Latest Developments in the Canadian Economic Accounts

Enhancing wealth distributions within the distributions of household economic accounts using a capitalization of income method

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Summary and acknowledgements

This report outlines the methodology and experimental results from using a capitalization of income method to enhance the distributions of wealth within the Distributions of Household Economic Accounts (DHEA). This work represents a significant step toward improving the accuracy and detail of wealth distributions in the DHEA by leveraging both survey and tax data on family investment income to estimate more comprehensive representations of financial assets across a broader spectrum of households, including those with high wealth. This enhanced approach allows for a more precise wealth distribution representation across various household characteristics, offering deeper insights into economic inequality in Canada. The findings from this report suggest that wealth inequality, as currently reflected in the DHEA, is likely underestimated. Moving forward, the methodology will be further refined to not only deliver more accurate wealth distributions but also to develop a more detailed, integrated, and up-to-date series of wealth distributions for inclusion within the DHEA.

Introduction

Purpose of the Report

Accurately measuring household wealth distributions is crucial for understanding economic inequality, financial stability, and for planning effective policy interventions. However, traditional data sources used as part of Statistics Canada's Distributions of Household Economic Accounts (DHEA)—such as household surveys—struggle to fully capture the full scope of wealth, particularly at the top of the distribution. This paper presents a methodology to enhance the estimation of wealth distributions within the DHEA by combining survey and tax data on investment income and applying a capitalization of income (COI) method to impute the distributions of financial asset values.

The motivation for this approach stems from the findings of a recent study by the Parliamentary Budget Office (PBO) (Wodrich and Worswick 2020). As noted in the PBO report, several key challenges exist when attempting to estimate the distribution of wealth based solely on survey data, such as the Survey of Financial Security (SFS), including:

- Underreporting of wealth by households: Many individuals, particularly those with high net worth, underreport or misreport their wealth in surveys due to recall errors, privacy concerns, or the complexity of their investment portfolios.
- Sampling bias: Standard household surveys, which do not sufficiently include high-wealth individuals, who tend to account for a large share of overall wealth, are more likely to under-estimate the total value of wealth.
- Non-response issues: Wealthier individuals are less likely to participate in surveys, leading to gaps in data coverage.

In contrast with the method applied by the PBO to identify wealth at the very top of the wealth distribution, which uses a pareto interpolation technique that includes partial and periodic information from rich lists, the methodology presented in this report is based on linking survey data with detailed annual income tax data on reported investment earnings.

Significance of the Report

Accurate estimation of household wealth distributions is essential for economic research, policymaking, and household financial planning, yet existing survey-based estimates often fail to capture the full extent of wealth—particularly among high-net-worth individuals. This report describes the sources and methods being investigated to enhance wealth distribution estimation by converting tax-reported investment income into financial asset values using the COI method.

The significance of this report lies in its potential to improve wealth distribution measurement, economic policy analysis, and research on inequality, with implications for a wide range of stakeholders, including governments, financial institutions, and academic researchers.

By using longitudinal tax data, the development of this methodology has the potential to enhance information on wealth mobility, generational wealth transfers, and saving behaviour over time. The application of this methodology will also enable analysis of how investment strategies differ across income and wealth groups and other household characteristics, providing insights on financial inequality dynamics.

Moreover, acquiring a more complete understanding of how wealth is distributed and the types of households that are most vulnerable to economic shocks can help researchers and policymakers more effectively identify and mitigate financial system risk.

Background and Literature Review

Distributions of Household Economic Accounts for Wealth

Statistics Canada's Distributions of Household Economic Accounts (DHEA) for wealth utilize a combination of data sources and methodologies, the primary components of which include:

- Survey of Financial Security (SFS): The main micro-data source for the DHEA, a household survey that collects periodic, detailed information on assets, debt, and net worth by household characteristic.
- Methodologies for Survey and Non-Survey Years:
  - ▶ Survey Years: In years when the SFS is conducted, the methodology includes reweighting the SFS data to align with System of National Accounts' concepts, which differ from the standard concepts applied directly within survey data, scaling it to the National Balance Sheet Accounts totals, and deriving distribution estimates from the adjusted dataset.
  - ▶ Non-Survey Years:
    - For years without SFS data, a calibration-based modeling approach is employed to estimate wealth distributions, ensuring consistency with changes in economic conditions and demographic characteristics over time, and to align with NBSA aggregates by wealth item.
    - Since 2020, quarterly imputations have also been applied for the distributions of household liabilities using third party data derived from a consumer credit registry.
    - Distributions for non-financial assets, such as real estate and consumer goods are also adjusted to align with indicators derived from third parties including data from the Canada Mortgage and Housing Corporation and consumer credit registry information.
    - No auxiliary data sources are currently used to enhance the estimation of distributional information for financial assets in non-SFS years.

DHEA estimates adjust for SFS under-coverage of high-wealth households at an aggregate level, as they are benchmarked to NBSA control totals, estimates for which are derived from a broader range of data sources that encompass the entire Canadian economy at a macro but detailed level of aggregation.

However, the distributional composition of household wealth in the DHEA is likely biased by wealth quintile due to lower coverage of high-wealth households from the SFS sample. As well, since the socio-economic

and demographic characteristics for high-wealth households may not necessarily match the characteristics of households included in the SFS, DHEA estimates for wealth may also be biased for other distributional categories, such as by province and age group.

Alternative Estimation Methods to Incorporate High Wealth

Pareto Interpolation

The PBO applies a modelling technique known as pareto interpolation to augment the SFS sample by incorporating wealth for high-net-worth families. Pareto interpolation is a method of estimating the median and other properties of a population when there are relatively few observations with which to work.

The PBO approach augments existing family level data available from the SFS with aggregated information on high-wealth individuals published in **Canadian Business** Magazine's Richest People List. Pareto interpolation requires that the population follows a Pareto distribution, also known as the "80-20" rule (i.e., 80% of outcomes are due to 20% of causes).

As noted by the PBO, the coverage of high-wealth families in the SFS is likely limited "due to sampling and non-sampling errors, especially higher survey non-response among high-net-worth families". The PBO report finds that Canada's wealthiest families hold significantly more wealth than indicated by the SFS, with the top 1% of families holding 24.8% of total wealth according to its High-net-worth Family Database (HFD), compared to 13.7% in the SFS.

Table 1
Family net wealth distribution in Canada, 2019, Parliamentary Budget Office

	Statistics Canada's SFS PUMF Share of total net wealth	PBO's HFD Share of total net wealth
Percentile of family net wealth	percent	
Top 0.01%	0.4	5.0
Top 0.1%	2.8	11.2
Top 0.5%	8.9	19.5
Top 1%	13.7	24.8
Top 5%	33.1	43.5
Top 10%	47.8	56.9
Top 20%	66.9	73.9
Middle 40%	30.4	25.1
Bottom 40%	2.7	1.1

Note: The Survey of Financial Security (SFS) Public Use Microdata File (PUMF) is designed to create reliable estimates of net worth up to the top 5% of the net worth distribution. Caution should be used when drawing conclusions from distributions above the top 5%, since the SFS sample size is insufficient to incorporate a representative sample of economic families with very high wealth.
Sources: Table 2-1 in the report from the Parliamentary Budget Office (PBO, *Estimating the Top Tail of the Family Wealth Distribution in Canada: Updates and Trends*, December 9, 2021). Based on PBO calculations of the SFS PUMF; PBO High-net-worth Family database.

The PBO findings indicate that there is a significant difference in the composition of wealth at the top end of the wealth distribution relative to that estimated through the SFS. However, a limitation of the PBO method is that it only includes observable data from rich lists, which are available only periodically and do not capture a wide range of demographic characteristics. As well, there tends to be a gap in coverage between the upper end of the SFS and the lower end of the list from **Canadian Business**. In particular, there is limited coverage of relatively high-wealth families that may reside in smaller provinces. As well, since rich lists do not break down overall wealth by asset or liability type, the PBO must impute the values of various wealth components based on applying a simplifying assumption related to ratios of non-financial assets and liabilities to aggregate net worth. The ratios are applied uniformly to both synthetic and rich list families to allocate their wealth into constituent asset and liability values.

Capitalization of Income Method

The capitalization of income (COI) method is based on the use of income tax data to estimate wealth by capitalizing future income streams (e.g., income from property or investments, such as dividends or interest). This method relies on the assumption that wealth is derived from the ability to generate future income. By combining income tax data (which reflects actual earnings and income) with survey data (which provides additional context, such as family size or regional factors), a more accurate estimate of wealth can be derived. The COI method also allows wealth to be tracked in a more detailed manner consistently over time, avoiding issues of underreporting that are common in survey-based data.

The use of the COI method gained notoriety among academics in its ability to estimate the distribution of wealth through a seminal study applied to U.S. tax data (Saez & Zucman 2016). More recently, a study applied to Canadian tax data based on the same technique (Hempel 2025) found that the COI method yields similar, although slightly smaller differences for the top 1% of the wealth distribution relative to the PBO pareto interpolation technique.

Comparisons of Various Estimation Methods

In comparison with other methods that seek to more accurately estimate the net worth of households, including those with very high wealth, the COI method adds the most value to the DHEA estimation process, as it allows the creation of detailed microdata for households across a wider range of demographic characteristics. This method is based on the concept that while assets are not directly observed in tax-filer information, their accumulated values are generally based on observable returns derived from various types of investment income.

Table 2
Comparison of high wealth estimation methods

Method	Description	Strengths	Weaknesses
Survey-Based Wealth Measurement	Households self-report asset holdings	Direct responses on wealth distribution	Subject to underreporting and sampling biases
Pareto Interpolation	Models upper tail of wealth distribution by modelling assumption	Improves representation of high-wealth households	Requires sufficient sample and lacks precision relative to tax data
Integrated Approaches	Combines surveys, tax data, and other auxiliary data sources	More comprehensive and accurate	Data integration challenges and methodological complexity

Source: Statistics Canada, authors' summary based on literature review.

The integrated approach, or COI method, links periodic data on financial assets from the SFS with more complete and timely information on investments from administrative tax data. Two main purposes are served in the context of enhancing the DHEA wealth distributions estimation process:

1. It establishes more complete and accurate micro-data with which to observe how the financial asset holdings of households may vary by economic and socio-demographic characteristic; and

2. It allows for more timely and consistent tracking of trends in the development of financial asset wealth for those households over time.

Overview of the Capitalization of Income Method

The COI method is a widely used technique for estimating the value of financial assets based on observed income flows. This method assumes that investment income—such as dividends, interest, and other forms of investment—can be converted into an estimate of the underlying asset's market value by applying an appropriate capitalization rate (i.e., the expected rate of return on that asset). The fundamental premise is that assets generate income streams, and by inverting this relationship using a reasonable return assumption, the total value of those assets can be inferred.

Conceptual Framework

The formula for capitalizing income is:

$$A = \frac{I}{r}$$

where:

A = Estimated financial asset value,

I = Observed annual investment income,

r = Capitalization rate (expected return on asset).

For example, if an individual reports earning $10,000 in interest from fixed-income securities and the prevailing interest rate is 5%, the estimated total value of those securities would be:

$$A = \frac{10,000}{0.05} = 200,000$$

Advantages of the Capitalization of Income Method

- Overcomes survey limitations: Surveys often suffer from nonresponse bias and underreporting, especially among high-wealth households. Tax data, in contrast, offer more complete and timely sources of investment income information.
- More comprehensive coverage: High-income individuals who may not participate in voluntary surveys still file tax returns, making tax-based estimates more representative.
- Consistency with financial markets: The method ties wealth estimates directly to observable market returns, reducing reliance on self-reported asset values that may be misreported or misinterpreted.
- Ability to track wealth over time: Longitudinal tax data allow researchers to analyze trends in wealth accumulation and mobility, rather than relying on one-time survey snapshots.

Challenges and Limitations of the Capitalization of Income Method

- Choosing the right capitalization rate: Different asset classes (e.g., bonds, stocks, real estate) have varying expected returns. Using a single rate across all assets can introduce distortions.
- Tax effects on reported income: Tax policies (e.g., tax-free municipal bonds, unrealized capital gains) affect reported investment income, requiring adjustments.
- Volatility in market returns: Financial asset values fluctuate based on economic conditions, making the choice of capitalization rate time sensitive.
- Data limitations: Certain wealth components, such as privately held businesses, wealth held in trust, and non-income-generating assets, are harder to estimate using this method (e.g., pensions, non-realized capital gains in registered investment products, non-financial assets such as real estate, etc.).

Key Data Inputs for linking investment flows with financial asset values

Data from the SFS, which serves as the basis for modelling the relationships between investment income flows and financial asset values for families and households, are linked with more comprehensive data on investment flows from Statistics Canada's Administrative Personal Income Masterfile (APIM). The APIM brings together a range of tax data collected by the Canada Revenue Agency, specifically the:

- T1 General Income Tax and Benefit Return – Includes detailed personal income information, deductions, and benefits reported by Canadian tax filers.

- T4 Statement of Remuneration Paid – Provides employment income and deductions at source from employers.
- T4A and T5 Tax Slips – Reports various pension, investment, and other forms of income.
- Canada Child Benefit (CCB) and GST/HST Credit Data – Includes information on government transfers.
- Business and Professional Income Reports – summarizes income for self-employed individuals.

APIM, drawing from information available from Statistics Canada's T1 Family File, also has spousal linkages and family types (e.g., single, single with children, married, married with children).

Methodology

Modelling assumptions and accounting identities

Due to a lack of evidence in the literature on developing a comprehensive estimate for the distribution of wealth including items other than financial assets held by the non-sampled population, such as for real estate, consumer goods, and their associated liabilities, those other wealth items are excluded from the COI estimates presented in this report. Efforts to develop a more comprehensive estimate for wealth beyond financial assets alone are being investigated and may be included in a subsequent report. Nonetheless, as indicated within DHEA wealth estimates, higher wealth households rely more on financial assets as a source of wealth, as households in the highest 20% of the wealth distribution held more than two-thirds of all financial assets but only half of all other assets.

To facilitate the modelling process under the COI method, the following assumptions and accounting identities are applied:

- Children aged 15 years and older are independent for determining wealth.
- The household head is the major income earner.
- For a given amount invested for households with similar characteristics drawn from the SFS sample:
  - ▶ The annual realized returns should be relatively similar.
  - ▶ Investments disposed or redeemed at a similar rate.
  - ▶ Reported investment holdings of a group equal the sum of their total investments.
  - ▶ Tax returns reported in APIM consistently represent real returns by group.
  - ▶ Real return divided by sum of investments equal the return ratio by group.
  - ▶ Real tax returns of non-sampled individuals in APIM divided by the return ratio for like groups from SFS equals the predicted sum of investments for those non-sampled individuals.

Illustrative example of an SFS family with declared investment returns:

- Sampled family is one of many other families with similar demographic characteristics included in the same group.
- Family of 3 with total income of $275,000 living in Ontario.
- Family with $100,000 in total financial assets.
- Family member sells $10,000 worth of stock.
  - ▶ Family return ratio=$10,000 / $100,000
  - ▶ Sum all families in this group to derive group return ratio

Converting investment returns into financial asset values

Step 1. Link SFS families with individuals in tax data and group those with similar demographic characteristics.

Step 2. Categorize families based on those with and without declared investment returns.

- Target families are split into two categories for estimation purposes, including:
  - ▶ Those with declared investment returns appearing in both the survey and tax data, in which case direct estimation of return rates is applied, when feasible; and
  - ▶ Those without declared investment returns in which case a modelling technique is applied to estimate return rates.
    - ▪ For those not declaring investment returns in a given period, it is assumed that they did hold some form of tax-sheltered investment, (TFSA, RRSP, etc.) and thus acquired unrealized gains from those investments

Step 3. For those with declared investment returns, directly estimate return ratios and convert to financial asset values based on the COI method.

Step 4. For those without declared investment returns, estimate return ratios based on a modelling process.

Figure 1
Illustrative map of investment information from administrative data source, linkage with sampled families from Survey of Financial Security, estimation process and conversation to predicted financial wealth
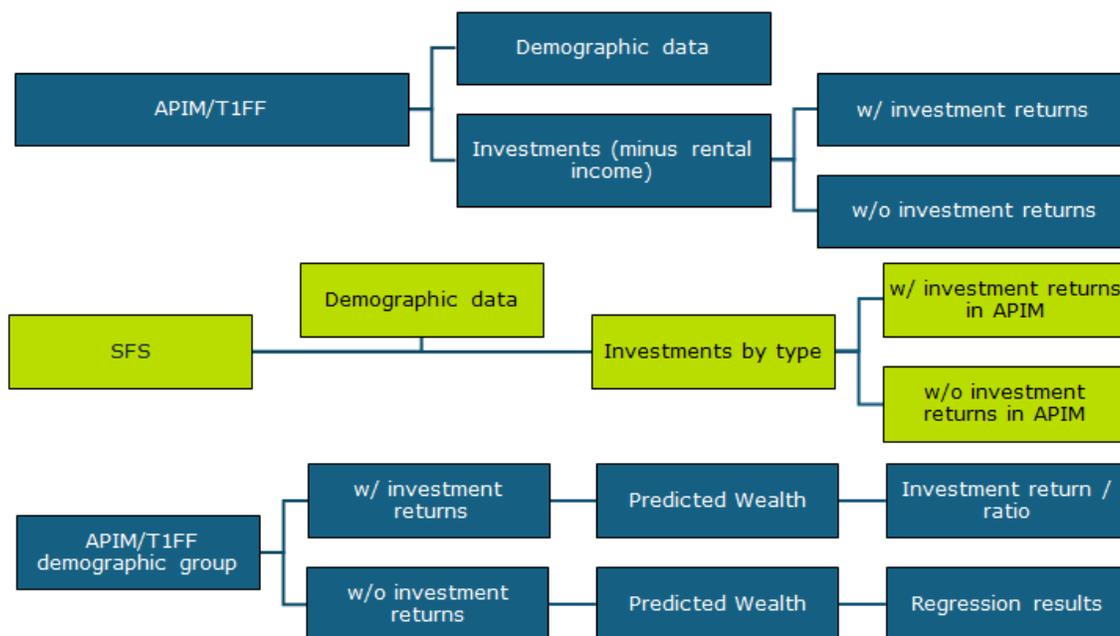
Source: Statistics Canada, authors' illustration, based on capitalization of income method.

Stratified analysis based on family income level to more effectively capture variations in investment return ratios across family groups

Based on SFS data for families with reported investment returns, investment levels are noticeably higher for households at the top 10% of the income distribution.

For the entire SFS sample, the return ratios for those in the bottom 90% of the income distribution averages approximately 3%, compared with an average return ratio of 5% for those in the top 10% of the income distribution. The disparity in return ratios is even larger when cross-referencing income by age group.

Table 3
Return ratios by age group and income level

Age Group	Lower Income (bottom 90%)	Higher Income (top 10%)
	percent	
Less than 35 years	4	5
35 to 44 years	6	8
45 to 54 years	4	5
55 to 64 years	2	4
65 years and older	2	5

Source: Statistics Canada, authors' calculation.

Higher-income households may have a greater capacity to grow their investments for a number of reasons, including:

- Access to better investment opportunities: Higher-income households tend to have greater access to diversified and higher-return investment opportunities, such as private equity, hedge funds, venture capital, or international stocks, which are often less accessible to lower-income households due to capital constraints and lack of financial knowledge.

- Risk tolerance and investment horizon: Wealthier individuals are more likely to invest in riskier assets, such as stocks or real estate, which can offer higher returns over the long term. In contrast, lower-income households may focus on safer, lower-return investments due to limited financial security and risk aversion.

- Financial literacy: Higher-income individuals often have greater financial literacy, enabling them to make more informed investment decisions, optimize their portfolios, and take advantage of tax-advantaged investment vehicles. This leads to more successful long-term wealth accumulation.

- Access to professional advice: Wealthier households are more likely to have access to professional tax planning and financial advisors who can help them maximize returns through strategic asset allocation and financial planning. Lower-income households may lack this support, leading to suboptimal investment decisions.

- Wealth accumulation and compound interest: Higher-income households have more disposable income to invest and a larger capital base. Over time, this allows them to benefit more from the effects of compound interest, leading to a higher overall return on their investments.

Limitations on estimation of return rates for SFS sample households with declared investment returns

For SFS sampled households with declared investment returns, the ability to determine associated return ratios across various household characteristics is limited due to the relatively small coverage of survey respondents at more detailed levels. These data gaps are most evident when attempting to identify relationships across a given combination of characteristics, such as by region, family type, age group, and/or income level. To overcome these challenges, an estimation technique is required.

Modelling process to estimate return ratios

- Objective: For SFS households with investment returns, estimate the return ratios for demographic groups by all characteristics.

  ▶ These ratios will serve as benchmarks to impute ratios for households without declared investment returns.

- Regression model:

$$\log(ratio) = \log(income) = +age + age^2 + region + family\,type$$

  where:

- ▶ *Income* and *age* are continuous variables; *region* and *family type* are dummies;
- ▶ Each group has more than 40 observations, sufficient for regression;
- ▶ Add age^2 as regressor to capture possible non-linearity respect to age;
- ▶ Weak correlation between age and $income$ indicates no multicollinearity.

- Derived Estimates of Investment Return Ratios:
  - ▶ Estimation parameters are significant for each explanatory variable.
  - ▶ Through this modelling process, return ratios are estimated to be lower for younger age groups and lower income earners relative to higher income earners and older age groups.
  - ▶ The ranking of return ratios is consistent when cross-referencing at more detailed levels, including by age, region, income level and family type.

Chart 1
Estimated average return ratios, in percent, for lower income families (bottom 90%) with a major income earner less than 35 years old, by region and family type
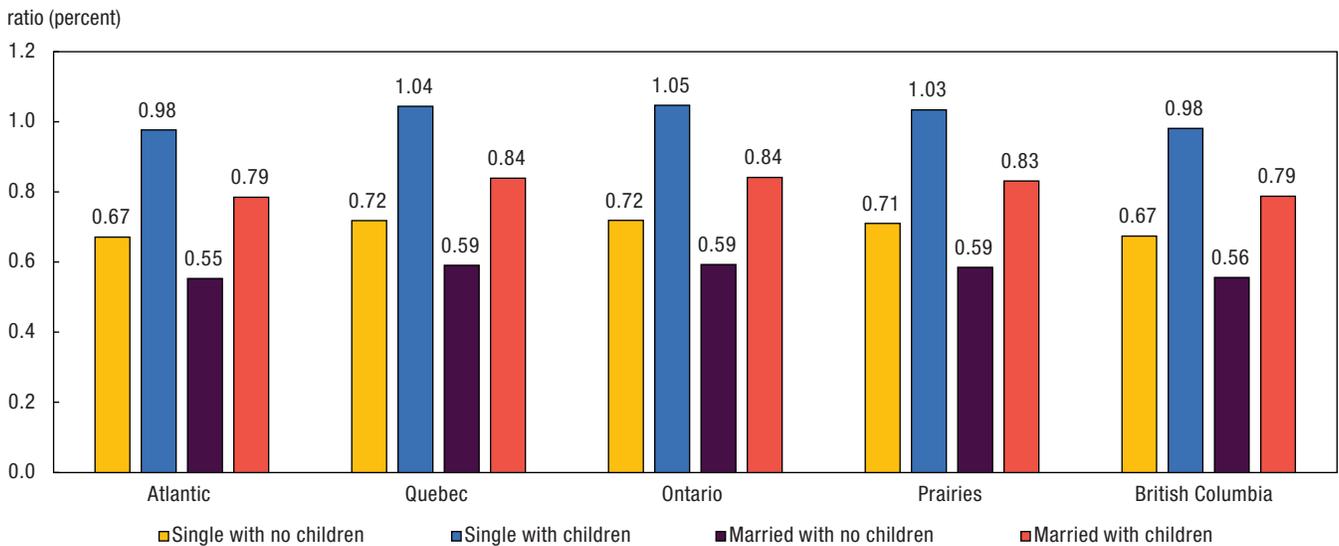
ratio (percent)

Source: Statistics Canada, authors' calculations, based on the capitalization of income method.

Chart 2
Estimated average return ratios, in percent, for higher income families (top 10%) with a major income earner less than 35 years old, by region and family type
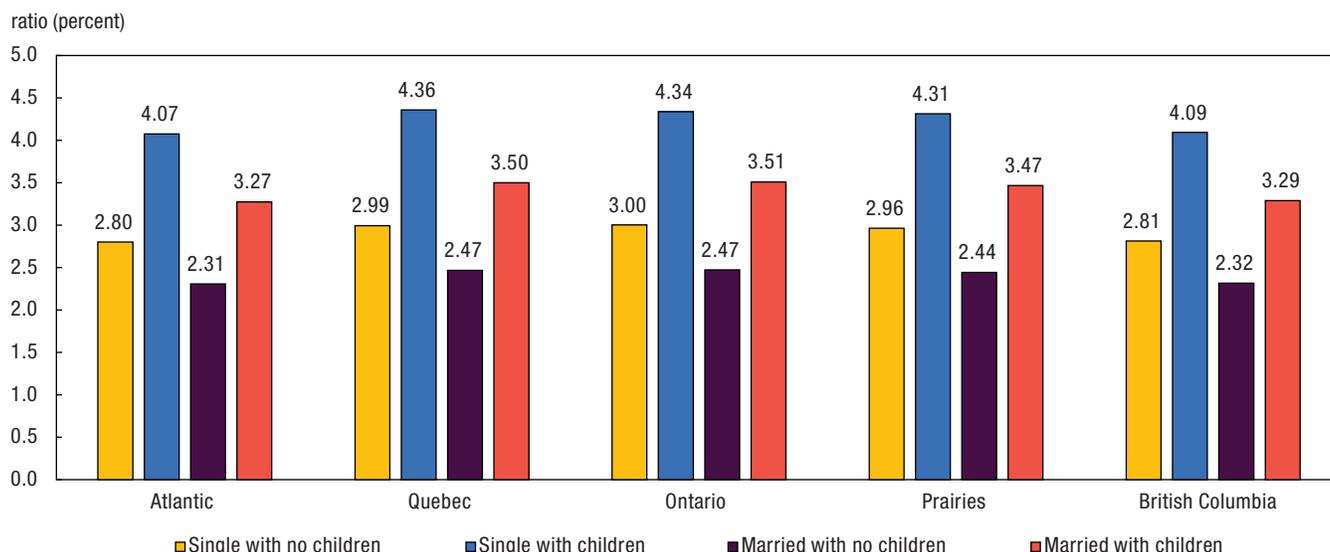
ratio (percent)

Source: Statistics Canada, authors' calculation, based on capitalization of income method.

- By applying this same estimation process to households with no reported investment earnings, associated estimation return ratios can be imputed.
- The derived regression results based on data from the sample survey are then used to estimate investment return ratios for families with and without reported investment earnings.
- The return ratios estimated for each SFS family group are applied to family groups that share similar characteristics within the tax data.

Results and Findings

Application of modelling process

As an initial step in the modelling process, the estimated investment return ratios are applied to the associated investment flows for the varying household groups to derive corresponding financial asset distributions.

Compared with a total value of $7,258,920 million for financial assets identified in Statistics Canada's National Balance Sheet Accounts (NBSA) for the fourth quarter of 2018, the modelling process arrived at a relatively low estimated value of $3,186,224 million, or about 44% of the national benchmark, including:

- Families with reported investment returns: $2,892,244 million (97.5%).
- Families with no reported investment returns: $293,979 million (2.5%).

To more fully account for the value of assets held in tax sheltered products through the modelling process, information can be drawn from available survey information, which indicate that those with no reported investment returns accounted for 25% of total investments. To maintain consistency with the relative share of families with no reported investment returns indicated in the survey sample, the initial model results for those with no reported investment returns were re-calibrated to SFS proportions.

Through the re-calibration process, a total value of $5,832,037 million was estimated for total financial assets for the fourth quarter of 2018, or about 80% of the NBSA total, of which:

- Families with reported investment returns have a financial asset value of $2,892,244 million, and
- Families with no reported investment returns have a financial asset value of $2,939,793 million.

The estimated distributional shares derived from the modelling process for financial assets by household characteristic—including by age group, income range (i.e., bottom 90th percentile vs. top 10th percentile), and family type—were then benchmarked to ensure consistency with NBSA totals.

Based on the estimates derived from the re-calibrated and NBSA-benchmarked results, the chart below illustrates the impact of incorporating the COI method to estimate the distribution of financial assets for economic families. Based on the SFS sampled population alone, wealth values approach an upper limit of less than $60 million, compared with an upper limit beyond $3 billion through the COI method.

Chart 3
Number of economic families within each one-million-dollar wealth bracket

number of economic families
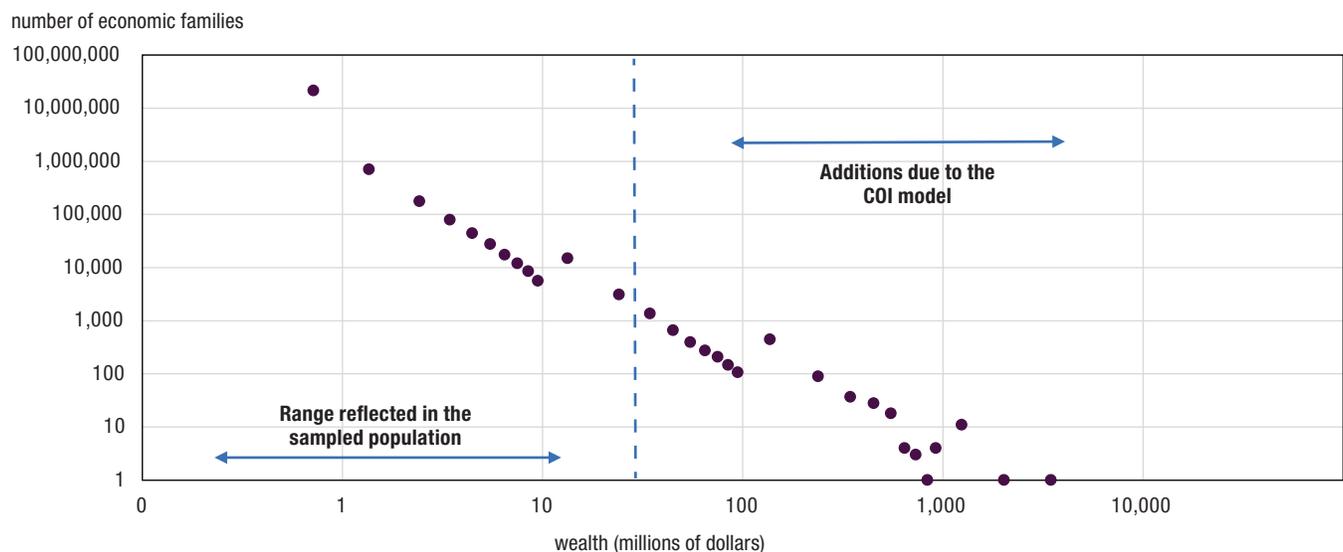
Notes: There is a vertical line in the middle if the distribution.
On the left side there is an hortizontal arrow used to illustrate that this portion of the distribution reflects the sampled population. On the right side there is another horizontal arrow used to illustrate that this side of the distribution is based on adjustments made using the capitalization of income method.
Source: Statistics Canada, authors' calculation, based on capitalization of income method.

Comparison of COI results with PBO method

The COI method also produces a similar, though less skewed picture of the family wealth distribution relative to the PBO pareto interpolation method. For example, the COI method indicates that less wealth is held by families at the extreme upper tail of the wealth distribution (i.e. the top 0.1% of wealth holders), while families lower in the wealth distribution tend to have a relatively higher share.

The COI method tends to arrive at less skewed estimates relative to pareto interpolation as it is based on average income or typical investment returns over time. Because future income streams tend to be relatively stable and predictable for most individuals or households, the resulting wealth estimates are less likely to show extreme disparities. The Pareto interpolation method, by contrast, emphasizes extreme wealth concentrations at the very top of the wealth distribution.

Table 4
Estimates for the distribution of wealth based on the Capitalization of Income (COI) Method and the Parliamentary Budget Office's High-net worth Family Database (HFD)

Percentile of wealth	COI Method	PBO, HFD
	share of total wealth (percent)	
Top 0.01%	4.2	5.0
Top 0.1%	10.0	11.2
Top 0.5%	19.6	19.5
Top 1%	26.6	24.8
Top 5%	50.4	43.5
Top 10%	65.0	56.9
Top 20%	81.2	73.9
Middle 40%	22.5	25.1
Bottom 40%	1.9	1.1

Sources: Calculations by the authors for the COI method using data from Statistics Canada's Survey of Financial Security and Administrative Personal Income Masterfile, and by the Parliamentary Budget Office from the High-net-worth Family Database.

Comparison of COI results with DHEA estimates

A comparison with DHEA estimates shows that the COI method results in a much higher share of wealth being attributed to the top 20% of the wealth distribution, at 81.2% for the COI method compared with 68.1% for DHEA as of the fourth quarter of 2019.

By age group, the COI method estimates that younger households held more wealth, especially those aged less than 35 years (9.4%) relative to that estimated in the DHEA (5.7%). The COI method may attribute a higher share of wealth to households with younger major income earners since they tend to focus more on building their wealth through additions to their investments rather than drawing from their accumulated assets.

Table 5
Distribution of wealth by age group and region, percentage shares, Capitalization of Income Method, fourth quarter of 2019

	Less than 35 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and older	All age groups
	percent					
Atlantic	0.3	0.5	0.9	1.3	1.4	**4.4**
Quebec	1.8	2.6	3.9	5.7	6.0	**20.0**
Ontario	3.5	4.4	7.4	10.5	12.1	**37.8**
Prairies	2.2	2.9	4.0	6.0	5.3	**20.4**
British Columbia	1.6	2.0	3.3	4.9	5.7	**17.5**
All Regions	**9.4**	**12.3**	**19.5**	**28.4**	**30.4**	**100.0**

Source: Statistics Canada, authors' calculations based on the capitalization of income method.

Cross-referencing by region, a higher share of wealth is attributed to western regions, including the Prairies (20.4% for COI vs. 17.9% for DHEA) and British Columbia (17.5% for COI vs. 16.4% for DHEA), as well as to Quebec (20.0% for COI vs. 18.4% for DHEA). The COI method may attribute a higher share of wealth to those living and working in western regions since they tend to derive more of their income from resource extraction.

Table 6
Distribution of wealth by age group and region, percentage shares, Distributions of Household Economic Accounts, fourth quarter of 2019

	Less than 35 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and older	All age groups
	percent					
Atlantic	0.2	0.4	1.0	1.5	1.3	**4.4**
Quebec	0.7	2.2	3.8	5.8	5.9	**18.4**
Ontario	2.3	4.6	10.2	11.2	14.3	**42.6**
Prairies	1.2	2.3	3.6	5.3	5.5	**17.9**
British Columbia	1.2	1.8	3.3	4.6	5.5	**16.4**
All Regions	**5.7**	**11.2**	**21.9**	**28.5**	**32.5**	**100.0**

Source: Statistics Canada, Distributions of Household Economic Accounts, January 30, 2025.

Reasons for under-coverage of financial asset values through estimation process

As presented in the previous section, the initial modelled estimate for those with no reported investment returns under-represent the NBSA totals indicated for financial assets as of the fourth quarter of 2018. The reasons for the under-coverage in the estimation process are likely due to a range of factors.

The under-estimation of financial asset values and investment return ratios using the COI method can be attributed to issues related to the representativeness and accuracy of the underlying data, the simplification of complex financial realities, and the failure to properly account for risk, tax, inflation, and other economic factors.

The following factors may also contribute to the under-estimation of financial asset values using the COI method:

- Static nature of survey data: The return ratios derived from a sample survey at a given point in time may fail to account for variations in economic conditions or investment yields that may have also affected the accumulation of financial assets through time. For example, if the sample data is recorded during a period of low interest rates, it is likely to underestimate potential returns in a higher-interest-rate environment that may have also affected the accumulation of financial asset values over time.
- Exclusion of tax and reporting effects: The COI method might not fully account for the impact of taxes on investment returns, especially when it comes to capital gains, dividends, or income from interest-bearing assets, including their associated reporting thresholds.

Future Work

The accuracy of the methodology presented in this report can be improved by refining the assumptions applied and by incorporating more comprehensive estimation techniques, as well as more detailed and timely data. Below are several potential directions for future work to enhance the robustness of wealth distribution estimates using this methodology:

Develop Additional Detail Related to Various Financial Asset Types

- Pensions: Pensions are a major source of wealth for individuals, particularly in retirement. However, they vary widely in terms of type (e.g., defined benefit vs. defined contribution) and their capitalization rate can differ based on whether they are private or public and funded or unfunded. Future work should incorporate detailed data on pension wealth, factoring in life expectancy and anticipated payout schedules.
- Equities and mutual funds: Equities generate income via dividends and potential realized capital gains, but their return rates can be volatile. Incorporating expected market growth and dividend yields, along with adjusting for risk, would help better capture the wealth from these assets. Equities also contribute to wealth through unrealized gains where there may not be any associated dividend payments.
- Savings and deposits: Savings accounts and other deposit-based assets often provide low, but stable, returns. Future methodologies could enhance the model by factoring in interest rate trends and the differing returns between demand and fixed-term deposits.

Enhance Estimation of Investment Return Rates by Cross-Referencing with Financial Market Data and Other Sources

- Cross-referencing financial market data: By integrating financial market data (e.g., from stock market indices, bond yields, and real estate prices), return rates can be refined to reflect actual market conditions. For instance, asset classes like equities may require return rate adjustments based on historical market performance, while government bonds and real estate require different assumptions based on their specific historical trends.

- Using real-time data: Utilizing contemporary market data on returns (such as from Bloomberg, Reuters, or central bank reports) would help in estimating more accurate return rates, adjusting for short-term fluctuations and long-term trends.
- Using implicit returns: Both the Income and Expenditure Accounts and NBSA contain detailed investment income and asset types that could be employed to generate implicit yields by specific financial instrument, which reflect the actual returns experienced by households.

Use a Broader Sample of Survey Data Over Time to achieve the following goals:

- Enhance the estimation of return rates by accounting for differences in economic conditions and varying interest rate environments: Different economic environments (e.g., periods of low interest rates vs. high interest rates) can significantly affect asset returns. By incorporating a broader range of data across various time periods, the model can account for the differing return patterns during economic booms, recessions, and periods of financial instability. This would allow for a more realistic projection of asset returns based on current and past economic conditions.
- Track trends in distributional characteristics over time: The distribution of wealth evolves with changes in societal, economic, and policy conditions. By utilizing a broader, longitudinal dataset, these changes can be tracked, observing how wealth concentration and income inequality evolve over time. Such analysis can inform policies aimed at addressing wealth inequality.

Capturing Non-Financial Wealth

- Devise estimation techniques for non-financial assets: Non-financial assets, such as real estate and consumer goods, are a significant part of total wealth. Techniques for estimating the value of real estate could involve using property tax data, home price indices, home size, and condition, based on similar efforts applied by Statistics Canada's Canadian Housing Statistics Program. Similarly, wealth related to consumer goods could be approximated by applying ratios derived from surveys, such as the Survey of Financial Security (SFS), to estimate the value of possessions like vehicles, jewelry, and other household items.
- Incorporate liabilities into the modeling process: Liabilities, such as mortgages, personal loans, and credit card debts can significantly impact net wealth. Future models could incorporate liability data to refine the net wealth estimation. This would allow for a more accurate reflection of individuals' financial positions by including both assets and liabilities in the capitalization method.

Link to Census Data to Create Additional Distribution Categories

- Integrating census data into wealth distribution models would allow for the creation of more detailed wealth categories, providing insights into wealth disparities based on demographic factors. Categories of interest could include, for example, visible minority status, immigrant status, Indigenous status, and education level.

Investigate Feasibility of Using Annual/Sub-Annual Data from Statistics Canada's Social Policy Simulation Database and Model (SPSD/M)

The SPSD/M provides a comprehensive micro-dataset that combines surveys with tax-filer information and administrative sources. The potential benefits of incorporating this database into wealth estimation include:

- Improved income estimates: The dataset provides detailed and representative income information, improving the precision of income-based wealth estimation by combining survey and administrative data.
- Over-sampling of high-income households: This feature ensures that high-income households are sufficiently represented, reducing bias in wealth estimates for the top percentiles.

- Distributional Categories: The SPSD/M can facilitate identification of various distributional categories, such as those based on income sources or demographic characteristics, allowing for a more nuanced understanding of wealth distribution.

Link with Related work on Estimating Distributions for Unlisted Shares

- Many privately held companies (e.g., family businesses, startups) hold a significant portion of wealth that is not reflected in traditional public market data. By linking wealth estimates with shareholder information available in tax data for unlisted companies, this segment of wealth can be more accurately estimated, especially for high-net-worth individuals involved in private enterprises.

Accounting for Tax Reporting Biases

Some investment income, particularly small amounts (e.g., interest on small savings accounts), may not be fully reported in tax data due to reporting thresholds or non-filing. To correct for these biases, methods such as:

- Extrapolating from non-reported income patterns based on similar households or asset types,
- Adjusting for under-reporting rates using studies or audits from tax authorities, would ensure that the wealth distribution is not systematically understated, particularly for lower-income or lower-asset households.

Conclusion

The methodology outlined in this report represents a significant step toward improving the accuracy and detail of wealth estimates within the DHEA. By leveraging the capitalization of income approach and integrating both survey and tax data on family investment income, this method provides a more comprehensive estimate of financial assets across a broader spectrum of households, including those with high wealth. This enhanced approach allows for a more precise representation of wealth distribution across various household characteristics, offering deeper insights into economic inequality.

The findings from this report suggest that wealth inequality, as currently reflected in the DHEA, is likely underestimated. Moving forward, the methodology will be further refined to not only deliver more accurate wealth distributions but also to develop a more detailed, integrated, and up-to-date series of wealth distributions. This will enable a better understanding of financial stability and household economic well-being and foster informed decision-making in an ever-changing economic landscape, ultimately serving the needs of the public, researchers, and policymakers as they work to address inequality.

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