

April 2009

CANADA'S QUIET BARGAIN

The benefits of public spending

By Hugh Mackenzie and Richard Shillington

Growing Gap  **.ca**

CANADIAN CENTRE FOR POLICY ALTERNATIVES

ISBN 978-1-897569-39-9

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Acknowledgements

The authors wish to thank the organizations that provided core funding for this project. The authors are also indebted to Statistics Canada, whose database on government revenue and expenditures enables consistent comparison of public revenue and expenditures across Canada and whose Social Policy Simulation Database and Model and Survey of Labour Income Dynamics supports the distributional analysis which forms the core of this study. Trish Hennessy, Armine Yalnizyan, Bruce Campbell, Kerri-Anne Finn, Tim Scarth, Andrew Jackson, Stan Marshall, Toby Sanger, Howie West, John Staple, Ian Boyko, Larry Brown, Sheila Block, Charles Pascal, Marc Lee and Seth Klein all provided helpful guidance, advice and encouragement as the project proceeded. None of the above is responsible for any errors, omissions or disagreeable opinions presented in this paper. The findings reflect the work of the authors and do not necessarily reflect the views of the Canadian Centre for Policy Alternatives or of the funding organizations.

Financial assistance for this project was provided by:

The National Union of Public and General Employees, The Public Service Alliance of Canada, The Canadian Union of Public Employees, The Canadian Teachers' Federation, The Canadian Labour Congress and the Canadian Federation of Students.

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Summary

THIS STUDY ADDS a dimension that has been missing to the public debate over taxes and public spending in Canada. It weighs the benefits of public services provided by federal, provincial, and municipal governments against the benefits of recent tax cuts.

Using a sophisticated array of data sets and analytical tools from Statistics Canada, this study concludes that Canadians depend to a significant extent on public services such as education, health care, child care, public pensions, employment insurance, and family benefits for their living standard.

In fact, this study puts a number on it: Canadians enjoy an average \$17,000 benefit from the public services which our taxes fund — about the same amount a Canadian working full-time, full-year at the minimum wage would earn.

The results of this study show the vast majority of Canadians are getting a quiet bargain by investing in taxes that produce enormous public benefits.

For the vast majority of Canada's population, public services are, to put it bluntly, the best deal they are ever going to get.

More than two-thirds of Canadians' benefit from public services adds up to more than 50% of their household's total earned income.

Looking at Canadians in median income households, their benefit from public services amounts to \$41,000 — equivalent to roughly 63% of their total income.

Overall, the average per capita benefit from public services in Canada in 2006 came to \$16,952. Approximately 56% of that benefit comes from health care, education and personal transfer payments.

The benefit middle-income Canadians receive from public services represents a significant proportion of the total resources available to them. Even in the \$80,000 to \$90,000 household income range — just below the richest 20% — the benefit they receive from public services is equivalent to about half of their private income.

No matter how you cut it, the data in this study shows how powerful a role public spending plays in ensuring the majority of Canadians enjoy a better quality of life.

The paper also shows that the vast majority of Canadians would have been better off if the fiscal capacity lost through tax cuts had instead been invested in improving public services.

It estimates that an astounding 80% of Canadians would have been better off if the Harper government had transferred money to local governments to pay for more and better public services instead of cutting the GST by 1%.

Similarly, 75% of Canadians would have been better off if their provincial governments had invested in public health care and education instead of administering broad-based income tax cuts in the late-1990s and early-2000s.

And had the federal government invested in improved federal public services instead of cutting capital gains taxation by one third in the early-2000s, 88% of Canadians would have been better off.

This path-breaking study raises serious questions about continuing Canada's tax cut agenda and provides robust evidence that the taxes Canadians pay contribute substantially to their standard of living by providing them with some of the best public services in the world.

Introduction

OVER THE PAST 30 YEARS, and particularly since the early-1990s, public debate over broad fiscal issues in Canada has been dominated by tax cuts, without reference to the services for which taxes pay.

The tax and service debate in Canada in the past 15 years has been almost completely one-sided, and has created a political atmosphere in which tax cuts have become the default answer to virtually every political question.

The overall impact of tax cuts — and the cuts in public services that accompany them — has not been addressed in any substantive way.

At the philosophical level, opponents of widespread tax cuts often make arguments that are a variant of the oft-quoted view of former US Supreme Court Justice Oliver Wendell Holmes that “taxes are what we pay for civilized society”, although this leaves open the questions of how we define civilized society and how much of civilized society we actually want to buy.

Another approach is to list services that are dependent on revenue from the tax system for their existence. While this serves politically and rhetorically to remind advocates for tax cuts that there is another side to the question, it doesn’t actually provide a meaningful measure of the benefits we receive from public services or address directly the trade-off between the taxes that we pay and the benefits we receive from the services those taxes fund. This paper provides answers to these questions.

Using data and analytical tools from Statistics Canada, we estimate that Canadians enjoy an average \$17,000 benefit from the public services which our taxes fund — roughly equivalent to the annual earnings of an individual working full-time at the minimum wage.

Lower-income Canadians benefit more from personal transfer payments (most of which are income-related) but middle- and upper-income Canadians benefit fairly equally from all public services. The public services we use and benefit from change as we go through the life cycle. Seniors, for instance, benefit less directly from public education than they do from public health care — but when they were young parents raising children, the opposite was true.

No matter how you cut it, the data in this study shows how powerful a role public spending plays in ensuring the majority of Canadians enjoy a better quality of life.

For the vast majority of Canada's population, public services are, to put it bluntly, the best deal they are ever going to get. The median Canadian household income (half of Canadians live in households with incomes below that amount; half live in households with incomes above that amount) is approximately \$66,000 in a 2.6 person household. That median household realizes a \$41,000 benefit from public services. That is equivalent to roughly 63% of that household's private income.

More than $\frac{2}{3}$ of Canadians' benefit from public services which are worth more than 50% of their household's total earned income.

This paper also shows that the vast majority of Canadians would also be better off without tax cuts. Our analysis estimates that 80% of Canadians would have been better off if, instead of cutting the GST, the Harper government had transferred the money to local governments to pay for more and better public services.

Compared to the broad-based income tax cuts implemented by provincial governments in the late-1990s and early-2000s, 75% of Canadians would have been better off if their provincial governments had spent the money on health care and education.

And had the federal government invested in improved federal public services instead of cutting capital gains taxation by one third in the early-2000s, 88% of Canadians would have been better off.

In other words, the tax cuts made to sound like free money to middle-income Canadians are anything but. Indeed, the tax cuts implemented in Canada in the last 15 years have had the net effect of reducing the living standards of most Canadians.

What this study measures

THIS STUDY MEASURES the value of public services received by households in each household income group, in the aggregate as well as disaggregated by level of government and type of public service. This in turn supports an exploration of such issues as:

- the distribution of the benefit from public services, by household income group;
- the relative distributive impact of public services based on level of government;
- the size of the social wage — the value of public services received — by household income, in the aggregate and in relation to income and total tax incidence;
- the distributive impact of various types of tax cuts matched by marginal reductions in public services spending; and
- the fiscal bargain — the balance between taxes and public services benefit, by household income.

COMPOSITION OF PUBLIC SPENDING

Chart 1 shows the distribution of public spending in Canada for all three levels of government and C/QPP combined.

Education, social services (including all personal transfer payments) and health together account for about 64% of consolidated public spending in Canada. The

CHART 1 **Distribution of consolidated public spending** Canada, 2006

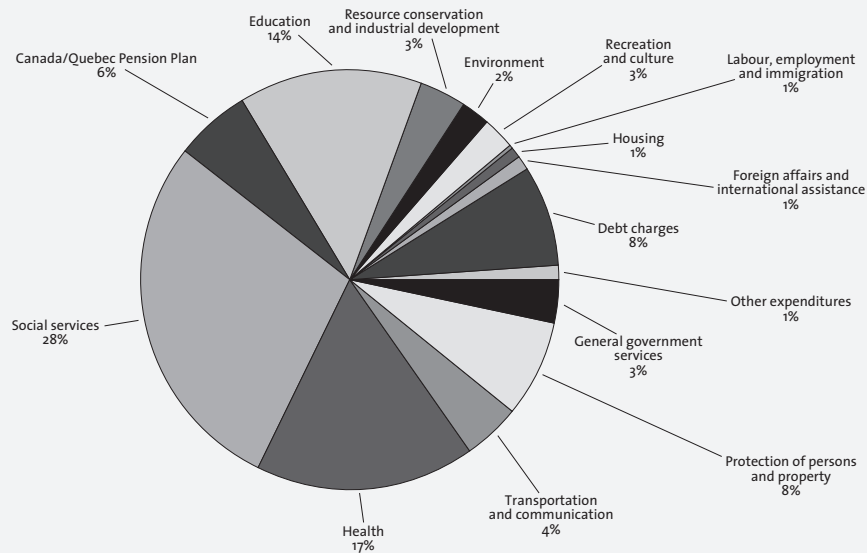
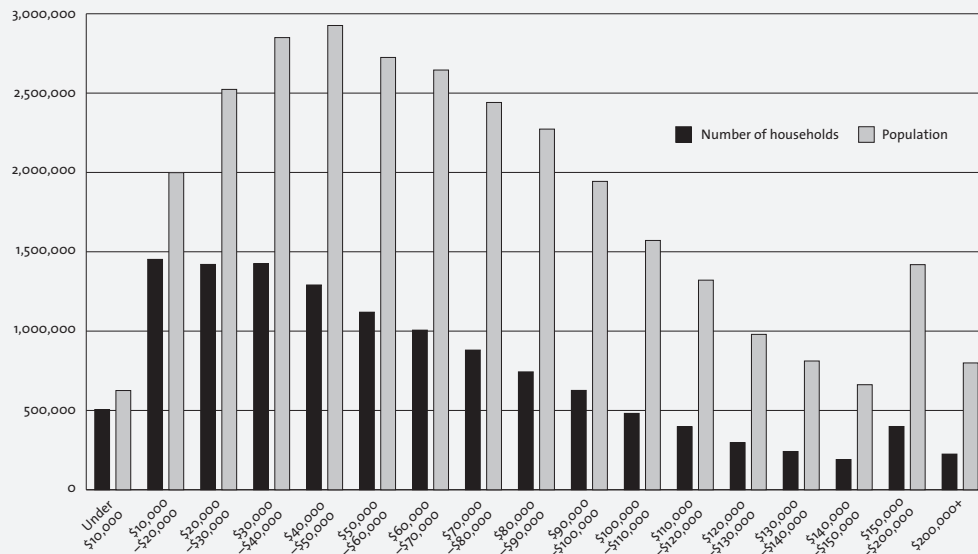


CHART 2 **Households and population by household income range** 2006



only other categories that approach 10% are protection of persons and property and public debt charges.

Statistics Canada’s government revenue and expenditure accounts provide data on public spending, by category of public spending and by level of government.¹

CHART 3 Average household size by household income range Canada, 2006

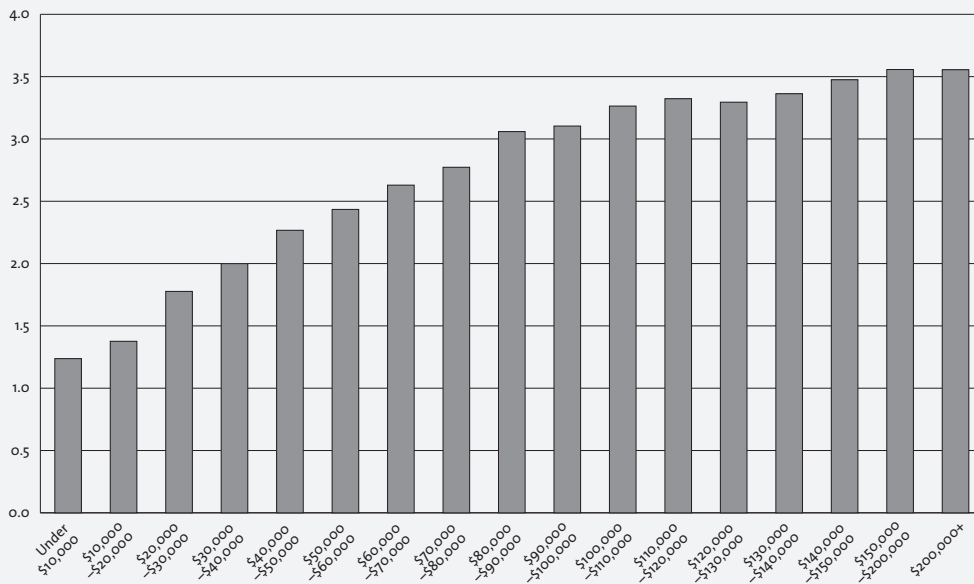
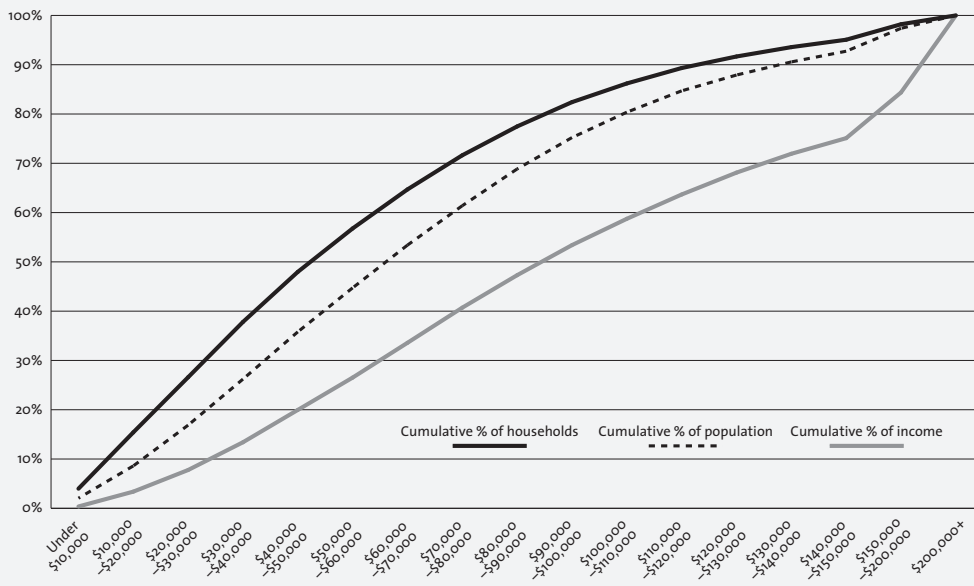


CHART 4 Distribution of households, population and income Canada, 2006, cumulative %



HOUSEHOLD INCOME

Chart 2 shows the number of households for Canada by household income range. Because households vary in size, and because average household size varies systematically with income, we also show the total population of the households in each income range.

Household size increases as household income increases, as chart 3 illustrates.

Chart 4 shows the cumulative percentage of all households and population in households, as income increases.

Households with incomes of less than \$80,000 per year represent 72% of households comprising 61% of Canada's population, but account for only 41% of total income.

ESTIMATING THE BENEFIT FROM PUBLIC SERVICES

With detailed data on public spending as a base, we draw on three public data sources to estimate the distribution of benefits by household type and household income level from each category of public spending. Health care utilization data measured by age and household income from the Canadian Institute for Health Information are used to estimate the value of health care services provided to households. Statistics Canada's Social Policy Simulation Database and Model (SPSD/M) and Statistics Canada's Survey of Labour Income Dynamics (SLID) database generate information about household characteristics and expenditure patterns, by household income, which in turn is used to estimate the distribution of benefit from other types of public services.

Details of the allocation methodology are presented in Appendix 2.

It should be emphasized at the outset that by virtue of our use of Statistics Canada's government expenditure data as the basis for the analysis, we are following the convention in public accounting of valuing public services at their cost. To the extent that public programs are supported by a cost-benefit analysis, our implicit assumption is that the net benefit from public services is zero — an extremely conservative assumption.

For the purposes of the analysis, public services are divided into four broad categories. The first category consists of public services for which the allocation of benefit to family types by income can be measured directly using Statistics Canada data series and analysis tools. This category consists primarily of direct personal transfer payments, which make up 21% of public spending.

The second category consists of services for which there are direct proxy measures that closely approximate direct measurement. For example, elementary and secondary education expenditures are allocated based on the number of school-age children in the household. Postsecondary education expenditures are allocated based on the presence of postsecondary students in the household. Health and hospital expenditures respectively are allocated from measures of physician and hospital visits prepared by the Canadian Institute for Health Information. This category accounts for about 36% of public spending.

The third category consists of services for which there are indirect proxy measures for benefit from the service. For example, expenditures on roads and traffic were allocated based on expenditures on motor vehicle fuel and lubricants. Similarly, ex-

penditures on sewer and water services were assumed to be distributed to households on a per capita basis. This category accounts for about 26% of public spending.

The fourth category consists of broadly-based public benefits that are indivisible and cannot be isolated to any individual characteristic or behaviour. Examples include environmental protection, national defence and foreign affairs and international development. These expenditures, accounting for 18% of public services spending, were allocated on a per-capita basis.

The allocation methods set out above generate a distribution of public expenditures, by category of expenditure and by household private income. For the purposes of the analysis, households are grouped by income in \$10,000 increments, from \$0 to \$150,000, for the income range \$150,000 to \$200,000 and for incomes over \$200,000.

Results of the analysis

DATA ARE PRESENTED for all income ranges. It should be noted, however, that the characteristics of households with incomes in the ranges \$0 to \$10,000 and, to a lesser extent \$10,000 to \$20,000, are somewhat unusual and should be interpreted with caution.²

In accordance with the paper's analytical framework, the value of each category of public spending is determined for each household income group using the specific data series selected to estimate each household's benefit from that category of spending. As noted above, public spending is broken down by level of government as well as by type of public service.

These disaggregated amounts are then added together to produce an estimate of the total benefit from public services provided by all governments together, and for each level of government separately.

Chart 5 presents the distribution of per capita benefits from public services, by household income range. Spending is broken down by level of government.

Two patterns are apparent from this chart. First, once household income rises above the median of \$50–60,000 per year, benefit from public spending is remarkably evenly distributed on a per-capita basis in households in all income ranges.

Second, it is apparent that the distribution of benefit from public services differs notably among the levels of government. This is illustrated in charts 6, 7 and 8 following.

As one might expect given the important role the federal government plays in the personal income transfer system, the per capita value of federal public services declines, in absolute dollar terms, as income increases to a household income of

CHART 5 Per capita benefit from public spending by household income
Canada, 2006, by level of government

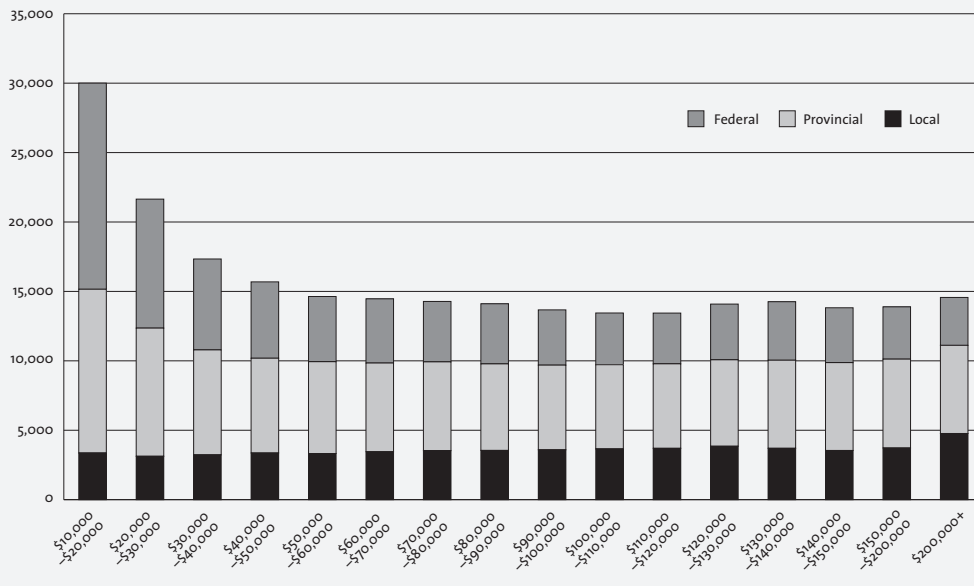
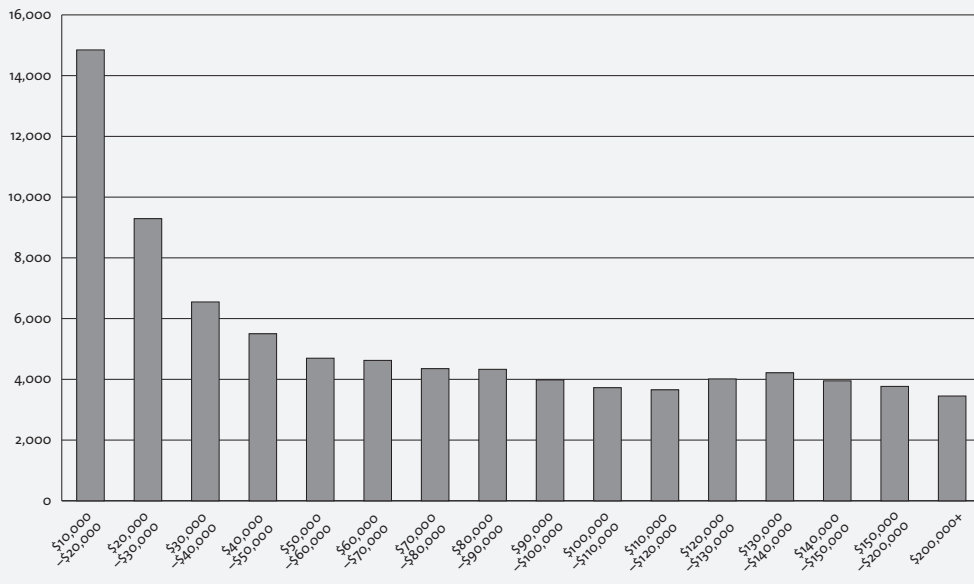


CHART 6 Per capita benefit from public spending by household income
Canada, 2006, federal government



approximately \$100,000, above which Canadians benefit on consistent per-capita basis. The higher values at low income are due to transfers (OAS/GIS, C/QPP, EI and the Child Tax Benefit).

Provincial spending shows a similar downward slope as income increases, reflecting the provincial governments' responsibility for social assistance benefits. Given the tighter targeting of provincial income assistance programs, benefit from

CHART 7 Per capita benefit from public spending by household income
Canada, 2006, provincial and territorial governments

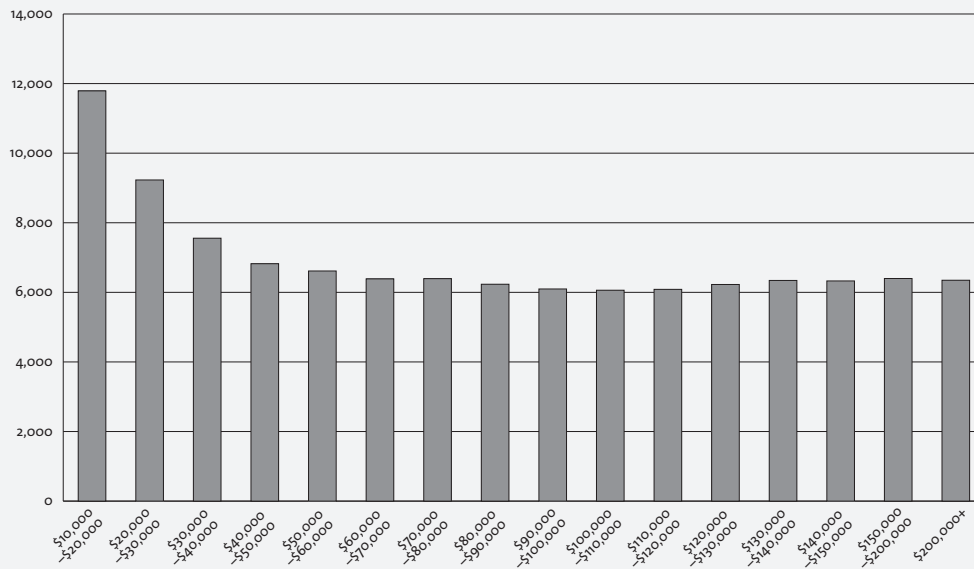
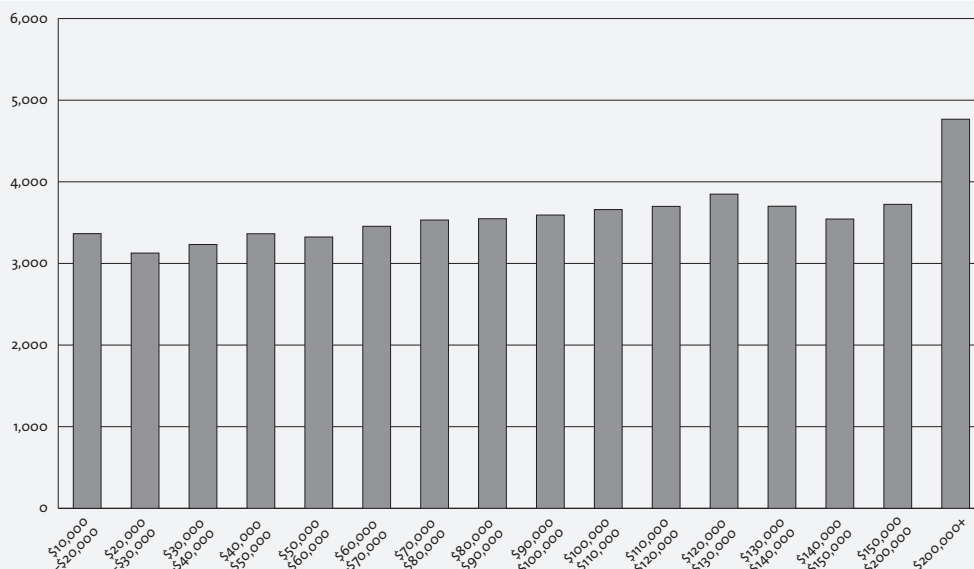


CHART 8 Per capita benefit from public spending by household income
Canada, 2006, local governments



public services declines to a relatively stable per capita average at a lower income range — below \$40,000.

The higher values at low income are due to transfers (social assistance), postsecondary education (attributed to students) and health care for seniors.

The pattern of benefit from the spending of local governments is quite different from that of both the federal or provincial governments. The per capita absolute dollar benefit from public services delivered by local governments actually increases

as household income increases. Two factors explain this phenomenon. First, some of the services delivered by local governments are related in one way or another to consumption, which tends to increase as household income increases. Second, the proportion of a household's population that consists of children increases as income increases. That will tend to produce per capita spending that increases as income increases because of the importance of elementary and secondary education as a local service. More than 40% of local spending is for elementary and secondary education.

For higher-income households, local government is actually more important than it is for households with lower incomes. In fact, measured benefit from local services for high-income households exceeds the measured benefit from federal government services.

There is relatively little variation in the benefit from public services as income increases. Without reference to the revenue sources from which the services are funded, this would appear to suggest that public services do not play a significant role in greater equality. But when you measure public services as a share of income rather than in absolute dollar terms, it becomes clear that public spending does, indeed, play a major redistributive role in Canada.

These findings are fully consistent with the results of an analysis of the impact of public services on the distribution of income in selected industrialized countries conducted by the Organization for Economic Cooperation and development and published in 2008.³ In the summary of its chapter on public services, it observed:

Public services to households significantly narrow inequality, although this reduction is typically lower than that achieved by the combined effect of household taxes and public cash transfers. This inequality-reducing effect results mainly from a relatively uniform distribution of these services across the population, which implies that they account for a larger share of the resources of people at the bottom of the distribution than at the top. [OECD 2008, p. 223]

Chart 9 shows how benefit from public services varies as a share of household income, by household income range.

The chart above shows the relationship between benefit from public services and household income. It also illustrates the relationship between public revenue, which is roughly constant as a share of income, and benefit from public services. It illustrates how public services funded from general revenue that deliver equal benefits to all Canadians have a powerful redistributive effect.

This effect is most evident in the middle of the income distribution — the approximately 50% of Canadians that live in households with total incomes between \$30,000 and \$100,000, in Chart 10.

The benefit middle-income Canadians receive from public services represents a significant proportion of the total resources available to them. Even in the \$80,000 to \$90,000 household income range — just below the richest 20% — the benefit received from public services is equivalent to about half of the household's private income.

CHART 9 Benefit from public services and household income
\$ per capita and % of household income, Canada, 2006

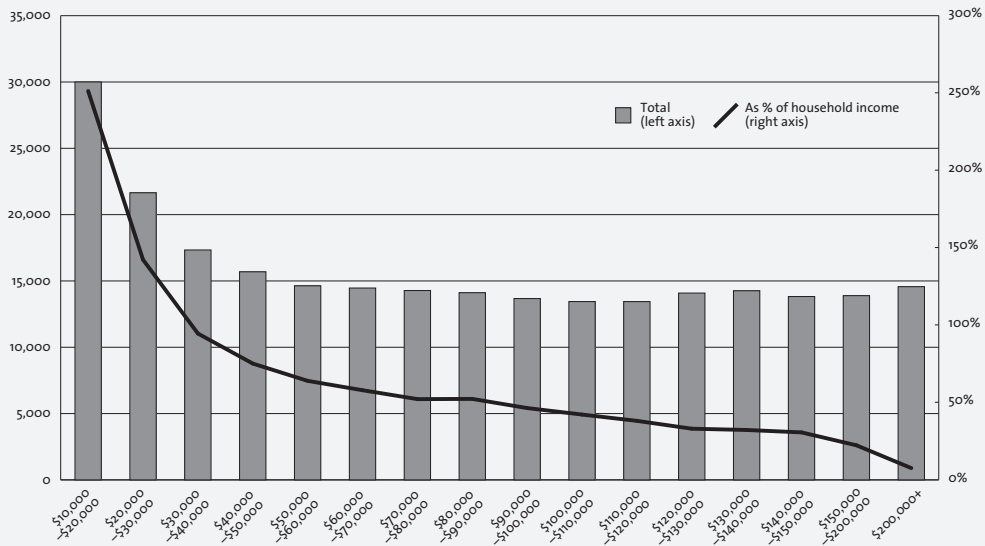
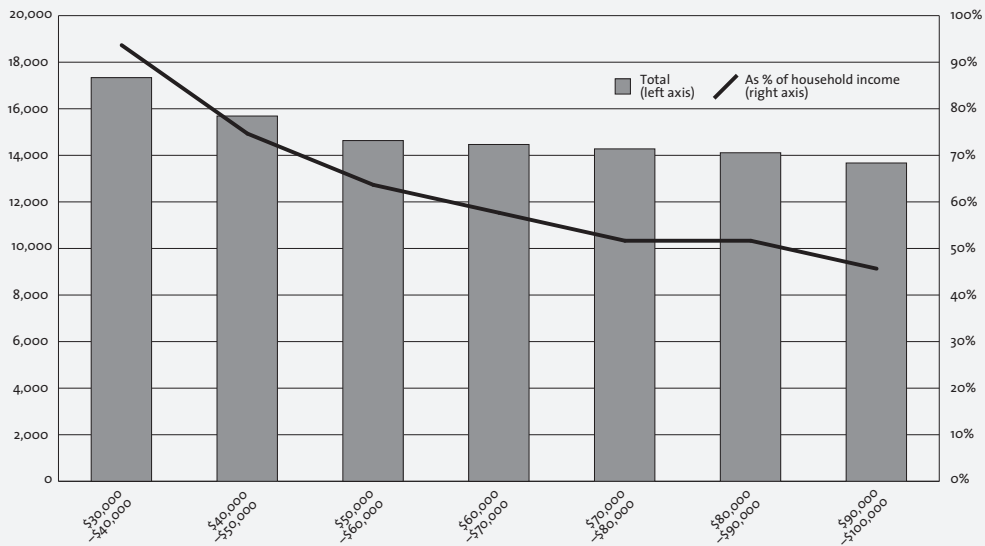


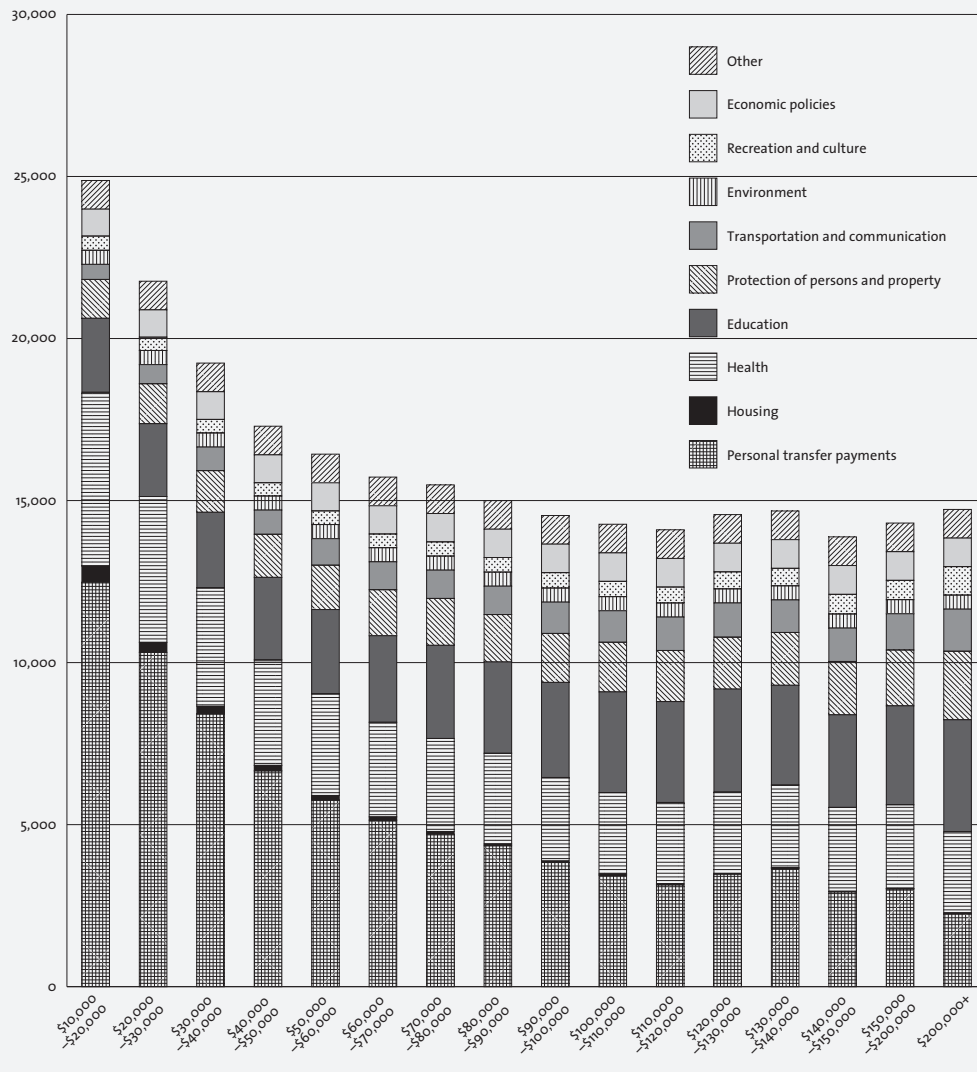
CHART 10 Benefit from public services and household income Canada, 2006,
\$ per capita and % of household income, middle 50% of population in households



In other words, an upper-middle income Canadian household would have to devote half a year's wages to pay for the public services their taxes provide.

The population-weighted median household (half of Canadians live in households with incomes below this level, half in households with incomes above this level) has an income of \$66,000 and derives a benefit of \$41,000 from public services — equivalent to more than 63% of its income. With an average household size of 2.6 persons per household, the benefit per capita in the median household is \$15,724.

CHART 11 Major categories of public expenditure Total



More than two-thirds of Canadians live in households whose benefit from public services exceeds 50% of the household's private income.

Along with the variations in total benefits from public spending, the composition of benefit from public spending also varies across income ranges.

Chart 11 shows graphically the composition of benefits from public services as it varies from income group to income group. This chart breaks down the benefit from public services per capita in household income ranges into broad categories of public benefit.

Personal transfer payments and health care are relatively more important as sources of benefit from public spending in lower-income ranges than in higher household income ranges, although that effect is partially offset by the greater relative importance of education in public services benefit as income increases. This chart underlines the fact that, for spending in areas other than personal transfer payments, per

TABLE A **Average and Distribution of Benefit from Public Services by Family Type**

	% of Population	Per capita benefit	Education	Health	Transfers	Other
Total	100%	16,527	16%	19%	21%	44%
Couples with only older Kids	11%	14,758	17%	23%	7%	53%
Families with Kids	41%	13,332	29%	15%	13%	43%
Lone Parents with Kids	6%	20,416	28%	12%	24%	37%
Non-Senior Couple: no Kids	15%	15,407	8%	25%	10%	57%
Other	2%	16,740	17%	17%	28%	38%
Senior Couple	12%	21,199	1%	21%	43%	34%
Single Senior	4%	25,386	0%	22%	50%	28%
Single non-seniors	10%	21,929	10%	24%	9%	57%

capita benefit from public services is relatively evenly distributed across household income ranges.

PUBLIC SPENDING CATEGORIES AND FAMILY TYPES

As one might expect, the value and composition of benefit from public services varies across public spending categories and family types.

For example, seniors derive significant benefit from personal transfer payments like Old Age Security, the Guaranteed Income Supplement and the Canada/Quebec Pension Plans. As they age further, they realize increasing benefits from the health care system.

Families with young children will tend to benefit relatively more from the health care system, whereas families with older children will tend to benefit from the public education system to a greater extent than other types of families.

Overall, the average per capita benefit from public services in Canada in 2006 came to \$16,952. Approximately 56% of that benefit is derived from expenditures on health and education and personal transfer payments.

Although the average benefit from public services falls within a relatively narrow range, the source of that benefit varies significantly depending on family type.

Not surprisingly, families with children derive a relatively high proportion of their benefit from public services from education, whereas seniors' public services benefit comes predominantly from transfer payments and health care.

Because single seniors tend to be older than senior couples, they derive greater benefit in both absolute and relative terms from health care than senior couples. Lone parents with children derive greater benefit from transfers than families with

children generally because lone parent households tend to be lower-income than two-parent households.

That the range of variation in the aggregate is relatively small indicates Canadians draw remarkably similar levels of benefit from public services in the aggregate over their lifetimes, although the specific types of public services that are the source of that benefit vary over their lifetime.

Implications of the analysis for the tax cut debate

RESULTS FROM THIS STUDY indicate that the movement for tax cuts in Canada has been the political equivalent of a bait-and-switch sales campaign. The populist rhetoric about the tax burden on the ordinary family has given way to actual tax policy changes that have overwhelmingly benefited only a very small proportion of the population — Canada’s richest taxpayers.

A recent comprehensive study of tax incidence in Canada conducted by Marc Lee of the Canadian Centre for Policy Alternatives makes it clear that, taken together, tax changes at all levels of government in Canada since the early-1990s have delivered virtually no benefit to most Canadians. They have delivered substantial benefits to those Canadians at the top of the income scale. And they have transformed a mildly progressive tax system into a regressive one. Thanks to the tax cuts of the 1990s, the tax system is now no longer alleviating relative market income inequality in Canada — it is exacerbating inequality.⁴

A significant study from Statistics Canada that focused on income growth at the top end of the income scale in Canada between 1982 and 1992 and between 1992 and 2004 adds considerable detail to the picture. It finds that the income distribution was relatively stable between 1982 and 1992 but that income inequality exploded between 1992 and 2004. It shows that gains in individual real incomes since the early-1990s have gone entirely to Canadians in the top 10% of the income scale and that the resulting increase in the share of total income going to the richest 10% of Canadians has in fact gone predominantly to the richest 1% of Canadians.⁵

Looking at income taxes and CPP premiums, the Statistics Canada study found that while effective tax rates for most Canadians had been relatively stable between 1992 and 2004, effective tax rates on Canadians at the very top of the income scale had come down dramatically.⁶ Effective tax rates dropped by three percentage points for the richest 1%; five percentage points for the richest 0.1%; and eleven percentage points for the richest 0.01%.

To look at it another way, roughly 70% of the gains of the richest 10% of tax filers went to the richest 5%; more than 70% of the gain made by the richest 5% went to the richest 1%; nearly 65% of the gains of the richest 1% went to the richest 0.1%; and 80% of the gains of the richest 0.1% went to the top 0.01%.

More than 25% of the tax savings realized by the richest 10% of Canadian tax filers actually went to the richest 1/100 of 1% of tax filers.

Arguments for tax cuts avoid like the plague any reference to their implications for public spending. With good reason. In the real world, budgets have to be balanced and a dollar less revenue means a dollar less to pay for public services. The key question is: with a tax cut balanced off against the corresponding reduction in funding available for public services, who wins and who loses?

For the two main sources of revenue raised from individuals, sales taxes and personal income taxes, the data demonstrate that, regardless of the form of the tax cut or the category of public spending offset against it, the majority of Canadians lose when these broad-based taxes are cut.

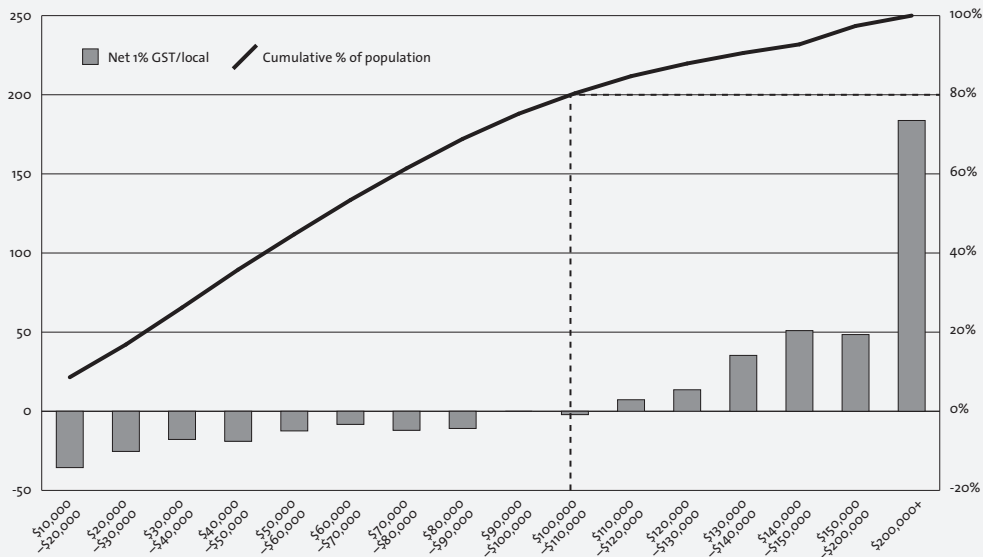
To illustrate the point, we look at three political trade-off decisions between tax cuts and public spending made in the past 10 years: the decision of the federal government to cut the GST rather than transfer the equivalent revenue to support program spending by local governments; the decision by all provincial governments to cut personal income taxes and make up for the lost revenue by cutting back on their major spending areas in health care and education; and the decision of the federal government to reduce the inclusion rate for capital gains taxation from 75% of the gain to 50%.

There has been an ongoing public discussion for several years concerning the idea of transferring a point of the GST to local governments to ease their collective financial difficulties. That question surfaced most recently in the debate following the federal mini-budget of October 2007. Municipal leaders argued that if the federal government didn't need the revenue it should transfer the revenue to the level of government that has the most pressing need. The Harper government decided instead simply to cut the GST by 1%.

Chart 12 shows the net impact of a cut in the GST rate by 1% offset against a reduction in spending on public services by local governments across Canada. It shows the per capita net impact of this trade-off, by household income class.

The 1% cut in the GST reduced revenue by a total of \$5.7 billion. The alternative in this comparison is to transfer that amount to local governments for spending on local government services generally.

CHART 12 80% of Canadians lose when the GST is cut by 1% vs. transferring the revenue to local governments



A trade-off of a GST cut against local government services leaves 80% of Canadians worse off. Households with incomes under \$110,000 would have been better off had the federal government not cut the GST and instead had transferred the money to local governments to support local services. For households with incomes between \$110,000 and \$200,000 the net gain never exceeds \$50 for a year. For households with incomes over \$200,000 the net gain averages \$200.

From the mid-1990s until the early-2000s, provincial governments across Canada introduced competitive personal income tax cuts, paid for largely by artificially constraining their spending on education and health. The effect of those spending constraints has been readily visible in the financial pressures on school boards across the country, in large and growing amounts of student debt and deteriorating standards of postsecondary education, and in the crisis in health care at the turn of the 21st century.

Chart 13 illustrates the net effect of this kind of political choice, looking at the net effect of a 1% cut in each personal income tax rate combined with an equivalent reduction in spending on health care and education.

Such a cut would have reduced personal income tax revenue across Canada in 2006 by \$7.2 billion.

75% of Canadians would lose as a result of a 1% income tax cut forcing an equivalent reduction or constraint on education and health services spending. Most of those who gain from the trade-off—households earning between \$90,000 and \$150,000—gain less than \$200 per person from the trade-off. The exception is households with incomes over \$200,000 which gain more than \$600 per person from the trade-off.

CHART 13 A 1% cut in each personal income tax rate offset by cuts in education and health services leaves 75% of Canadians worse off

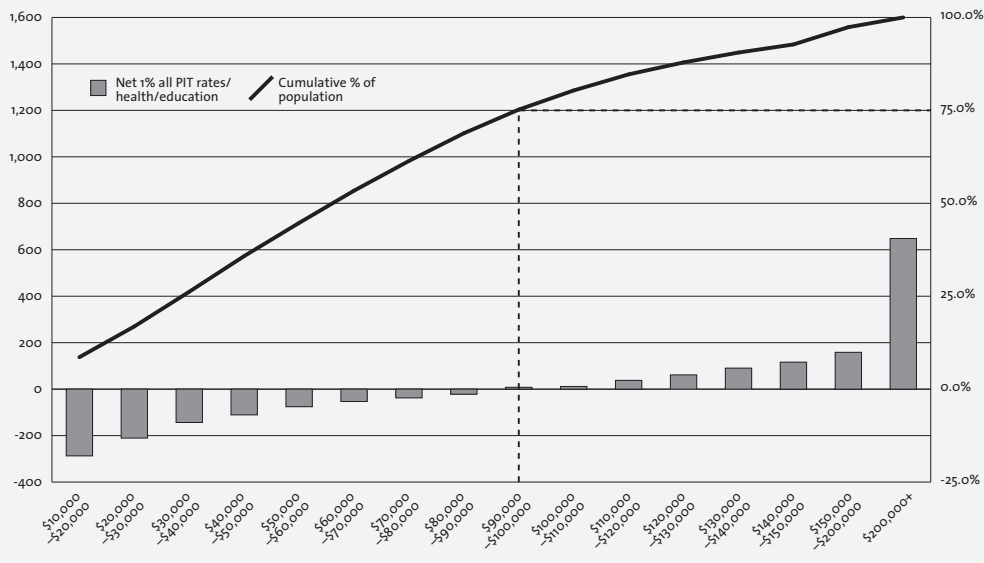
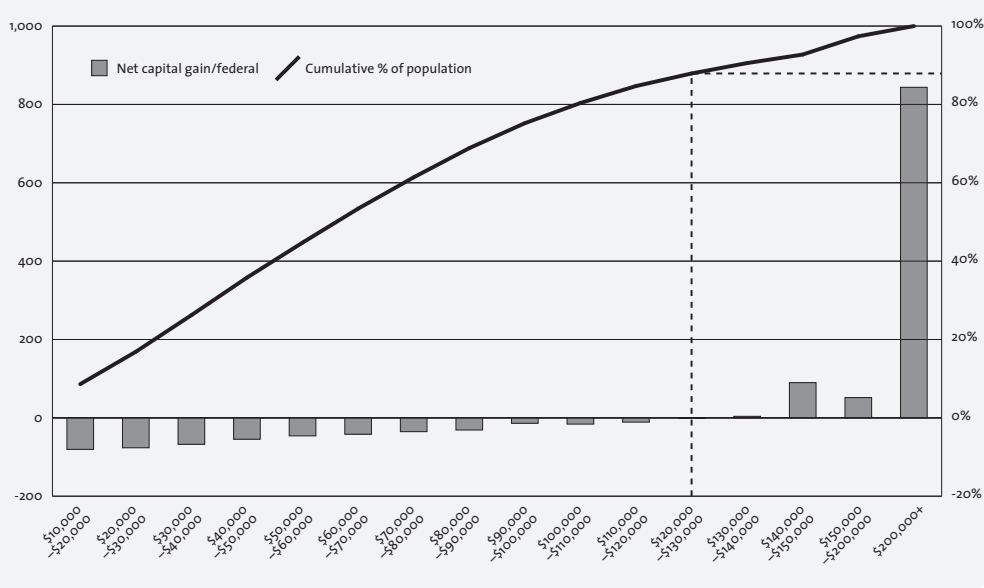


CHART 14 Reducing the capital gains inclusion rate from 75% to 50% and paying for it with reduced federal public services spending left 88% of Canadians worse off



In its first two budgets of the 21st century, the federal government introduced the most regressive change in the personal income tax system in Canadian history by reducing the rate of tax on capital gains. Instead of the pre-existing system, in which 75% of realized capital gains were required to be included as income, the government introduced a new regime under which only 50% of gains were included as income.

To illustrate the political choice involved, Chart 14 shows the net impact of a trade-off between federal government services and this one-third cut in the effective tax rate on capital gains.

The gain from the capital gains tax cut is so heavily concentrated at the top of the income scale that households with incomes of less than \$130,000 are net losers from the trade-off. Households with incomes between \$140,000 and \$200,000 gain less than \$100 per person in the household. The net gain for households with incomes over \$200,000 is nearly \$900 per household member.

Fully 88% of Canadians would have been better off if the government had left capital gains taxes where they were, at an inclusion rate of 75%, and allocated the revenue instead to public services.

Conclusion

THE RESULTS OF THIS STUDY demonstrate that what passes for public policy debate on tax cuts ignores a significant part of the story. For most Canadians, the benefit they receive from tax cuts is outweighed by a significant margin by their losses from accompanying cuts in public services.

Public services spending improve the quality of life for most Canadians and make Canada a more equal society.

Lower-income Canadians benefit more from transfer payments to people — such as Employment Insurance, social assistance, child benefits, and pensions .

Provincial and local spending has a powerful impact on middle-income Canadians, thanks to public services such as education and health, roads and sewer and water services.

Depending on the type of tax cut, 75% or more of Canadians are net losers when the gains from tax cuts are offset by reductions in public services.

What the findings of this study demonstrate is that public policy debate over taxes without reference to the public services impact of tax cuts is like shopping without looking at the price tags. Just as some Canadians can afford to shop without looking at price tags, some Canadians' incomes are high enough that they can buy into tax cuts and remain confident that their private gains will be greater than their public services losses. But the vast majority of Canadians can't or shouldn't shop without looking at the tags.

Methodological notes

CONCEPTUAL ISSUES

Valuing public services—benefit vs. cost

With limited exceptions, public services are not exchanged in markets. As a result, they cannot be valued at market prices the way privately-produced goods are. Furthermore, most public services are public goods, in that the benefits from the service cannot be isolated to an individual who purchases the good or service. That is obviously the case for services like public health, for which there is generally no individualized benefit. But even for services like universal elementary and secondary education, for which there is a market equivalent, substantial benefits flow to society as a whole as well as to the individual student and his or her family. Finally, just as is the case in the private sector, public spending is a mixture of spending on goods and services that are consumed immediately and investments in public infrastructure that deliver benefits over time. A bridge, for example, delivers benefits to its users over an extended period of time, but those benefits are not valued in any exchange market.

To avoid these conceptual issues, by convention when we measure our national economic output, we measure the value of public services at their cost. For current expenditures, that means that public services are valued at their cost of production. The output from public infrastructure appears in the national accounts as an allowance for depreciation.

By analogy with the private sector, the implicit assumption in the way we account for public services is that society receives no profit from its current production of public services and its public infrastructure investments generate a return that is sufficient only for capital replacement.

As a consequence, the national accounts conventions will inevitably result in an understatement of the value of public services relatively to market-traded private services.

Measuring public services expenditures

Public services in Canada are delivered by the Federal Government, thirteen provincial and territorial governments, hundreds of municipal governments and school boards as well as hospital and university boards and other quasi-governmental organizations. Although most of these organizations account for their expenditures in accordance with generally accepted accounting standards, the presentation of those accounts varies considerably from jurisdiction to jurisdiction and from organization to organization. As a result, comparing and aggregating spending data across Canada is an extremely complex undertaking.

Prior to 1989, the only reliable source of consistent information concerning public revenue and expenditures in Canada was through Statistics Canada's system of national accounts, which presented data on broad categories of revenue and expenditure as well as on intergovernmental transfers.

Beginning in 1989, Statistics Canada has published comprehensive government sector accounts by level of government at a level of detail that supports much more detailed analysis of government sector activities than was the case in the past.

The expenditure data which form the foundation for this study are drawn from the Statistics Canada series Government Finance, Revenue and Expenditures, *CAN-SIM* Tables 385-001 ff.

Allocating public spending by family type and household income

In this analysis, we consider the distribution of both the total expenditures of all levels of government and the expenditure activities of each level of government separately. In breaking down spending by level of government, we were interested in the direct spending activity of each level of government, not counting government-to-government transfers. Measuring each level of government's total spending separately and adding it up would overstate the total size of government because transfer payments would result in double-counting. It would also have the effect of distorting the shares of public services activity among the levels of government, since transfer payments actually represent expenditure activity by another level of government.

Because Statistics Canada reports public spending on a consolidated basis for all governments and for provincial and local governments combined, as well as for each level separately, it is relatively straightforward to isolate the direct spending activities of each level. Local spending is measured directly, because local transfers to other

TABLE B **Distribution of expenditures net of debt charges** 2006

	Total expenditure	Share	Expenditure net of intergovernmental transfers	Share
Federal Government (Incl. C/QPP)	232,115	38%	178,237	35%
Provincial Governments	268,359	44%	219,567	44%
Local Governments	106,467	18%	106,467	21%
Total	606,941		504,270	

levels of government are essentially non-existent. Provincial direct spending activity is isolated by subtracting local expenditures from the consolidated provincial/local expenditure data. This has the effect of eliminating provincial/local transfer payments from the provincial spending totals, thereby isolating provincial direct spending. Federal direct spending activity (excluding, for the purposes of this analysis, C/QPP benefits) is isolated by subtracting consolidated provincial/local spending from all-government consolidated spending. Again, this has the effect of removing Federal transfers to other governments from the totals.

Because Federal Government transfer payments to provinces are offset in large part by provincial transfer payments to local governments, the effect of this adjustment is to shift measured spending from the Federal government to local governments. In other words, on this measure, local governments gain in relative size at the expense of the Federal government.

Table B shows the data for 2006, the spending year on which the analysis is based.

WHO BENEFITS — ESTIMATING THE ALLOCATION OF BENEFITS FROM PUBLIC SERVICES TO CANADIANS

Based on Statistics Canada's internally consistent and externally comparable detailed data on government expenditures, the core analytical task of the study is to estimate how the benefit (measured at cost) from public services is distributed among Canadians.

Specifically, we estimate the value of public services to census families, broken down by family income.

In general, public services in Canada may be divided into three broad categories for the purposes of this study.

For some government services, benefits can be allocated directly to families in various categories, based on family characteristics. Most cash income transfers fall into this category. For example, benefits like the Child Tax Benefit, Old Age Security Benefits and social assistance benefits can be allocated directly to families by income class using readily available statistical series.

Expenditures which can be allocated directly using readily available statistical series account for 20% of total consolidated government expenditures in Canada.

For a second category of service, benefit allocations can be reliably estimated based on relatively straightforward assumptions about the relationship between benefit from the service and family characteristics. For example, we can allocate the benefit from public expenditures on hospitals based on data for hospital visits by census families. Expenditures on roads can be allocated based on expenditures on motor vehicle fuels. Expenditures on elementary and secondary education can be allocated based on the number of children in a family of school age. For the expenditure categories selected for detailed presentation in this paper, the basis for the allocation and the data series used to calculate the allocation are presented in detail. A comprehensive listing of services, allocation bases and statistical series used is presented in Appendix 2.

Expenditures allocated based on estimated incidence account for 46% of total consolidated government expenditures.

A third category of services delivers benefits that are of general benefit to society to the point that it is impossible, conceptually, to identify a consistent basis for their allocation among different family types. National defence, external affairs and international development assistance are examples of expenditures in this category. We all benefit as a society from Canada's expenditures on national defence or international diplomacy. However, it is not possible, using any of the available objective data sources, to estimate in any straightforward way how those benefits might vary systematically by family type. Expenditures in this category are allocated among families on a per-capita basis.

Expenditures defined as of general benefit to society and allocated on a per-capita basis account for 18% of total consolidated government expenditures.

Because public debt interest reflects prior years' revenue and expenditure decisions, the value of public debt interest would be distributed based on the distribution of non-public-debt expenditures. As a result, its impact on relative shares would be neutral. Because they reflect prior years' expenditures, public debt charges are excluded from the analysis.

Distribution variables used

Expenditure category	Distributive Series	Source
Federal		
Total expenditures		
General government services	Population	SLID
Protection of persons and property	Population	SLID
Transportation and communication	Exp:Motor Fuels and Lubricants	SPSD
Health		
Hospital care	Hospital Visits	CCHS
Medical care	MD Visits	CCHS
Preventive care	Population	SLID
Other health services	Population	SLID
Social services		
Social assistance	Social Assistance Income	SLID
Workers' compensation benefits	Weeks Employed	SLID
Employee pension plan benefits and changes in equity	Public Sector Employees	SLID
Veterans' benefits	Seniors (65+)	SLID
Other social services	Total Transfers (SLID)	SLID
Motor vehicle accident compensation	Exp:Motor Vehicle Repairs	SPSD
Education		
Elementary and secondary education	Children 0–17	SLID
Postsecondary education	Full Time Students	SLID
Special retraining services	Employed Population	SLID
Other education	Employed Population	SLID
Resource conservation and industrial development	Population	SLID
Environment	Population	SLID
Recreation and culture	Population	SLID
Labour, employment and immigration	Employed Population	SLID
Housing	Renters	SLID
Foreign affairs and international assistance	Population	SLID

Expenditure category	Distributive Series	Source
Regional planning and development	Homeowners	SLID
Research establishments	Population	SLID
Other expenditures	Population	SLID
Family and youth allowances	Child Tax Benefit Income	SLID
Child tax benefit or credit	Child Tax Benefit Income	SLID
Pensions—First and Second World Wars	Seniors (65+)	SLID
War veterans' allowances	Seniors (65+)	SLID
Grants to aboriginal persons and organizations	Child Tax Benefit Income	SLID
Goods and services tax credit	Child Tax Benefit Income	SLID
Employment insurance benefits	UIC Income	SLID
Old Age Security Fund payments	OAS/GIS Income	SLID
Scholarships and research grants	Youth Aged 18–24	SLID
Miscellaneous and other transfers	Child Tax Benefit Income	SLID
Canada Pension Plan	CPP/QPP Income	SLID
Quebec Pension Plan	CPP/QPP Income	SLID
Provincial		
Total expenditures		
General government services	Population	SLID
Protection of persons and property	Population	SLID
Transportation and communication	Exp:Motor Fuels and Lubricants	SPSD
Health		
Hospital care	Hospital Visits	CCHS
Medical care	MD Visits	CCHS
Preventive care	Population	SLID
Other health services	Population	SLID
Social services		
Social assistance	Social Assistance Income	SLID
Workers' compensation benefits	Weeks Employed	SLID
Employee pension plan benefits and changes in equity	Public Sector Employees	SLID
Other social services	Total Transfers (SLID)	SPSD
Motor vehicle accident compensation	Exp:Motor Vehicle Repairs	SPSD
Education		
Elementary and secondary education	Children 0–17	SLID
Postsecondary education	Full Time Students	SLID
Special retraining services	Employed Population	SLID
Other education	Employed Population	SLID
Resource conservation and industrial development	Population	SLID
Environment	Population	SLID
Recreation and culture	Population	SLID
Labour, employment and immigration	Employed Population	SLID
Housing	Renters	SLID
Regional planning and development	Homeowners	SLID
Research establishments	Population	SLID
Other expenditures	Population	SLID
Local		
Total expenditures excl. debt charges		
General government services	Population	SLID
Executive and legislative	Population	SLID
General administrative	Population	SLID
Other general government services	Population	SLID

Expenditure category	Distributive Series	Source
Protection of persons and property	Population	SLID
Courts of law	Income Tax (SLID)	SLID
Policing	EARNINGS	SLID
Firefighting	Exp:Gross Imputed Rent	SPSD
Regulatory measures	Population	SLID
Other protection of persons and property	Population	SLID
Transportation and communication	Exp:Motor Fuels and Lubricants	SPSD
Road transport	Exp:Motor Fuels and Lubricants	SPSD
Snow removal	Exp:Motor Fuels and Lubricants	SPSD
Parking	Exp:Motor Fuels and Lubricants	SPSD
Other road transport	Exp:Motor Fuels and Lubricants	SPSD
Public transit	Weeks Employed	SLID
Other transportation and communication	Exp:Communications	SPSD
Health		
Hospital care	Hospital Visits	CCHS
Medical care	MD Visits	CCHS
Preventive care	Population	SLID
Other health services	Population	SLID
Social services		
Social assistance	Social Assistance Income	SLID
Other social services	Total Transfers (SLID)	SLID
Education		
Elementary and secondary education	Children 0–17	SLID
Other education	Employed Population	SLID
Resource conservation and industrial development	Population	SLID
Environment	Population	SLID
Water purification and supply, sewage collection and disposal	Population	SLID
Water purification and supply	Population	SLID
Sewage collection and disposal	Population	SLID
Garbage, waste collection and disposal	Population	SLID
Other environmental services	Population	SLID
Recreation and culture	Population	SLID
Recreation	Exp:Recreational Services	SPSD
Culture	Exp:Educational and Cultural Services	SPSD
Other recreation and culture	Exp:Educational and Cultural Services	SPSD
Housing	Renters	SLID
Regional planning and development	Homeowners	SLID
Other expenditures	Population	SLID

SLID: Survey of Labour Income Dynamics, Statistics Canada

CCHS: Canadian Community Health Survey, Health Canada/Statistics Canada/
Canadian Institute for Health Information

SPSD/M: Social Policy Simulation Database and Model, Statistics Canada

APPENDIX 3

Results data tables

Household income ranges

	Total	Under \$10,000	\$10,000– \$20,000	\$20,000– \$30,000
Basic demographic and income data				
Population (,000)	30,511,827	624,306	1,999,858	2,522,282
Households (,000)	12,703,002	505,380	1,452,588	1,420,640
Average Household Income	67,472	5,598	15,617	24,900
Per Capita Income in Households	28,090	4,532	11,343	14,024
Public spending per capita in households				
Local	3,435	3,095	3,306	3,073
Provincial	7,196	12,176	11,782	9,233
Federal (incl. C/QPP)	6,320	4,207	9,788	9,461
Total	16,952	19,478	24,876	21,767
Composition of per capita benefit				
Health	3,245	5,125	5,364	4,500
Personal Transfer Payments / Social Services	5,906	5,903	12,484	10,316
Education	2,731	3,408	2,283	2,247
Environment	436	436	436	436
Transportation and communication	832	550	465	590
Housing	148	595	493	309
Labour, employment and immigration	82	60	49	59
General Government Services	645	645	645	645
Protection of persons and property	1,433	1,200	1,199	1,233
Recreation and culture	470	537	438	411
Regional planning and development	71	66	69	71
Research establishments	65	65	65	65
Resource conservation and industrial assistance	647	647	647	647
Foreign affairs and international assistance	183	183	183	183
Other expenditures	55	55	55	55
Total	16,952	19,478	24,876	21,767
Major categories of public expenditure, Total				
Personal Transfer Payments	5,906	5,903	12,484	10,316
Housing	148	595	493	309
Health	3,245	5,125	5,364	4,500
Education	2,731	3,408	2,283	2,247
Protection of Persons and Property	1,433	1,200	1,199	1,233
Transportation and Communication	832	550	465	590
Environment	436	436	436	436
Recreation and Culture	470	537	438	411
Economic Policies	866	839	830	842
Other	884	884	884	884

	\$30,000– \$40,000	\$40,000– \$50,000	\$50,000– \$60,000	\$60,000– \$70,000
Basic demographic and income data				
Population (,000)	2,849,515	2,925,727	2,723,702	2,645,980
Households (,000)	1,425,429	1,290,676	1,118,875	1,005,751
Average Household Income	35,021	44,895	54,873	64,864
Per Capita Income in Households	17,519	19,805	22,541	24,655
Public spending per capita in households				
Local	3,178	3,310	3,271	3,401
Provincial	7,557	6,824	6,617	6,386
Federal (incl. C/QPP)	8,507	7,161	6,544	5,938
Total	19,242	17,296	16,431	15,724
Composition of per capita benefit				
Health	3,651	3,257	3,134	2,919
Personal Transfer Payments / Social Services	8,421	6,659	5,762	5,138
Education	2,336	2,544	2,603	2,670
Environment	436	436	436	436
Transportation and communication	727	746	818	861
Housing	230	170	138	102
Labour, employment and immigration	68	75	81	86
General Government Services	645	645	645	645
Protection of persons and property	1,286	1,330	1,369	1,420
Recreation and culture	417	408	422	423
Regional planning and development	73	72	72	73
Research establishments	65	65	65	65
Resource conservation and industrial assistance	647	647	647	647
Foreign affairs and international assistance	183	183	183	183
Other expenditures	55	55	55	55
Total	19,242	17,296	16,431	15,724
Major categories of public expenditure, Total				
Personal Transfer Payments	8,421	6,659	5,762	5,138
Housing	230	170	138	102
Health	3,651	3,257	3,134	2,919
Education	2,336	2,544	2,603	2,670
Protection of Persons and Property	1,286	1,330	1,369	1,420
Transportation and Communicaton	727	746	818	861
Environment	436	436	436	436
Recreation and Culture	417	408	422	423
Economic Policies	854	860	866	871
Other	884	884	884	884

	\$70,000– \$80,000	\$80,000– \$90,000	\$90,000– \$100,000	\$100,000– \$110,000
Basic demographic and income data				
Population (,000)	2,440,351	2,273,265	1,942,508	1,571,817
Households (,000)	879,829	743,475	626,624	481,873
Average Household Income	74,831	84,669	94,833	104,695
Per Capita Income in Households	26,979	27,691	30,592	32,097
Public spending per capita in households				
Local	3,479	3,494	3,541	3,606
Provincial	6,395	6,233	6,101	6,059
Federal (incl. C/QPP)	5,610	5,271	4,897	4,604
Total	15,483	14,998	14,539	14,269
Composition of per capita benefit				
Health	2,870	2,799	2,575	2,509
Personal Transfer Payments / Social Services	4,708	4,348	3,837	3,442
Education	2,874	2,818	2,934	3,107
Environment	436	436	436	436
Transportation and communication	873	875	966	972
Housing	81	55	43	38
Labour, employment and immigration	89	90	95	97
General Government Services	645	645	645	645
Protection of persons and property	1,447	1,463	1,511	1,532
Recreation and culture	437	449	474	471
Regional planning and development	73	70	72	69
Research establishments	65	65	65	65
Resource conservation and industrial assistance	647	647	647	647
Foreign affairs and international assistance	183	183	183	183
Other expenditures	55	55	55	55
Total	15,483	14,998	14,539	14,269
Major categories of public expenditure, Total				
Personal Transfer Payments	4,708	4,348	3,837	3,442
Housing	81	55	43	38
Health	2,870	2,799	2,575	2,509
Education	2,874	2,818	2,934	3,107
Protection of Persons and Property	1,447	1,463	1,511	1,532
Transportation and Communicaton	873	875	966	972
Environment	436	436	436	436
Recreation and Culture	437	449	474	471
Economic Policies	874	873	879	878
Other	884	884	884	884

	\$110,000– \$120,000	\$120,000– \$130,000	\$130,000– \$140,000	\$140,000– \$150,000
Basic demographic and income data				
Population (,000)	1,320,109	980,720	810,354	663,602
Households (,000)	398,116	297,653	241,550	190,630
Average Household Income	114,827	124,829	134,963	144,788
Per Capita Income in Households	34,629	37,886	40,230	41,593
Public spending per capita in households				
Local	3,649	3,791	3,654	3,483
Provincial	6,091	6,217	6,352	6,314
Federal (incl. C/QPP)	4,359	4,558	4,672	4,081
Total	14,099	14,566	14,678	13,878
Composition of per capita benefit				
Health	2,512	2,513	2,549	2,587
Personal Transfer Payments / Social Services	3,141	3,473	3,652	2,925
Education	3,113	3,177	3,078	2,857
Environment	436	436	436	436
Transportation and communication	1,031	1,054	1,004	1,030
Housing	31	20	21	20
Labour, employment and immigration	100	97	102	108
General Government Services	645	645	645	645
Protection of persons and property	1,577	1,603	1,630	1,646
Recreation and culture	491	525	539	605
Regional planning and development	69	73	71	68
Research establishments	65	65	65	65
Resource conservation and industrial assistance	647	647	647	647
Foreign affairs and international assistance	183	183	183	183
Other expenditures	55	55	55	55
Total	14,099	14,566	14,678	13,878
Major categories of public expenditure, Total				
Personal Transfer Payments	3,141	3,473	3,652	2,925
Housing	31	20	21	20
Health	2,512	2,513	2,549	2,587
Education	3,113	3,177	3,078	2,857
Protection of Persons and Property	1,577	1,603	1,630	1,646
Transportation and Communicaton	1,031	1,054	1,004	1,030
Environment	436	436	436	436
Recreation and Culture	491	525	539	605
Economic Policies	882	882	885	889
Other	884	884	884	884

	\$150,000–\$200,000	\$200,000 +
Basic demographic and income data		
Population (,000)	1,417,940	799,788
Households (,000)	399,269	224,651
Average Household Income	169,904	387,568
Per Capita Income in Households	47,842	108,863
Public spending per capita in households		
Local	3,673	4,711
Provincial	6,402	6,345
Federal (incl. C/QPP)	4,233	3,669
Total	14,307	14,726
Composition of per capita benefit		
Health	2,585	2,505
Personal Transfer Payments / Social Services	3,013	2,263
Education	3,052	3,454
Environment	436	436
Transportation and communication	1,118	1,298
Housing	16	14
Labour, employment and immigration	104	100
General Government Services	645	645
Protection of persons and property	1,723	2,115
Recreation and culture	595	877
Regional planning and development	68	68
Research establishments	65	65
Resource conservation and industrial assistance	647	647
Foreign affairs and international assistance	183	183
Other expenditures	55	55
Total	14,307	14,726
Major categories of public expenditure, Total		
Personal Transfer Payments	3,013	2,263
Housing	16	14
Health	2,585	2,505
Education	3,052	3,454
Protection of Persons and Property	1,723	2,115
Transportation and Communication	1,118	1,298
Environment	436	436
Recreation and Culture	595	877
Economic Policies	884	880
Other	884	884

Notes

1 Statistics Canada generates data on each level of government separately, for all governments on a consolidated basis, and for provincial and local governments on a consolidated basis. Because of the importance of intergovernmental transfer payments in Canadian public finance, adding together the data for each level of government as reported separately would result in a substantial amount of double-counting of expenditures. For example, Federal Government transfer payments for health care would be counted twice: once as a Federal Government transfer payment expenditure; and again as a provincial government expenditure on health. For the purposes of this analysis, transfer payments are netted out of each level of government's expenditures to derive a measure of public services actually delivered by each level of government. Details of the methodology are presented in Appendix 1.

2 These characteristics tend to produce anomalous relationships between reported income and the data used to distribute public services spending across these categories of households. Households with very low incomes include students living away from home, households consuming from capital as well as households whose reported income is unusually low because of reported capital losses.

3 "Growing Unequal? Income Distribution and Poverty in OECD Countries", OECD, 2008

4 "Tax Incidence in Canada, 1990 to 2005", Marc Lee, Canadian Centre for Policy Alternatives, 2007

5 "High-income Canadians", Brian Murphy, Paul Roberts and Michael Wolfson in Perspectives on Labour and Income, Statistics Canada, September 2007. The study found that all of the share increase attributable to the top 10% of the income scale went to the top 5% (i.e. the bottom half of the top 10% simply kept pace with overall income growth); that 90% of the

share increase for the top 10% actually went to the top 1%; that 50% of the top 10%'s share increase went to the highest income 0.1%; and that 20% of the share increase that went to the top 10% actually went to the top 0.01% of tax filers.

6 The effective tax rate for the bottom 95% of the income distribution dropped by about one percentage point. The effective tax rate for the top 5% dropped by about three percentage points, but most of the gain was right at the top of the scale. The effective tax rate on the top 0.1% of tax filers dropped by about 5 percentage points; the effective tax rate on the top 0.01% dropped by 10 percentage points.