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111 Sparks Street, Suite 500
Ottawa, Ontario K1P 5B5
613-233-8891, Fax 613-233-8250
csls@csls.ca

CENTRE FOR THE STUDY OF LIVING STANDARDS

THE LEVY INSTITUTE MEASURE OF ECONOMIC WELL-BEING: ESTIMATES FOR CANADA, 1999 AND 2005

Benjamin Evans and Alexander Murray
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Abstract

This report presents estimates of the Levy Institute Measure of Economic Well-being (LIMEW) for a representative sample of Canadian households in 1999 and 2005. The results indicate that there was little change in the average Canadian household's total command over economic resources over the six years between 1999 and 2005. Although inequality in economic well-being increased slightly over the 1999-2005 period, the LIMEW was more equally distributed across Canadian households than more common income measures (such as annual earnings or after-tax income) in both 1999 and 2005. The median household's economic well-being was lower in Canada than in the United States in both years.

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The Levy Institute Measure of Economic Well-being: Estimates for Canada, 1999 and 2005[1]

I. Introduction

This report presents estimates of the Levy Institute Measure of Economic Well-being (LIMEW) for a representative sample of Canadian households in 1999 and 2005. The LIMEW is based on a 'command over resources' approach to well-being measurement, whereby a household's 'economic well-being' refers to its control over, or access to, goods and services.

In recent years, there has been an explosion of interest in the measurement of economic and social well-being. Recognizing that standard measures like per-capita GDP provide an incomplete picture of welfare in a society, researchers have developed a variety of alternative indexes designed to be more comprehensive in their coverage of the factors that affect well-being. Examples include the Human Development Index (HDI),[2] Canadian Index of Well-being (CIW),[3] the Genuine Progress Indicator (GPI),[4] and the Legatum Prosperity Index (LPI).[5]

During over a decade of involvement in this area of research, the Centre for the Study of Living Standards (CSLS) has developed its own Index of Economic Well-being (Osberg and Sharpe, 2009a; 2009b), and has participated in the construction of other indexes including the CIW (Sharpe and Arsenault, 2009). Our participation in the LIMEW project represents the continuation of a longstanding research program for the CSLS.

The LIMEW, developed by the Levy Institute of Bard College, is a comprehensive household-level measure of command over resources. It is constructed as follows. The first component is base income, which is the sum of wages, salaries, self-employment income, employment benefits, interpersonal transfers (e.g. child support), and pension income. Income from property (*e.g.* dividends and rent received) is not included. Adding transfers from the government yields total income, a measure of the household's total earnings and other non-wealth income.

Then all forms of taxes paid by households are subtracted: income taxes, property taxes, consumption taxes, and payroll taxes. This gives us a measure of after-tax income.

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[1] Benjamin Evans was a research assistant at the Centre for the Study of Living Standards (CSLS) and is currently employed at the Bank of Canada. Alexander Murray is an economist at the CSLS. This paper was written under the supervision of Andrew Sharpe of the CSLS. The authors would like to thank Thomas Masterson and Ajit Zacharias of the Levy Institute of Bard College for advice and assistance, and in particular, for carrying out the statistical matching of micro-datasets.

[2] See the HDI web site at http://hdr.undp.org/en.

[3] See the CIW web site at http://www.ciw.ca/en/Home.aspx.

[4] See the GPI web site at http://www.rprogress.org/index.htm.

[5] See the LPI web site at http://www.prosperity.com.

Next, household wealth is converted from a stock to a flow using an annuity method. After-tax income plus the annual flow of income from wealth is defined as comprehensive disposable income (CDI).

We then derive public consumption, which is the amount of government expenditure on goods and services that is received by the household. Then, CDI plus the amount of public consumption the household receives equals post-fiscal income (PFI).

Finally, the value of household production is evaluated using time-use data and a performance index. The sum of PFI and the value of household production is the LIMEW.

The Levy Institute has constructed LIMEW estimates for a representative sample of households in the United States for 1959, 1972, 1982, 1989, 2000, and 2004 (Wolff *et al.*, 2009). The Centre for the Study of Living Standards (CSLS) was commissioned to produce comparable estimates for Canada, and those estimates are presented in this report. The motivation for this project is twofold. First, the LIMEW provides a comprehensive measure of economic well-being at the household level. This can be used to analyze both the average level of well-being and its distribution within Canada, both at a point in time and over the 1999-2005 period.[6] Second, the comparability of the Canadian and US LIMEW estimates allows us to draw comparisons between Canada and the United States in terms of economic well-being. We will also be able to compare the LIMEW to other measures of economic welfare. For instance, the United States currently has both a higher GDP per capita and higher income per capita than Canada.[7] Does the United States also have a higher average household LIMEW than Canada? Has the growth of the LIMEW differed from that of per-household GDP?

The remainder of this report is structured as follows. Section II describes the sources of the data underlying the LIMEW and outlines the process by which several surveys were statistically matched to generate a synthetic microdata file. In Section III, we describe how the components of the LIMEW were estimated based on the synthetic microdata file. The empirical results are presented and discussed in Section IV. Section V summarizes and concludes.

[6] The CSLS planned to produce Canadian LIMEW estimates for 1992, but the necessary data on household wealth were not available. There was a 16-year gap between the last wealth supplement of the Survey of Consumer Finances (SCF) in 1983 and the introduction of the Survey of Financial Security (SFS) in 1999, which leaves us without a wealth survey within the vicinity of the early 1990s. We considered using the 1999 SFS for the wealth component in a LIMEW for 1992 and adjusting the wealth variables by either the rates of return or the aggregate levels of the National Balance Sheet Accounts for the household and non-profit sector. Both of these approaches were deemed inadequate as there were significant changes between 1992 and 1999 not only in the level of household wealth but also in its distribution.

[7] Ross and Murray (2010) provide per-capita estimates of eight different national income measures: gross domestic product, net domestic product, gross national product, net national product, gross domestic income, net domestic income, gross national income, and net national income. They show that the US values exceed the Canadian values for all eight measures in per-capita terms.

II. Data Sources and Statistical Matching

The LIMEW is a household-level measure and most of its components are based on microdata from surveys. The exception is the public consumption component, which is based on aggregate public expenditure data and distributed across households according to various criteria. This section describes how the data underlying the LIMEW were collected and prepared for use. As in the case of the United States, the microdata necessary to calculate the income, wealth, and household production components of the LIMEW are not found in any single survey. Thus multiple datasets had to be statistical matched by households or individuals.

A. Data Sources

Exhibit 1 outlines the data sources used in the construction of the Canadian LIMEW estimates. The microdata are drawn from Statistics Canada surveys. The primary sources for demographic information and income variables are the 1999 and 2005 iterations of the Survey of Labour and Income Dynamics (SLID). Data on household assets and debts are drawn from the Survey of Financial Security (SFS) for 1999 and 2005. The General Social Survey (GSS) focused on time use in 1992, 1998, and 2005; the 1998 and 2005 GSS will be our source for information on time spent on household production.

B. Statistical Matching

In both years for which we are estimating the LIMEW for Canada, the SLID is considered the base or 'recipient' database, while the SFS and GSS serve as 'donor' files that augment the recipient file. For each year, two matching processes must be completed: one to match the SLID to the SFS at the household level, and one to match the SLID to the GSS at the individual level.

The variables used to align the datasets are chosen for analytic and distributional importance. The variables across which we are most interested in drawing average LIMEW comparisons should be matched so our comparisons are accurate. For example, in the United States researchers are concerned about the relative well-being of races, so race is a key variable. If race were not carefully matched, it would be impossible to accurately compare the difference in the average LIMEW of races. Variables that will be used to distribute LIMEW components across households should be matched so that we do not misallocate LIMEW components across households.

The SLID public use microdata file (PUMF) is actually several files: a census family file, an economic family file, a person file for individuals 16 and older, and a key file for persons of all ages. We mainly used the person file and the key file as data

Exhibit 1: Construction of the LIMEW, Canada, 1999 and 2005

Line No.	Component	Source
1	Earnings	SLID
2	Fringe benefits	Unpublished Statistics Canada data
3	Money income other than earnings	SLID
4	Pension income	
5	Alimony	
6	'Other income'	
7	**Base Income = sum of lines 1-3**	
8	Government transfers	SLID data aligned with SNA aggregate
9	Taxes	
10	Federal income tax	SLID data aligned with SNA aggregates
11	Provincial income tax	
12	Payroll tax	SLID
13	Consumption tax	Statistics Canada Input-Output Commodity Tax Model
14	Property tax	Tax rates from SHS; home ownership from SLID
15	**After-tax Income = line 7 + 8 - 9**	
16	Income from wealth	
17	Annuity from nonhome wealth	Statistical matching of SLID and SFS
18	Imputed rent on housing	Statistical matching of SLID and SFS; aligned with SNA aggregate
19	**Comprehensive Disposable income (CDI) = line 15 + 16**	
20	Public consumption	SNA and others; see Section III
21	**Post Fiscal Income (PFI) = line 19 + 20**	
22	Household production	Statistical matching of SLID and GSS
23	**LIMEW = line 21 + 22**	

Notes:
SLID = Survey of Labour and Income Dynamics
SFS = Survey of Financial Security
SHS = Survey of Household Spending
SNA = System of National Accounts
GSS = General Social Survey

sources, but the economic family file was also used for statistical matching. Most variables of interest are coded at the individual level rather than the household level, but it is easy to generate household-level data by aggregating across individuals within households. Unlike the SLID, the SFS does not collect information on individuals. The 2005 SFS has variables containing characteristics of entire economic families, such as

size, number of earners, and total income, as well as key characteristics of the major income recipient, namely age, sex, and education level.[8]

i. Matching the SLID and the SFS

We analyzed the distribution of the variables in the SLID and SFS microdata files to assess the potential for statistical matching. The SFS purposely oversamples affluent families, so only the weighted distributions of variables are expected to have similar distributions to the SLID. Household size, number of earners, region, total income, home ownership status, household type, sex, age and the education level of the major income earner were all aligned for matching. A description of the process for alignment of those variables follows.

In the 2005 SLID household size is top-coded at seven people, but the SFS is top-coded at five. Thus, the SLID household size variable is truncated at five for the purposes of matching with the SFS, but is un-truncated when used to generate an equivalence scale (to adjust for household size). In a manner similar to the household size variable, the variable on the number of earners in a household is also top-coded at different levels for each survey. In the SLID the number of earners is top-coded at seven, but the number of earners is top-coded as three in the SFS. Thus, the number of earners variable in the SLID is truncated at three for the purpose of matching.

The public-use 2005 SFS suppresses the province of the household, only giving the region of the household. Therefore, we can only match on a regional basis rather than a provincial basis. The five regions are Quebec; Ontario; and British Columbia; the Atlantic region, composed of the provinces of Newfoundland and Labrador, Nova Scotia, New Brunswick, and Prince Edward Island; and the Prairie region, composed of the provinces of Manitoba, Saskatchewan and Alberta. Due to the lack of a provincial variable in the 2005 SFS, the region will be our primary geographic variable.[9]

The one proxy variable for wealth found in the SLID is homeownership, which can be matched with the homeownership variable in the SFS. Unfortunately, using both weighted and un-weighted statistics, the SFS understates homeownership relative to the SLID. The reason for this is unclear, but may be related to the exact wording of the questions or to sampling error. The most reliable estimate for homeownership is the census, which in 2006 was 68.5 per cent of economic families. The 2005 SLID estimated homeownership at 67.1 per cent, whereas the 2005 SFS estimated homeownership at only 61.9 per cent.

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[8] Note that 'household' and 'economic family' are not synonymous; a household may contain multiple economic families. The SFS is an economic family-level survey. It was matched to the SLID economic family file, and then data were aggregated across economic families within households.

[9] While it is still possible to analyze the difference in LIMEW between provinces in the same region, the differences may be understated do to a miss-matching of wealth. For example, since we will match on a regional rather than provincial basis, it is possible that the income file of an Albertan family will be matched with the wealth file of a Manitoban family. If Alberta and Manitoba have a different distribution of wealth with respect to income and other matching variables, then the comparison may understate the differences in economic well-being.

The families are matched by family type according to the following categories: unattached individual, couples living without children under 18, couples living with children under 18, lone parents, and other family types. The SLID contains a more detailed breakdown of family type; although this detailed variable does not exist in the SFS, it is possible to construct it using other variables containing information about the composition of the economic family. These family types are broken down into subtypes. Unattached individuals may be male or female, elderly or non-elderly. A couple can be elderly or non-elderly; it is classified as elderly if the major income earner is 65 years of age or older, and non-elderly otherwise. Elderly couples are classified either as without children or other relatives at home or as part of the 'other families' category.

Since the SLID does not classify one individual within a family as the head or the major income earner in the economic family file, we needed to use the person-level microdata file to identify the major income earner in order to match the SLID with the SFS. This was done by arranging the data by economic families. Within each family we found the individual with the greatest earnings, and in the case of a tie we designated the male as the head.

The characteristics of sex, age and education of the major income earner were checked for similar distributions in the SLID and SFS. The education of the head-of-household variable in the SFS is not as detailed as the one that can be constructed using individual- and family-level SLID data. Only four categories are given: less than high school, a high school diploma, non-university post-secondary certificate, and a university degree or certificate. Thus, the education categories in the SLID have to be aligned with those found in the SFS. When we reduced the number of education categories in the SLID they were found to have a similar distribution to those in the SFS.

ii. Matching the SLID and the GSS

The GSS has been used for its time use variables. The GSS only collects detailed information about time use (for one particular day) for the individual survey respondent, rather than for the time use patterns of the entire household or family. Thus, the GSS is matched to the person-level SLID file. The matched variables can then be aggregated to the household level. As a practical matter, this means that individuals from different households are statistically matched to be in the same SLID household, albeit households with similar characteristics.

The person-level SLID and the GSS are matched according to individual characteristics – educational attainment, total individual income, and age – as well as some non-individual characteristics that are also available in the GSS, such as family type, region of residence, and total household income.

To facilitate matching, the distribution of the variables in the 2005 GSS was compared with the person-level file from the 2005 SLID. Total income of the respondent, total income of the household, age, sex, and marital status of the respondent, region,

household size, home ownership, and education level and main activity of the respondent were all found to have similar distributions using person-level weighting.

C. Summary

The process for constructing the synthetic microdata file can be summarized as follows. The economic family SLID file is augmented by the person-level characteristics of families' major income earners, drawn from the SLID key file and person file. This augmented economic family file is then matched with the SFS file, giving families wealth characteristics. These are converted to household-level characteristics by aggregating across economic families within households.

The person-level SLID file is matched to the GSS file, giving those persons time use characteristics. These characteristics are then converted to household characteristics by aggregating across individuals within SLID households. Combining the two synthetic household-level files yields one synthetic microdata file of households with variables on income, wealth, and time use.

A final note: the 1999 SFS does not contain the gender decompositions of the head of the household, which is unfortunate because it reduces our analytic ability to measure distinctions between the economic well-being of men and women. This is because in the process of statistically matching the 1999 SLID and SFS datasets, we may attribute the wealth of male-headed SFS families to female-headed SLID families and vice-versa. (This is not an issue for 2005, since the 2005 SFS does indicate the sex of the major income earner.) Of course we will still be matching for other characteristics including income and home value, but considering the importance of gender differences in command over economic resources, it should be kept in mind that our estimates may understate them.

III. Estimating the LIMEW and Its Components

This section provides a detailed description of the process by which the components of the LIMEW are estimated using the synthetic microdata files and data from other sources.

A. Base Income

In the construction of the LIMEW, the first element is base income, defined as the sum of earnings, pensions, interpersonal transfers, and in-kind compensation from work, which includes employer contributions for health insurance. Earnings, pension income, and alimony are found in the SLID. However, in-kind compensation, or fringe benefits, are not included in the SLID. The 1999 and 2005 SLID questionnaire does ask its respondents if their employer offered them supplementary medical insurance, dental insurance, or life/disability insurance. However, these data are not included in the public use microdata files. Sharpe *et al.* (2008) used special request data from Statistics Canada on the value of supplementary labour income in the form of employers' contributions to

accident and sickness insurance plans, group term life insurance plans, administrative service contracts (non-insurance benefits (e.g. for health) that are paid by employers and administered by insurance companies), premiums to provincial health plans in Alberta and British Columbia, and non-profit health plans. These totaled 13,147 million in 1999 and 20,956 million in 2005 (in current dollars). We will use this data for the aggregate amount of supplementary income.

We attribute benefits to persons based on the size of their workplace and whether they are covered by a collective agreement. The probability of receiving fringe benefits is estimated by workplace size and collective agreement coverage status based on the Workplace and Employee Survey. Benefits are then assigned to SLID workers on the basis of these probabilities. Each worker assigned benefits receives the same value of benefits, and non-workers and those not assigned benefits receive zero benefits.

B. Government Transfers

Cash transfers from the government, such as Social Assistance, Old Age Security, Canada Pension Plan benefits, and Employment Insurance benefits, are identified in the SLID. However, we do not use these numbers directly. We obtain the aggregate value of government transfers to persons from CANSIM and allocate them across SLID individuals according to their shares of total transfer income as reported in the SLID. This ensures that the value of government transfers in our estimates is equal to the total from the national accounts.

Canada has no significant non-cash transfer programs like the Supplemental Nutrition Assistance Program (food stamps program) in the United States, so non-cash transfers are not a concern.

C. Taxes

When constructing the LIMEW, taxes have to be subtracted from base income. Income taxes and the employee portion of payroll taxes are provided in both years of the SLID, but property taxes and consumption taxes are more difficult to calculate. Payroll taxes in Canada take several forms, some of which are paid in part or in entirety by the employer. We ignore those that are paid entirely by the employer (such as workers compensation). Only the taxes actually paid by members of households need to be subtracted from base income. These taxes consist of three components: the employee proportion of employment insurance (EI); Canadian Pension Plan or Quebec Pension Plan (CPP/QPP) (the Canadian equivalent of Social Security); and public health insurance premiums. All three are found in the 1999 and 2005 SLID.

Information on property taxes is drawn from the Survey of Household Spending (SHS), since it is not available in the SLID or the SFS. Although property taxes are set by municipalities, public use microdata do not reveal the municipalities in which households are located. Because the value of the homes is not included in the SHS, we calculated the average property tax rate by region in 2005 by dividing the total amount paid in property

taxes by households (from the SHS) by the total value of properties (from the SFS) in each region. In 1999, the SFS has a province variable so we calculated average property tax rates the same way, but by province instead of region.

We define consumption taxes as total commodity taxes, both direct and indirect, at the federal and provincial levels. Federal commodity taxes include custom import duties, excise taxes and duties, and the Goods and Services Tax (GST). Provincial commodity taxes include liquor taxes, profits on liquor commissions, gasoline taxes, amusement taxes, tobacco taxes, and retail sales taxes.

Consumption taxes are not included in any of the surveys. In order to estimate consumption tax rates we requested Statistics Canada to calculate the proportion of income spent on consumption taxes by provinces and disposable income deciles. Statistics Canada calculated this by using the Input-Output Commodity Tax Model associated with their Social Policy Simulation Database and Model (SPSD/M), a microsimulation model used for policy analysis (Statistics Canada, 2009a). The commodity tax model calculates the amount households spend on commodity taxes by first calculating the effective tax rate for each tax type and then multiplying the effective tax rate by the amount spent on the category in the database (SPSD).

As noted above, our definition of consumption taxes includes both direct and indirect taxes. Direct taxes are paid during the final purchase of the good and services, whereas indirect taxes are paid at some point in the production process. The commodity tax model assumes all indirect taxes are fully passed on to the consumer.

Using these assumptions Statistics Canada calculated for us the average amount economic families spent on commodities taxes in 1999 and 2005, by disposable income (i.e. after income tax) decile and by province. We then divided these amounts by the average disposable income in by deciles and provinces to get the ratio of average tax spent over average income. Then for each household, we multiplied this ratio of average tax spent (in their province and income decile) over average income (in their province and income decile) by household disposable income to obtain the total consumption tax paid by the household.

D. Income from Wealth

The LIMEW includes two categories of income from wealth: home wealth and non-home wealth. Income from home wealth is the imputed annual rent on the household's primary residence. Income from non-home wealth is an annuity based on the household's holdings of wealth other than the primary residence. (It may include non-primary housing, if the household owns multiple homes.) We outline how these values are computed, beginning with non-home wealth.

i. Non-home Wealth

In the LIMEW, non-home wealth, which is a stock, is converted into a flow by calculating a lifetime annuity – the annual payment that would exhaust the value of the asset over the expected remaining lifetime of the asset owner. For a given asset, the lifetime annuity depends on three factors: the current value of the asset, the number of years over which the asset is to be wholly converted to income, and the expected annual rate of return on the asset over that time period. We address each of these in turn.

a. Assets and Debts

Financial and non-financial non-home wealth is divided into four categories of assets and one category of debts. The asset categories are real estate and business assets, liquid assets, financial assets, and pension assets. Real estate and business assets include all real estate other than the primary residence, as well as business equity and other non-financial assets such as the content of the primary residence and collectables. Non-antique vehicles are not included. Liquid assets include the value of savings accounts, chequing accounts, and term deposits, but exclude liquids assets which are part of registered retirement savings plans (RRSPs). Financial assets include mutual funds, other investment funds, income trusts, domestic and foreign stocks, domestic and foreign shares in companies, saving bonds and other types of bonds, and other types of financial investments. Financial assets that are part of RRSPs are not included.

Pension assets are the sum of registered pension plans, non-registered pensions, and other specialized retirement savings plans. The latter category includes RRSPs, which are analogous to Investment Retirement Accounts (IRAs) in the United States. At 71 or earlier, Canadians must withdraw all funds from their RRSP, convert it to an annuity or convert it to a Registered Retirement Income fund (RRIF). RRIFs are also included in pension assets. Non-registered pension plans include deferred profit sharing plans, executive and foreign pension plans, and annuities.

There are two primary categories of registered pensions: defined benefit and defined contribution. In defined benefit plans, employees pay in a certain amount of their pay into the scheme and the payout they receive after retirement is based on the average salary of a certain number of the last years they work multiplied by the number of years they work. It is not directly related to the amount they have paid in. Furthermore, as the payout is not based on the returns to investment, the employer bears all the risk. In defined contribution plans, the payouts in retirement are based on the value of payments and interest the payments have accrued. Thus the employee bears the risk. Because defined contribution plans have worth that can be exchanged in the market, they are fungible or marketable wealth. Defined benefit plans do not have the same quality and are thus excluded from the LIMEW definition of wealth. This may understate the level of economic well-being of Canadians relative to Americans. As of January 1, 2006, only 15.7 per cent of Canadians with employer pensions were covered by defined contribution plans (Statistics Canada, 2007). This is contrasted with the United States, where defined contribution plans are the norm. It is not possible to identify which households have

defined benefit plans and which have defined contributions plans in the SFS.[10] In order for our Canadian LIMEW estimates to be fully comparable to the US estimates, a US LIMEW must be calculated to include the value of defined benefit plans.

The debt category is 'other debts.' It includes all debts other than the mortgage on the primary residence.

The values of all assets and debts are taken directly from the SFS.

b. Number of Years

The annuity is computed based on the number of years that the household is expected to remain in existence. To estimate this, we take the maximum of the remaining life expectancies of the household's major income earner and his or her spouse (if a spouse exists). The expected number of remaining years of life for an individual is computed using Statistics Canada's life tables (or actuarial tables), which provide life expectancy estimates by age, sex, and province of residence.

c. Expected Rates of Return

The final factor needed to compute an annuity is the expected real annual rate of return on the asset over the household's remaining lifetime. We estimate nominal rates of return by asset category, based on historical nominal rates. As in the US LIMEW, we base historical returns on average rates of return over the 1960-2009 period, although in some instances historical data on rates of return do not extend that far into the past. Using these nominal rates, real rates of return are calculated by the Fisher equation,

$$r = \frac{(1+r^n)}{(1+p)} - 1,$$

with r^n being the nominal rate of return and p being the compound annual inflation rate (CPI-based) in Canada over the 1960-2009 period. The nominal and real rates of return used are given in Appendix Table 7.

d. Calculating the Annuities

Once the asset values, number of years of remaining household life, and expected annual rates of return by asset- (or debt-) type are obtained, the annuities are estimated according to the following formula:

$$Yearly\ Payments = \frac{i \times Asset}{1 - (1+i)^{-\max(LifeExpHead, LifeExpSpouse)}}$$

[10] The SFS uses a complex procedure to estimate the combined value of defined benefit and defined contribution plans. The procedure is documented in Statistics Canada (2001).

Once the annuity for each class of assets and debts is calculated, the sum of the yearly payments received from assets minus the yearly payments due from debts is the yearly flow of income from non-home wealth.

ii. Home Wealth

The estimation of home wealth is more straightforward. It is the difference between imputed yearly rent on the primary residence and the lifetime annuity of the primary mortgage. The mortgage annuity is computed using the annuity formula described above. Rent is imputed by retrieving the aggregate amount of imputed rent on owner-occupied housing in Canada, available from CANSIM. Aggregate imputed rent is allocated across households according to their shares of the aggregate value of housing (based on the SFS data).

E. Public Consumption

Public consumption by households is the most complex component of the LIMEW. It is estimated in three stages. First, aggregate public consumption is estimated with a detailed breakdown by the function of the spending. Second, expenditures within each functional category are attributed in whole or in part to the household sector. Expenditures attributed to the non-household sector (that is, the business sector or the foreign sector) are not included in the LIMEW. In the final stage, the household sector's shares of government consumption in each functional category are distributed across households according to category-specific criteria. Each of these three stages is discussed below. We provide only the most important details here. More details can be found in Appendix 1.

i. Calculating Aggregate Government Consumption by Function

When we attempted to calculate public consumption by households for Canada using an approach similar to that used in the LIMEW of the United States, four main challenges were encountered:

1. The main dataset for government expenditure categorizes spending according to the financial management system (FMS), which does not contain the necessary detail in expenditure subcategories. Thus, either additional data sources or interpolation was required.
2. The presence of intergovernmental spending within government expenditure functions can lead to double counting if not corrected. The guiding principle used was government expenditure should only be counted at the final stage of purchases (of goods and services) by the government.
3. Transfer payments to individuals are also included within the government expenditure function. Because transfers to individuals are counted as income, they would be double-counted in the LIMEW if our public

expenditure functions included these as well. Therefore, government transfers to persons must be removed from government expenditure in order to determine public consumption.

4. The government expenditure in the FMS is calculated on a gross basis; that is, the government expenditure includes expenditure on items which are sold to the non-government sector. The SNA reports government expenditure on a net basis by reducing government expenditure by the amount of sales to other sectors. This must be accounted for in our estimates.

These difficulties would not exist if there were Canadian data comparable to the United States' NIPA Table 3.15.5, in which net government expenditure on consumption and capital is broken down by function. However, the data on Canadian government expenditure is either broken down by expenditure type (*e.g.* on goods on services, fixed capital formation, inventories, transfer payments), as in the case of the National Accounts data, or is described by function (*e.g.* on national defense, roads, education) as in the Financial Management Systems (FMS) data. The FMS data contains categories similar to those in the American NIPA tables, but does not distinguish between spending on goods and services and transfers to individuals, businesses, or other levels of government.

We use the FMS data as our primary source. The categories and subcategories of government expenditure from the FMS form the structure of our functional breakdown of government expenditure. It contains variables on categories of government expenditure for multiple levels of government: consolidated government, Federal-Province-Local, Provincial and Local, Provincial, and Canadian Pension Plan/Quebec Pension Plan. However, the data on provincial and local government expenditure was insufficiently detailed for our purposes. It was augmented with additional data for expenditure on policing, firefighting, and transportation from other series in CANSIM (see Appendix 1).

There exist significant transfers of funds between the different levels of government within Canada. Merely removing the spending category of general inter-governmental transfers would be insufficient because many federal government programs include transfers to lower levels of government, so the presences of these specific-use transfers means double counting would still occur. This is evident by the fact that the sum of total federal expenditure and total provincial and local expenditure exceeds total consolidated government expenditure (by $52.1 billion in 2005, according to the FMS data.) By taking the difference between consolidated government expenditure and consolidated provincial and local we derived federal government expenditure minus transfers to provincial and local governments.

Another problem we needed to address was the existence of transfer payments to persons. Unfortunately, data on the amounts of transfer payments on a basis fully compatible with the government expenditure data (by function) are not available. The best we could do was use transfers to persons on a provincial economic accounts basis. Unfortunately, this creates an inconsistency as the provincial economic accounts are on a calendar year basis whereas the FMS are on a financial year basis (April 1 to March 31).

However, since three out of four quarters are the same it was assumed the level of transfers to persons was the same in the calendar year as in the fiscal year. It was assumed that transfer payments to persons fall entirely within the social services category of government spending.

Finally, the CANSIM data represent gross government expenditures. In order for our estimates to be consistent with the US estimates, we must subtract government sales of goods and services to generate *net* government expenditure data. Since CANSIM does not provide estimates of government sales by expenditure category, we allocate the aggregate sales across the expenditure categories on the basis of the categories' shares of government spending net of intergovernmental and personal transfers. In 2005, sales of goods and services amounted to 4.0 per cent of gross federal government expenditures (net of all transfers) and 12.5 per cent of gross provincial and local government expenditures (net of all transfers).[11]

After correcting these problems, we derived estimates for combined federal and CPP/QPP government expenditure on goods and services and combined provincial and local government expenditure on goods and services. Throughout the rest of the report, federal expenditure will refer to both federal expenditure and CPP/QPP expenditure on goods and services and provincial expenditure will refer to both provincial and local expenditure on goods and services. Appendix Tables 1 and 2 present the estimates of aggregate public consumption by expenditure category for 1999 and 2005.

ii. Allocating Government Consumption to the Household Sector

Not all government expenditure on goods and services directly benefits households. Some of the benefits of public consumption accrue to the business sector.[12] In order to isolate the spending that directly benefits households, government expenditure on goods and services is allocated to the household and non-household (*i.e.* business) sectors.

When deciding how to allocate public consumption, our main goal is consistency with previously established LIMEW estimates for the United States. Each category or subcategory was allocated using a method similar to that used in the equivalent category in the United States LIMEW as found in Appendix Table 3. The allocation method for the Canadian estimates is outlined in Appendix Table 4.

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[11] Government sales of goods and services include such things as water charges; rents on buildings; sales of used buildings, machines or equipment; airport landing fees; tolls on transportation infrastructure; tuitions; court fees; and fees for government documents (e.g. passports, all licenses other than licenses to operate vehicles or to hunt wildlife). Intergovernmental sales are in principle eliminated through data consolidation in the FMS (Statistics Canada, 2009b). Since we allocate aggregate government sales across spending categories before distributing net government expenditure between the household and non-household sectors, we implicitly assume that the distribution of government sales between the sectors is the same as that of government expenditures. This may be a problematic assumption, but it is unavoidable in the absence of direct information on the distribution of government sales.

[12] One might argue that public consumption in the business sector indirectly benefits the household sector because households own the businesses. However, these benefits – to the extent that they exist – should enter the LIMEW through increases household wealth. The inclusion of the public consumption that benefits the business sector would therefore double-count the indirect benefits to the household sector.

The most important expenditure categories are education, health, transportation and communication, and protection of persons and property. Government consumption in health and education are entirely allocated to the household sector (with the exception of a small proportion of health expenditures going to residential care facilities; see below). The allocation of expenditures in transportation and communication and protection of persons and property differs by subcategory. Appendix 1 provides further details on this, as well as on the allocation of the smaller expenditure categories.

iii. Distributing Government Consumption across Households

We are concerned with not only the level of the benefit of government expenditure to households, but also the distribution of these benefits among households. Thus, public expenditure needs to be distributed across households in the most detailed manner possible with available data. Once again, the CSLS used a procedure similar to that used for the United States LIMEW. We have not explicitly distributed federal government spending by provinces. Federal government spending was distributed within Canada, while provincial governments' spending was distributed within their respective provinces. This means that if an expenditure category is distributed by population, then the distribution of federal spending by provinces is on a per capita basis.

As noted above, education and health are the largest categories of public consumption. We address those two categories here. Look to Appendix 1 for a discussion of the distribution of the remaining spending categories.

Given, the dramatically different structures of the Canadian and American healthcare systems, the distributional effects of the Canadian national healthcare system are of great interest. However, measuring the distributional effect of Medicare is difficult. Work has been done to estimate the distribution of government spending on healthcare (Gillespie, 1980; Manga, 1978). Nevertheless, one well-documented healthcare cost pattern is the concentration of expenditures during late-life and end-of-life care.

Health Canada (2001) shows the distribution of government expenditure on healthcare by several expenditure categories and by age and sex. The report divides healthcare expenditure into seven categories: hospitals, other institutions, physicians, other professionals (mainly dentists), drugs, home care services, and other expenditures. We used the proportions of these seven categories in 2000-1 to allocated and distribute health care expenditures in both 1999 and 2005.

Expenditures on home care services are allocated on a per-person basis but only among those aged 65 and over. We allocated the share of healthcare expenditure spending on "other institutions" to the non-household sector because this represents healthcare spending on individuals in residential care facilities who are not covered in our microdata. We allocated "other expenditures" on a per capita basis on the assumption that they represent expenditures on public health. The remaining expenditure categories—hospitals, physicians, other professionals, and drugs—are combined into a single

expenditure category. These expenditures are allocated across households on the basis of the number, age and sex of household members, using the spending shares by age and sex from Health Canada (2001).[13]

There is a low proportion of a Canadians 5 to 18 not in public school. Those not enrolled in public school are either enrolled in private school, are being home schooled, or have dropped out. For distribution purposes we identified 5,506,812 and 5,491,466 children and adults in elementary and secondary school in 1999 and 2005 respectively in the SLID. (Those aged 5 to 15 are assumed to be in school and those aged 16 to 19 are considered in high school if they reported they were in high school during their reference year.) Administrative data suggests 5,372,733 and 5,212,533 in 1999/2000 respectively 2005/2006 (Statistics Canada, 2008b). Given the figures, we attributed public spending on elementary and secondary school to 97.6 (in 1999) and 94.9 (in 2005) per cent of families with school-aged children based on the number of school-aged children they have. (Children in the remaining households – selected stochastically – are assumed to be either in private school or not in school.)

Government expenditure on post-secondary education expenditure was allocated to economic families by the number of members who have attended a post-secondary institution within that year. Unlike the United States almost all universities within Canada are publically funded. The province of Quebec has its own system of community college-like institutions known as CEGEPs, which are meant to be a bridge between high school and university. They are almost entirely publically funded. There are also private colleges (vocational or technical) as well as public colleges (vocational or technical), but the datasets we use do not contain the variables necessarily to distinguish attendance at public or private college.[14]

F. Household Production

Economists have not reached a consensus about the correct method for valuing household production. Since it is individuals, not households, who spend time, household production is calculated first on an individual basis and then the value of the production from the individuals within the household is summed to produce the value of the production of the household.

[13] For example, Health Canada (2001) reports that males aged 45-54 received 5.3 per cent of total public health expenditures, while females aged 35-44 received 5.9 per cent. A household containing three individuals – two males aged 45-54 and one female aged 35-44 – would receive 100*(0.053*(2/x) + 0.059*(1/y)) per cent of health expenditures in this expenditure category, where x is the total population of males aged 45-54 and y is the total population of females aged 35-44.

[14] Another issue is that the permanent residence of an economic family may not be the same province as where a member is receiving an education. As per the Canadian constitution education is in provincial jurisdiction, and thus is funded provincially. So in reality provincial funding may go to a household permanently residing in another province. However, our data do not allow us to identify this, so there is some misallocation of the benefits of post-secondary funding. Anyone attending a post-secondary institution will be assumed to be receiving government funding (even if they are enrolled in a private college) and thus will be allocated government spending of the province in which their economic family resides (even if they are funded by another province). However the flows of students attending university out of province should largely net out.

The delineating factor in whether we ought to categorize an activity as household production is whether it can be replaced on the market. Some activities such as cooking and cleaning can obviously be substituted. These activities are known as "core household production." Another category of household production is procurement activities. This includes shopping for groceries and other shopping. These are included because they are necessary for the running of the household and can be substituted by use of professional shoppers. The third category is care, which includes both childcare and eldercare. There is some ambiguity in the availability of market replacement and the bounds of childcare. Developmental psychology has highlighted the importance of play in a child's proper development, as well as bonding between the child and his or her primary caregiver, but there are questions as to whether this can be bought on the market.

Researchers have proposed various ways to value household production. Specific replacement cost, general replacement cost, and replacement wage are the three main approaches found in the literature (Fraumeni, 2008). The specific replacement cost approach values the specific activities of household production by the cost that would be required to replace the work by hiring a worker who specializes in that activity. For example, childcare would be evaluated by the cost of hiring a babysitter or nanny, and household cooking would be evaluated by the cost of hiring a cook. Many believe that the use of market wages overstates the value of household production because the household producer is unlikely to be as productive in household production as a specialist worker would be.

Another approach is general replacement cost, which evaluates household production of all categories by the cost of hiring a "general worker" such as a domestic servant. Some believe this understates the value of household production because individuals with a high degree of human capital are more productive over many types of production, including household production.

The third approach is replacement cost. Replacement cost values household production using the implicit wage rate that the worker receives on the formal labour market. This has two problems. First, much of household production is done by those who do not participate in the formal labour market. Second, this ignores the fact that the wage received by individuals in the labour market is what they receive as specialists, and those supposing that people are equally productive in the home may overstate the value of household production.

The compromise used in the LIMEW is the modified general replacement cost approach (Wolff & Zacharias, 2009). As a base this uses the general replacement cost using the wages of domestic workers in Canada. However, because we realize the different productive capacity of workers, we modify the value of household work by the individual by a performance index. This performance index uses the weighted average of

normalized years of schooling[15], normalized household income, and the normalized time availability of the individual.[16] It is defined as:

$$p = 1 + \frac{\left(\frac{s-\mu_s}{\sigma_s}\right) + \left(\frac{y-\mu_y}{\sigma_y}\right) + \left(\frac{t-\mu_t}{\sigma_t}\right)}{3}$$

where *s* is the (estimated) years of schooling, *y* is household pre-tax income, and *t* is the time availability of the individual. μ_s, μ_y, and μ_t, are the mean of schooling, household income, and time availability, respectively. Similarly, σ_s, σ_y, and σ_t are the standard deviation of schooling, income, and time availability respectively. If any of the sub-indices are not calculable due to non-response, that sub-index is assumed to be zero.

The base household production wage rate is based on an estimate of the hourly wage of domestic employees (occupational group G811: visiting homemakers, housekeepers, and related occupations) from the 2006 census. In the 2006 census, average hours worked per week is 36 and average annual weeks worked is 42.5. So if we multiply these numbers together we get average of 1530 hours worked a year. Then we can divide the annual employment income of domestic employees, $17,944. This implies a wage rate of $11.73 per hour (in 2005 dollars). Similarly, the 2001 census reveals that domestic employees worked on average 41.8 weeks per year and 35 hours per week. Thus, they worked on average 1463 hours per year. They earned an average of $16,336 in employment income in 2000, which implies an hourly wage rate of $11.17 (in 2000 dollars).

These base wage rates are adjusted by the individual's performance index. However, regardless of how low the performance index for an individual is, there is a floor on the implicit wage of household production at the weighted (by share of labour force) average of provincial minimum wages, which was calculated to be $6.63 in 1999 and $7.42 in 2005 (current dollars).

IV. Results: The LIMEW in Canada

A. Mean Estimates of the LIMEW

i. Composition of the LIMEW

Exhibit 2 provides the mean LIMEW for 1999 and 2005, as well as a breakdown of the mean LIMEW into its components and subcomponents. The mean value of the LIMEW in Canada (in 2007 US dollars) was $88,317 in 2005, up 0.15 per cent per year from $87,532 in 1999. (Table 1)[17]

[15] Years of schooling is estimated from the categorical educational attainment variable.
[16] Time availability is calculated by subtracting paid work hours from the total available hours in a week. (Twenty-four hours a day minus eight hours of sleep a night; 168 – 56 = 112
[17] We express our estimates in 2007 US dollars in order to be consistent with the estimates for the United States presented in Wolff *et al.* (2009). Note that the estimates in Table 1 differ slightly from those presented in Exhibit 1 and

The LIMEW breakdown in Exhibit 2 illustrates the relative importance of each component in overall economic well-being. The largest component is household earnings. Mean household earnings were $42,564 in 2005 and accounted for nearly half the total LIMEW. The other subcomponents of base income are relatively small. Base income amounted to $49,168 in 2005, just over half the total LIMEW.

Exhibit 2: Composition of the Mean LIMEW for Canada, 1999 and 2005

Line No.	Component	Mean Value (2007 US Dollars)		Change, 1999-2005 (Per Cent per Year)
		1999	2005	
1	Household Earnings	39,798	42,564	1.13
2	Fringe benefits	1,101	1,389	3.95
3	Money income other than earnings	4,122	5,215	4.00
4	Pension income	3,127	3,929	3.88
5	Alimony	199	231	2.52
6	'Other income'	796	1,055	4.81
7	**Base Income = sum of lines 1-3**	45,021	49,168	1.48
8	Government transfers	8,875	9,033	0.29
9	Taxes	19,251	19,343	0.08
10	Federal income tax	6,913	6,792	-0.29
11	Provincial income tax	4,322	4,150	-0.67
12	Payroll tax	1,827	1,996	1.49
13	Consumption tax	4,995	5,174	0.59
14	Property tax	1,194	1,231	0.51
15	**After-tax Income = line 7 + 8 - 9**	34,645	38,858	1.93
16	Income from wealth	14,097	12,915	-1.45
17	Annuity from nonhome wealth	7,666	6,338	-3.12
18	Net imputed rent on housing	6,431	6,577	0.37
19	**Comprehensive Disposable Income = line 15 + 16**	48,742	51,773	1.01
20	Public consumption	9,787	10,508	1.19
21	**Post-Fiscal Income = line 19 + 20**	58,529	62,281	1.04
22	Household production	29,003	26,036	-1.78
23	**LIMEW = line 21 + 22**	87,532	88,317	0.15

discussed in the text. Because a few small components of the LIMEW are allocated across households according to a stochastic process (as described in Section III), each new set of estimates we generate differ slightly from the previous set. The estimates in Table 1 and those in Exhibit 2 were drawn from different sets of estimates, and this explains the inconsistencies between them. In the final version of this paper, the estimates in all tables and exhibits will be based on a single set of generated estimates and the small inconsistencies will therefore be eliminated.

Adding government transfers and subtracting all taxes yields after-tax income. Mean after-tax income was $38,858 in 2005, 21.0 per cent lower than mean base income. That the average household pays more in taxes than it receives in transfers from the government is unsurprising, since taxes also fund public consumption.

Total imputed income from wealth was $12,915 in 2005, about 15 per cent of mean LIMEW. Adding this to after-tax income yields comprehensive disposable income (CDI). At $51,773 in 2005, CDI was about 33 per cent higher than after-tax income.

The next component is public consumption, which amounted to $10,508 per household (or about 12 per cent of mean LIMEW) in 2005. Adding public consumption to CDI yields post-fiscal income (PFI), which fully incorporates the impact of the state on households' command over resources. PFI was $62,281 in 2005, 20 per cent larger than mean CDI and 60 per cent larger than mean after-tax income.

The final component is household production, which was valued at $26,036 per household in 2005. The LIMEW is the sum of PFI and household production. The mean LIMEW in 2005 was 42 per cent larger than PFI and 127 per cent larger than mean after-tax income.

The key message of Exhibit 2 is that the non-traditional elements of the LIMEW – income from wealth, public consumption, and household production – are extremely important elements of households' command over economic resources. If our analysis had stopped at after- tax income, we would have concluded that the average household commanded less than $40,000 per year and that the state reduced the economic well-being of the average household by about $10,000 per year (the difference between mean government transfers and mean taxes paid). The inclusion of the non-traditional elements of the LIMEW raises households' measured command over resources by 127 per cent relative to after-tax income, in part by incorporating all the benefits that households receive for their tax dollars in the form of public consumption.

The importance of the non-traditional LIMEW elements must be stressed because after-tax income and other simple money income measures are frequently used as indicators of economic well-being. The LIMEW suggests that such measures understate households' true economic well-being by more than 50 per cent.

ii. Trends in the LIMEW and Alternative Income Measures

As noted above, the mean LIMEW increased by 0.15 per cent per year over the 1999-2005 period. This was the smallest rate of growth among the major income measures reported in table 1 and Exhibit 2 (LIMEW, PFI, CDI, after-tax income, and base income).

Base income grew by 1.48 per cent per year over the period. After-tax income grew by 1.93 per cent per year, fastest among the income measures. The fast growth of

after-tax income relative to base income was driven by the faster growth in government transfers relative to taxes.

CDI grew by 1.01 per cent per year over the 1999-2005 period. CDI growth was dragged down by income from wealth, which declined by 1.45 per cent per year over the period (from $14,097 in 1999 to 12,915 in 2005). The growth rate of PFI was 1.04 per cent per year, essentially the same as that of CDI. This reflects the fact that the growth rate of public consumption (1.19 per cent per year) was not much higher than that of CDI.

The slow growth rate of the mean LIMEW relative to PFI over the 1999-2005 period reflects the significant decline in the value of household production. Household production fell 1.78 per cent per year, from $29,003 in 1999 to 26,036 in 2005.

iii. Equivalence Scale-Adjusted LIMEW

Table 1 also reports the LIMEW and the other income measures in equivalent income terms.[18] The use of equivalence scale-adjusted estimates does not affect our key conclusions, although the scale affects the magnitudes and the growth rates of the LIMEW and the other income measures. The fact that the growth rates of the equivalent income measures exceeded those of the unadjusted measures by about 0.3 per cent per year over the 1999-2005 period suggests that there have been substantial changes in the size or composition of Canadian households.

Table 10 provides the average values of the equivalence scale for five household types, along with the proportion of households that falls into each household type. The data show that between 1999 and 2005, there was a shift in the composition of households away from large households (i.e. those with multiple adults and at least one child under 18) and toward smaller households. The proportion of households with multiple adults and at least one child declined from 28.8 per cent in 1999 to 25.7 per cent in 2005. The proportion of single-parent households with children also fell, from 4.7 per cent in 1999 to 4.2 per cent in 2005. Over the same period, the proportion of households with multiple adults and no children increased from 41.0 per cent to 42.9 per cent, and the proportion of households consisting of a lone adult increased from 25.5 per cent to 27.1 per cent.

The household types with declining shares of the population of households are also the types with the largest average equivalence scale values. Since household income is divided by the equivalence scale to generate equivalent income, the shift in the composition of households (from large to small households) explains the faster growth rates of the equivalent income measures relative to their unadjusted counterparts.

These compositional shifts may reflect the aging of the population. As the ‘baby boom’ generation approaches retirement, the children of that generation are reaching maturity and moving out of their parents’ households. This could explain the compositional shift toward smaller household sizes.

[18] See Note 7 of Table 1 for a description of the equivalence scale used.

B. Comparison of Canada and the United States by LIMEW

Our Canadian LIMEW estimates were carefully constructed so as to be comparable to the US estimates provided by Wolff *et al.* (2009a). Although the estimates of Wolff *et al.* are for 2000 and 2004 rather than 1999 and 2005, the years are close enough for comparisons to be meaningful.

The median LIMEW for the United States was $82,227 in 2000 (in 2007 US dollars), 7.3 per cent higher than the Canadian median LIMEW of $76,610 in 1999 (Table 2). The US median LIMEW in 2004 was $85,521, 13.3 per cent higher than the Canadian median of $75,428 in 2005.

The United States outperformed Canada in terms of PFI and CDI as well. The US-Canada gaps for these two measures were larger in each year than the gap for the LIMEW. The median PFI in the United States exceeded that of Canada by 22.2 per cent in 1999/2000 and by 20.6 per cent in 2004/2005. For CDI, the US median exceeded the Canadian value by 26.5 per cent in 1999.2000 and by 25.4 per cent in 2004/2005. The sizes of these gaps relative to the LIMEW gap reflect the fact that household production forms a larger share of the total LIMEW in Canada (over 30 per cent in both years) than in the United States (about 21 per cent in both years). It is also clear that the increasing US advantage in economic well-being is due entirely to Canada's declining household production.

C. Composition of the LIMEW by Income Quintile

Table 3a shows the mean LIMEW by LIMEW quintile. The mean LIMEW declined in each of the bottom three quintiles between 1999 and 2005. The declines were 2.0 per cent, 2.8 per cent, and 1.0 per cent for the first, second, and third quintiles, respectively. Only the top quintile experienced substantial growth in its average LIMEW value over the six years, with growth of 2.7 per cent over the period.

Table 3a also provides a breakdown of the mean LIMEW into four components by LIMEW quintile. This allows us to study the relative importance of different 'sources of economic well-being' to people in different parts of the LIMEW distribution. The four components are base income, which includes all non-government, non-wealth income; income wealth, which includes the annualized value of both home and non-home wealth; net government expenditure, which consists of public consumption and government transfers net of taxes; and household production, which is self-explanatory.

Base income accounted for about half of the LIMEW for all five quintiles in both years, and its share increased between 1999 and 2005 in every quintile. Income from wealth forms a greater share of total LIMEW at the top of the distribution than at the bottom, ranging from about 10 per cent of the LIMEW in the bottom quintile to about 20 per cent in the top quintile.

Net government expenditure shows the opposite pattern. The government accounted for 20.0 per cent of the LIMEW for those in the bottom quintile in both 1999 and 2005, while those in the top quintile were net losers from government taxing and spending in both years. This suggests that the fiscal system is, on balance, progressive.

Household production is the second-largest component of the LIMEW after base income, and it contributes a larger share of total well-being at the top of the LIMEW distribution than at the bottom. This partly reflects the impact of the performance index, which assigns a higher value per hour of household work to households with well-educated members and high household incomes. In 2005, for example, the implicit wage rate for an hour of household production – the average market wage of domestic employees – is scaled down by 21.5 per cent for members of households in the bottom household income quintile, but scaled up by 40.5 per cent for households in the top household income quintile. Whether or not this built-in inequality in the value of household production is reasonable is an area for future research.

Table 3b provides the dollar values of each LIMEW component by income quintile. Base income increased between 1999 and 2005 in every quintile, while income from wealth and household production both declined over the period in every quintile. Net government expenditure increased (that is, became more favourable) in the top four quintiles, but decreased slightly for households at the bottom.

D. LIMEW Inequality

The most common measure of income inequality is the Gini coefficient. In 1999, the Gini for the LIMEW in Canada was 0.347 (Table 4). It increased by 3.17 per cent to 0.358 in 2005. This indicates that inequality in household command over resources increased slightly over the period.

Zacharias *et al.* (2009) find that the levels and trends of Gini coefficients for the United States are sensitive to the income measure used. Table 4 shows that the same is true for Canada, but only to a limited degree. Household earnings is by far the most unequally distributed of the six income measures in Canada, with Gini coefficients of 0.567 in 1999 and 0.566 in 2005. The levels of the Gini coefficients for the remaining five measures are relatively similar, ranging between 0.346 and 0.387 in 1999 and between 0.352 and 0.390 in 2005. The LIMEW showed the largest increase in inequality between 1999 and 2005, while earnings and after-tax income became marginally less unequal over the period.

Using equivalent income measures affects the magnitude of the Gini coefficients but not the direction of the trends. The Gini for equivalence scale adjusted LIMEW was 0.273 in 1999, and it increased by 3.30 per cent to 0.282 in 2005.

Economic well-being is more equally distributed in Canada than in the United States. According to Zacharias *et al.* (2009), the US Gini coefficients in 2004 were 0.47

for CDI, 0.44 for PFI, 0.41 for the LIMEW, and 0.40 for extended income (a measure similar to our after-tax income).

Another indicator of economic inequality is the 90/10 ratio; that is, the ratio of the 90th percentile to the 10th percentile.[19] Table 5 provides the 90th and 10th percentiles and the 90/10 ratios for the LIMEW and the five other income measures.

In 1999, the 90/10 ratio for the LIMEW in Canada was 5.85. This was the second-lowest 90/10 ratio among the six income measures; only PFI had a lower ratio, at 5.43. In particular, the 90/10 ratio for the LIMEW was below that of after-tax income (6.28).

In 2005, the 90/10 ratio for the LIMEW was 6.00, higher than the ratios for both PFI (5.36) and after-tax income (5.77). The 2.66 per cent increase in the LIMEW 90/10 ratio between 1999 and 2005 was the largest increase among the six income measures. Indeed, the ratios for after-tax income, CDI and PFI declined over the period (by 8.12, 3.74 and 1.41 per cent, respectively).

A third indicator of economic inequality is the share of aggregate income that accrues to each income quintile. Table 6 illustrates this breakdown for the six income measures in 1999 and 2005. All six measures exhibit substantial inequality, with each quintile of the distribution having a higher share of total income than the quintile below it. That being said, the more comprehensive measures (CDI, PFI and the LIMEW) are more equally distributed across households than the standard measures such as earnings and after-tax income. The top 20 per cent of households had over 50 per cent of aggregate earnings in both 1999 and 2005, while the bottom 20 per cent of households actually had negative aggregate earnings. In terms of the LIMEW, the top quintile had only about 41 per cent of income in both years, while the bottom quintile had about 6 per cent. The large difference between the distributions of earnings and total income suggests that government transfers play a large role in leveling the income distribution. The next largest difference is between CDI and PFI, which also emphasizes the role of the state (because PFI is equal to CDI plus public consumption).

The shares of the six income aggregates accruing to each quintile did not change significantly between 1999 and 2005.

E. LIMEW by Age, Education, and Region

An important use of the LIMEW is to analyze disparities between different groups in society. One of the key disparities analyzed by Wolff *et al.* (2009a) was the white/non-white gap. Although racial and ethnic gaps are of interest and concern in Canada, the data do not permit us to run a comparable analysis. However, we can examine other important disparities. In this section, we analyze intergroup LIMEW differences according to three criteria: the age of the household's major income earner, the educational attainment of the major income earner, and the geographic region in which the household is located.

[19] The 90th (10th) percentile is the value above (below) which only ten per cent of households lie.

i. LIMEW by the Age of the Major Income Earner

One important finding by Wolff *et al.* (2009) was the dramatic increase in the LIMEW of elderly Americans (defined as those aged 65 and over) relative to the non-elderly. They found that the ratio of mean LIMEW of elderly to non-elderly Americans increased from 0.61 in 1959 to a peak of 0.89 in 2000, then declined slightly to 0.86 in 2004. The ratio of median LIMEW of elderly over non-elderly tells a similar story; it increased from 0.79 in 1959 to a peak of 1.09 in 2000 (meaning the elderly were better off than the non-elderly), then fell back to 0.98 in 2004.

Tables 7a and 7b contain the mean and median estimates of the Canadian LIMEW and the other five income measures for 1999 and 2005 for six age categories (where a household is categorized based on the age of its major income earner). All six measures exhibit a similar pattern over the lifecycle. In both years, all six measures show average economic well-being rising throughout the first fifty years of life, peaking in the 45-54 age category, then declining thereafter. This is true whether we use means or medians as our estimates of average well-being.

We do not have a time series dating back as far as the one Wolff *et al.* created for the United States, so we cannot examine long-term trends in the relative well-being of different age groups. Over the six-year time span available to us, there was not much change in the ratio of average elderly to non-elderly well-being according to any of the six income measures. The mean LIMEW in 1999 was $76,006 among elderly households and $90,245 among non-elderly ones, for a ratio of 0.84. The mean LIMEW in 2005 was $76,830 among the elderly and $90,785 among the non-elderly, for a ratio of 0.85. If we use medians instead, the ratios are 0.81 for 1999 and 0.84 for 2005.

The story is very different if we use equivalent income measures. In 2005, the equivalence scale adjusted mean LIMEW was $56,585 for the elderly and $49,364 for the non-elderly, for a ratio of 1.15. The mean LIMEW in 2005 was $57,063 among the elderly and $50,623 among the non-elderly, for a ratio of 1.13. If we use median equivalent measures, the ratios are 1.11 for 1999 and 1.12 for 2005. These ratios imply that the elderly had higher mean and median levels of economic well-being than the non-elderly in both 1999 and 2005. Indeed, according to the mean and median equivalent LIMEW values, the elderly are the most well-off age group in Canada; none of the other groups reported in Tables 7a and 7b have higher equivalent mean or median LIMEW values than those aged 65 and above.

This is entirely due to the impacts of the ‘non-traditional’ elements of the LIMEW (wealth, public consumption and household production). Based on equivalent after-tax income, the elderly are worse off than every age group except the youngest (those under 35 years of age). This highlights the importance of using a comprehensive measure of command over resources.

ii. LIMEW by the Education of the Major Income Earner

Wolff *et al.* (2009) also analyzed the relative well-being of those with different levels of education. They found increasing relative well-being for college graduates and decreasing relative well-being for those with less than a high school diploma, high school graduates, and those who attended college but did not graduate.

Tables 8a and 8b present estimates of the mean and median values of the six income measures for four educational attainment categories in Canada: less than high school, high school diploma, non-university post-secondary certificate, and university certificate or degree. Households are categorized on the basis of the educational attainment of the major income earner. The data indicate that households with more well-educated major income earners tend to have greater average command over resources according to all six measures. This no doubt reflects the well-established fact that higher education leads to higher money income. In 1999, the mean LIMEW among university graduates in Canada was $113,043, while the average for high school non-completers was $78,843. In 2005, the LIMEW averaged $109,751 among university graduates and $74,785 among high school non-completers.

We find no evidence that the gap between the well-educated and the least educated Canadians in terms of economic well-being increased over the 1999-2005 period. The ratio of the mean LIMEW values of university graduates and high school non-completers was 1.5 in both 1999 and 2005. The ratio of the medians was also 1.5 in both years.

Using equivalence scale adjusted income measures does not alter the story. More well-educated households have higher equivalent LIMEW values than less well-educated ones, but the gap did not increase between 1999 and 2005.

Finally, it is worth noting that the comprehensive income measures (CDI, PFI and LIMEW) exhibit smaller gaps between education groups than the earnings and total income measures. The largest gaps are in earnings; the mean earnings of university graduate households exceeded those of high school non-completers by a factor of 3.1 in 1999 and 2.8 in 2005. As noted above, this reflects the skill premium in the labour market. Moving from earnings to total income reduces the gap substantially, which reflects the importance of government transfers in leveling economic well-being across groups.

iii. LIMEW by Region

A key issue in the Canadian context is the degree to which economic well-being varies by region. There are large differences across Canadian regions in terms of economic prowess. The resource-based economy in the Prairie region has boomed in recent years, while the Atlantic region has experienced longstanding economic challenges. It is worth asking how these factors influence economic well-being as measured by the LIMEW. We therefore estimate the mean and median values of the

LIMEW and the five other income measures for five regions: Atlantic Canada, Quebec, Ontario, the Prairies, and British Columbia. Tables 9a and 9b present the results.

Ontario ranked first among the regions in terms of mean LIMEW in both 1999 and 2005, with mean LIMEW values of $95,858 in 1999 and $97,039 in 2005. The Prairies ranked second in both years. Quebec had the lowest mean economic well-being in both years, with mean LIMEW scores of $78.801 in 1999 and $76,007 in 2005.

In terms of median LIMEW values, Ontario ranks first in both years with $84,051 in 1999 and $85,204 in 2005. Quebec had the lowest median LIMEW in 1999 (68,185), while the Atlantic region ranked last in 2005 ($65,198 – marginally lower than Quebec's $65,366).

British Columbia experienced the fastest mean LIMEW growth over the 1999-2005 period, at 0.97 per cent per year. The mean LIMEW declined over the period in Atlantic Canada (by 1.83 per cent per year) and Quebec (by 0.60 per cent per year). The decline in Atlantic Canada was mainly attributable to a large decline in income from wealth. While the region's mean after-tax income increased slightly over the period, its mean CDI (after-tax income plus income from wealth) fell 2.34 per cent per year from $47,022 in 1999 to $40,786 in 2005. No other region experienced a decline in mean CDI over the period.

Our main conclusions do not change if we use the equivalence scale adjusted data. Ontario ranks first among the regions in terms of mean and median economic well-being, while Quebec and Atlantic Canada rank last. Average well-being increased fastest in British Columbia over the 1999-2005 period, while it declined in Atlantic Canada and Quebec.

V. Conclusion

The Levy Institute Measure of Economic Well-being (LIMEW) is a comprehensive household-level measure of command over resources. It consists of several components: money income, including earnings, pensions, and interpersonal transfers; government transfers net of all taxes; imputed annual income from wealth, including owner-occupied housing and non-home assets; the value of government consumption expenditures undertaken on behalf of households; and the value of household production. The LIMEW is one of a number of measures of economic well-being that have been developed in recent years with the aim of expanding the scope of economic well-being beyond the conventional measures such as per-capita GDP.

Our purpose in this report was to produce and present estimates of the LIMEW and its components for a representative sample of Canadian households in the years 1999 and 2005. The estimates were based on several high quality surveys produced by Statistics Canada, augmented by data from other sources (mainly other data produced by Statistics Canada). Care was taken to ensure that the Canadian estimates would be, to the

furthest extent possible, comparable with the estimates produced by Wolff *et al.* (2009) for the United States in 2000 and 2004.

The results indicate that there was not much change in the average Canadian household's total command over economic resources over the six years between 1999 and 2005. The mean value of the LIMEW in Canada was $87,543 in 1999 (in 2007 US dollars) and $88,106 in 2005. Over the 1999-2005 period, the mean LIMEW increased by 0.11 per cent per year. The median values were $76,610 in 1999 and 75,482 in 2005; the decline over the 1999-2005 period was 0.25 per cent per year. Measures that fail to account for wealth, public consumption and household production overstate the growth of economic well-being over the period.

Inequality in household command over resources increased slightly over the 1999-2005 period. Nevertheless, in both 1999 and 2005 the total LIMEW was more equally distributed across Canadian households than more common income measures such as annual earnings or after-tax income.

The average household's command over economic resources was lower in Canada than in the United States in both 1999 and 2005. The median LIMEW for the United States was $82,227 in 2000 (in 2007 US dollars), 7.3 per cent higher than the Canadian median LIMEW of $76,610 in 1999 (Table 2). The US median LIMEW in 2004 was $85,521, 13.3 per cent higher than the Canadian median of $75,428 in 2005.

There are a number of avenues for future research building on our work. First, a longer Canadian LIMEW time series would be valuable. The fact that we have estimates only for 1999 and 2005 prevents us from using the LIMEW to analyze long-term trends in the economic well-being of Canadian households. Estimates for earlier years would be useful even if they were of markedly lower quality than the 1999 and 2005 estimates.

It would also be useful to compare the LIMEW to other comprehensive indicators of economic well-being. The Index of Economic Well-being (IEWB), developed by the CSLS, encompasses many of the same elements as the LIMEW but uses a very different methodology for aggregating across different factors that affect economic welfare. Interesting comparisons could be drawn between the LIMEW and the IEWB in both empirical and theoretical terms. In empirical terms, do the LIMEW and the IEWB produce the same rankings of countries or of regions within Canada? If not, why?

On theoretical grounds, the two indicators differ along a number of dimensions. The relative weights assigned to different domains of economic well-being are explicitly subjective in the IEWB, while the LIMEW (being a dollar-denominated indicator) assigns 'market-determined' weights to its components. What are the strengths and weaknesses of each approach and what impact does the difference have on the results? The IEWB incorporates several non-monetary factors that influence well-being (e.g. unemployment and economic insecurity). These important factors are not explicitly included in the LIMEW. On the other hand, the LIMEW is arguably more effective than the IEWB in approaching economic well-being from the perspective of individual

households. All these differences could have interesting implications for the measurement of economic well-being and could facilitate the improvement of both indicators.

Finally, there remains room for technical improvements in the LIMEW. If possible, defined benefit pension plans should be excluded from household wealth (in order for the Canadian estimates to be consistent with the US estimates). Better data for allocating some categories of public expenditure to the household sector and across households (e.g. public expenditure on air transportation) would be desirable. Finally, the approach to the valuation of household production warrants reconsideration. For the average household, the performance index scales up the value of an hour of household by about six per cent relative to the wage of a professional domestic worker. It is not obvious that this is sensible.

References

Applied Research Associates, Inc. (2007) *Estimation of Road Cost Allocation Between Light Vehicles and Heavy Vehicles in Canada.*

Chawla, R. K., & Wannell, T. (2003) "Property Taxes," *Perspectives on Labour and Income* , pp. 12-19.

Fraumeni, B. M. (2008) "Household Production Accounts for Canada, Mexico, and the United States: Methodological Issues, Results, and Recommendations," 30th General Conference of the International Association for Research in Income and Wealth, Portoroz, Slovenia.

Gillespie, W. I. (1980). *The Redistribution of Income in Canada.* Ottawa: Gage Publishing Limited.

Health Canada (2001) "Health Expenditures in Canada by Age and Sex: 1980-81 to 2000-01," August. http://www.hc-sc.gc.ca/hcs-sss/alt_formats/hpb-dgps/pdf/pubs/2001-exp-dep-1980/2001-exp-dep-1980-eng.pdf.

Kum, Hyunsub, and Thomas Masterson (2008) "Statistical Matching Using Propensity Scores: Theory and Application to the Levy Institute Measure of Economic Well-Being," Levy Institute of Bard College Working Paper No. 535, May. http://www.levyinstitute.org/pubs/wp_535.pdf.

Mackenzie, Hugh, and Richard Shillington (2009) "Canada's Quiet Bargain: The Benfits of Public Spending," Canadian Centre for Policy Alternatives, April. http://www.policyalternatives.ca/sites/default/files/uploads/publications/National_Office_Pubs/2009/Benefits_From_Public_Spending.pdf.

Manga, P. (1978). *The Income Distribution Effect of Medical Insurance in Ontario.* Toronto: Ontario Economic Council.

Osberg, Lars, and Andrew Sharpe (2009a) "New Estimates of the Index of Economic Well-being for Canada and the Provinces, 1981-2008," Centre for the Study of Living Standards Research Report 2009-10, December. http://www.csls.ca/reports/csls2009-10.pdf.

Osberg, Lars, and Andrew Sharpe (2009b) "New Estimates of the Index of Economic Well-being for Selected OECD Countries, 1980-2007," Centre for the Study of Living Standards Research Report 2009-11, December. http://www.csls.ca/reports/csls2009-11.pdf.

Sharpe, Andrew, Jean-Francois Arsenault and Peter Harrison (2008) "The Relationship between Labour Productivity and Real Wage Growth in Canada and OECD Countries,"

Centre for the Study of Living Standards Research Report 2008-8, December. http://www.csls.ca/reports/csls2008-8.pdf.

Sharpe, Andrew, and Jean-Francois Arsenault (2009) "Living Standards Domain of the Canadian Index of Well-being," Centre for the Study of Living Standards Research Report 2009-4, June. http://www.csls.ca/reports/csls2009-4.pdf.

Statistics Canada (1999) "A Comparison of the Results of the Survey of Labour and Income Dynamics (SLID) and the Survey of Consumer Finances (SCF) 1993-1997: Update," Catalogue No. 75F0002MIE-99007. http://www.statcan.gc.ca/pub/75f0002m/75f0002m1999007-eng.pdf.

Statistics Canada (2001) "Survey of Financial Security: Estimating the Value of Employer Pension Plan Benefits – A Discussion Paper," Catalogue No. 13F0026MIE-01002, February. http://www.statcan.gc.ca/pub/13f0026m/13f0026m2001002-eng.pdf.

Statistics Canada (2007) "Pension plans in Canada," *The Daily*, June 21.

Statistics Canada (2008a) "Workplace and Employee Survey Compendium," Catalogue No. 71-585-X. http://www.statcan.gc.ca/pub/71-585-x/71-585-x2008001-eng.pdf.

Statistics Canada (2008b) "Summary Public School Indicators for the Provinces and Territories, 1999/2000 to 2005/2006," Catalogue No. 81-595-M – No. 067. http://www.statcan.gc.ca/pub/81-595-m/81-595-m2008067-eng.pdf.

Statistics Canada (2009a) "SPSD/M: Product Overview," available at http://www.statcan.gc.ca/microsimulation/pdf/spsdm-bdmsps-overview-vuedensemble-eng.pdf.

Statistics Canada (2009b) "Financial Management System (FMS)," Catalogue No. 68F90023X. http://www.statcan.gc.ca/pub/68f0023x/68f0023x2006001-eng.pdf.

Transport Canada (2007a) "Transportation in Canada: An Overview – Addendum." http://www.tc.gc.ca/media/documents/policy/add2007-e.pdf.

Transport Canada (2007b) "Estimation of Road Cost Allocation between Light Vehicles and Heavy Vehicles in Canada."

U.S. Census Bureau (2001) "Experimental Poverty Measures: 1999," *Current Population Reports*, October. http://www.census.gov/prod/2001pubs/p60-216.pdf.

Veldhuis, Niels, and Michael Walker (2006) "Tax Facts 14," The Fraser Institute. http://www.fraserinstitute.org/commerce.web/product_files/TaxFacts14.pdf.

Wolff, Edward N. (1996) "International Comparisons of Wealth Inequality," *Review of Income and Wealth* Vol. 42, No. 4, pp. 433-451. http://roiw.org/1996/433.pdf.

Wolff, Edward N., Ajit Zacharias and Thomas Masterson (2009a) "Long-Term Trends in the Levy Institute Measure of Economic Well-being (LIMEW), United States, 1959-2004," The Levy Institute of Bard College, Working Paper No. 556, January. http://www.levyinstitute.org/pubs/wp_556.pdf.

Zacharias, Ajit, Edward N. Wolff and Thomas Masterson (2009) "New Estimates of Economic Inequality in America, 1959-2004," The Levy Institute of Bard College, April. http://www.levyinstitute.org/pubs/lmw_apr_09.pdf.

Appendix 1: A Detailed Outline of the Estimation of Public Consumption

Household public consumption is estimated in three stages. First, aggregate public consumption is estimated with a detailed breakdown by the function of the spending. Second, expenditures within each functional category are attributed in whole or in part to the household sector. Expenditures attributed to the non-household sector (that is, the business sector or the foreign sector) are not included in the LIMEW. In the final stage, the household sector's shares of government consumption in each functional category are distributed across households according to category-specific criteria. This appendix provides detail about how each of these stages was carried out.

A. Calculating Aggregate Government Consumption by Function

As noted in the main text, our main source of data on aggregate public expenditure by function is the FMS, accessed in CANSIM Tables 385-0001 and 385-0002. The breakdown of public expenditure by category and subcategory is in several cases insufficiently detailed for our purposes. We require a highly detailed breakdown because, in order to maximize the comparability of our Canadian estimates with the US LIMEW estimates, the distribution of expenditures between the household and non-household sectors and across households within the household sector must in some cases differ by subcategory. In cases in which we require a more detailed breakdown than that which the FMS data provide, we augmented the FMS data with data from other sources.

i. Additional Data Sources

As subcategories of spending on protection of persons and property are to be allocated differently between the household sector and non-household sector, a breakdown into subcategories was required. Unfortunately, the consolidated figures do not contain a breakdown of protection of persons and property into its subcategories. In the US LIMEW half of the expenditure on policing and firefighting was allocated to the household sector. Only federal expenditure on policing was reported in 385-0002. We retrieved the series CANSIM Table 254-0002, "Trends in police expenditures for Canada." We used this to augment our data on expenditure on police. Expenditure for firefighting is only recorded for local government expenditure in 385-0002, so we assumed that firefighting is paid for at a local level.

Insufficient detail is available in the key CANSIM tables about the breakdown of government expenditure on transportation. Therefore, this was supplemented with a provincial breakdown of transportation expenditures from Table G7 of *Transportation in Canada 2007*, available at http://www.tc.gc.ca/policy/anre/menu.htm.

In order to keep the Canadian LIMEW estimates consistent with the American estimates, the allocation of government expenditure on conservation and industry should differ by subcategory. But, provincial and local spending in 385-0001 is not given by subcategory, so the distribution across subcategories was assumed to be the same as that

for federal expenditure as found in 385-0002. Similarly, for the environment category the distribution between its subcategories was assumed to be the same as the federal government.

ii. Distribution of Expenditures across Subcategories by Assumption

In cases in which alternative data sources could not be found, we generated estimates of expenditures by subcategory by distributing total category expenditures across the subcategories.

This was done in the calculation of expenditures net of intergovernmental transfers. The calculation of federal expenditure minus transfers to lower levels of government (as described in the main text) was insufficiently detailed for our purposes. There exists a more detailed federal expenditure function in CANSIM Table 385-0002. Using this table we assumed the distribution between subcategories of federal government spending minus transfers was same as the distribution between subcategories of federal government spending including transfers.

B. Allocating Government Consumption to the Household Sector

As noted in the main text, the two largest expenditure categories – education and health – are allocated entirely to the household sector. This section addresses the allocation of the other spending categories between the household and non-household sectors.

When the data were available, provincial government expenditure was allocated separately by province. For example provincial government expenditure on agriculture was allocated by provinces by the share of net program benefits in that province which went to unincorporated farms. Federal government expenditure is allocated by the weighted average of allocation of provincial government expenditure (if it varies by province).

Consistent with the allocation of US government expenditure in Appendix Table 3, the government expenditure categories of general government, employment and immigration, and foreign affairs and international assistance were allocated to the non-household sector. The spending categories of labour and regional planning and development were allocated to the household sector, consistent with the allocation of general economic and labour affairs in the US LIMEW. Government expenditure on research is mostly transfers to institutions, so we allocated the spending category of research establishments to the non-household sector. Consistent with the US LIMEW, social services, recreation and culture, and housing are entirely allocated to the household sector. The undefined category of ‘other expenditures’ (not a category in the NIPA tables) was allocated to the non-household sector.

We allocated public expenditure in the ‘protection of persons and property’ category by subcategory. Consistent with LIMEW estimates in the United States, national

defence, law courts, and corrections and rehabilitation were allocated to the non-household sector, but both policing and firefighting were allocated half to the household sector and half to the non-household sector. Although there were no equivalent categories in the United States LIMEW, regulatory measures and other protection of persons were also allocated 50:50 because of the allocation of other similar subcategories of protection of persons and property.

Transportation and communication were allocated by subcategory. We have yet to locate appropriate data on passenger versus cargo air travel use, so for preliminary purposes government expenditure on air is allocated a third to the household sector. This is consistent with the US LIMEW. Public expenditure on roads was allocated, by province, by the estimated share of cost of roads that were created by passenger vehicles. This is estimated in Transport Canada (2007b).

Government expenditure on rail was allocated according to the fraction of rail car-kilometres which were passenger car-kilometres using CANSIM Tables 404-0014 & 404-0015. This was to keep the allocation consistent with the LIMEW for the US, which allocated according to share of passenger-car miles in total car-miles.

Consistent with the American LIMEW, government funding of water transportation is entirely allocated to the non-household sector and spending on transit is entirely allocated to the household sector. There are no categories of government spending in the American LIMEW equivalent to government expenditure on telecommunication and other transport communication, so we allocated both to the non-household sector.

Resource conservation and industrial development were allocated by subcategory. Trade and industry, tourism and promotion, other resource conservation and industrial development were allocated to the non-household sector. In the LIMEW of the United States, agriculture was allocated by share of family farms in total sales of farm product. However, because government funding may not be proportional to total sales, we allocated (by province) government expenditure on agriculture by the share of net program benefits which went to unincorporated farms (CANSIM Table 200-24 and 200-34). As in the United States, we allocated the categories of forestry and fish and game to the household sector. We allocated public expenditure on mining entirely to the non-household sector. In the US LIMEW, government expenditure on energy was allocated by share of household sector in total energy consumption (39 per cent in 1982). So, we allocated public expenditure on oil and gas and water power according to the share of household sector in energy consumption (22 per cent in Canada in 2005 (CANSIM Table 353-0032).

Public expenditure on the environment was allocated by subcategory. In the United States LIMEW, government funding of water supply facilities was allocated by domestic-use share of total deliveries from the public water supply. The spending category in Canada, water purification and supply, is allocated by household sector water usage (Water Intake in Canada, 2005, and Water Intake 1999).

In the US LIMEW, the government spending subcategory of pollution control and abatement was allocated by the average share of the household sector in the production of four categories of pollution: air pollution, CO_2 emissions, water pollution, and municipal solid wastes. Comparable figures do not exist in Canada for the household share of all those forms of pollution. So, we allocated government expenditure on pollution control by the household's sector's share of CO_2-equivalent emissions production (CANSIM Table 353-0034). The subcategory of other environmental services was allocated by residential share of waste disposal.

There are some categories of government expenditure which do not need to be allocated between sectors. Payments of debt consist of transfers to individuals, firms or governments and general transfer payments consist entirely of transfer payments to other levels of government. Thus these categories contain no government expenditure on goods and services.

C. Distributing Government Consumption across Households

Policing, firefighting, regulatory measures, other government expenditure on protection of persons and property, labour, fish and game, forestry, mining, and recreation and culture were assumed to be distributed on a per capita basis.

Government expenditure on pollution control, and other environment was distributed by income. Specifically, it is allocated by ecological footprint by income decile. We used estimates from *Size Matters: Canada's Ecological Footprint by Income*, a 2008 Canadian Centre for Policy Alternatives study. It defines an ecological footprint as "*... the biologically productive space in per capita global hectares needed to provide the resources for a nation's total consumption and to absorb the waste that it generates."* Government expenditure on the remaining sub-category of environmental spending, water was randomly distributed to those we are attributing municipal water supply usage according to percentage of households in the province who have a municipal water supply as their primary source, using 2007 data. (Cansim Table 153-0062) Then the amount distributed to those we assume are using municipal water supply is proportional to the amount they spend on water and sewage (from the SHS).

Consumption microdata surveys, the 1999 and 2005 Surveys of Household Spending (SHS) were used to estimate the distribution of some categories of public spending. In energy, recreation and culture, government expenditure was assumed to be proportional to private expenditure by region and income quintile.

Canada does not have a personal transportation survey indicating the kilometres Canadians travel by method of transportation comparable to the National Household Travel Survey (NHTS) for the United States. The NHTS was used to distribute government expenditure on transportation in the United States.

For distributing government expenditure on roads, first we attributed car-ownership to families based on the probability of car-ownership by region and decile in the SHS. Then we distributed government expenditure on roads to those attributed car-ownership in proportion to the average amount spent on gasoline by car-owners in their respective region and income decile.

We distributed government spending on air and rail transportation in a similar manner, but because the public use micro-data for the SHS does not separately report expenditure on rail and air, we used the household expenditure on inter-city transportation for these two categories combined. First we attributed inter-city travel to families according to the proportion of households in the SHS by region and income decile that have positive expenditure on intercity-travel. We then distributed government expenditure on rail and air to those families according to the average expenditure on inter-city travel by their respective regions and deciles.

Similarly for energy, the distribution of public expenditure was assumed to be proportional to private expenditure in that category.

Other government expenditures were distributed so that the organizational costs of transfer programs were distributed to those receiving the transfers. Thus the non-transfer expenditures of the CPP/QPP programs (1.6 per cent of the expenditures) were distributed to those receiving benefits. Likewise the organization costs of social services were distributed to those receiving social assistance. Government spending on agriculture was distributed such that it is proportional to household farm income.

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Table 1: Mean and Median Estimates of the LIMEW and Other Income Measures, Canada, 2007 US Dollars, 1999 and 2005

	1999		2005		Growth, 1999-2005 (Per cent per year)	
Measure	Mean	Median	Mean	Median	Mean	Median
Earnings	39,798	29,555	42,564	30,915	1.13	0.75
Total Income	53,895	44,395	58,201	47,403	1.29	1.10
After-tax Income	34,644	30,023	38,730	33,363	1.88	1.77
CDI	48,742	40,666	51,628	42,110	0.96	0.58
PFI	58,530	50,763	62,127	52,891	1.00	0.69
LIMEW	87,543	76,610	88,106	75,482	0.11	-0.25
Equivalence Scale Adjusted:						
Earnings	22,480	17,558	24,657	18,922	1.55	1.25
Total Income	31,917	27,068	35,137	29,589	1.61	1.50
After-tax Income	20,497	18,518	23,416	20,969	2.24	2.09
CDI	28,951	24,823	31,182	26,496	1.24	1.09
PFI	34,488	30,518	37,147	32,563	1.25	1.09
LIMEW	50,734	45,371	51,827	45,903	0.36	0.19

Notes:

1. Earnings include wages and salaries (before deductions) and self-employment income.
2. Total income is the sum of earnings, employment benefits, government cash transfers, interpersonal transfers, and pensions.
3. After-tax income is total income less income taxes (federal and provincial), payroll taxes, property taxes, and consumption taxes paid by the household.
4. CDI is comprehensive disposable income. It equals after-tax income plus the value of home and nonhome wealth annuities.
5. PFI is post-fiscal income. It equals CDI plus household public consumption.
6. LIMEW is the complete Levy Institute Measure of Economic Well-being. It equals PFI plus household production.
7. Equivalent income measures are based on the household equivalence scale used in the U.S. Census Bureau's (2001) experimental poverty measures. The formula for the equivalence scale is as follows: A single adult is given the base value of 1.00, two adults is fixed at 1.41. For families with children the formula is (A+0.5×C+0.3×S)^0.7 Where A is the number of adults, C is the number of children and S is a dummy variable set to 1 if it is a lone parent household and 0 if it is a two-parent household.

Table 2: Comparison of Canada and the United States by Median LIMEW and Other Income Measures, 2007 US Dollars, 1999/2000 and 2004/2005

	1999/2000			2004/2005		
	Canada	United States	US-Canada Gap (Per Cent)	Canada	United States	US-Canada Gap (Per Cent)
LIMEW	76,610	82,227	7.33	75,482	85,521	13.30
PFI	50,763	62,026	22.19	52,891	63,786	20.60
CDI	40,666	51,453	26.53	42,110	52,798	25.38

Notes:

1. US estimates are drawn from Table 2 of Wolff *et al.* (2009a).
2. Canadian estimates are for 1999 and 2005. US estimates are for 2000 and 2004.

Table 3: Composition of the LIMEW by LIMEW Quintile, Canada, Per cent, 1999 and 2005

Quintile	Mean LIMEW (2007 US Dollars)	Total	Base Income	Income from Wealth	Net Government Expenditure	Household Production
			1999			
Lowest	26,258	100	46.6	10.3	20.0	23.2
Second	51,783	100	52.3	12.2	7.5	28.0
Third	76,540	100	49.7	13.6	4.9	31.8
Fourth	105,433	100	49.3	15.4	1.0	34.3
Highest	177,679	100	53.9	19.6	-9.5	36.0
All	87,543	100	51	16	-1	33
			2005			
Lowest	25,737	100	53.8	8.3	20.0	17.9
Second	50,340	100	56.8	10.2	9.5	23.5
Third	75,803	100	54.3	11.4	6.5	27.9
Fourth	106,054	100	54.0	13.2	1.7	31.1
Highest	182,468	100	56.9	19.0	-8.2	32.4
All	88,106	100	56	15	0	30
			Equivalence Scale Adjusted:			
			1999			
Lowest	22,634	100	45.8	8.5	22.5	23.3
Second	35,794	100	50.6	11.0	9.8	28.6
Third	45,444	100	51.3	13.0	3.8	31.9
Fourth	57,665	100	51.7	15.6	-1.5	34.2
Highest	92,123	100	52.2	23.4	-9.8	34.2
All	50,734	100	51	17	0	32
			2005			
Lowest	22,548	100	52.1	6.7	22.6	18.7
Second	35,764	100	55.3	9.4	12.0	23.3
Third	45,945	100	55.9	10.9	5.5	27.7
Fourth	58,790	100	55.4	13.1	0.2	31.3
Highest	96,043	100	57.4	22.1	-10.3	30.9
All	51,827	100	56	15	1	28

Table 3a: Components of the LIMEW by LIMEW Quintile, Canada, 2007 US Dollars, 1999 and 2005

Quintile	Mean LIMEW (2007 US Dollars)	Total	Base Income	Income from Wealth	Net Government Expenditure	Household Production
			1999			
Lowest	26,258	26,258	12,237	2,693	5,246	6,081
Second	51,783	51,783	27,104	6,327	3,864	14,489
Third	76,540	76,540	38,031	10,394	3,762	24,353
Fourth	105,433	105,433	51,991	16,201	1,043	36,198
Highest	177,679	177,679	95,741	34,870	-16,864	63,932
All	87,543	87,543	45,020	14,097	-585	29,011
			2005			
Lowest	25,737	25,737	13,856	2,130	5,159	4,596
Second	50,340	50,340	28,612	5,118	4,780	11,835
Third	75,803	75,803	41,132	8,618	4,931	21,125
Fourth	106,054	106,054	57,280	14,023	1,764	32,991
Highest	182,468	182,468	103,899	34,591	-14,978	59,119
All	88,106	88,106	49,168	12,915	305	26,026
			Equivalence Scale Adjusted:			
			1999			
Lowest	22,634	22,634	10,358	1,917	5,082	5,277
Second	35,794	35,794	18,109	3,920	3,515	10,250
Third	45,444	45,444	23,331	5,902	1,732	14,478
Fourth	57,665	57,665	29,804	9,010	-851	19,701
Highest	92,123	92,123	48,083	21,521	-8,998	31,518
All	50,734	50,734	25,937	8,454	98	16,245
			2005			
Lowest	22,548	22,548	11,746	1,507	5,094	4,207
Second	35,764	35,764	19,771	3,364	4,296	8,334
Third	45,945	45,945	25,690	5,014	2,513	12,728
Fourth	58,790	58,790	32,569	7,714	132	18,382
Highest	96,043	96,043	55,146	21,225	-9,920	29,663
All	51,827	51,827	29,069	7,771	415	14,698

Table 4: 90/10 Ratios for the LIMEW and Other Income Measures, Canada, 1999 and 2005

	1999			2005			
	Bottom Decile (2007 US Dollars)	Top Decile (2007 US Dollars)	90/10 Ratio	Bottom Decile (2007 US Dollars)	Top Decile (2007 US Dollars)	90/10 Ratio	Per Cent Change in 90/10 Ratio
Earnings	0	92,177	n.a.	0	99,098	n.a.	n.a.
Total Income	15,136	100,766	6.66	16,156	108,838	6.74	1.19
After-tax Income	10,089	63,348	6.28	12,281	70,849	5.77	-8.12
CDI	13,311	91,678	6.89	14,634	97,025	6.63	-3.74
PFI	19,370	105,253	5.43	20,861	111,754	5.36	-1.41
LIMEW	27,161	158,809	5.85	26,891	161,417	6.00	2.66
Equivalence Scale Adjusted:							
Earnings	0	51,028	n.a.	0	55,054	n.a.	n.a.
Total Income	11,634	55,587	4.78	12,516	61,096	4.88	2.17
After-tax Income	8,255	34,357	4.16	9,880	38,848	3.93	-5.53
CDI	10,474	50,200	4.79	11,692	53,819	4.60	-3.96
PFI	16,035	55,599	3.47	17,520	59,276	3.38	-2.42
LIMEW	24,137	81,521	3.38	24,067	84,283	3.50	3.69

Note: The 90/10 ratio is the ratio of the 90th percentile to the 10th percentile, where the 90th (10th) percentile is the LIMEW value above (below) which only 10 per cent of households' LIMEW values lie.

Table 5: Gini Coefficients for the LIMEW and Other Income Measures, Canada, 1999 and 2005

	1999	2005	Per Cent Change
Earnings	0.567	0.566	-0.18
Total Income	0.387	0.390	0.78
After-tax Income	0.362	0.358	-1.10
CDI	0.382	0.386	1.05
PFI	0.346	0.352	1.73
LIMEW	0.347	0.358	3.17
Equivalence Scale Adjusted:			
Earnings	0.557	0.554	-0.54
Total Income	0.343	0.345	0.58
After-tax Income	0.311	0.307	-1.29
CDI	0.340	0.341	0.29
PFI	0.286	0.287	0.35
LIMEW	0.273	0.282	3.30

Table 6: Quintile Shares of Aggregate Income by Income Measure, Canada, Per cent, 1999 and 2005

	1999 Quintiles					2005 Quintiles				
	1	2	3	4	5	1	2	3	4	5
Earnings	-0.1	3.4	15.0	27.1	54.5	-0.1	4.1	14.7	26.6	54.8
Total Income	5.1	10.8	16.5	24.0	43.6	5.1	10.7	16.3	23.9	43.9
After-tax Income	5.0	12.2	17.4	24.1	41.3	5.4	12.0	17.3	24.1	41.2
CDI	5.0	11.2	16.8	23.8	43.2	5.2	11.1	16.4	23.4	43.9
PFI	6.1	12.0	17.4	23.9	40.6	6.2	11.8	17.1	23.6	41.4
LIMEW	6.0	11.8	17.5	24.1	40.6	5.8	11.4	17.2	24.1	41.4
Equivalence Scale Adjusted:										
	1	2	3	4	5	1	2	3	4	5
Earnings	-0.1	3.9	15.6	27.4	53.2	-0.2	4.4	15.5	26.8	53.5
Total Income	6.7	12.2	17.0	23.2	40.9	6.6	12.2	16.9	23.2	41.1
After-tax Income	6.7	13.7	18.1	23.4	38.0	7.1	13.8	18.0	23.2	37.9
CDI	6.5	12.5	17.2	23.1	40.7	6.8	12.5	17.0	22.6	41.1
PFI	8.6	13.9	17.7	22.5	37.3	8.7	13.9	17.6	22.2	37.6
LIMEW	8.9	14.1	17.9	22.7	36.3	8.7	13.8	17.7	22.7	37.1

Note: Quintiles are defined with respect to each income measure. For example, the earnings shares are based on household earnings quintiles, while LIMEW shares are based on household LIMEW quintiles, and so on.

Table 7a: Mean LIMEW and Other Income Measures by Age of Head of Household, Canada, 2007 US Dollars, 1999 and 2005

	1999						2005					
	< 35	35-44	45-54	55-64	< 65	65+	< 35	35-44	45-54	55-64	< 65	65+
Earnings	38,874	56,149	59,442	33,569	48,434	2,920	41,588	55,960	65,134	39,762	51,492	4,111
Total Income	46,467	64,715	68,203	52,533	58,363	34,815	49,483	65,490	75,170	59,716	62,623	39,158
After-tax Income	30,890	40,616	42,099	33,038	36,971	24,716	33,942	42,757	48,321	38,422	41,026	29,124
CDI	39,123	54,123	58,890	47,976	49,963	43,534	41,451	55,015	63,832	52,952	53,266	44,860
PFI	48,011	66,549	69,890	54,704	60,128	51,721	51,288	68,755	75,921	59,958	64,250	53,282
LIMEW	72,193	99,099	104,468	84,104	90,245	76,006	71,893	96,667	106,931	86,813	90,785	76,830
Equivalence Scale Adjusted:												
Earnings	24,079	30,206	31,868	20,453	27,322	1,802	26,435	30,927	35,586	24,616	29,783	2,577
Total Income	28,347	34,728	36,811	33,425	33,174	26,556	30,953	35,908	41,280	38,268	36,421	29,602
After-tax Income	18,663	21,703	22,547	20,891	20,897	18,800	21,064	23,297	26,432	24,584	23,760	22,021
CDI	23,433	28,696	31,377	30,485	28,091	32,634	25,601	29,756	34,468	33,839	30,626	33,660
PFI	28,640	34,788	36,743	34,659	33,451	38,925	31,502	36,493	40,436	38,151	36,481	40,101
LIMEW	42,179	50,833	53,858	52,902	49,364	56,585	42,986	50,411	56,024	54,504	50,623	57,063

Ratio of the elderly to the non-elderly:

	1999	2005
Earnings	0.06	0.08
Total Income	0.60	0.63
After-tax Income	0.67	0.71
CDI	0.87	0.84
PFI	0.86	0.83
LIMEW	0.84	0.85
Earnings	0.07	0.09
Total Income	0.80	0.81
After-tax Income	0.90	0.93
CDI	1.16	1.10
PFI	1.16	1.10
LIMEW	1.15	1.13

Table 7b: Median LIMEW and Other Income Measures by Age of Head of Household, Canada, 2007 US Dollars, 1999 and 2005

	1999						2005					
	< 35	35-44	45-54	55-64	< 65	65+	< 35	35-44	45-54	55-64	< 65	65+
Earnings	32,433	48,088	51,210	18,533	40,480	0	34,938	48,109	54,207	24,732	41,079	0
Total Income	39,805	55,718	60,081	43,256	49,904	29,726	42,469	57,172	64,103	48,824	52,652	32,484
After-tax Income	27,446	36,399	38,251	28,084	32,693	22,948	30,025	38,524	42,359	32,643	35,977	26,473
CDI	32,767	47,052	50,947	40,024	42,340	34,489	34,858	47,039	53,621	42,493	43,773	36,299
PFI	42,484	60,509	62,577	46,199	52,820	43,072	44,969	62,449	65,582	48,843	55,472	44,911
LIMEW	63,744	89,407	92,730	70,442	79,306	64,595	62,519	89,323	91,612	72,194	78,239	65,762
Equivalence Scale Adjusted:												
Earnings	20,544	25,596	27,961	11,641	23,282	0	22,869	26,257	30,336	16,219	24,929	0
Total Income	24,747	29,695	32,141	28,363	28,705	22,603	27,228	30,830	35,066	32,313	31,161	24,921
After-tax Income	16,981	19,050	20,697	18,854	18,825	17,661	19,175	20,802	23,420	22,129	21,188	20,278
CDI	20,459	25,040	27,401	26,483	24,413	26,769	22,436	25,909	29,426	28,651	26,184	27,778
PFI	25,800	31,357	32,916	30,872	29,960	33,015	28,381	32,932	35,785	32,818	32,067	34,350
LIMEW	38,539	45,893	49,205	47,382	44,524	49,524	38,838	45,951	49,237	47,802	45,082	50,399

Ratio of the elderly to the non-elderly:

	1999	2005
Earnings	0.00	0.00
Total Income	0.60	0.62
After-tax Income	0.70	0.74
CDI	0.81	0.83
PFI	0.82	0.81
LIMEW	0.81	0.84
Earnings	0.00	0.00
Total Income	0.79	0.80
After-tax Income	0.94	0.96
CDI	1.10	1.06
PFI	1.10	1.07
LIMEW	1.11	1.12

Table 8a: Mean LIMEW and Other Income Measures by Educational Attainment of Head of Household, Canada, 2007 US Dollars, 1999 and 2005

	1999				2005			
	Less than High School	High School Diploma	Non-university Post-Secondary Certificate	University Certificate or Degree	Less than High School	High School Diploma	Non-university Post-Secondary Certificate	University Certificate or Degree
Earnings	21,072	39,448	43,604	65,384	23,877	38,040	44,305	66,442
Total Income	39,995	52,578	55,615	76,895	43,899	54,836	57,988	80,355
After-tax Income	27,765	34,237	35,494	45,562	31,502	36,991	38,630	50,030
CDI	39,879	47,276	48,659	66,730	42,329	50,923	51,397	65,039
PFI	49,507	57,436	58,350	76,269	52,850	60,613	62,297	75,190
LIMEW	74,843	85,727	87,277	113,043	74,785	84,656	87,577	109,751
Equivalence Scale Adjusted:								
Earnings	11,054	21,571	24,967	39,119	12,621	21,595	25,735	40,274
Total Income	24,409	30,046	32,792	46,652	26,594	32,917	34,675	49,412
After-tax Income	17,075	19,511	20,875	27,504	19,370	22,195	23,099	30,602
CDI	24,789	27,066	28,626	40,314	26,189	30,664	30,674	39,465
PFI	30,633	32,524	33,999	45,663	32,462	36,077	36,767	45,182
LIMEW	45,542	47,818	50,168	66,124	45,233	49,750	50,804	64,804

Table 8b: Median LIMEW and Other Income Measures by Educational Attainment of Head of Household, Canada, 2007 US Dollars, 1999 and 2005

	1999				2005			
	Less than High School	High School Diploma	Non-university Post-Secondary Certificate	University Certificate or Degree	Less than High School	High School Diploma	Non-university Post-Secondary Certificate	University Certificate or Degree
Earnings	1,951	31,701	37,554	53,648	5,929	27,951	35,574	52,937
Total Income	31,721	45,449	48,676	63,731	34,155	45,006	49,921	66,097
After-tax Income	24,354	30,530	32,016	39,330	27,099	32,180	34,475	43,357
CDI	32,806	40,354	42,370	55,453	34,605	41,882	42,914	53,302
PFI	42,873	50,618	52,269	64,831	44,860	52,150	54,199	63,058
LIMEW	65,693	76,610	76,016	96,745	63,754	73,639	77,096	95,171
Equivalence Scale Adjusted:								
Earnings	1,181	18,526	22,435	33,081	3,690	16,891	22,194	34,564
Total Income	21,177	26,649	29,485	39,522	22,890	28,467	30,522	42,459
After-tax Income	16,117	18,116	19,361	24,705	18,179	20,412	21,188	27,426
CDI	21,489	23,806	25,568	34,001	22,198	25,878	26,663	33,585
PFI	27,597	29,479	31,060	39,172	28,969	31,578	32,713	39,340
LIMEW	41,628	43,385	45,787	57,824	41,132	44,358	45,541	57,325

Table 9a: Mean LIMEW and Other Income Measures by Region, Canada, 2007 US Dollars, 1999 and 2005

	1999					2005				
	Atlantic	Quebec	Ontario	Prairies	British Columbia	Atlantic	Quebec	Ontario	Prairies	British Columbia
Earnings	33,649	34,275	45,086	40,694	38,415	35,999	35,034	46,957	49,238	40,065
Total Income	49,641	47,973	59,822	53,134	52,481	53,343	50,520	63,485	62,810	55,088
After-tax Income	32,539	29,568	39,223	34,780	32,944	33,542	33,137	42,674	41,962	37,402
CDI	47,022	41,699	54,922	48,567	46,609	40,786	41,998	57,872	54,506	55,206
PFI	56,352	52,259	64,290	58,846	55,737	51,783	53,364	67,974	65,554	64,197
LIMEW	85,042	78,801	95,858	86,174	84,762	76,110	76,007	97,039	90,544	89,832
Equivalence Scale Adjusted:										
Earnings	18,391	20,066	24,740	23,226	22,385	20,150	21,235	26,309	28,936	23,806
Total Income	28,693	29,355	34,468	31,756	31,928	31,677	31,746	37,243	38,163	33,917
After-tax Income	18,907	18,139	22,577	20,788	19,909	20,249	20,868	25,036	25,536	22,941
CDI	27,441	25,470	31,868	29,157	28,295	24,588	26,341	34,076	33,043	33,778
PFI	32,558	31,707	36,985	34,996	33,506	30,630	33,165	39,596	39,320	38,917
LIMEW	48,476	47,096	54,224	50,402	49,902	44,589	46,571	55,532	53,534	53,396

Table 9b: Median LIMEW and Other Income Measures by Region, Canada, 2007 US Dollars, 1999 and 2005

	1999					2005				
	Atlantic	Quebec	Ontario	Prairies	British Columbia	Atlantic	Quebec	Ontario	Prairies	British Columbia
Earnings	22,337	24,386	35,603	32,189	28,287	23,462	25,325	35,574	37,268	29,645
Total Income	39,942	39,174	49,724	44,967	43,954	42,473	41,301	52,668	50,819	46,172
After-tax Income	28,013	26,250	34,348	30,558	28,634	28,781	29,016	37,017	36,201	32,736
CDI	39,223	34,745	46,370	41,265	39,715	34,719	34,941	48,817	45,067	44,621
PFI	48,430	45,207	55,850	51,900	49,133	44,393	45,748	58,821	56,601	54,462
LIMEW	74,563	68,185	84,051	75,803	75,089	65,198	65,366	85,240	77,729	77,881
Equivalence Scale Adjusted:										
Earnings	12,452	15,370	20,144	19,197	16,582	14,289	16,095	20,766	23,553	17,796
Total Income	23,735	25,096	29,599	26,816	27,225	26,414	27,117	31,672	31,667	28,774
After-tax Income	17,212	16,901	20,504	18,686	18,295	18,294	19,314	22,760	22,672	20,774
CDI	23,291	21,734	27,596	25,503	24,715	21,786	22,793	29,743	27,719	28,656
PFI	28,842	28,125	32,739	31,220	29,980	27,918	29,751	35,252	34,044	33,377
LIMEW	43,262	42,414	48,526	45,497	45,015	40,313	41,933	49,680	46,860	46,934

Table 10: Composition of Households, 1999 and 2005

	1999				2005			
	Proportion of Households	Mean Equivalence Scale	Number of Adults	Number of Children	Proportion of Households	Mean Equivalence Scale	Number of Adults	Number of Children
1 Adult, 0 Children	25.5	1.00	1.00	0.00	27.1	1.00	1.00	0.00
>1 Adult, 0 Children	41.0	1.68	2.41	0.00	42.9	1.67	2.40	0.00
1 Adult, >0 Children	4.7	1.69	1.00	1.65	4.2	1.70	1.00	1.67
>1 Adult, >0 Children	28.8	2.25	2.29	1.81	25.7	2.25	2.32	1.78
0 Adults, >0 Children	0.1	1.00	0.00	1.29	0.1	1.00	0.00	1.17
All Households	100	1.67	1.95	0.60	100	1.64	1.94	0.53

Growth, 1999-2005 (Per cent per year)

	Proportion of Households	Mean Equivalence Scale	Number of Adults	Number of Children
1 Adult, 0 Children	1.02	0.00	0.00	0.00
>1 Adult, 0 Children	0.76	-0.10	-0.07	0.00
1 Adult, >0 Children	-1.86	0.10	0.00	0.20
>1 Adult, >0 Children	-1.88	0.00	0.22	-0.28
0 Adults, >0 Children	0.00	0.00	0.00	-1.61
All Households	0.00	-0.30	-0.09	-2.05

Appendix Table 1: Net Government Expenditure on goods and Services, Canada, Millions of Current Dollars, 1999/2000

	Baseline Spending		Less Intergov't Transfers		Less Transfers to Persons		Less Gov't Sales of Goods and Services	
Column	1	2	3	4	5	6	7	8
Level of government	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T
Total expenditures	173,337	257,078	144,442	257,078	92,867	226,918	89,820	197,748
General gov't services	5,858	8,122	5,630	8,122	5,630	8,122	5,445	7,078
Labour	2,447	862	2,089	862	2,089	862	2,020	751
Protection	18,448	14,178	17,571	14,178	17,571	14,178	16,994	12,355
National defence	11,869		11,305		11,305		10,934	
Courts of law	309		294		294		285	
Correction services	1,684		1,604		1,604		1,551	
Policing	2,362	6,395	2,250	6,395	2,250	6,395	2,176	5,573
Firefighting		2,133		2,133		2,133		1,859
Regulatory measures	766	306	730	306	730	306	706	267
Other	1,457	103	1,388	103	1,388	103	1,342	90
Transportation and comm.	1,720	16,658	1,459	16,658	1,459	16,658	1,411	14,517
Air transport	374	62	317	62	317	62	307	54
Road transport	260	11,988	221	11,988	221	11,988	213	10,447
Public transit		2,616		2,616		2,616		2,280
Rail transport	232	5	197	5	197	5	190	5
Water transport	441	2,370	374	2,370	374	2,370	362	2,065
Telecommunications	167	384	142	384	142	384	137	335
Other	246	344	209	344	209	344	202	300
Health	1,730	63,059	1,258	63,059	1,258	63,059	1,217	54,953
Hospital care	67	21,097	63	21,097	63	21,097	61	18,385
Medical care	333	27,441	277	27,441	277	27,441	268	23,913
Preventive care	439	2,246	377	2,246	377	2,246	365	1,957
Other health services	891	12,275	541	12,275	541	12,275	523	10,697

Appendix Table 1 (continued):

	Baseline Spending		Less Intergov't Transfers		Less Transfers to Persons		Less Gov't Sales of Goods and Services	
	1	2	3	4	5	6	7	8
	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T
Social services	50,386	39,115	65,929	39,115	14,354	8,955	13,883	7,804
Education	4,917	57,268	3,189	57,268	3,189	57,268	3,189	57,268
Elementary and secondary education	941	33,700	613	33,700	613	33,700	613	33,700
Postsecondary education	1,584	20,631	1,271	20,631	1,271	20,631	1,271	20,631
Special retraining services	1,658	2,488	820	2,488	820	2,488	820	2,488
Other education	734	449	485	449	485	449	485	449
Conservation & Industry	5,779	9,564	4,790	9,564	4,790	9,564	4,633	8,335
Agriculture	2,199	3,639	1,823	3,639	1,823	3,639	1,763	3,171
Fish and game	413	683	342	683	342	683	331	596
Oil and gas	86	142	71	142	71	142	69	124
Forestry	131	217	109	217	109	217	105	189
Mining	149	247	124	247	124	247	119	215
Water power	0	0	0	0	0	0	0	0
Tourism promotion	63	104	52	104	52	104	51	91
Trade and industry	1,820	3,012	1,509	3,012	1,509	3,012	1,459	2,625
Other	918	1,519	761	1,519	761	1,519	736	1,324
Environment	1,362	7,386	1,286	7,386	1,286	7,386	1,244	6,437
Water	627	3,400	592	3,400	592	3,400	573	2,963
Pollution control	155	841	146	841	146	841	142	732
Other	580	3,145	548	3,145	548	3,145	530	2,741
Recreation and culture	3,159	6,792	3,117	6,792	3,117	6,792	3,015	5,919
Housing	1,928	2,807	712	2,807	712	2,807	689	2,446
Foreign affairs	4,309	0	4,291	0	4,291	0	4,150	0
Regional development	377	1,422	340	1,422	340	1,422	329	1,239
Research establishments	1,872	244	1,707	244	1,707	244	1,651	213
Transfers	24,797		0		0		0	
Debt charges	44,140	28,634	31,539	28,634	31,539	28,634	30,504	24,953
Other expenditures	34	393	108	393	108	393	104	342

Notes:

1. Data are for the fiscal year beginning in April 1999. Statistics Canada does not offer public expenditure data on a calendar year basis broken down by detailed expenditure category.

2. Baseline federal spending data are from CANSIM Table 385-0002. Baseline provincial and local data are from CANSIM Table 385-0001.

3. Federal expenditures net of intergovernmental transfers are calculated by subtracting provincial and local spending from consolidated federal/provincial/local government spending (CANSIM Table 385-0001). It is assumed that no intergovernmental transfers occur at the provincial/local levels.

4. Transfers to persons are from CANSIM Table 384-0009 and are attributed entirely to the Social Services category of spending.

5. Data on government sales of goods and services are from CANSIM Table 385-0001. Sales are allocated across spending categories according to categories' shares of total government expenditures net of intergovernmental and personal transfers.

Appendix Table 2: Net Government Expenditure on goods and Services, Canada, Millions of Current Dollars, 2005/2006

	Government Expenditure		Less Intergov't Transfers		Less Transfers to Persons		Less Gov't Sales of Goods and Services	
Column	1	2	3	4	5	6	7	8
Level of government	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T
Total expenditures	215,205	351,068	165,601	351,068	97,778	315,015	93,883	275,534
General gov't services	8,891	11,458	8,616	11,458	8,616	11,458	8,273	10,022
Labour	1,976	904	1,576	904	1,576	904	1,513	791
Protection	25,485	19,149	24,150	19,149	24,150	19,149	23,188	16,749
National defence	15,075		14,285		14,285			
Courts of law	515		488		488			
Correction services	2,078		1,969		1,969			
Policing	3,512	9,282	3,328	9,282	3,328	9,282	3,195	8,119
Firefighting		3,094		3,094		3,094		2,706
Regulatory measures	1,296	435	1,228	435	1,228	435	1,179	380
Other	3,009	228	2,851	228	2,851	228	2,738	199
Transportation and comm.	3,096	22,662	2,176	22,662	2,176	22,662	2,089	19,822
Air transport	370	91	260	91	260	91	250	79
Road transport	434	15,782	305	15,782	305	15,782	293	13,804
Public transit	552	3,346	388	3,346	388	3,346	373	2,927
Rail transport	248	23	174	23	174	23	167	20
Water transport	607	291	427	291	427	291	410	254
Telecommunications	393	2,367	276	2,367	276	2,367	265	2,070
Other	492	649	346	649	346	649	332	568
Health	21,823	95,244	4,287	95,244	4,287	95,244	4,116	83,307
Hospital care	89	32,844	81	32,844	81	32,844	78	28,728
Medical care	699	41,647	642	41,647	642	41,647	616	36,427
Preventive care	1,071	2,990	1,054	2,990	1,054	2,990	1,012	2,615
Other health services	19,964	17,764	2,509	17,764	2,509	17,764	2,409	15,538

Appendix Table 2 (continued):

	Government Expenditure		Less Intergov't Transfers		Less Transfers to Persons		Less Gov't Sales of Goods and	
	1	2	3	4	5	6	7	8
	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T	Federal	L & P/T
Social services	65,211	51,980	79,606	51,980	11,783	15,927	11,314	13,931
Education	5,385	81,362	3,398	81,362	3,398	81,362	3,263	71,165
Elementary and secondary education	1,110	46,421	713	46,421	713	46,421	685	40,603
Postsecondary education	1,634	31,647	1,240	31,647	1,240	31,647	1,191	27,681
Special retraining services	1,765	2,833	765	2,833	765	2,833	735	2,478
Other education	876	459	681	459	681	459	654	401
Conservation & Industry	9,815	11,931	7,829	11,931	7,829	11,931	7,517	10,436
Agriculture	3,744	4,594	2,986	4,594	2,986	4,594	2,867	4,018
Fish and game	471	578	376	578	376	578	361	505
Oil and gas	758	930	605	930	605	930	581	813
Forestry	271	333	216	333	216	333	208	291
Mining	70	86	56	86	56	86	54	75
Water power	1	1	1	1	1	1	1	1
Tourism promotion	100	123	80	123	80	123	77	107
Trade and industry	3,094	3,796	2,468	3,796	2,468	3,796	2,370	3,321
Other	1,306	1,602	1,042	1,602	1,042	1,602	1,000	1,402
Environment	1,738	11,687	1,471	11,687	1,471	11,687	1,412	10,222
Water	627	4,216	531	4,216	531	4,216	510	3,688
Pollution control	624	4,196	528	4,196	528	4,196	507	3,670
Other	487	3,275	412	3,275	412	3,275	396	2,864
Recreation and culture	4,169	10,288	3,980	10,288	3,980	10,288	3,821	8,999
Housing	2,119	3,847	680	3,847	680	3,847	653	3,365
Foreign affairs	5,586		5,585		5,585		5,363	
Regional development	256	2,025	210	2,025	210	2,025	202	1,771
Research	3,222	609	1,250	609	1,250	609	1,200	533
Transfers	24,328		0		0		0	
Debt charges	32,076	25,513	21,456	25,513	21,456	25,513	21,456	25,513
Other expenditures	101	1,713	25	1,713	25	1,713	25	1,713

Notes:

1. Data are for the fiscal year beginning in April 2005. Statistics Canada does not offer public expenditure data on a calendar year basis broken down by detailed expenditure category.

2. Baseline federal spending data are from CANSIM Table 385-0002. Baseline provincial and local data are from CANSIM Table 385-0001.

3. Federal expenditures net of intergovernmental transfers are calculated by subtracting provincial and local spending from consolidated federal/provincial/local government spending (CANSIM Table 385-0001). It is assumed that no intergovernmental transfers occur at the provincial/local levels.

4. Transfers to persons are from CANSIM Table 384-0009 and are attributed entirely to the Social Services category of spending.

5. Data on government sales of goods and services are from CANSIM Table 385-0001. Sales are allocated across spending categories according to categories' shares of total government expenditures net of intergovernmental and personal transfers.

Appendix Table 3: Allocation and Distribution of Public Consumption, LIMEW for the United States

No.	Function	Allocation	Distribution
		General public service	
1	Executive and legislative	Non-household	
2	Tax collection and financial management	Non-household	
3	Other public service	Non-household	
4	National defense	Non-household	
	Public order and safety		
5	Police	Household and non-household (50:50)	Population
6	Fire	Household and non-household (50:50)	Population
7	Law courts	Non-household	
8	Prisons	Non-household	
		Economic affairs	
9	General economic and labor affairs	Household	Population
10	Agriculture	Share of family farms in total sales of farm products	Farm income
11	Energy	Share of household sector in total energy consumption	Energy expenditures
12	Water resources (federal only)	Households	Population
13	Land conservation and management (federal only)	Households	Population
14	Forestry (State and local only)	Households	Population
15	Fish and game (State and local only)	Households	Population
16	Pollution control and abatement	Share of household sector in total pollution1	Polluting consumption expenditures2
17	Highways	Share of passenger vehicles in total highway costs	Vehicle miles traveled
18	Air	Share of commercial air carrier miles in total air carrier miles	Person-miles traveled
19	Railroad	Share of passenger car-miles in total car-miles	Person-miles traveled
20	Public transit	Household	Person-miles traveled
21	Postal service (federal only)	Household	Expenditures on postage and stationery
22	Parking facilities (state and local only)	Household	Vehicle owning households
23	Liquor stores (state and local only)	Household	Expenditures on alcohol
24	Miscellaneous commerce (state and local only)	Household	Population

		Housing and Community Services	
25	Water supply (state and local only)	Domestic-use share of total deliveries from the public water supply	Expenditures on water and other public services by households receiving public water supply
26	Sewerage (state and local only)	Domestic share of total water discharges from all sectors	Expenditures on water and other public services by households using public sewerage
27	Solid waste management (state and local only)	Residential share of total municipal solid waste	Expenditures on nondurables and entertainment (less fees and admissions)
28	Other housing and community development	Household	Recipients of government housing assistance
		Health	
29	Public Health	Household	Population
30	Public hospitals	Household	Population
31	Occupational safety and health	Household	Employed
32	Administrative costs of Medicare	Household	Medicare recipients
33	Medical and related services for veterans	Household	Veterans
34	Recreation and culture	Household	Population
		Education	
35	Elementary and secondary education	Household	Elementary and secondary public-school students
36	Higher education	Household and non-household	Higher education students residing in households
37	Other education	Household	Population
38	Libraries (State and local only)	Household	Population
		Income Security	
39	Disability assistance	Household	Recipients of public disability assistance
40	Retirement	Household	Recipients of Social Security
41	Welfare and social services	Household	Recipients of means-tested public assistance
42	Unemployment	Household	Recipients of unemployment insurance
43	Other public welfare	Household	Recipients of means-tested public assistance
44	Welfare institutions (state and local only)	Household	Population

Appendix Table 4: Allocation and Distribution of Public Consumption, LIMEW for the Canada

Function	**Allocation**	**Distribution**
General gov't services	Non-household	
Labour	Household	Population
Protection		
National defence	Non-household	
Courts of law	Non-household	
Correction services	Non-household	
Policing	50:50	Population
Firefighting	50:50	Population
Regulatory measures	50:50	Population
Other	50:50	Population
Transportation and comm.		
Air transport	1/3	Personal expenditure on air, by decile and province
Road transport	Share of road costs	Personal expenditure on gasoline, by decile and province
Public transit	Household	Personal expenditure on transit, by decile and province
Rail transport	Passenger Car Share	Personal expenditure on rail, by decile and province
Water transport	Non-Household	
Telecommunications	Non-household	
Other	Non-household	
Health	Household	Health Costs by Age and Sex, Health Canada

Social services	Household	Household's share of aggregate government transfers to households
Education	Household	
Elementary and secondary education		School aged Child in HH, SLID
Postsecondary education		Member of HH enrolled in PS, SLID
Special retraining services		
Other education		
Conservation & Industry		
Agriculture	Share of agr. Programs	Proportional to farm income
Fish and game	Household	Population
Oil and gas	Share of energy consumption	Household energy Consumption, by income deciles by province
Forestry	Household	Population
Mining	Non-Household	
Water power	Share of energy consumption	Household energy consumption, by income deciles by province
Tourism promotion	Non-household	
Trade and industry	Non-household	
Other	Non-household	
Environment		
Water	Water use	
Pollution control	Share of GHG emission	Ecological footprint by decile, CCPA
Other	Share of Waste Disposal	
Recreation and culture	Household	By household personal expenditure on Recreation, SHS: RE module
Housing	Household	Receiving Gov't Reduced Rent
Foreign affairs	Non-household	
Regional development	Non-household	
Research establishments	Non-household	
Transfers		
Debt charges	n/a	
Other expenditures	Non-household	

Appendix Table 5: Allocation of Government Expenditure to Household and Non-household Sectors, 1999

Geographical Region	Cnd.	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
General gov't services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Labour	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Protection											
National defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Courts of law	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Correction services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Policing	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Firefighting	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Regulatory measures	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Other	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Transportation and comm.											
Air transport	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Road transport	0.51	0.57	0.51	0.56	0.59	0.46	0.41	0.48	0.52	0.52	0.52
Public transit	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Rail transport	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Telecommunications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Social services	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Conservation & Industry											
Agriculture	0.47	0.44	0.33	0.33	0.43	0.47	0.44	0.40	0.47	0.51	0.31
Fish and game	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Oil and gas	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Forestry	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water power	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Tourism promotion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trade and industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Environment											
Water	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Pollution control	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Other	0.38	0.60	0.52	0.44	0.52	0.37	0.38	0.51	0.37	0.34	0.36
Recreation and culture	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Housing	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Foreign affairs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Regional development	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Research establishments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transfers											
Debt charges	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other expenditures	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix Table 6: Allocation of Government Expenditure to Household and Non-household Sectors, 2005

Geographical Region	Cnd.	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
General gov't services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Labour	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Protection											
National defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Courts of law	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Correction services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Policing	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Firefighting	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Regulatory measures	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Other	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Transportation and comm.											
Air transport	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Road transport	0.51	0.57	0.51	0.56	0.59	0.46	0.41	0.48	0.52	0.52	0.52
Public transit	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Rail transport	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Telecommunications	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Social services	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Conservation & Industry											
Agriculture	0.48	0.25	0.48	0.51	0.24	0.48	0.46	0.47	0.49	0.51	0.30
Fish and game	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Oil and gas	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Forestry	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water power	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Tourism promotion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trade and industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Environment											
Water	0.11	0.46	0.46	0.46	0.46	0.48	0.05	0.15	0.15	0.15	0.29
Pollution control	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Other	0.34	0.56	0.49	0.42	0.48	0.32	0.35	0.44	0.36	0.25	0.33
Recreation and culture	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Recreation	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Culture	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Libraries	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Art galleries and museums	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other culture	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Broadcasting	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other recreation and cultu	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Housing	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Foreign affairs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Regional development	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Research establishments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transfers											
Debt charges	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other expenditures	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix Table 7: Rates of Return for Assets, Canada, Per Cent per Year, 1999 and 2005

	Nominal	Real
Real Estate and Business	6.59	2.20
Liquid Assets	4.32	0.03
Financial Assets	7.09	2.68
Pension Assets	7.09	2.68
Mortgage Debt	0.00	-4.12
Other Debt	0.00	-4.12