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Fiscal Redistribution in Canada, 1994-2000

by

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Abstract

Fiscal redistribution across family income groups in Canada has not been studied since the experience of the 1980s. Fiscal policy has changed markedly since that time. Government finances have been consolidated, resulting in a turnaround in the Canadian fiscal position beginning in 1997. This paper attempts to determine how fiscal redistribution evolved during the fiscal consolidation period from 1994 to 2000. Similar to previous studies, this study is based on a full incidence framework and relies on a measure of a neutral benchmark against which various fiscal systems can be compared. Results suggest that fiscal redistribution remained progressive from 1994 to 2000, and even appears to have increased slightly in favour of lower income families over this period.

Résumé

Le degré de redistribution fiscale pour différents niveaux de revenu familial n'a pas été étudié depuis les années 1980s, malgré les changements notables apportés à la politique fiscale depuis cette époque. Les finances publiques ont été redressées, ce qui a mené à un revirement de la situation fiscale du Canada à partir de 1997. La présente étude tente de déterminer comment la redistribution fiscale a évolué au cours de la période de consolidation financière de 1994 à 2000. En conformité avec les études précédentes, la présente étude est basée sur un cadre d'analyse de pleine incidence et utilise un étalon neutre qui peut servir à comparer divers régimes fiscaux. Les résultats suggèrent que la redistribution fiscale est demeurée progressive de 1994 à 2000 et semble même avoir augmentée légèrement au bénéfice des familles à faible revenu.

1. Introduction

Fiscal redistribution across family income groups has not been studied since the experience of the 1980s in Canada. Ruggeri, Van Wart and Howard (RVH) (1996) and others examined the redistributional impact of governments on the economic position of families in 1986. At the time, there were more personal income tax brackets, higher marginal tax rates, the Manufacturers' Sales Tax, rising intergovernmental transfers to finance growing health care and social program costs, such as Unemployment Insurance benefits.[1] This was also a time when budgetary deficits and debt for all levels of government had been escalating over a number of years.[2]

Fiscal policy has changed markedly since that time. Government finances have been consolidated through various discretionary measures, which resulted in a turnaround in the Canadian fiscal position beginning in 1997. This paper attempts to determine how fiscal redistribution evolved during the fiscal consolidation period from 1994 to 2000.

A key element underlying this study is the concept of a neutral benchmark by which fiscal redistribution can be gauged. Like RVH (1996), this study relies on a neutral benchmark that is proportional to income (i.e., affecting families in fixed proportion to their income) against which various fiscal systems (including the existing fiscal system) can be compared. In this way, this study is able to determine whether fiscal redistribution was progressive or regressive.

Our results suggest that fiscal redistribution remained progressive over the 1994 to 2000 period. Fiscal redistribution even appears to have increased slightly in favour of lower income families over this period. Investigating the impact on families by specific income groups, by various levels of government and by specific revenue and spending programs also suggests that the redistributional impacts of the existing fiscal system remained progressive. These results are broadly in line with the results of RVH's (1996) analysis of the fiscal system in the 1980s.

The rest of the paper is organized as follows. Section 2 reviews evidence of fiscal consolidation. Section 3 introduces the full incidence framework and methodology. Section 4 examines the fiscal redistribution of the fiscal system in 1997 and during this period. Section 5 provides conclusions.

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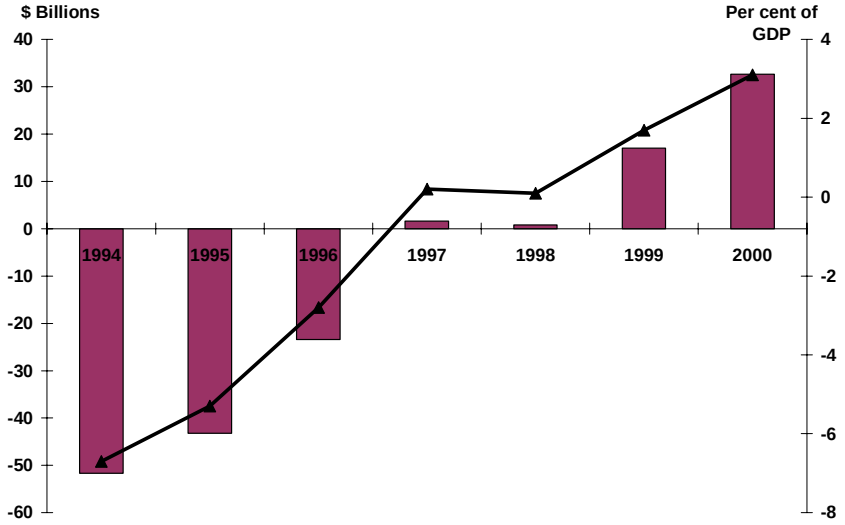
[1] Ruggeri, G.C., D. Van Wart, R. Howard (RVH), "The Government as Robin Hood, Exploring the Myth," The School of Policy Studies, Queen's University and Caledon Institute of Social Policy, 1996.

[2] See also Vermaeten, F., W. Irwin Gillespie, and Arndt Vermaeten (VGV), "Tax Incidence in Canada," Canadian Pubic Policy, Vol. 42., No. 2, 1994.

2. The Context: Fiscal Consolidation

During the fiscal consolidation period, the total government budgetary balance in Canada improved from a deficit of $51.7 billion (6.7 per cent of GDP) in 1994 to a surplus of $32.6 billion (3.1 per cent of GDP) in 2000, according to the National Income and Expenditure Accounts (NIEA). In the span of seven years, revenues rose 41 per cent from $331 billion to $466 billion, while expenditures rose just 14 per cent from $377 billion to $431 billion for all levels of government (i.e., federal, provincial and local governments) combined. This resulted in the improvement in the budgetary balance, as shown in Figure 1.[3] (This balance also includes the Canada Pension Plan and Quebec Pension Plan (C/QPP) in order to be comprehensive, but excludes intergovernmental transfers to avoid duplication within the government sector.)

Figure 1: Total Government Budget Balances



Source: Fiscal Reference Tables, October 2002.

This progress can be attributed to both government discretionary actions taken since 1994 as well as the strength in the business cycle during the 1990s. When the actual budgetary balance (see also Table 1, line 1) is adjusted to include only discretionary factors, the cyclically adjusted budgetary balance (Table 1, line 3) improved from a deficit of 6.1 per cent of GDP to a surplus of 2.7 per cent of GDP. This means that roughly 90 per cent of the improvement was due to discretionary factors and only 10 per cent due to the business cycle (line 4). Discretionary factors over the period included structural reforms, such as legislated lower benefit rates and increased entrance requirements for new entrants in the Unemployment/Employment Insurance (UI/EI) program from 1993 to 1997. Cyclical factors, on the other hand, influence the budgetary balance through automatic stabilizers, like personal income tax (PIT) revenues and UI/EI expenditures, which move in a counter-cyclical fashion and thus helped to dampen fluctuations in aggregate demand during this period.

[3] See Department of Finance, *Fiscal Reference Tables*, October 2002.

Movements in the primary balance (PB) are useful in helping to isolate the combined contribution from taxes and program spending. Table 1 (line 2) shows the PB moved into a surplus position as early as 1995, with a surplus of 1.7 per cent of GDP. Removing cyclical factors, most of the improvement (line 5) still was the result of discretionary factors through lower expenditures and higher revenues.[4] The cyclically-adjusted PB, as a share of GDP, increased by 7.5 percentage points over seven years, while cyclical factors accounted for the remaining change of 1.0 percentage point.

Table 1: Total Government Budgetary Balance

	(Per cent of GDP)	1994	1995	1996	1997	1998	1999	2000	Change
1	**Actual Budgetary Balance**	-6.7	-5.3	-2.8	0.2	0.1	1.7	3.1	9.8
2	**Actual Primary Balance**	-0.2	1.7	3.9	6.3	6.1	7.3	8.2	8.4
	Budgetary Balance								
3	Cyclically Adjusted	-6.1	-4.8	-1.8	0.8	0.5	1.6	2.7	8.8
4	Due to Business Cycle	-0.6	-0.5	-1.0	-0.6	-0.4	0.1	0.4	1.0
	Primary Balance								
5	Cyclically Adjusted	0.4	2.2	4.9	6.9	6.6	7.1	7.9	7.5
6	Due to Business Cycle	-0.6	-0.6	-1.0	-0.6	-0.5	0.2	0.4	1.0

Sources: Fiscal Reference Tables, October 2002, and Department of Finance.

The significant improvement in the budgetary balance thus largely reflects the discretionary policy changes, which were introduced during the fiscal consolidation period. This raises questions about the impact of the consolidation process on fiscal redistribution across family income groups during this period.

3. Full Incidence Framework

In order to make references about the impact of consolidation on fiscal redistribution, a full fiscal incidence framework is constructed. There are three basic conceptual elements of this framework, all of which were adopted from RVH (1996) and VGV (1994). The first element is a comprehensive selection of government revenues and expenditures from the primary balance that is used to construct post-government income. Second, the revenues and expenditures are allocated to family income groups using the *Social Policy Simulation Database/Model* (SPSD/M) from Statistics Canada. The allocation rules are adopted from RVH (1996) and VGV (1994). Third, allocations by family post-government income group are recorded and the Relative Share Adjustment (RSA) index, which was also used by RVH (1996), is used to determine the extent of fiscal redistribution on a global basis (i.e., across all family groups) and on a local basis (i.e., for individual family groups).

[4] For example, see *The Federal Budget Plan, 2001*.

3.1 Full Fiscal Incidence Framework

Fiscal incidence studies generally compare the distribution of government revenues and expenditures to family income. In partial studies, revenues and expenditures typically include taxes and transfers to persons; however, full fiscal incidence analysis requires that an even wider range of government revenues and spending be allocated to families.[5]

In this framework, a post-government income concept is used, in which income includes money income, direct transfers from government to persons, non-money income additions, income adjustments and government purchases on goods and services, net of tax and non-tax revenues. This income concept thus captures a majority of total government revenues and expenditures. Some budgetary components (i.e., transfers to business and sales of goods and services, some corporate income taxation, and the non-resident sector) are excluded since they are assumed not to have an effect on family income.

This study uses Statistics Canada's microsimulation database of SPSD/M, which allows for a direct view of the impact on families. This database is based on one year of survey and administration data and then constructs the data for other years such that they conform to sources such as the National Income and Expenditure Accounts (NIEA). This construction is done using fiscal, demographic and economic adjustments.[6] The base year for the version of SPSD/M used in this study is 1997. This study also expands the horizon going forward and backward three years, covering the years 1994 to 2000.

It is important to note that this study provides an overview of the possible impact of government policies on post-government income over these seven years – a period which was dominated by fiscal consolidation. As will be seen shortly, this study provides details on several government programs. However, it is not intended to assess the direct impact of discretionary policy changes on the economic positions of families, since their economic positions may also be influenced by economic and demographic factors.

This database is also adjusted in this study to match the NIEA, primarily the personal and government sector. Table 2 provides the non-government and government components of post-government income included in this study.[7]

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[5] See Ruggeri, G.C., D. Van Wart, R. Howard (RVH), "Measuring Tax Incidence within the Framework of Fiscal Incidence," University of Alberta, Department of Economics, Research Paper 93-4, March 1993.

[6] Demographic data are adjusted for age-sex distribution using Statistics Canada's population estimates and labour force survey data. Tax and income data are adjusted to account for inflation, real GDP growth, changes in tax and fiscal policies, and/or other trends affecting aggregate amounts. For more details see the SPSD/M documents entitled "Growth and Validation Guide" and "Addendum."

[7] Additional details about specific programs and by level of government are available upon request. To compare this to the size of post-government income in 1986, see Table A-1 in RVH (1996).

Table 2: Post-Government Income, 1994 to 2000

$ billions		1994	2000	Change	Change (%)
	Self-Employment Income	401.2	547.2	146.0	36.4
	Investment Income	76.5	87.8	11.3	14.8
A.	**Total Money Income**	**477.7**	**635.0**	**157.3**	**32.9**
	UI/EI Benefits	15.0	9.6	-5.4	-36.0
	OAS\GIS\SPA Benefits	20.2	23.8	3.6	17.9
	Child Tax Benefit\Credit	5.3	6.6	1.3	25.1
	GST Credit	2.8	3.0	0.1	5.0
	Other Federal Transfers	6.9	10.7	3.8	55.1
	Provincial Social Assistance	12.2	9.3	-2.9	-23.6
	Other Provincial Transfers	12.6	18.7	6.0	47.9
	Local Government Transfers	3.9	3.4	-0.5	-13.0
	C/QPP Income	19.6	25.4	5.8	29.6
B.	**Total Transfers to Persons**	**98.5**	**110.4**	**11.9**	**12.1**
	Imputed Rent	23.3	28.7	5.4	23.3
	Imputed Interest Income	6.7	10.3	3.5	52.5
	Net Accrued Capital Gains	38.8	59.9	21.1	54.5
C.	**Total Non-Money Income Additions**	**68.8**	**98.9**	**30.1**	**43.7**
	Payroll Tax Adjustments	49.0	61.3	12.3	25.0
	Corporate Income Tax Adjustments	17.4	35.4	18.0	103.6
	Property Tax Adjustments	4.6	5.4	0.8	18.3
	Transfers from Corporations to Persons	0.4	0.8	0.4	110.9
	Government Transfers to Corporations	9.6	11.0	1.4	14.1
D.	**Total Adjustments to Income**	**81.0**	**113.9**	**32.9**	**40.7**
	Federal Health Purchases	1.0	2.2	1.2	125.1
	Federal Education Purchases	1.0	2.2	1.2	120.8
	Federal Housing, Transport and Protection	18.1	17.3	-0.8	-4.3
	Other Federal Purchases	22.0	24.2	2.2	9.8
	Provincial Health Purchases	54.2	71.9	17.7	32.7
	Provincial Post-Secondary Education Purchases	12.1	12.7	0.6	5.1
	Provincial Housing, Transport and Protection	18.7	20.3	1.6	8.5
	Other Provincial Purchases	22.3	25.9	3.6	16.2
	Local Health Purchases	0.9	1.0	0.1	11.3
	Local Elementary/Secondary Education	34.1	33.4	-0.7	-2.0
	Local Housing, Transport and Protection	15.8	18.8	3.0	19.1
	Other Local Purchases	17.4	23.4	6.0	34.7
	C/QPP Purchases	0.2	0.4	0.1	49.8
E.	**Total Government Purchases**	**217.8**	**253.8**	**36.0**	**16.5**
	Personal Income Taxes	100.3	143.5	43.2	43.0
	Corporate Income Taxes	17.4	35.4	18.0	103.6
	Royalties	6.9	14.2	7.3	105.4
	Payroll Taxes	25.9	26.7	0.9	3.3
	Property Taxes	28.2	33.3	5.1	18.3
	Other Indirect Taxes (Including GST and PST)	82.5	105.9	23.3	28.2
	C/QPP Contributions	12.9	25.3	12.3	95.4
F.	**Total Revenues**	**274.1**	**384.2**	**110.1**	**40.2**
G.	**Post-Government Income**	**669.6**	**827.7**	**158.1**	**23.6**

Money income (Line A) is composed of employment income and realized investment income. Employment income, which includes wages and salaries (net of supplementary income) and unincorporated business income (net of rental income), reflects NIEA data, while the other sub-components reflect the more detailed aggregate amounts in SPSD/M. Detailed tax administration data are used to estimate rental income.[8]

Since NIEA and Provincial Economic Accounts data are used, refundable tax credits are included as expenditures rather than revenues as in the Public Accounts. Direct transfers to persons (Line B) include these credits and amounted to 13 per cent of post-government income in 2000. The largest sub-components clearly were federal elderly and C/QPP benefits, followed by UI/EI transfers and other provincial transfers.

Non-money income additions (Line C) are broad and cover the sub-components in VGV (1994). Gifts and inheritances are excluded, since they are assumed to be in exchange for other gifts and kindness. These sub-components are derived using SPSD/M data, stock data from the 1999 survey data and growth variables from Statistics Canada.

The largest percentage increase in this category was in net accrued capital gains (including those related to principal residence and financial assets of persons, as well as financial assets of trusteed pension funds). Accrued capital gains are net of realized capital gains in money income in order to avoid double counting with realized capital gains being counted in investment income as part of total money income (Line A).[9]

The adjustments to income (Line D) are added to income based on tax-shifting assumptions. This category reflects a mix of the adjustments made in previous studies, while at the same time, provides simpler shifting rules than those applied by previous authors. Payroll taxes on persons are shifted as in previous studies. However, direct taxes on corporations are shifted to all capital, which reflects the progressive case in RVH (1996), rather than their more regressive case of 50 per cent to consumer and 50 per cent to capital. Since both previous studies used a more detailed base case for a more regressive allocation of property taxes, this is also used in this study.

Gross government purchases (Line E) include social expenditures, such as health and post-secondary education, and a detailed breakdown of such spending relies on the Financial Management System (FMS) data. Federal and provincial general government expenditures, as well as local government expenditures are divided into six broad categories. These shares are applied to gross current expenditures on goods and services plus non-financial capital formation. Intergovernmental transfers (e.g., CHST) are not explicitly identified in this study, but they are indirectly covered in government purchases (e.g., provincial health spending). Government expenditures are allocated broadly to the entire population so that everyone benefits in all categories from health to transportation,

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8 See *Income Statistics*, Table 2, Canadian Customs and Revenue Agency (CCRA).

9 Tax administrative data from CCRA are used to estimate the realized capital gains on principal residence and financial assets of persons. In the case of trusteed pension plans, the realized profits of net securities from their financial statements are used.

protection and other general purchases. Provincial health spending is the largest purchase item, accounting for about 50 per cent of the increase in all purchases.

The last step in calculating post-government income is to deduct taxes (gross of refundable tax credits) (Line F).[10] While transfers of persons and purchases equal the amounts in the *Fiscal Reference Tables*, the aggregate amount of taxes is somewhat lower (12.6 per cent in 2000) in this paper given that only 70 per cent of direct taxes on corporations is included in this study.[11]

Overall, post-government income increased by 23.6 per cent from $669.6 billion in 1994 to $827.7 billion (approximately 78 per cent of GDP) in 2000.

3.2 Allocation Rules

Table A1 in Annex 1 outlines the rules used to allocate revenue and expenditure components across families, of which there were over 13.4 million census families included in SPSD/M in 2000.

Previous studies used similar rules to allocate money income across families, and the rule for non-money income reflects those used in VGV (1994). Because non-money income is allocated broadly throughout the middle-income families, these incidence ratios may be more regressive than in RVH (1996) where some components of non-money income were excluded.

Where these studies differed in the allocation rule of government revenue and expenditure (transfers and purchases) components, a general rule that was consistent with the small open economy assumption used in both RGH (1996) and VGV (1994) was adopted in this study.[12]

Compared to RVH (1996), broad rules were also adapted for expenditures. Transfers to persons were allocated in a straightforward manner based on SPSD/M. Health care spending was allocated to the population by age and sex profiles based on CIHI data.[13] Similarly, all types of education were allocated by age of children in families. Elementary and secondary education spending was equally allocated to all children age 5 to 17, and post-secondary education spending to those persons age 18 to 24. Housing was allocated as in RVH (1996), and the equal per capita rule was adopted for any miscellaneous transfers and purchases.

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10 For example, this sub-component includes the goods and services tax (GST) gross of the GST credit.

11 The debt-servicing charges and deficit/surplus are not examined directly in this study. This study assumes that these charges and the deficit/surplus would be treated in a manner that is proportional to post-government income. Under these assumptions, the value of the RSA measures would remain the same.

12 See RVH (1994) and VGV (1994) for discussion on shifting assumptions.

13 See Canadian Institute for Health Information, *National Health Expenditure Trends, 1975 to 1999*, Table E, 1999 data.

Overall, the average family post-government income rose from roughly $53,800 to $62,000 per family. Sixty-seven per cent of families had less than $60,000 in 1994 and this fell to 60 per cent in 2000. Roughly two-thirds of all families had from $35,001 to $100,000 during this period.

3.3 Measures of Fiscal Redistribution

The term redistribution has several common usages. In this study, it refers to the departure from a neutral benchmark (i.e., one having no impact on post-government income distribution).[14] The existing fiscal system is compared to the benchmark, and deviations or gaps imply that redistribution is either progressive (in favor of either lower income families) or regressive (in favor of higher income families). For example, one could imagine a government collecting the same aggregate amount of taxes using two approaches. Collections could be either proportional to income (i.e., neutral) or based on a particular tax system. If these two systems are compared and the tax system favors lower income family groups, then the tax system is deemed to be progressive. If the allocation favors higher income family groups relative to the neutral benchmark, then the existing tax system is regressive.

Within the full fiscal incidence framework, the Relative Share Adjustment (RSA) index is used as the measure of the redistributional impact of fiscal activity. This is adopted from the RVH study and allows comparisons across different years.

The local RSA measure reflects the ratio of the actual share of income for a particular income class of families relative to their share under the distributionally neutral benchmark. This measure is related to the effective average tax rate:

$$RSA_i = (1 - t_i)/(1 - t) \qquad (1)$$

where t_i is the effective average tax rate for the i^{th} income group. The denominator reflects the effective average tax rate (*t)* under a distributionally neutral (or proportional to income) tax regime. Thus, if an income group (*i*) pays a greater share of taxes than it would under the benchmark, RSA_i would be less than 1 (e.g., 0.95) and members of the group would gain approximately 5 per cent of their (post-government) income if the existing tax system were replaced by the neutral benchmark.

The incidence ratio in (1) can be expanded to include direct transfers to persons (TR) and government purchases (G). The local RSA measure for the entire fiscal system can be expressed as:

[14] The neutral benchmark is relative to post-government income and the measure of fiscal redistribution is based on post-government income. Except where it is important to highlight this point, however, the term 'income' is used to mean post-government income for the remainder of this paper. For example, the upcoming tables and figures are all based on the distribution of post-government income of families.

$$RSA_i = (1 + tr_i + g_i - t_i)/(1 + tr + g - t) \qquad (2)$$

where tr and g are transfers to persons and government purchases divided by income. The global RSA measure, RSA_G, aggregates the local measures over all income groups (1 to n) and is based on weights (w) of ordered (post-government) income shares:

$$RSA_G = \sum_{i=1}^{n} w_i RSA_i \qquad (3)$$

where the weight is based on the share of (post-government) income, y, of the i^{th} family and the j^{th} family with a higher proportion of this income:

$$w_i = y_i(y_i + 2\sum_{j=i+1}^{n} y_j) \qquad (4)$$

Families were ordered by increasing post-government income from 1 to n. Similar to the local index, this global index can be calculated for any budgetary component(s) and for the entire fiscal system. The global RSA index reflects the overall progressivity (regressivity) of the existing fiscal system relative to the benchmark. If the global RSA index exceeds (is less than) 1, then there would be redistribution in favour of higher (lower) income groups if a distributionally neutral fiscal system were adopted in place of the existing system.

4. Empirical Results

The key result in this study is that redistribution of the net fiscal system was progressive in the 1990s, and in fact, this progressivity increased slightly since the 1980s. This study finds that the degree of progressivity even marginally increased during the fiscal consolidation period. These results are due primarily to the progressivity in personal income taxes, health care spending, elderly benefits and pensions.

4.1 *Across All Family Income Groups*

Since this study uses SPSD/M that is currently based on data from 1997, this study also uses 1997 as a base year for comparing fiscal redistribution over time. Table 3 shows that the existing fiscal system in 1997 was progressive with a global RSA measure of 1.157. This implies that about 15 per cent of (post-government) income would have been redistributed from lower to higher income groups if a distributionally neutral fiscal system were adopted. There are some other summary trends by major component:

- The global RSA index for the federal fiscal regime was slightly more progressive (RSA equalled 1.072) than for either of the provincial (1.066), C/QPP sector (1.015) or local (1.008) sector.

- Across all sectors of governments, the index for taxation (including social insurance contributions and royalties) was more than twice as large (1.100) as the other indices for transfers (1.048) and purchases (1.037). The global RSA index for both types of expenditures combined was 1.071.

- The single largest contribution to progressivity came from federal taxation (1.039), followed by provincial government purchases (1.032) and federal transfers to persons (1.025).

These findings are similar to those in the RVH study for 1986, where the global RSA index was only slightly lower at 1.149. The largest deviation was for taxes (1.085), followed by purchases (1.046) and transfers to persons (1.037) in 1986. Thus, the major change between 1986 and 1997 is that transfers to persons are now slightly more progressive than purchases. In both 1986 and 1997, total spending is not found to be as progressive as the tax system.

Table 3: Redistribution by Level of Government, 1997

	Global RSA Measures			
	Transfers to Persons	Purchases	Taxes	Fiscal System
Federal	1.025	1.009	1.039	1.072
Provincial	1.012	1.032	1.021	1.066
Local	1.001	1.002	1.006	1.008
C/QPP	1.014	1.000	1.001	1.015
All Governments	1.048	1.037	1.100	1.157

Note: These indices are not additive. Calculations in the last two columns, for example, are based on equations 1 and 2.

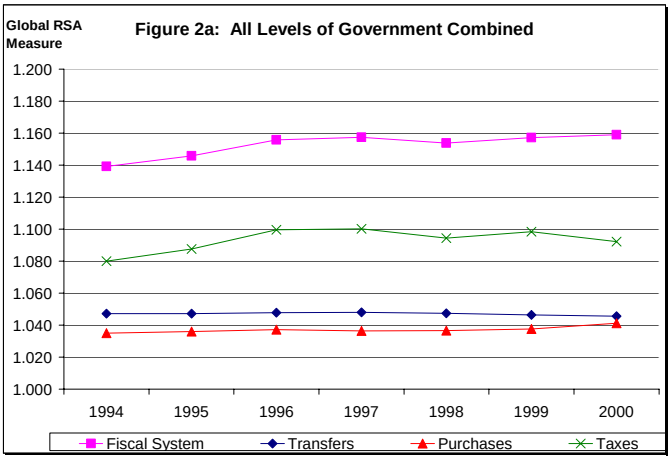
The previous study also found that the federal government was slightly more progressive than its counterparts. Unlike this study, RVH included the C/QPP sector in the federal government sector. The current study disaggregates the C/QPP sector, because the federal and provincial governments are joint stewards of the CPP, and the QPP is administered by the Quebec government. If the C/QPP sector (1.015) is removed, the federal fiscal regime is still more progressive than its provincial counterpart.

SPSD/M also incorporates dynamic adjustments (e.g., demographic and economic) to conform to other data sources (such as the NIEA) going forward and back years. The analysis in this study also considers results back three years to 1994 and forward three years to 2000. Figure 2 shows that the degree of fiscal redistribution was stable during the consolidation period and even marginally increased in favour of lower income families. In 1994, the global RSA index was 1.139, even lower than that observed in 1986. Fiscal redistribution increased to 1.159 in 2000. This pattern is consistent with the observation that the majority of the improvement in the primary balance occurred prior to 1997. (See Table 1.)

Figure 2a shows the extent to which fiscal redistribution is conducted through the tax system compared to the transfer system and purchases. In 1997, the global RSA index for tax collections was 1.100, which was twice as large as the index for either transfers to persons (1.037) or purchases (1.048). This ranking did not change from 1994 to 2000.

Figure 2a also shows the stability of fiscal redistribution by component from 1994 to 2000. The largest increase was observed for taxes, whose global RSA index rose from 1.08 in 1994 to 1.092 in 2000. The global index for purchases also increased but by less, from 1.035 to 1.041 over seven years. Finally, the index for transfers to persons remained stable over the same period. If both types of expenditures are combined, then the global index rose from 1.068 to 1.075 by 2000. Thus, the redistribution in the tax system remained higher than in the expenditure system.

Figure 2: Global Indices of Redistribution by Major Components, 1994 - 2000



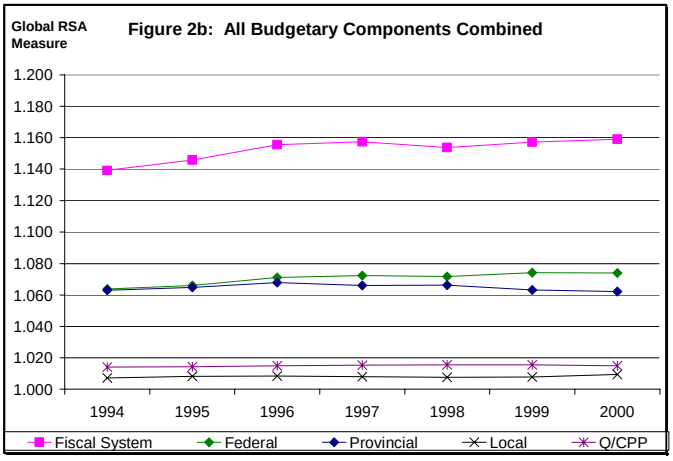


Figure 2b shows that there was slightly more fiscal redistribution through the federal fiscal regime (RSA index equalled 1.072) than through the provincial fiscal regime (1.066) in 1997. There was considerably less redistribution through the C/QPP sector (1.015) and local governments (1.008). (See also Table 3.)

While the RSA index remained stable for provincial and local governments, and in the C/QPP sector, there was a slight upward trend observed at the federal level. The global RSA index for the federal fiscal system increased from 1.064 in 1994 to 1.074 in 2000, reflecting increased fiscal redistribution in favour of lower-income families.

Figure 3 provides more details on the evolution of global RSA indices by budgetary components and by level of government by year. Figure 3a shows that federal taxation accounted for more than half of federal fiscal redistribution in 1997. In 1997, the global RSA index for federal taxation was 1.039, while the indices for federal transfers to persons (1.025) and, particularly, federal purchases (1.009) were noticeably lower.

Figure 3a also shows that any increase in the global index of federal redistribution occurred for federal revenue collections, particularly in 1997. While the indices for

transfers to persons and purchases remained stable, the global RSA index for taxes increased from 1.030 in 1994 to 1.040 in 2000.

In Figure 3b, the global RSA index for provincial purchases (1.032) was larger than that of taxes (1.021) and transfers (1.012) in 2000. All three indices remained relatively constant from 1994 to 2000. The largest shift occurred as the global RSA index for taxes rose from 1.019 in 1994 to 1.023 in 1996 and with provincial tax reforms, then fell to 1.016 in 2000.

Figure 3: Global Indices of Redistribution by Major Components, 1994 - 2000

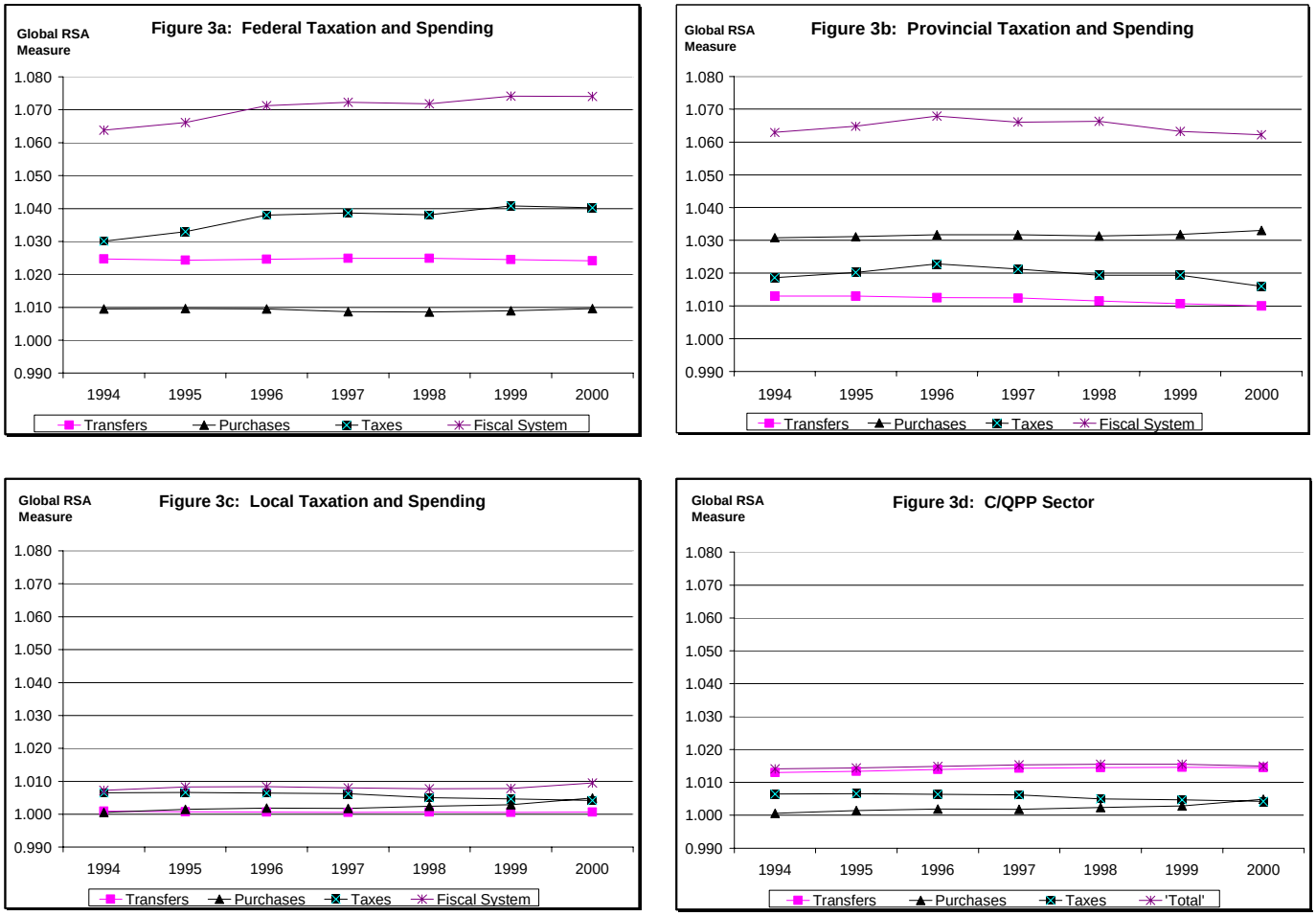


Figure 3c shows the low and stable redistributional impact of all major local government revenue and spending programs. All global RSA indices are between 1.000 and 1.010 throughout the fiscal consolidation period. There was little movement in the global RSA indices, so any changes in any major budgetary components did not impact fiscal redistribution.

In Figure 3d, there was slightly more fiscal redistribution in the C/QPP sector compared to the local governments. This is mainly due to the progressivity of C/QPP benefits, since as will be seen next, contributions are collected roughly proportionally to income. As a summary, the extent of fiscal redistribution across family income groups remained relatively stable over the last fifteen years. Taxation is still the main instrument of redistribution, followed now by transfers to persons. The gap in progressivity between the federal and provincial governments grew slightly during the last seven years. The increase in progressivity seemed to occur predominantly in federal taxation. It remains to be seen how individual family income groups are influenced.

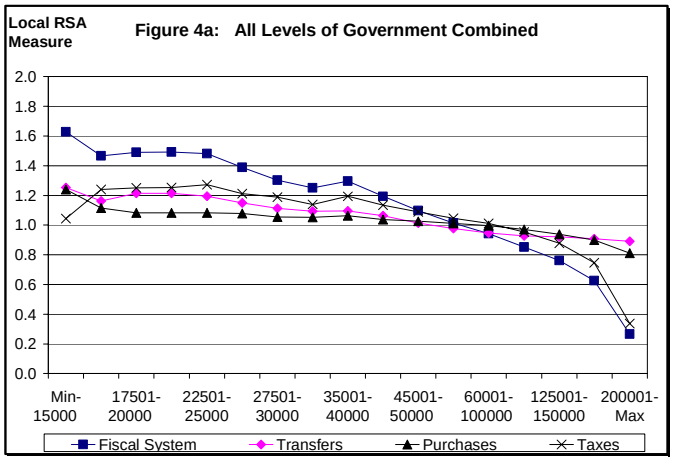
4.2 *Between Family Income Groups*

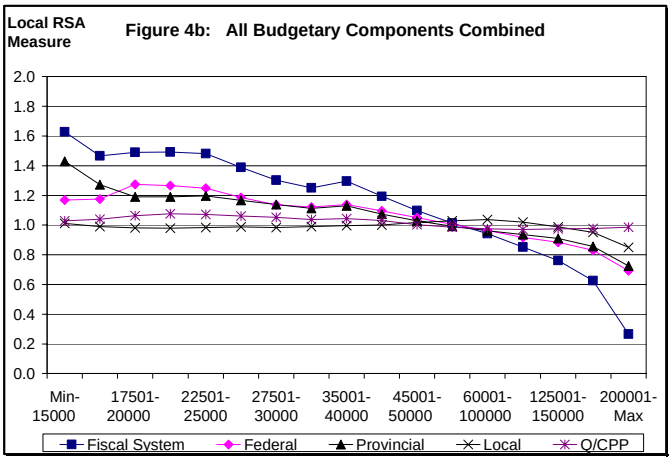
With a global RSA index of 1.157 in 1997, fiscal redistribution favoured families in lower income groups. This section examines in more detail the fiscal redistribution for seventeen individual family income groups.[15]

Figure 4a shows that the local RSA index for the fiscal system ranged from 1.628 for family incomes less than $15,000 to 0.266 for family incomes greater than $200,000 in 1997. This means that the existing fiscal system generated fiscal redistribution from higher income families to lower income families. Adopting a neutral fiscal system would lead families in the lowest income group to lose roughly 60 per cent of their income, while those in the highest income group to regain about 70 per cent of their income. The breakeven income level was roughly $65,000, so that redistribution was in favour of all families with income below this level.

Figure 4a also shows that the tax system was the most redistributive in favour of the lower income groups, followed by transfers to persons and then purchases. In contrast, purchases were the least redistributive in the higher income groups, followed by transfers and taxes.

Figure 4: Local Indices of Redistribution by Major Components, 1997





[15] These income groups are used in RVH (1996) and Federal Budget 2000.

Looking at this closer, the breakeven income level varied considerably by component and this played a large role in the level of fiscal redistribution. The breakeven income level was higher for the tax system and purchases (both roughly $90,000) than the transfer system (roughly $60,000). There was redistribution towards a broad range of middle-income groups up to about $90,000 through the tax system and purchases. This was balanced with less redistribution relative to the benchmark for families with income between $60,000 to $90,000 through the transfer system.

Figure 4b shows that the net federal system was the most redistributive in favour of the lower income groups, followed by the provincial system, then the C/QPP sector, and lastly the local system. The local government was also the least redistributive in the higher income groups, followed by the C/QPP sector, the provincial system and finally the federal government.

The breakeven income levels by level of government in Figure 4b varied less than in Figure 4a. They ranged from $51,000 for provincial governments and the C/QPP sector, to $65,000 for the federal government. Families benefiting from the C/QPP sector are, on average, in lower income groups than families benefiting from the federal government. The index for local governments hovered around the benchmark across all levels.

Since the RVH study was done ten years earlier, the breakeven income level was lower—roughly $35,000 in 1986 as opposed to $65,000 in 1997 for the entire fiscal system. Discounting inflationary factors, it is possible that there was more redistribution in favour of a broader range of income groups on average in 1997.

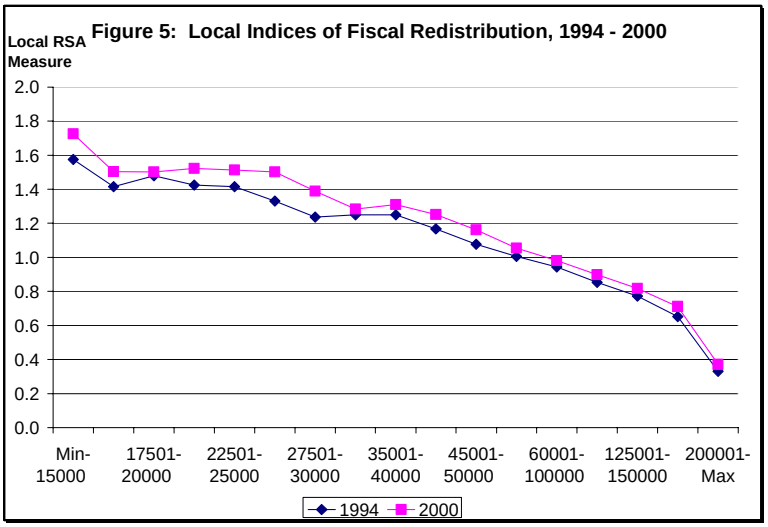
It also seems that there was slightly more redistribution from higher income groups to lower income groups in 1997. If the system in 1986 were replaced by a neutral system, families with income below $20,000 would lose more than 50 per cent of their (post-government) income, while families at the top end would incur a loss of about 30 per cent. The system now is more progressive, with the gains by lower income groups (60 per cent) and losses at the top end (70 per cent) being larger in 1997 than in 1986.

It is more straightforward to compare the global RSA indices within the framework of this current study. Figure 5 shows that the structure of local progressivity remained relatively stable during the fiscal consolidation period, and in fact the level of fiscal redistribution increased slightly for all family income groups between 1994 and 2000. The gap between the benchmark and families in lower income groups increased slightly, while the gap decreased slightly for families with income greater than $65,000.

Two general factors contribute to modest increase. First, while net fiscal benefits fell across family income groups, they fell less for lower income families. Second, (post-government) income increased for all families, particularly money income and non-money income additions for higher income families. As a result, the neutral benchmark

fell for the lower income families and increased relatively more than higher income families.

Figure 5 shows that there was more fiscal redistribution in 2000 particularly in favour of families in the two lowest income groups, as well as those families with incomes from $20,001 to $30,000. There was more fiscal redistribution in favour of other families but to a lesser extent for the lowest income groups.



To conclude, it appears that different government policies target different income groups. There was more redistribution through the transfer system than through government purchases. Provincial governments targeted the two lowest income groups and the federal government targeted a broader range of groups. While it is more difficult to compare detailed results with previous studies, this study finds evidence of a slight upward trend in redistribution towards lower income groups between 1994 and 2000. This raises the question of how specific programs influenced the fiscal redistribution of families.

4.3 *Across Specific Programs*

When the redistributional impact of specific revenue and spending programs are examined separately, the source of progressivity is concentrated in personal income taxation, health spending, corporate income taxation, elderly and C/QPP benefits and provincial social assistance. There were only minor changes during the fiscal consolidation period, except in the case of corporate income taxes.

Tables 5 and 6 compare global and local redistribution indices for some major specific programs in 1997. The revenue categories shown in Table 5 and the expenditure categories shown in Table 6 are presented in descending order.

4.3.i. Taxation

Personal income taxation (PIT) was the most progressive category amongst the revenue categories (and in fact, all fiscal categories) with a global RSA index of 1.046 in 1997. About 4 per cent of (post-government) income would have been redistributed toward higher income groups were a neutral PIT system adopted. This parallels the emphasis in the RVH study on the redistributive impact of PIT.

As seen in Table 5, the local RSA index fell relatively steadily from 1.166 for families in the lowest income group to 0.774 in the highest income group, with the breakeven income of roughly $65,000 in 1997. This shows that families at the lower end of the income spectrum would have lost about 15 per cent and families at the top end would have regained about 20 per cent by moving to a neutral tax system.

This pattern remained relatively stable from 1994 to 2000. There was a slight upward shift in federal PIT (61 per cent of total PIT), while there was a slight downward shift in the provincial tax system as significant reforms were implemented since 1996-97.

Corporate income taxes (CIT), which are allocated to families with dividends and realized capital gains, was half as progressive, with a global RSA index of 1.0226 in 1997. About 2 per cent of (post-government) income would have been redistributed toward higher income groups were a neutral CIT system adopted.

Table 5: Indices of Redistribution for Specific Revenue Categories, 1997

	PIT (1)	CIT (2)	Property (3)	C/QPP Cont. (4)	EI Cont. (5)	Other Payroll Taxes (6)	Other Indirect Taxes (7)
Global Index	**1.046**	**1.023**	**1.005**	**1.001**	**1.000**	**1.002**	**0.986**
Local Index							
Min-$15,000	1.167	1.023	0.973	1.015	1.015	1.011	0.858
$15,001-$17,500	1.149	1.027	0.999	1.010	1.008	1.008	0.960
$17,501-$20,000	1.140	1.034	1.000	1.008	1.009	1.009	0.963
$20,001-$22,500	1.133	1.033	0.998	1.009	1.012	1.010	0.969
$22,501-$25,000	1.126	1.033	1.005	1.008	1.011	1.010	0.979
$25,001-$27,500	1.106	1.032	0.997	1.006	1.007	1.008	0.979
$27,501-$30,000	1.087	1.030	1.001	1.004	1.005	1.006	0.985
$30,001-$35,000	1.072	1.028	1.005	1.002	1.010	1.004	0.977
$35,001-$40,000	1.080	1.029	1.007	1.005	1.005	1.006	0.989
$40,001-$45,000	1.054	1.028	1.006	1.002	1.012	1.003	0.989
$45,001-$50,000	1.035	1.026	1.008	0.998	0.997	1.001	0.989
$50,001-$60,000	1.015	1.021	1.009	0.995	0.993	0.998	0.995
$60,001-$100,000	0.987	1.018	1.012	0.994	0.993	0.996	1.003
$100,001-$125,000	0.955	1.011	1.009	0.995	0.994	0.994	1.007
$125,001-$150,000	0.928	0.981	0.999	0.998	1.001	0.997	1.017
$150,001-$200,000	0.879	0.944	0.983	1.002	1.008	0.999	1.026
$200,001-Max	0.774	0.784	0.925	1.015	1.022	1.001	1.080

The redistribution towards a broader range of middle-income groups through the tax system seen in Figure 4a was due to CIT collections in 1997. The local RSA index flat lined from the lowest income until roughly $150,000 and then dropped for the highest income group. With a local RSA index of 0.784, families at the higher end of the income spectrum would have lost about 20 per cent under a neutral CIT system.

The global RSA index increased from 1.0143 in 1994 to 1.0270 in 2000 due at least in part to post-government income rising more than CIT collections. This increase reflects the majority of the increase in progressivity for the entire fiscal system during the fiscal consolidation period.

Property taxes, which were 90 per cent local property taxes, were nearly proportionally distributed across family income groups. The global RSA index was 1.005 in 1997.

There was an inverted U-shaped pattern of progressivity, with local RSA indices slightly below one for families with income below $17,500 and above $150,000. This reflects the mix between various types of property taxes, for example, between the slightly progressivity of business building taxes to the slightly regressivity of residential building taxes. These two types of taxes comprised 58 per cent of all local property taxes in 1997. This remained consistent during the fiscal consolidation period.

There were several other categories in Table 5 that were distributed in proportion to income in 1997. With these programs, less than 1 per cent of (post-government) income would have been redistributed were a neutral benchmark adopted.

4.3.ii. Expenditures

Health care spending, of which 97 per cent was provincial spending, was the most progressive of all spending categories. Table 6 shows that with a global RSA index of 1.023 in 1997, it provided about half as much redistributive impact in favour of lower income families as PIT.

The local RSA index was highest for those with income between $22,501 and $25,000 (1.085) and between $35,001 and $40,000 (1.072). The loss in the lowest income group and the gain at the higher end of the income spectrum were the same in size (about 5 per cent) in 1997. Interestingly, there was a noticeable increase in provincial health care spending, particularly in 2000 when it jumped 11 per cent or $7.2 billion. As a result, the global RSA index jumped up to 1.04 in 2000.

Elderly benefits (Old Age Security, Guaranteed Supplement and the Spousal Allowance programs) were also progressive with a global RSA index of 1.017 in 1997.

The pattern of local progressivity had a clear inverted U-shape in 1997. Families with income below $45,000 received more than their proportional income share—one of the lowest breakeven points in Tables 5 and 6. More specifically, families with income from $20,001 to $22,500 and those with incomes from $22,501 to $27,500 would have lost the

most under a neutral system, with local RSA indices of 1.116 and 1.063, respectively. Families in the lowest and highest income groups received roughly their proportional share of (post-government) income. This pattern did not change from 1994 to 2000.

C/QPP benefits were progressive with a global RSA index of 1.014 in 1997. This is in contrast to C/QPP contributions that were collected roughly in proportion to income across all groups.

The level and pattern of progressivity for C/QPP benefits was similar to elderly programs, but the U-shaped pattern was wider. The local RSA index increased less to 1.067 for families with incomes from $20,001 to $22,500. Thereafter, it fell to 0.971 for the highest income group, with a breakeven income level of $45,000. The level of redistribution in this sector did not change during the fiscal consolidation period when contributions increased to roughly equal the level of income paid to seniors.

If transfers to seniors such as elderly and C/QPP benefits were combined, then the global RSA index would be 1.030 in 1997. The local RSA index fell from 1.178 for families with incomes from $20,001 to $22,500 to 0.944 in the highest income group, with a breakeven income level from $50,000. This pattern remained from 1994 to 2000.

Table 6: Indices of Redistribution for Specific Expenditures Programs, 1997

	Health Purchases (1)	Elderly Benefits (2)	C/QPP Benefits (3)	Prov. SA (4)	EI Income (5)	CTB/C (6)	PSE Purchases (7)	ESE Purchases (8)	Housing/ Transport/ Protection (9)
Global Index	**1.023**	**1.017**	**1.014**	**1.011**	**1.004**	**1.001**	**1.002**	**0.994**	**1.013**
Local Index									
Min-$15,000	1.062	0.979	1.013	1.234	1.013	0.994	1.035	0.962	1.127
$15,001-$17,500	1.025	0.997	1.030	1.103	1.028	0.996	1.051	0.957	1.060
$17,501-$20,000	1.051	1.112	1.054	1.043	1.016	0.995	1.016	0.957	1.044
$20,001-$22,500	1.067	1.116	1.067	1.035	1.011	0.996	1.011	0.959	1.040
$22,501-$25,000	1.085	1.111	1.063	1.031	1.005	0.996	1.004	0.963	1.034
$25,001-$27,500	1.069	1.063	1.055	1.028	1.007	0.999	1.001	0.971	1.035
$27,501-$30,000	1.054	1.036	1.049	1.025	1.007	0.998	1.005	0.968	1.026
$30,001-$35,000	1.060	1.042	1.034	1.013	1.006	1.001	0.999	0.972	1.020
$35,001-$40,000	1.072	1.046	1.037	1.009	1.005	1.002	0.998	0.977	1.018
$40,001-$45,000	1.038	1.028	1.027	1.002	1.005	1.003	0.997	0.986	1.011
$45,001-$50,000	1.013	0.999	1.004	0.996	1.007	1.006	0.997	1.004	1.006
$50,001-$60,000	0.991	0.984	0.990	0.990	1.004	1.004	0.998	1.017	1.000
$60,001-$100,000	0.977	0.977	0.981	0.987	0.997	1.001	1.000	1.029	0.992
$100,001-$125,000	0.967	0.974	0.976	0.985	0.992	0.997	1.003	1.020	0.987
$125,001-$150,000	0.962	0.974	0.977	0.985	0.990	0.995	1.005	1.003	0.980
$150,001-$200,000	0.951	0.972	0.976	0.985	0.988	0.993	0.998	0.990	0.974
$200,001-Max	0.932	0.971	0.972	0.985	0.986	0.993	0.986	0.965	0.948

Housing, transportation and protection spending was also progressive with a global RSA index of 1.013 in 1997. This is influenced both by the combined size of the program (over $40 billion in 1997), as well as the allocation rules. Housing spending was allocated progressively to lower income groups, transportation spending was allocated proportionally and protection spending was allocated equal per capita. Interestingly, using an equal per capita rule introduced some progressivity in favour of lower income groups.

The local RSA index for this spending ranged from 1.127 to 0.948 in 1997, with the breakeven income level of $50,000. Families in the lowest income group would have lost 10 per cent of their income if a neutral benchmark level of spending had been adopted.

Finally, **provincial social assistance** (SA), which includes income maintenance as well as other social assistance programs, was progressive with a RSA index of 1.011 in 1997. All of this progressivity was exhibited in the lowest income group with a local RSA index of 1.234 in 1997. It fell steeply with the next income group and then was distributed roughly proportional to income for the remaining income groups. Neither this level nor this pattern changed despite lower expenditures in this program during the consolidation period.

There were several other categories in Table 6 that were distributed in proportion to income in 1997. These include EI benefits, post-secondary education, the Child Tax Benefit/Credit (CTB/C), and elementary and secondary educational spending (ESE). With these programs, less than 1 per cent of (post-government) income would have been redistributed were a neutral benchmark adopted.

5. Conclusions

This study attempts to analyze the redistributive nature of the fiscal system in Canada in the 1990s. The main finding of this study is that the progressive nature of the fiscal system was maintained, and in fact, the level of fiscal redistribution increased slightly in favour of lower income families during the fiscal consolidation period.

Governments consolidated their finances predominantly through discretionary policies (either lower expenditures or higher revenues) between 1994 and 2000. The goal of this paper was to build a full fiscal incidence framework to gauge the extent of redistribution during this period. Given its similarity to the framework used in the RVH study for 1986, it is also possible to compare the fiscal redistribution across the past two decades.

The key concept behind the current and previous studies is the distributionally neutral benchmark. This benchmark is used to gauge the amount of redistribution in the existing fiscal system compared to one that is distributed proportionally to (post-government) income. The gap between the benchmark and the existing fiscal system is measured using a global RSA measure (i.e. across all families) and a local RSA measure (i.e. by individual family groups). Either global or local measure can be applied to individual components of the system.

The empirical results suggest that for 1997, about 15 per cent of (post-government) income would have been redistributed toward higher income groups if a distributionally neutral fiscal system had been adopted. This magnitude of redistribution is up slightly from the 1980s as well as from 1994, around the start of the fiscal consolidation period.

The largest source of this redistribution is taxation and is attributable to the federal government. Specific programs include personal income taxes, health care expenditures and to a lesser extent, transfers to seniors. These remained the drivers of progressivity throughout the fiscal consolidation period.

Annex 1, Table A1: Allocation Rules Using SPSD/M

	Source of Income	Allocation Rule
A.	**Money Income**	
	Wages and Salaries	Employment Income
	Unincorporated Business Income	Self-Employed Income
	Realized Capital Gains to Persons	Realized Capital Gains
	Dividend Income to Persons	Dividend Income
	Interest Income to Persons	Interest Income
	Other Investment Income to Persons	Other Investment income
	Other (Including Pension) Income	Other Income
B.	**Direct Transfers to Persons**	
	UI/EI and OAS\GIA\SPA Benefits, Child Tax Benefit/Credit, GST Credit and C/QPP Income	Relevant SPSD/M Variable
	War Pensions and Veteran Allowances	Pension Income
	Provincial Social Assistance	Provincial Social Assistance
	Workers Compensation Board (WCB)	Employment Income
	Other Transfers	Equal Per Capita
C.	**Non-Money Income Additions**	
	Imputed Rent	Gross Imputed Rent Expenditures (Net of Taxes)
	Imputed Interest Income	Interest Income
	Net Accrued Capital Gains	Relevant SPSD/M Variable
D.	**Adjustments to Income**	
	UI/EI Contributions and C/QPP Contributions	Relevant SPSD/M Variable
	WCB and Other Payroll Taxes	Employment Income
	Corporate Taxes	Dividend Plus Realized Capital Gains
	Property Taxes	Business/Structure: Dividend Plus Realized Capital Gains
		Farm Structure: Self-Employed Farm Income
		Resident Owner/Structure: Property Tax
		Resident Rent/Structure: Other Investment Income
		Business/Non-Structure: Total Expenditures (Net of Taxes)
		Farm Non-Structure: Food and Non-Alcoholic Beverages
		Resident Owner/Non-Structure: Property Tax
		Resident Renter/Non-Structure: Gross Rent Paid
	Transfers from Corporations to Persons	Equal Per Capita
	Transfers from Governments to Corporations	Dividend Plus Realized Capital Gains
E.	**Government Purchases**	
	Health	Age-Sex Utilization
	Education	Age Utilization
	Housing	Two Lowest Quintiles: 50% to Owners and 50% to Renters
	Transportation	Net Expenditure on Transportation and Communications
	Protection and Other Purchases	Equal Per Capita
F.	**Taxes, Contributions to Social Insurance Plans and Royalties**	
	Personal Income Taxes	Relevant SPSD/M Variable
	Corporate Income Taxes	Dividend Plus Realized Capital Gains
	UI/EI Contributions	UI/EI Contributions
	GST	Total Expenditure Net of Taxes
	WCB and Employer Health Taxes	Employment Income
	Other Indirect Taxes	Total Expenditure Net of Taxes
	Royalties	Total Expenditure Net of Taxes
	Transfers from Persons	Equal per Capita
	C/QPP Contributions	C/QPP Contributions

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