18]

9) Vaillancourt and Berthiaume find that "the incidence with respect to [money] income of retail sales tax was regressive in both Ontario and Quebec in 1970, more so in Ontario than Quebec."[19]

10) Ruggeri finds that, "when incidence is measured on the basis of a detailed calculation of taxable expenditures and a concept of income that accounted for the overall impact of government taxing and spending, provincial sales taxes were found to be practically proportional."[20]

11) Gillespie finds for 1951 that retail sales taxes are regressive, but more so when the broad income concept is used than is the case with adjusted broad income.[21]

Four of the six studies carried out with pre-1969 data conclude that the sales tax is proportional or slightly progressive. Three of these, however, use broad

[12] Irving Jay Goffman, *The Burden of Canadian Taxation*, Canadian Tax Papers no. 29 (Toronto: Canadian Tax Foundation, 1962), 2.

[13] Supra footnote 6, at 67.

[14] Supra footnote 4, at 4.

[15] Orland E. Nelson, "Progressivity of the Ontario Retail Sales Tax" (September-October 1970), 18 *Canadian Tax Journal* 411, at 414.

[16] Supra footnote 7, at 75.

[17] Nancy Bardecki, "Analysis of the incidence of the retail sales tax" (mimeograph, Ontario Ministry of Treasury, Economics and Intergovernmental Affairs, 1973), 2.

[18] W. Irwin Gillespie, "On the Redistribution of Income in Canada" (July-August 1976), 24 *Canadian Tax Journal* 419.

[19] François Vaillancourt and Jacques Berthiaume, "A Comparative Analysis of the Incidence of Retail Sales Tax in Ontario and Quebec, 1970" (September-October 1978), 26 *Canadian Tax Journal* 596, at 604.

[20] Supra footnote 5, at 371.

[21] W. I. Gillespie with B. Wurts, "Fiscal Incidence in Canada, 1951-1969," Technical Appendix (mimeograph, Carleton University, 1979).

expenditure classifications. This could partially explain the findings, as it is quite likely that taxable expenditures within a broad expenditure group do not remain constant but increase with income. On the other hand, four of the five studies carried out using 1969 data conclude that the sales tax is regressive.[22] The fifth one, by Ruggeri,[23] concludes that the tax is progressive, but states as the reason the fact that the author used adjusted broad income as the base for his calculations. If Ruggeri had preferred the broad income concept, he would have drawn a very different conclusion; for in that case, the results show that "provincial sales taxes are regressive even when the tax base excludes all exemptions."[24] Hence, all five studies using 1969 data find a regressive pattern using either broad or detailed expenditure classifications and either money income or broad income for their calculations.

The Impact of Sales Tax Cuts

To our knowledge, three studies have been done on the impact of retail sales tax cuts on economic activity in Canada. The first cut, examined by Sumner,[25] is the 1975 Ontario cut. Using quarterly data from the National Accounts, this author estimates (by ordinary least squares) a relationship between current consumption as the dependent variable, and disposable income and consumption (lagged one period) as the explanatory variables, from the second quarter of 1961 to the first quarter of 1975 (56 quarters). This relationship is then used to predict what consumption would have been in the latter part of 1975 (the second, third, and fourth quarters) without the sales tax cut. The author expects to find that actual consumption is higher than the predicted amount, but this is not the case. He therefore is unable to conclude that the tax cut had an impact on consumption.

Sumner, however, measures only the impact of a sales tax cut on aggregate consumption, the greatest part of which is nontaxable (food, shelter, services, and so on). His method thus neglects the possibility that the sales tax cut could simply bring about a substitution toward detaxed goods. If Sumner hoped to measure the impact of the sales tax cut on the sales of taxable goods, then the use of consumption as the dependent variable was incorrect. Taxable sales should be used and a price variable included on the right-hand side of the regression.[26]

The second study was carried out by the Bureau de la Statistique du Québec (BSQ).[27] It examines the impact on the Quebec economy of two schemes to cut

[22] Dodge has also carried out a study of tax and expenditure incidence using these data, but he does not state the incidence of the retail sales tax. David A. Dodge, "Impact of Tax, Transfer and Expenditure Policies of Government on the Distribution of Personal Incomes in Canada" (March 1975), 21 *Review of Income and Wealth* 1.

[23] Supra footnote 5.

[24] Ibid., 369.

[25] M. T. Sumner, "A Skeptical Note on the Efficacy of Sales Tax Reductions" (Winter 1979), 5 *Canadian Public Policy* 97.

[26] The absence of any modelling of seasonal behaviour (such as seasonal dummies) also should be noted. This problem is likely to be present here.

[27] Bureau de la Statistique du Québec, "Réduction de la taxe de vente au Québec: Etude comparative des impacts économiques des propositions des Gouvernements du Québec et du Canada" (Québec: Ministère de l'industrie et du Commerce, 1978).

sales tax, proposed in 1978 by the federal government and the provincial government respectively. The proposals were as follows:

1) The federal government offered to finance, in full for the Atlantic provinces and partially (two-thirds) for all other provinces, the cost of either a 3 per cent cut in the retail sales tax rate for six months or a 2 per cent cut for nine months.

2) The Quebec government chose to remove completely for a year the tax on clothing and textile products, shoes, and furniture.[28]

The forgone revenue of these two propositions was put at $330 million, by both proponents. The BSQ took that figure as given and calculated the impact of the two measures on the economy. Two assumptions were made: first, that the full amount of forgone revenues would go toward the purchase of the goods from which the sales tax had been removed; and second, that the distribution of that amount between various goods would follow the pre-cut expenditure pattern. Some of the results of this study are presented in Table 2.

The results indicate that the provincial proposal is preferable from Quebec's point of view, since it brings about a greater increase in economic activity. This is easily understood if one looks at Quebec's economic structure: the type of goods chosen by Quebec's Minister of Finance are, as he himself pointed out in defending his proposal, produced in Quebec in greater proportion than are other goods. The results in the imports column of Table 2 support the point.

Two criticisms can be levied at the methodology chosen by the BSQ (aside from the fact that the 1973 input-output table was used for the 1978 study). First, it is unrealistic to assume that the full amount of forgone revenues is spent on consumer goods. Economic theory tells us that the marginal propensity to consume is not necessarily equal to one, and this is particularly true for temporary increases in income. Accordingly, the calculated impact of both proposals is too high as compared with their true impact. The second criticism is that the study assumes zero cross-elasticities of demand, for it presumes that the freed income is spent fully on the detaxed goods and, within that group, that the expenditure breakdown is the same as it was before the tax cut. This seems unlikely and probably has the effect of overestimating the relative advantages of Quebec's proposal over the federal proposal.

The third study of tax cut effects, by Courchesne et al.,[29] uses Box-Tiao's intervention analysis to examine the evolution of the clothing consumer price index for Montreal and of clothing retail sales for Quebec from April 1978 to March 1979. This study finds that the average value of the price index over the period is 148.79, rather than the 159.65 value predicted in the absence of a sales tax cut—a drop of 7.3 per cent. There is also an increase of 21.8 per cent in the retail

[28] But not appliances. This gave the Quebec Finance Minister a golden opportunity to reverse the unpopular decision of the 1977 budget to tax children's clothing.

[29] Camille Courchesne, Irène Gagné, and Jacques Poirier, "L'impact de l'abolition de la taxe de vente au Québec sur l'industrie du vêtement: la construction d'un modèle dynamique à l'aide des méthodes de fonction de transfert et de l'analyse d'intervention" (Québec: Bureau de la Statistique du Québec, 1980).

Table 2.—Estimated Impact of Proposed Sales Tax Cuts on Quebec's Economy, 1978

	Employment	Value added	Imports
	man-years	*millions of dollars*	
Provincial proposal	12,770	203,899	99,575
Federal proposal	7,490	152,554	130,149

Source: Bureau de la Statistique du Québec, "Réduction de la taxe de vente au Québec: Etude comparative des impacts économiques des propositions des Gouvernements du Québec et du Canada" (Québec: Ministère de l'industrie et du Commerce, 1978), Tables 1 and 2.

sales of clothing, valued in 1971 dollars. The study does not examine the links between the change in prices and the change in retail sales.

Some Additional Evidence

The additional evidence presented in this section bears on the incidence of sales taxes, the economic effects of sales tax cuts, and the extent of transborder purchases in the Ottawa-Hull area. We shall examine each piece of evidence in turn.

The Incidence of Retail Sales Taxes in the 1970s

As shown in Table 1, most of the recent studies of the incidence of sales taxes use the 1969 expenditure survey. The main reason for this is that 1969 is the most recent year for which expenditure data are available on a province-wide or regional basis, rather than by city. It is clearly preferable to examine the incidence of the Nova Scotia sales tax for the whole of Nova Scotia, rather than for Halifax alone, since it is always risky to infer the provincial pattern from data for one city. For most of the 1970s, however, only urban expenditure data are available. Therefore, we have had to use these data in the absence of more recent provincial statistics.

Since 1970, four expenditure surveys have been carried out in Canada: in 1972, 1974, 1976, and 1978. The first three were confined to urban areas, of which eight were included in all four surveys (St. John's, Halifax, Montreal, Ottawa, Toronto, Winnipeg, Edmonton, Vancouver). In our examination of the incidence of retail sales taxes in the 1970s, data for three years and five cities are used. The 1978 survey is excluded from the study, not by choice but by necessity, since the expenditure data made available to us were simply not detailed enough.[30] Three cities are excluded from the study:

1) St. John's, because the sample is too small to permit much confidence in the data;

[30] Since 1978, Statistics Canada no longer publishes information for items having high coefficients of variation.

2) Ottawa, because we have data on Toronto and this city represents a bigger share of Ontario's population;[31] and

3) Edmonton, because there is no sales tax in Alberta.

In order to compute the incidence of retail sales taxes by province and by year, we have matched the various exemptions of the appropriate tax law with one or more of the detailed expenditure categories. In the process, we have had to make decisions of judgment, each of which could lead to bias in our results. Table 3 allows the reader to ascertain which part of each broad expenditure category is deemed to be taxed in each province in 1976. Appendix Table 1 presents, for each province and each year, the exact expenditures presumed to be taxable, using Statistics Canada's expenditure coding system.

In Table 4, we show the incidence of retail sales taxes in 1972, 1974, and 1976, as measured by the share of money income used to pay the tax. The main conclusion one can draw from this table is that, at least for urban areas, retail sales taxes have been regressive in the 1970s; in other words, lower-income families have spent a larger proportion of their income in sales taxes than have higher-income families. This finding is in agreement with the findings of previous studies using 1969 expenditure data and money income[32] or broad income.[33] Indeed, results shown in appendix Table 2–based on 1969 expenditure data, the tax code of 1970, and money income–indicate that sales taxes were regressive for that year also in the five urban areas used here.

The reader may also note that the measurement of regressivity varies between cities and between years for a given city. No attempt is made here to explain the exact causes of these differences, although differences in spending patterns between cities and within cities between years are likely to account for them to a large degree. In general, however, one should not attach too much importance to minor differences between years for a given city, as they may simply reflect sampling variability. As to intercity differences, two differences are clear:

1) Montreal exhibits a lesser degree of regressivity than do the four other cities. This confirms the previous findings of Vaillancourt and Berthiaume[34] that the sales tax was less regressive in Quebec in 1969 than in Ontario.

2) Vancouver exhibits a greater degree of regressivity than do the four other cities, and markedly so.

Finally, it should be noted that the highest sales tax burden is not, in general, borne by the first quintile (only 4 times out of 15), but rather by the second (7 times) or the third (4 times). As Professor Due will suggest later, one possible explanation is that food expenditures are more or less proportional for the last four quintiles of income. Looking at the aggregate data for Canada for 1972,

[31] In 1976, the Ottawa metropolitan area represented 6.3 per cent and Toronto 33.9 per cent of Ontario's population. See 1976 Census *Population Geographic Breakdown*, Bulletins 1.5 and 1.10.

[32] Supra footnotes 17 and 19.

[33] Supra footnotes 7 and 18.

[34] Supra footnote 19.

Table 3.–Taxable Expenditures by Category for Broad Expenditure Categories in Five Canadian Cities, 1976

Broad expenditure groups	Halifax[a]	Montreal	Toronto[b]	Winnipeg	Vancouver
Food	Consumed in eating places	Consumed in eating places	Consumed in eating places	Consumed in eating places	–
Shelter	Repair materials	Repair materials, gas, electricity	Repair materials	Repair materials, contract costs, electricity	Repair materials, gas, electricity
Household operations	Cleaning, paper, and other household supplies	Paper and other household supplies	Cleaning, paper, and other household supplies	Cleaning services, cleaning, paper, and other household supplies	Cleaning, paper, and other household supplies
Furnishing and equipment	Furniture, household appliances, lighting, floor covering	Furniture, household appliances, lighting, floor covering	Furniture, household appliances, lighting, floor covering	Furniture, household appliances, lighting, floor covering	Furniture, household appliances, lighting, floor covering
Clothing	Women, 14 and over; men, 14 and over; other clothing, clothing materials	Women, 14 and over; men, 14 and over; other clothing, clothing materials	Women, 14 and over; men, 14 and over; other clothing, clothing materials	Women, 14 and over; men, 14 and over; other clothing, clothing materials	Women, 14 and over; men, 14 and over; other clothing, clothing materials
Personal care	–	Toilet preparation, other supplies	Toilet preparation, other supplies	Toilet preparation, other supplies	Toilet preparation, other supplies
Health care	–	Other medicines and drugs	Other medicines and drugs	Other medicines and drugs	Other medicines and drugs
Smoking and alcoholic beverages	Cigars, smokers' supplies, alcoholic beverages	Liquor and wine	Alcoholic beverages	Alcoholic beverages	Alcoholic beverages
Travel and transportation	Cars, trucks, tires, parts, other vehicles, bicycles, leased vehicles	Cars, trucks, tires, parts, other vehicles, bicycles, leased vehicles	Cars, trucks, tires, parts, other vehicles, bicycles, leased vehicles	Cars, trucks, tires, parts, other vehicles, servicing, bicycles, leased vehicles	Cars, trucks, tires, parts, other vehicles, bicycles, leased vehicles
Recreation, reading, and education	Recreation, books, work tools	Recreation, work tools	Recreation, books, work tools	Recreation, work tools	Recreation, books, work tools

[a] In Nova Scotia, "other medicine and drugs" were taxed in 1972 but not in 1974 and 1976.
[b] In Ontario, "garden supplies, seeds, and plants" were taxed in 1972 but not in 1974 and 1976.
Source: Statistics Canada and appropriate tax laws.

Table 4.—Incidence[a] of Provincial Sales Tax in Five Canadian Cities for Five Income Groups, as a Percentage of Money Income, 1972, 1974, and 1976[b]

City and year	Quintile					Tax index[c]
	First	Second	Third	Fourth	Fifth	
Halifax: 1972	1.31	1.83	1.76	1.82	1.58	1.21
1974	1.41	1.84	1.65	1.96	1.47	1.04
1976	1.66	2.16	1.59	1.59	1.43	0.86
Average, 1972-1976	1.46	1.94	1.66	1.79	1.49	1.04
Montreal: 1972	1.89	1.71	1.87	2.01	1.82	0.96
1974	1.94	2.34	2.26	2.18	1.95	1.01
1976	1.87	2.25	2.09	2.19	2.03	1.09
Average, 1972-1976	1.90	2.10	2.07	2.13	1.93	1.02
Toronto: 1972	1.49	1.61	1.53	1.62	1.50	1.00
1974	1.95	2.06	2.07	1.79	1.63	0.83
1976	2.19	2.07	1.89	1.84	1.85	0.84
Average, 1972-1976	1.87	1.91	1.83	1.75	1.66	0.89
Winnipeg: 1972	1.56	1.64	1.62	1.60	1.37	0.88
1974	1.88	1.90	1.66	1.57	1.47	0.78
1976	1.49	1.77	1.85	1.46	1.50	1.00
Average, 1972-1976	1.64	1.77	1.71	1.54	1.45	0.89
Vancouver: 1972	1.49	1.37	1.57	1.37	1.06	0.71
1974	1.39	1.32	1.25	1.31	1.17	0.84
1976	1.98	1.94	1.80	1.74	1.53	0.77
Average, 1972-1976	1.62	1.54	1.54	1.47	1.25	0.77
Average, five cities, 1972-1976	1.70	1.85	1.76	1.74	1.55	0.92

[a]Incidence is measured as the share of net income before taxes used to pay the sales tax.

[b]The tax code used for each year is the one in force that year.

[c]The tax index is the ratio of the tax burden of the fifth quintile over the tax burden of the first quintile.

Source: Statistics Canada, unpublished data tabulated from *Survey of Family Expenditures.*

1974, and 1976, we find a sharp difference in the share of income going to food between those spending units with an income of less than $4,000 and the next income group ($4,000 - $4,999). A three-year average indicates that the share of income going to food expenditure drops from 34 per cent of income for the first group to 28 per cent of income for the second. Thereafter, it decreases to 17 per cent of the income of those whose income is in the $12,000 - $14,999 range.[35] Due's explanation of the fact that the highest burden is not usually borne by the first quintile thus appears to throw some light on our findings.

The Impact of the 1978 Temporary Sales Tax Cut on Retail Sales

To our knowledge, the impact on retail sales of the retail sales tax cut of 1978 has not been examined for the whole of Canada. We have carried out this analysis, using a taxable retail sales determination equation. One of our main objectives was to determine whether the tax cut, which was known to be temporary, induced greater rescheduling of the purchase of taxable goods than that which is implied by a standard price effect.

The retail sales tax cut proposed in the April 1978 federal budget has been described earlier.[36] The Atlantic provinces, Ontario, and Manitoba chose the three-point six-month option, while Saskatchewan and British Columbia chose the two-point nine-month option. British Columbia also maintained the reduced rate from then on. Quebec chose to remove the full sales tax from clothing, textile products, shoes, and furniture for a year. The Minister of Finance argued that this was the better choice because it reduced the price of Quebec-produced goods. The federal government refused to finance this tax cut, preferring to send to each Quebec taxpayer a cheque for the lesser of $85 or the amount of federal income tax payable in 1977.

In order to examine the effect of these sales tax cuts on economic activity, we have constructed a model relating the correct dependent variable and the appropriate independent variables. The dependent variable used in this analysis is taxable retail sales, except in the case of Quebec where it is clothing and shoe sales.[37] The choice of this variable implies that the goal of the experiment was to ascertain whether or not the temporary reduction in price of taxable goods increased the demand for these goods. We did not seek to determine whether it increased retail sales in general, at the expense of other purchases and/or savings. Accordingly, if the sales tax cut proved to have a positive effect, we would not be able to conclude that consumption or retail sales in general increased; the increase in taxable sales could rather, simply reflect a temporary change in spending patterns.

[35]These results are calculated using the following Statistics Canada data: *Urban Family Expenditures 1972*, Cat. No. 62-541, Table 5; *Urban Family Expenditures 1974*, Cat. No. 62-544, Table 4; and *Urban Family Expenditures 1976*, Cat. No. 62-547, Table 1.

[36]Infra, p. 414.

[37]We could not include furniture sales because, in the retail sales data available to us, appliances and furniture sales were combined.

The model used here assumes that taxable per capita retail sales, measured in 1971 dollars and observed on a quarterly basis, are explained by three variables:

1) Disposable income per capita also measured in 1971 dollars. We anticipate a positive relationship between per capita income and per capita sales. Income elasticity should be greater than zero and probably less than one.

2) The relative prices of taxable and nontaxable goods. We expect that, if the relative price of taxable goods goes down, taxable sales will go up—in other words, there should be negative price elasticity.

3) Seasonal dummies. It is well known that there is a seasonal pattern in retail sales that reaches its peak in the fall (October to December)

Estimating a model with these three variables, it is possible to calculate the impact of a sales tax cut by multiplying the price elasticity of demand by the drop in the price of taxable goods induced by the tax cut. One can, however, argue that temporary sales tax cuts increase sales not only through their impact on prices, but also by creating a hurry-up buying mentality among customers, which leads to an intertemporal displacement of demand. Customers may decrease their savings or even borrow to buy now rather than later, or they may defer other purchases to buy detaxed goods. In order to examine whether such a displacement takes place, we have included a tax effect variable that takes the value one when the tax has been removed and zero otherwise. The impact of that variable on sales is expected to be positive. In this study, a 1978 tax cut variable is included in all provinces. For Ontario, a tax cut variable is included for 1975 as well, so as to account for any effects that measure may have had. The exact definitions and sources of the variables are as follows:

1) In all provinces except Quebec, sales are the sum of sales in department and general merchandise stores; general and variety stores; motor vehicle dealers; men's, women's, and family clothing stores; shoe stores, hardware stores; furniture, television, radio, and appliance stores; drug stores, jewellery and all other stores.[38] These stores were selected after determining that the greatest part of the sales of these stores was likely to be taxable.[39] For Quebec, we use the sales of clothing (men, women, and family) and shoe stores.

2) Population, used to obtain sales and income per capita, is estimated by Statistics Canada on a quarterly basis.[40]

3) Disposable income is published by provinces, only on an annual basis. Quarterly figures for each province are calculated by multiplying Canadian quarterly data by each province's share of Canada's disposable income for that year.[41]

[38] Taken from Statistics Canada, *Retail Trade*, Cat. No. 63-005, various years.

[39] Statistics Canada, *Retail Commodity Survey 1974*, Cat. No. 63-526. The percentages of taxable sales in Canada for each kind of store listed here are, in order: 93 per cent, 92 per cent, 68 per cent, 87 per cent, 95 per cent, 96 per cent, 88 per cent, 90 per cent, 99 per cent, 99 per cent, 80 per cent, and 99 per cent.

[40] Statistics Canada, *Canadian Statistical Review*, Cat. No. 11-003.

[41] Statistics Canada, *Provincial Economic Accounts*, Cat. No. 13-213.

4) The price index for taxable goods in Quebec is given by the clothing price index. In the other provinces or regions, a weighted average of the clothing, health products, recreation, and alcohol and tobacco price index is used. The weights are given by 1974 budget shares.[42]

5) The price index for nontaxable goods is obtained in the same fashion as that for taxable goods. The price index for taxable goods is then divided by the price index for nontaxable goods to account for changes in relative prices.

The equation used is linear double logarithmic. The dependent variable is the natural logarithm of per capita taxable retail sales in 1971. The independent variables are:

1) The logarithm of taxable per capita income in 1971 dollars,

2) The logarithm of the relative price between taxable and nontaxable goods,

3) Three seasonal (dummy) variables,

4) A 1978 tax effect variable, and

5) For Ontario only, a 1975 tax effect variable.

The model is estimated by ordinary least squares using quarterly data from the first quarter of 1970 to the fourth quarter of 1978 (36 observations).

The results obtained are presented in Table 5. Five key points emerge:

1) The model explains reasonably well the retail sales of taxable goods in five regions out of six.[43] The exception is British Columbia, for reasons not evident to us.

2) The seasonal pattern is the same across all regions, with sales in the fall being generally the highest, then, in decreasing order, those of spring, summer, and winter.

3) There is a positive relationship between income and taxable retail sales with, in general, per capita retail sales increasing by about 75 cents for every $1 increase in per capita disposable income. That number is slightly lower in Ontario (though the reason is not clear) and not significantly different from zero (at a level of 5 per cent) in British Columbia.[44] In the case of Quebec, the income elasticity is lower, but here the demand for clothing and shoes only is being examined.

4) There is a negative relationship between prices and taxable retail sales (as we would expect from economic theory). Price elasticities are significantly different from zero three or, at best, four times out of six. This implies that in

[42] Statistics Canada, *The Consumer Price Index: Revisions based on 1974 expenditures, concepts and procedures*, Cat. No. 62-546.

[43] Using the R^2 as a criterion. The closer an R^2 is to 1, its maximum value, the better the fit between the equation and the data.

[44] A given coefficient is said to be significantly different from zero when the t-statistics (shown in brackets below each coefficient in the table) indicate a statistically significant difference at the 5 per cent level.

Table 5.—Taxable Goods Equations, Six Regions, 1970-1978

Variables	Region					
	Atlantic	Quebec	Ontario	Manitoba	Saskatchewan	British Columbia
Constant	0.47	1.25	2.01	0.22	0.57	0.57
	(0.35)[a]	(2.38)	(2.55)	(0.13)	(0.76)	(0.17)
ℓn (income per capita)	0.74	0.26	0.50	0.79	0.74	0.74
	(3 4)	(3.1)	(4.2)	(2.7)	(6.4)	(1.4)
ℓn (price of taxable goods/price of non-taxable goods)	−0.25	−0.62	−0.77	−0.96	−1.3	−0.18
	(−0.37)	(−1.83)	(−3.1)	(−1.6)	(−2.9)	(−0.19)
Seasonal dummies						
Spring (April-June)	0.22	0.23	0.19	0.15	0.12	0.12
	(3.1)	(8.)	(7.9)	(2.0)	(2.8)	(1.3)
Summer (July-September)	0.09	0.11	0.08	−0.03	0.04	0.04
	(1.2)	(4.2)	(2.6)	(0.3)	(0.81)	(0.36)
Fall (October-December)	0.48	0.42	0.32	0.11	0.27	0.16
	(6.8)	(15.9)	(14.2)	(1.54)	(5.9)	(1.9)
Tax effect variable 1978	0.12	0.04	−0.003	−0.08	0.03	0.11
	(0.9)	(0.7)	(0.08)	(0.62)	(0.41)	(0.76)
Tax effect variable 1975	–	–	0.011	–	–	–
			(0.41)			
R^2	0.78	0.94	0.96	0.65	0.91	0.50
Durbin Watson	2.07	1.41	1.85	2.03	1.91	2.09
Sum of squared residuals	.602	.075	.05	.639	.251	.822

[a]T-statistics in brackets.

Source: Calculations made by the authors.

Quebec, Ontario, Saskatchewan, and possibly Manitoba, the tax cut increased sales just as any other price cut would have. It is not clear why price should matter less in Canada's eastern and western coastal provinces.

5) None of the tax effect variables is significant, in 1978 or in 1975 in Ontario.[45] The main source of impact of the tax cuts on sales may therefore be the regular price elasticity channel. We find no sizable evidence of a purchase resynchronization effect resulting from the temporary nature of the tax cut.

The last conclusion leads us to re-estimate the taxable retail sales determination equations without the tax cut variables, in order to ascertain the price elasticities that should be used to calculate the impact of the tax cut. These results are presented in Table 6. Since they are very similar to those in Table 5, they are not discussed here.

[45]The period used covers only part of the period during which the Quebec sales tax was reduced. This could cause underestimation of its impact.

Table 6.—Predictive Equation, Per Capita Retail Sales of Taxable Goods, No 1978 Tax Variable, Six Regions, First Quarter 1970 to Last Quarter 1978

Variables	Region					
	Atlantic	Quebec	Ontario	Manitoba	Saskatchewan	British Columbia
Constant	0.79	1.41	1.98	0.01	0.66	1.80
	(0.62)[a]	(2.8)	(2.9)	(0.003)	(0.91)	(0.60)
ℓn (income per capita)	0.69	0.24	0.50	0.82	0.73	0.55
	(3.3)	(3.1)	(4.9)	(3.0)	(6.6)	(1.2)
ℓn (price of taxable goods/price of non-taxable goods	−0.56	−0.82	−0.75	−0.79	−1.4	−0.65
	(−0.98)	(−4.5)	(−4.1)	(−1.5)	(−3.5)	(−0.89)
Seasonal dummies						
Spring (April-June)	0.24	0.24	0.19	0.14	0.12	0.15
	(3.4)	(9.7)	(8.9)	(1.9)	(2.8)	(1.7)
Summer (July-September)	0.11	0.12	0.07	−0.04	0.04	0.09
	(1.6)	(4.4)	(3.0)	(0.46)	(0.83)	(0.8)
Fall (October-December)	0.48	0.43	0.32	0.11	0.27	0.18
	(6.9)	(17.4)	(14.7)	(1.5)	(6.0)	(2.2)
Tax variable 1975	–	–	0.01	–	–	–
	–	–	(0.41)	–	–	–
R^2	0.78	0.94	0.95	0.65	0.91	0.47
Durbin Watson	2.03	1.50	1.82	1.99	1.89	2.05
Sum of squared residuals	0.619	0.078	0.051	0.647	0.252	0.839

[a]T-statistics in brackets.

Source: Calculations made by the authors.

Sales Tax Differences and Transborder Sales

The border town problem can be stated as follows: if the retail sales tax in city *A* is higher than the same tax in city *B*, and if city *B* is close to city *A*, will the residents of city *A* purchase more goods in *B* than they would have if the tax had been the same in both cities? To our knowledge, no empirical work has been carried out in Canada on this problem. This is not the case in the United States, as the survey by Fisher indicates.[46] We chose Ottawa-Hull for our study because it is the biggest urban area where two tax rates can be found, and it has been identified by Due as one of the two most interesting cases in Canada.[47]

The technique used was to estimate two equations, one for Ontario and one for Quebec, which indicate the level of per capita taxable retail sales in the cities

[46]Ronald Fisher, "Local Sales Taxes: Tax Rate Differential, Sales Loss and Revenue Estimation" (April 1980), 8 *Public Finance Quarterly* 171.

[47]The other is the town of Lloydminster, which straddles the Saskatchewan-Alberta border.

Table 7.—The Impact of Sales Tax Differences: Retail Sales in Ottawa and Hull, 1971

Variables	Cities of: Quebec	Ontario
Constant	−15.07	−4.94
	(4.2)[a]	(1.3)
ℓn (income per capita)	1.32	0.66
	(3.4)	(1.50)
ℓn (number of stores per million inhabitants)	1.37	0.71
	(10.6)	(5.97)
Hull or Ottawa variable	0.28	0.12
	(0.91)	(0.55)
R^2	0.84	0.62
Sum of squared residuals	2.31	0.752

[a]T-statistics in brackets.

Source: Calculations made by the authors.

of each province, and then to examine sales in Ottawa and Hull. A dummy variable for either Ottawa or Hull is included in each equation. The model explains per capita taxable retail sales in a given city by the per capita income of residents and the per capita number of stores selling taxable goods in the city. Both variables are expected to have a positive impact on sales. Two equations are estimated: one for the 27 Ontario cities and one for the 29 Quebec cities with a population of 25,000 or more. The precise variables used are:

1) Taxable sales: sales in clothing, shoe, furniture, and hardware stores;[48]

2) Population: census data;[49]

3) Income per capita: average salary;[50] and

4) Number of stores per capita: number of stores selling taxable goods.[51]

The equation is linear double logarithmic with, for each city, the logarithm of per capita taxable sales as the dependent variable. Explanatory variables are:

1) The logarithm of the per capita income,

2) The logarithm of the number of stores selling taxable goods per million inhabitants, and

3) A dichotomous variable taking one as the value for Hull in the Quebec equation (Ottawa in the Ontario equation) and zero elsewhere.

The results are presented in Table 7.

[48]Statistics Canada, *Retail Trade Business Location Statistics*, Cat. No. 97-703.

[49]Statistics Canada, *Population by Ethnic Group*, Cat. No. 92-762.

[50]Statistics Canada, *Labour Force and Individual Income*, Cat. No. 94-714.

[51]Supra footnote 48.

The results in the table indicate that, as expected, the level of income and the number of stores have a positive impact on the per capita level of taxable retail sales; however, sales in Ottawa are no higher, and in Hull no lower, than one would expect. This finding could be explained by several considerations. First, in 1971, the sales tax rate was 5 per cent in Ontario and 8 per cent in Quebec: a 3 per cent difference may not be sufficient to make it worthwhile for Hull residents to shop in Ottawa, given that additional time and transportation costs would be involved. Second, a large number of shopping trips are centred (we presume) around food shopping, and such purchases are nontaxable in both provinces. Third, the language factor may be important: according to a recent study,[52] francophones prefer shopping where French is spoken. Finally, it is possible that Hull merchants absorbed a portion of the tax differential in 1971.

Policy Options for the 1980s

The results we have described raise two policy questions: first, what should be done about the regressivity of the sales tax; and second, should sales tax cuts be used as a policy tool? We shall examine these issues in turn.

The Regressivity of the Sales Tax

It is clear that if the broad income concept is used as a basis for analysis, the sales tax is found to be regressive. This finding has led commentators in the past to call for a retail sales tax credit to bring relief to low-income taxpayers. Such a credit could be implemented with the existing number of exemptions from sales tax; or it could be incorporated into a move toward a much smaller set of exemptions. In the first case, one is simply calling for an increase in the overall progressiveness of the tax and expenditure system, using the results pertaining to the regressiveness of part of it as evidence of need. But arguments for changing the degree of progressiveness of the tax and expenditure system should be based on the desired level of income redistribution, and not on the alleged malfunction of a part of the system.

In the second case, a retail sales tax credit would accompany a reduction in or the elimination of the exemptions associated with the sales tax.[53] This, it is argued, will reduce the distortion between various types of purchases and will simplify the administration of the law,[54] while at the same time ensuring that the degree of regressiveness of the sales tax remains unchanged. Theoretically, such a move is an improvement, although one may wonder as to the real distortions caused by the actual system, since the level of purchase of most taxed goods is probably not very price sensitive. Practically, the proposal can be very hard to implement. A case in point is the decision in the 1977 Quebec budget to tax children's clothing. Although it was explicitly stated that the increased revenue

[52]See P. Bouchard and S. Beauchamp-Achim, *Le français, langue des commerces et des services publics* (Québec: Conseil de la langue française, 1980). Ninety per cent of francophones indicate that they prefer to be served by French-speaking people.

[53]There may also be a reduction in the tax rate.

[54]For example, the problems associated with the use of size of clothes and shoes to determine children's and adults' purchases disappear.

would be used to increase family allowances by 27 per cent, the measure was strongly criticized. This is particularly interesting in view of the fact that data included in the budget showed this measure to reduce by less than $10 the available income for any family with an income of less than $15,000, whatever its number of children.

The Tax Cut as a Policy Instrument

From the results presented earlier, it appears that a tax cut will have an impact through the price mechanism on the demand for taxable goods, but that it will have no additional impact on the demand for these goods. Hence, it may be an efficient way of increasing the demand for some goods. It is not clear, however, that it is a suitable tool for increasing macroeconomic activity.[55] The answer to the question of using tax cuts as a policy instrument may depend ultimately on the financing of such measures.

Federal Sales and Excise Taxes

In this part of the paper, the evidence available on the economic impact of the federal sales tax is reviewed, the state of the debate on the federal sales tax is examined, and policy options are discussed.

Economic Impact

Cuts or increases in federal sales and excise taxes have been used in the 1970s for a variety of purposes. Little published work is, however, available on the impact of these measures. In this section, five studies will be reviewed. The first, by Jump and Wilson,[56] examines the impact of the 1974 changes in the federal sales tax. The second, by Schweitzer,[57] examines the impact of suppressing the federal sales tax on construction materials. The third, by N. D. Lea and Associates,[58] examines the impact of tax increases on heavy cars and car air-conditioners. The fourth, by Brunelle and Galarneau,[59] examines the demand for gasoline. And the fifth and final one, by Cofsky and Deschamps,[60] examines the impact on the air travel industry of the airport tax and of the differential between the Canadian and world prices of airplane fuel.

[55] Supra footnote 25.

[56] G. V. Jump and T. A. Wilson, "Macro-Economic Effects of Federal Fiscal Policies: 1974-1975" (January-February 1975), 23 *Canadian Tax Journal* 55.

[57] Thomas T. Schweitzer, "La taxe fédérale de vente sur les matériaux de construction: quelques simulations sur le modèle CANDIDE 1.1" (October-December 1975), 51 *L'Actualité Economique* 568.

[58] N. D. Lea and Associates, "Etudes des mesures visant à encourager la construction et l'achat de voitures a faible consommation de carburant" (mimeograph, Department of Transport, Montreal, 1979).

[59] L. Brunelle and D. Galarneau, "Evaluation depuis 1971 jusqu'à 1979 de la consommation d'essence; impact des mesures gouvernementales (analyse trimestrielle)" (mimeograph, Département de science économique, Université de Montréal, 1981).

[60] D. Cofsky and M. Deschamps, "La demande d'aviation et l'offre de carburant à turbomoteur" (mimeograph, Département de science économique, Université de Montréal, 1981).

Jump and Wilson use the University of Toronto quarterly forecasting model in order to examine the impact of the 1974 budget measures on the level of economic activity in 1975. Included in these measures are a reduction in the sales tax on clothes and shoes, elimination of the tax on transportation and construction equipment, a reduction to 5 per cent of the sales tax on building materials, and an increase in excise taxes. Jump and Wilson observe that the sales and excise tax changes "have their main impact on residential construction, and also act to reduce rates of inflation during the year [1975] as the cost savings are passed forward to buyers."[61] Indeed, they find that the sales and excise tax changes increased real GNP by 0.15 per cent and real residential construction by 1.23 per cent; and they decreased the consumer price index by –0.21 per cent and the unemployment rate by 0.04 per cent.[62]

Schweitzer examines the impact of a full cut in the sales tax on building materials. More precisely, using Candide 1.1 (April 1974 model), he computes what would have been the state of the economy in 1971 had the sales tax not been in place since 1963. This method allows the impact of the absence of the tax to unfold over eight years. Five cases are examined: the first assumes that the tax is cut without any other change in government policy; in the other four, it assumed that the government introduces compensatory increases in the federal sales tax on other goods, in the personal income tax, and in the corporate income tax, and also cuts in expenditures. In all cases, monetary policy is fully accommodating, with the 90-day Treasury Bill rate remaining unchanged. Some of Schweitzer's results are presented in Table 8.

According to these calculations, the impact of the sales tax cut clearly depends on the assumptions made about government behaviour. Schweitzer also reports that the per square foot cost of construction would have dropped between 3 and 6 per cent, depending on the simulation; and as a result, the cost of a National Housing Act single-family detached house would probably have fallen between 2.5 and 5 per cent.[63]

The third study reviewed here was carried out by N. D. Lea and Associates. Their main purpose was to examine the various means by which the production and purchase of more fuel-efficient cars could be encouraged. They developed a fairly rigorous accounting framework to evaluate the impact of various factors on the operating costs of various cases, and this framework was used to assess the impact of the weight-related federal sales tax on the demand for heavier cars.[64] The authors of the report conclude that since the estimated price elasticities of demand for cars are small, and because the tax causes only small price changes, it is unlikely that this tax has had any appreciable impact on car pur-

[61] Supra footnote 56, at 59.

[62] Ibid., 58.

[63] Supra footnote 57.

[64] That tax, as of August 1, 1976 (the year for which the calculations were carried out), was $20 on the first 100 pounds above 4,500 pounds for regular cars and 5,100 pounds for station wagons; $25 on the second 100 pounds above that limit; and $30 on each and every additional 100 pounds above the limit. It applied to less than 100 per cent of all cars sold in 1976.

Table 8.—Estimated Increase in Level of Economic Activity in 1971 With Removal of Building Materials Tax in 1963

Assumptions	Variables changed				
	Gross National Product	Housing starts	Unemployment rate	Consumer Price Index (1961 = 100)	Nonresidential investment
	millions of 1961 dollars	*thousands*	%	%	*millions of 1961 dollars*
No compensatory changes	310	6.8	–.2	–0.6	60
Increase in personal taxes	–270	8.1	+.2	–1.7	25
Reduced expenditures	–500	9.3	+.4	–2.1	–

Source: Thomas T. Schweitzer, "La taxe fédérale de vente sur les matériaux de construction: quelque simulations avec le modèle Candide 1.1" (October-December 1975), 51 *L'Actualité Economique* 568, Table 2.

chasing patterns.[65] As to the $100 per unit tax on car air-conditioners, which increased the average unit price by 17 per cent in 1975, the authors conclude that it also has had little effect on purchasing decisions.[66]

In the fourth study, Brunelle and Galarneau use seasonally adjusted quarterly data from the first quarter of 1971 to the fourth quarter of 1979 to examine the relationship between the per capita consumption of gasoline (in 1971 dollars) and two other factors: per capita real disposable income, and the price of gasoline relative to the price of urban transit. Under various specifications, the authors consistently find a negative price elasticity and little, if any, impact of income on gasoline purchases.[67] Their work can be criticized as incomplete, as it does not take into account all possible substitutes (rail, intercity bus); but the study does indicate that a sales tax on gasoline would serve to reduce consumption.

In the fifth and final study reviewed here, Cofsky and Deschamps examine the demand for airline passenger services and the demand for airline fuel. In both cases, the authors use quarterly data from the first quarter of 1970 to the second quarter of 1979. In the first case, using the logarithms of the variables and accounting for seasonality through the inclusion of dummy variables, they find that there is a positive income elasticity linking passenger miles to real disposable income per capita and a negative elasticity linking it to the price of airplane travel relative to a weighted sum of the price of car travel, intercity bus travel, and

[65] The percentage of the price of a car in 1976 represented by the tax varied from 0.3 per cent for a medium-sized car weighing 4,600 pounds to 1.8 per cent of the price of a Cadillac Eldorado weighing 5,231 pounds.

[66] Supra footnote 58.

[67] Supra footnote 59.

train travel. They find no specific impact, however, of the 8 per cent tax on airline tickets—a result similar to the findings reported earlier on the impact of retail sales tax cuts. In the second case, the authors examine the sale of airplane fuel in Canada. Taking into account the effects of the increasing number of passenger miles, of the exchange rate, and of a time trend, they find that as the difference between the world price of oil and the Canadian price increases, sales (in real terms) of airplane fuel in Canada also increase.[68] One possible explanation is that airlines modify their tanking-up procedures in response to price differentials.

Federal Sales Tax Reform: The Great Debate Goes On

In 1975, the Department of Finance published a discussion paper on federal sales and excise taxation,[69] bringing new life to an old debate. (This debate has been well summarized by John Due.[70]) The renewed debate attracted the interest of a number of critics, including Beach, Dunne, Johnson, Gillespie and Johnson, Gray and McLarty,[71] and Due.[72] Here, we shall review their comments on the 1975 discussion paper and examine the replies offered by the Commodity Tax Review Group in its 1977 report.[73] The debate centred around three questions. First, is there a place for a federal sales tax in the tax system? Second, should the federal sales tax be at the manufacturing, wholesale, or retail level? Third, if there is a wholesale federal tax, what problems does it cause and what problems does it solve?

Should There Be a Federal Tax on Commodities?

The discussion paper gave four reasons for retaining commodity taxation:

1) The provision of a means to change patterns of consumption and resource use;

2) The provision of a stabilization tool;

3) The supplementing of income, defined as an index of the ability to pay, which makes it possible to take into account differing individual circumstances not accounted for by income and to correct for the fact that "the greater the re-

[68] Supra footnote 60.

[69] Canada, Department of Finance, *Federal Sales and Excise Taxation*, discussion paper (Ottawa: Finance, 1975).

[70] John F. Due, "The Dilemma of Canadian Federal Sales Tax Reform," in Canadian Tax Foundation, *Report of the Proceedings of the Twenty-seventh Tax Conference*, November 10, 11, 12, 1975 (Toronto: the Foundation, 1976), 188.

[71] D. I. Beach, "Imported Goods and Private Brand Merchandise," in ibid., 216; R. G. Dunne, "Valuation," in ibid., 207; J. A. Johnson, "Implication of the Discussion Paper on Commodity Taxation for Excise Levies" (November-December 1975), 23 *Canadian Tax Journal* 536; W. Irwin Gillespie and J. A. Johnson, "Sales Tax Reform: A Critique of the Federal Government's Proposal" (Autumn 1976), 2 *Canadian Public Policy* 638, and "A Reply" (Winter 1977), 3 *Canadian Public Policy* 111; and John A. Gray and R. A. McLarty, "Sales Tax Reform: A Comment on Gillespie and Johnson" (Winter 1977), 3 *Canadian Public Policy* 106, 109.

[72] Supra footnote 70.

[73] Canada, *Report of the Commodity Tax Review Group* (Ottawa: Department of Finance, 1977).

liance upon any single tax, the greater the likelihood of unacceptably large strains and distortions"; and

4) The appropriateness of taxing people on what they use up of the nation's output, as well as what they contribute to it.[74]

Gillespie and Johnson strongly dispute the validity of the third and fourth reasons cited above.[75] With respect to the third, they argue that they see no special circumstances that could not be accounted for within the framework of an individual income tax and that the strain/reliance relationship (quoted above) has not been substantiated. With respect to the fourth, although they recognize that it is equally valid to use either income or consumption as a tax base, they object to the simple statement that commodity taxes are needed so that both bases will be used. The paper does not indicate why both bases should be used and, if they should, in what proportions. Gillespie and Johnson also argue that a commodity tax violates both horizontal equity and vertical equity: horizontal equity since two families with the same income are taxed differently depending on how they spend it; and vertical equity since the sales tax is regressive with respect to broad income, even when one takes into account the 1974 exemption of clothing.

In the 1977 *Report of the Commodity Tax Review Group,*[76] the authors address themselves to these two criticisms. To the first, their reply is very weak. They simply restate that it is generally agreed that there is a strain/reliance relationship, and they do not deal at all with the criticism that income taxes can take care of special circumstances. For the second criticism, their reply is to restate their faith in the need for two tax bases, without justifying this or the appropriate mix between the two. Indeed, they score a point only when they observe that what may be relevant is the overall regressivity of the tax system, and that there are two other reasons for the federal sales tax than those criticized by Gillespie and Johnson.

The two reasons not attacked by Gillespie and Johnson also are, in our view, rather weak. First, although it is certainly possible to influence resource use by the taxation of goods, it is not shown in the discussion paper that the manufacturers or the wholesale tax does this in a desirable way. Second, while it may be possible to use the federal sales tax as a macroeconomic tool, no evidence of such use is presented in the discussion paper. Furthermore, the efficiency of the tax as compared with that of other possible measures[77] is not examined.

Who Should Pay the Federal Sales Tax?

The discussion paper states, "In terms of neutrality the optimal point to impose a sales tax is at the retail level."[78] Due agrees that "clearly the optimal solution

[74] Supra footnote 69, 11-13.

[75] Supra footnote 71.

[76] Supra footnote 73.

[77] For example, the technique of a taxable grant used to finance the conversion of heating systems from oil to gas or electricity could also be used to encourage other types of purchases.

[78] Supra footnote 69, at 25.

for sale taxation in Canada is to move the federal sales tax to the retail level and merge the federal and provincial sales taxes into a single levy."[79] The Commodity Tax Review Group also concurs.[80] In practice, however, the federal government argues that an independent federal sales tax is not feasible, given the high number of retailers involved (about 250,000). A joint federal-provincial sales tax also is not feasible, because it would require a uniform tax base between provinces and would prevent using tax base changes for policy purposes by one or the other level of government. For these reasons, it is proposed that the tax be moved from the manufacturer's to the wholesaler's level.

The arguments put forward in the discussion paper have been criticized on several counts. The claim that the number of taxpayers would make a federal retail sales tax unfeasible is contested by Cnossen[81] and by Due.[82] Due says that it "is not a significant argument, since 95% or so of the retailers are already subject to a provincial sales tax." He also points out that while it would obviously be preferable to integrate both the federal and the provincial sales tax, "separate administration. . .without uniformity of base. . .is not intolerable; the coverage of the two sets of taxes would inevitably be much the same and vendors would use a joint schedule."[83] This is the practice in the United States; and although it is not recommended, it is in Due's opinion not unworkable.

In addition to criticism of the practical limitations of the federal government's proposals, the choice of a wholesale tax rather than a retail sales tax has been criticized by Gillespie and Johnson.[84] They note that it precludes the taxation of services; however, it is quite likely that the neutrality gains brought about by both the inclusion of services and the use of the retail sales tax would be much higher than the cost of doing so. Gillespie and Johnson point out that the Royal Commission on Taxation estimated that collection costs were 0.4 per cent of the manufacturers sales tax and 0.7 per cent of a federal sales tax administered separately. In their opinion, the neutrality gains from taxing services and from switching to the retail sales level are ten times as high as the additional 0.3 per cent of collection costs that would prevail in the worst possible case (absence of cooperation with the provinces); therefore, they clearly favour the switch.

In the report of the Review Group, it is pointed out that 34.9 per cent of the 198 submissions to the Committee expressed no preference as to where the sales tax should be levied; another 34 per cent preferred a manufacturers sales tax; 22 per cent preferred a retail sales tax; and 10 per cent preferred a wholesale tax.[85] Hence, when a preference for change was expressed, it favoured the retail sales tax by two to one. None of those who supported that option saw any implementation problems. The Review Group does not attempt to defend the impractical-

[79] Supra footnote 70, at 202.

[80] Supra footnote 73.

[81] Sijbren Cnossen, "What Kind of Sales Tax—Critique of a Government Discussion Paper" (November-December 1975), 23 *Canadian Tax Journal* 505.

[82] Supra footnote 70, at 195.

[83] Ibid., 196.

[84] Supra footnote 71.

[85] Supra footnote 73, at 15.

ity of an independent federal sales tax, but simply reiterates that collection costs would be associated with it. The Group does, however, advance arguments that almost support the notion that taxes should be hidden, since if they are visible, individuals will attempt to avoid them. It also argues that, because in practice not all services would be taxed, neutrality gains could not be very important. On the first point, one can only express worry that a government policy document can even include attempts, however weak, at justifying hidden taxes. On the second point, one must note that the Review Group offers no information as to the share of services that could be taxed or the value of the neutrality gain associated with such a tax. Hence, its statement remains speculative.

Will the Wholesale Tax Work?

If one accepts the wholesale tax, the question is whether it will really improve economic efficiency. One way to answer this (the approach we use here) is to examine the various ills it is supposed to cure and see whether it will in fact provide a remedy. These ills are associated with valuation problems, the treatment of transportation costs, the treatment of imports, and the treatment of private brands and marginal manufacturing.[86] We shall discuss each item in turn.

In the case of valuation, it is argued that 85 to 90 per cent of domestic transactions would be evaluated using market prices. This is considered to be an improvement, since a lower percentage of domestic transactions were valued that way under the manufacturers sales tax. In the report of the Review Group, it is stated that 74 per cent of sales are taxed on the market price under the manufacturers sales tax.[87] Hence, even if one believes that 90 per cent is the correct figure, the improvement is not great and may not be worth the trouble. Other, more technical problems have been raised by Cnossen.[88]

In the case of transportation costs, the discussion paper leaves open the possibility that the wholesale tax will "include in the value for tax all transportation costs up to the retailer's door."[89] This is argued to be the most desirable option. But in the face of vigorous public opposition (as embodied in one-third of the memoranda submitted to the Review Group regarding this question), the Group recommends that transportation costs to the retailer should not be included in the tax base. The Group further points out that, if they were included, wholesalers may be placed at a slight disadvantage with respect to manufacturers, since merchandise sold by the former would, on average with a 10 per cent tax, bear an additional tax burden of 0.3 per cent of the sale price. Cnossen points out these problems in his paper and suggests the solution chosen by the Review Group.[90]

In the case of imports, taxation at the wholesale level, along with the inclusion of transportation costs to the Canadian border, is in Cnossen's words "one of the few really important advantages of this tax."[91] In the case of private brands, however, the solution is much less felicitous. As Cnossen points out, the problem "of private brands would probably remain as serious as under the manufacturers tax,"[92] as a result of the performance by big retailers of wholesaler-like activities. The Review Group recommends that any retail organization with four stores or more and with $1 million or more of sales in a year should pay a 1 per cent additional tax on all purchases of taxable goods. The impact of this tax on the organization of retail sales does not appear to have been examined. In general, the choice of a wholesale tax appears to solve reasonably well the problem of imports, one of the four problems traditionally singled out in the discussion of the manufacturers sales tax.

Before going on to the policy recommendations, we may note that up to now no mention has been made of excise taxes. This reflects the tone of the discussion paper, which was deplored by Johnson.[93] He argues that the most important question, the purpose of the tax, should have been addressed. He offers various comments on two possible purposes—revenue raising and altering consumption and resource allocation patterns—and on their implications for the excise tax system.[94] Finally, he suggests simplifying the taxation of alcohol and tobacco, the main recommendation of the Review Group.

Policy Options for the 1980s

From the summary of the debate presented in the preceding pages, we can draw the following conclusions:

1) The case for a federal sales tax is not firmly grounded on either theory or empirical facts, but it is possible that a case could be made for it. That case should be made before one changes the nature of the tax, since the best decision may be simply to do away with it altogether.

2) The case for preferring a wholesale tax to a retail sales tax relies on a single argument, that of presumed difficulties of administration. Have the provinces, however, refused outright to consider implementing such a tax along with their sales tax? To our knowledge, there has been no formal discussion of this point.

3) The improvements to the system brought about by switching from a manufacturers to a wholesalers sales tax may not be sizable. Due expresses this point particularly well:

[86] The reader who is unfamiliar with these problems may consult Due, supra footnote 70, or Cnossen, supra footnote 81.

[87] Supra footnote 73, at 31.

[88] Supra footnote 81.

[89] Supra footnote 69, at 33.

[90] Supra footnote 81.

[91] Ibid., 515. In the discussion paper, it was stated that it was not feasible to evaluate the preferential treatment of imports. In the budget speech of October 28, 1980, however, the Minister of Finance indicated that the tax rate was 2 to 3 points (20 to 35 per cent) lower on imports than on domestically produced goods under the manufacturers sales tax.

[92] Ibid., 513.

[93] Supra footnote 71.

[94] The economic cost of cigarette smoking has been estimated at $506 million in 1971. E. Richard Shillington, *Selected Economic Consequences of Cigarette Smoking*, Monograph Series no. 2 (Ottawa: Department of National Health and Welfare, 1977). In fiscal 1970-71, tobacco taxes brought in a total of $391.4 million: $179.2 million to the federal government and $292.2 million to the provincial government.

> Clearly, the optimal solution for sales taxation in Canada is to move the federal sales tax to the retail level and merge the federal and provincial sales taxes into a single levy, excluding all producer's goods, and applying to all consumption expenditures except categories in which there is a very strong case for exemption. . . .Only the retail tax can eliminate the difficulties inherent in the manufacturer's or wholesale taxes. If the government rules this out. . .any solution is second best; the problem is to select among various evils. . . .To move to the wholesale level would offer only minor gains over the present tax and is, in my estimation, not worth the trouble.[95]

What should we do then? One possibility would be for the House Standing Committee on Finance, Trade and Economic Affairs to take up again the study of the whole matter, as it started to do in September 1978. Its mandate could be, on the one hand, to draw upon the available expertise to examine whether the federal sales tax is justified and, on the other, to examine in a formal fashion the possibility of federal-provincial collaboration. These two questions answered, one could then go on to deriving the best federal sales tax, should there be a need for it.

In examining the first of these two points the Committee should study the consumption tax as one possible way to reform the tax system. From a commodity tax standpoint, that tax has the advantage of taxing both goods and services at the retail level. It therefore remedies most of the problems outlined previously. Other considerations, such as the double taxation of savings brought about by an income tax, also should be examined. In our opinion, a move to a consumption tax could be the best reform possible.

[95] Supra footnote 70, at 202-203. For a different point of view, see Richard M. Bird, *Sales Tax and the Carter Report* (Don Mills, Ont.: CCH Canadian Ltd., 1967).

Appendix

Table 1.—Taxable Expenditures Expressed in Statistics Canada Family Expenditure Code Numbers, 1972, 1974, and 1976

City	1972	1974	1976
Halifax (General rate 1972:7% 1974:7% 1976:8%)	3-5, 40-52, 103, 140-162, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 703, 704, 720-741, 750, 751, 762, 763, 768, 780-787, 800-812, 840-874, 927 + 711, 713-715 (10% rate)	3-5, 40-52, 103, 140-165, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 720-741, 750, 751, 762, 763, 768, 780-787, 800-812, 840-877, 918 + 711, 713-715 (10% rate)	5-8, 40-55, 140-178, 180-302, 377-379, 440-448, 497-499, 540-548, 585-596, 720-741, 750, 751, 762, 763, 765, 780-787, 800-812, 840-888, 894-896, 930 + 711, 714 (10% rate)
Montreal (General rate 1972:8% 1974:8% 1976:8%)	3-5, 40-52, 102-104, 121, 150-162, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 610-635, 704, 730-741, 750, 751, 762, 763, 768, 780-787, 800-812, 843, 874, 927 + 840, 842 (10% rate)	3-5, 40-52, 102-104, 121, 150-165, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 610-635, 704, 730-741, 750, 751, 762, 763, 768, 780-787, 800-812, 843-877, 918 + 840, 842 (10% rate)	5-8, 40-55, 112-113, 121, 152-178, 180-302, 320-384, 440-448, 460-504, 540-548, 585-596, 610-636, 704, 730-741, 750, 751, 762, 763, 765, 780-787, 800-812, 844-888, 930 + 840-843 (10% rate)
Toronto (General rate 1972:5% 1974:7% 1976:7%)	40-52, 120-122, 140-162, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 610-635, 704, 750, 751, 762, 763, 768, 780-787, 800-812, 843-874, 900-903, 927 + 3-5, 720-741, 840-842 (10% rate)	40-52, 120-122, 140-155, 161-165, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 704, 750, 751, 762, 763, 768, 780-787, 800-812, 843-877, 884-886, 918 + 3-5, 720-741, 840-842 (10% rate)	40-55, 120-122, 140-165, 168, 170-178, 180-302, 320-384, 440-448, 460-504, 540-548, 585-596, 704, 750, 751, 762, 763, 765, 780-787, 800-812, 844-888, 894-896, 930 + 5-8, 720-741, 840-843 (10% rate)
Winnipeg (General rate 1972:5% 1974:5% 1976:5%)	3-5, 40-72, 104, 121, 129-132, 140-162, 180-305, 310, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 610-635, 704, 750, 751, 762, 763, 765-768, 780-787, 791, 800-812, 840-874, 927 + 720-741 (10% rate)	3-5, 40-72, 104, 121, 136-139, 140-165, 180-305, 310, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 610-635, 704, 750, 751, 762, 763, 765-768, 780-787, 791, 800-812, 840-877, 918 + 720-741 (10% rate)	5-8, 40-75, 113, 121, 136-178, 180-302, 320-384, 440-448, 460-504, 540-548, 585-596, 610-636, 704, 750, 751, 762, 763, 765-768, 780-787, 791, 800-812, 840-888, 930 + 720-741 (10% rate)
Vancouver (General rate 1972:5% 1974:5% 1976:7%)	40-52, 102-104, 120-122, 140-162, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 610-635, 704, 720-741, 750, 751, 762, 763, 768, 780-786, 800-812, 840-871, 900-903, 927	40-52, 102-104, 120-122, 140-165, 180-305, 320-384, 433-435, 460-503, 546-548, 580-586, 592, 610-635, 704, 720-741, 750, 751, 762, 763, 768, 780-786, 800-812, 840-874, 900-903, 918	40-55, 112-113, 120-122, 140-178, 180-302, 320-384, 440-448, 460-504, 540-548, 585-596, 610-636, 704, 720-741, 750-751, 762, 763, 765, 780-787, 800-812, 840-888, 894-896, 930

(Table 1 concluded on next page.)

Table 1.—Concluded

Source: Statistics Canada.

Table 2.—Incidence of Provincial Sales Tax in Five Canadian Cities for Five Income Groups, as a Percentage of Money Income, 1969

City	Quintiles				
	First	Second	Third	Fourth	Fifth
Halifax	1.94	1.93	1.96	1.81	1.73
Montreal	1.96	1.93	1.91	2.03	1.86
Toronto	1.96	1.33	1.61	1.65	1.47
Winnipeg	1.39	1.47	1.51	1.42	1.37
Vancouver	1.65	1.56	1.43	1.46	1.21
Average, five cities	1.78	1.64	1.68	1.61	1.53

Source: **Statistics Canada expenditure data, Family Expenditure Section.**