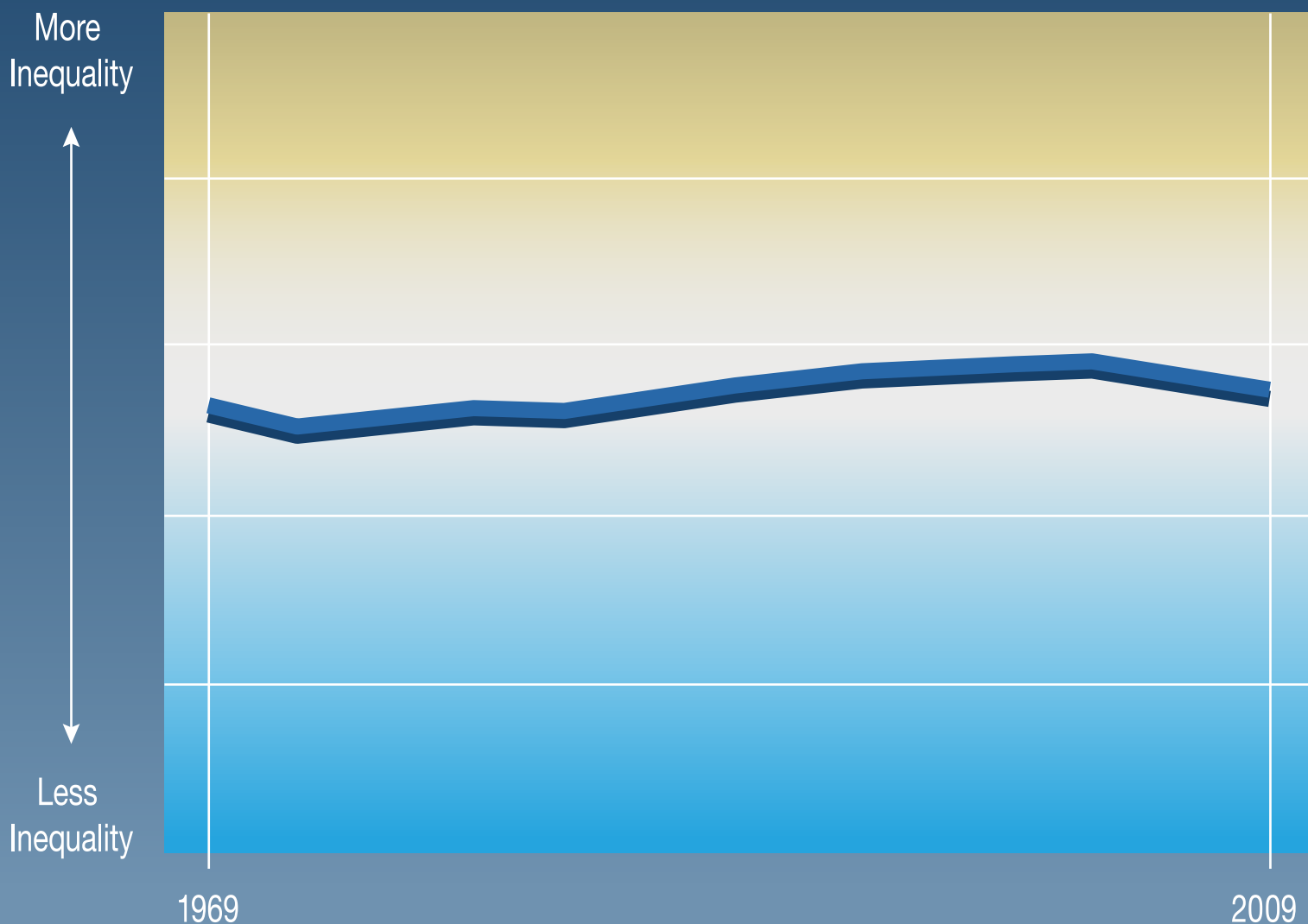


Consumption Inequality in Canada: Is the Gap Growing?

by Christopher Sarlo



Contents

Executive summary / iii

Introduction / 1

Understanding consumption and income: The lifecycle model / 3

Why measure consumption inequality? / 5

Studies of consumption inequality / 9

Estimating consumption inequality in Canada, 1969–2009 / 12

Conclusion / 19

References / 21

Appendix / 24

About the author / 28

Acknowledgments / 28

Publishing information / 29

Supporting the Fraser Institute / 30

Purpose, funding, & independence / 30

About the Fraser Institute / 31

Editorial Advisory Board / 32

Executive summary

Increasing interest in economic inequality, especially in the media, has spawned an impressive number of academic studies, most focusing on income inequality. Inequality of consumption (people's spending) has received much less attention. This study addresses this issue and provides measures of consumption inequality for Canada over the period 1969–2009.

Because actual consumption is closer to one's standard of living (utility) than income, it might be a preferred indicator if we wish to track gaps in economic well-being over a period of time. Income represents a "potential" standard of living. However, people can borrow (or dissave) to expand their standard of living beyond what their income will allow. They can also save some of their income, which reduces their current consumption and thus their living standard. This paper makes the case that measuring consumption inequality can give us a better insight into economic inequality over time.

This paper examines several conceptual and measurement issues related to consumption. For example, a difficult question arises as to how to handle the purchase of substantial durable assets, such as houses. Such assets yield a stream of consumption over a long period of time that is not adequately captured by mortgage payments. Those payments are highly variable. They can range from zero (for those who have paid off their home) to \$20,000 or more—for exactly the same asset. Similar problems occur with durable goods like autos, furnishings, and major appliances. While there may be ways to impute the flow of consumption from durables, they are not perfect. Studies that make such adjustments typically do so for housing only. Unless there is an important change in the underlying pattern of the acquisition or distribution of such durable purchases over time, the case for adjustments and imputations is weaker.

Similarly with prices. The measurement of consumption inequality involves tracking the differences in actually reported, aggregate, nominal consumption over a period of time. We do not look at the individual choices that people make to get to those aggregate values, nor do we attempt to examine the price searching or the substitutions they made along the way.

In this paper, the only adjustment made to the raw data was for household size. We know that households have become progressively smaller over

time, due both to reduced fertility and divorce. So the total consumption of a household is now shared by fewer members. Adjusting for household size using an equivalence scale is, by now, a standard practice for empirical studies of inequality.

The recent (since 2012) literature from the US on consumption inequality shows that, while income inequality has been increasing, consumption inequality has been flat or has declined somewhat. The only recent paper examining consumption inequality in Canada (Norris and Pendakur, 2015) makes a series of adjustments—for consumption flow of durables, using price indexes to deflate nominal consumption, and other imputations. They show that neither income nor consumption inequality in Canada changed much between 1997 and 2009, although the pattern for each was different.

This study, adjusting raw income and consumption data only for household size and using the Gini coefficient as the measure of inequality, finds that while income inequality has increased modestly (by about 11 percent) between 1969 and 2009, consumption inequality is only about 3 percent higher over that 40 year period. In other words, measured consumption inequality has essentially been flat. These results stand in contrast with the prevailing impression of a sharply growing gap and increasing polarization in Canada. The torrent of media stories about an “alarming” rise in inequality have been effective in creating an image of a far more economically divided society.

It is important to point out that this result ignores such things as quality improvements (which likely benefit lower income households more) as well as price searching and substitution behaviour, which is likely to be equalizing. While this is certainly not the final word on the trend in consumption inequality in Canada, it does suggest that living standards are not more unequal now than was the case several decades ago. In other words, it is premature to claim that the gap in living standards between the rich and the poor is growing, at least in Canada.

Introduction

Much has been written about economic inequality in recent years. Most of the academic studies and news stories deal with income inequality. Income inequality, of course, looks at differences in “potential” living standards. Income, especially after-tax or disposable income, measures the capability of a family or individual to afford a particular standard of living—if they spend all of that income. However, we know that people generally do not spend all of their income. For example, people save. They may use some of their income to repay debt. Finally, some people use a part of their disposable income as a gift to others. The most obvious example is parents giving money to their children at various stages, to assist them with education and living expenses. Charitable giving is another important example. Gifts can be any transfer of income or wealth that benefits others. All of these things (saving, debt repayment, and gift giving) reduce the ability of the income recipient to afford that living standard potential represented by their income.

There is a case to be made that consumption inequality is at least as important and interesting as income inequality. Consumption better reflects people’s actual living standards because it represents, for the most part, the choices that people make about the goods that bring them enjoyment.¹ Consumption is tied to income, of course, but not completely. People can expand their consumption choices by borrowing and they can consume less than their income by saving.

This paper argues that, in many ways, consumption is a preferred indicator for the measurement of economic inequality. The next section explains the role that consumption and income play over the course of a person’s lifecycle. Then the case for consumption as an indicator for the measurement of inequality is examined. After dealing with some methodological and data issues, the paper then takes a fresh look at consumption inequality in Canada over the 40 year period between 1969 and 2009. It focuses on two sets of measures. The first is the traditional Gini coefficient, which is the most popular comprehensive measure of overall inequality. The second is

1. All references to consumption in this paper refer to individual and household level spending and not to aggregate consumption as a component of GDP.

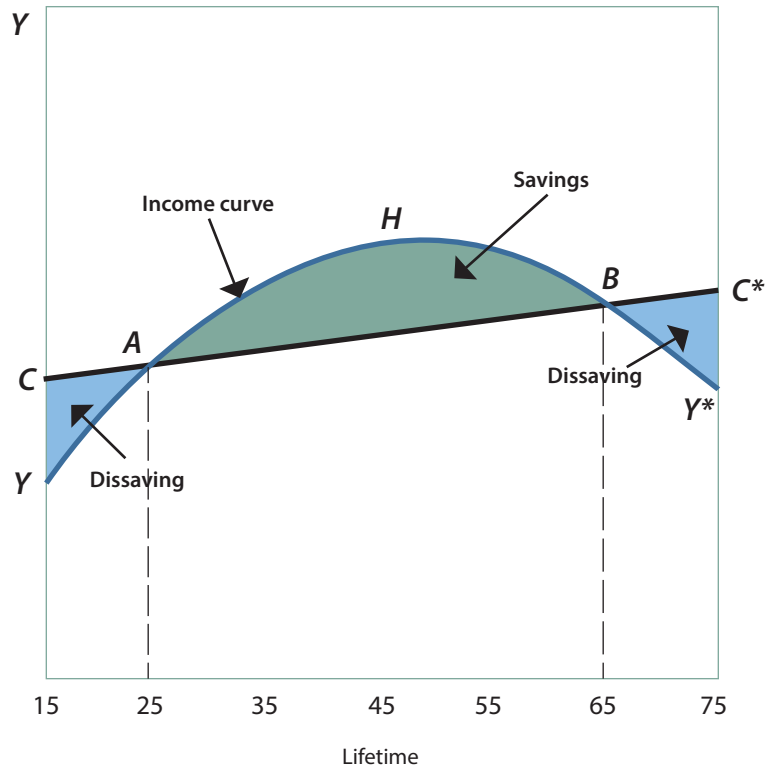
the ratio of top-to-bottom shares (both decile and quintile) in the distribution of consumption. Finally, consumption inequality is placed alongside income inequality to provide a more complete picture of the longer term trend in inequality in Canada. The results show that while income inequality has increased modestly (by about 11 percent) over the 40 year period, consumption inequality is only 3 percent higher than it was in 1969.

Understanding consumption and income: The lifecycle model

Age plays a very important role in explaining patterns of consumption and income. Young people, say those under 30, are either still in school or are starting out in the labour market. Typically, their consumption will exceed their income as they borrow to help finance spending related to their education, or to acquire some durables (like autos, furnishings, appliances, etc.) related to starting their own households. During their middle years, say 30 to 60, their incomes are usually higher and their spending needs lower, at least in relative terms. This is the period in life when most people begin to save and put money away for retirement. During this phase of the lifecycle, income typically exceeds consumption. After this period, it is common for people to begin to dissave by using monies accumulated in earlier periods to finance their post-employment needs. Because income normally drops substantially in this phase of life and people try to maintain an appropriate level of consumption (given their situation), consumption often exceeds income once again. This pattern of income and consumption is captured in the familiar “lifecycle” graph ([figure 1](#)).

There is substantial empirical evidence supporting this pattern. Consumption is higher than income during some periods and lower during other periods. While the graph does not fully show this, we observe that consumption is generally smoother and less volatile than income. Income is subject to a number of shocks during one’s lifetime. Situations like unemployment, promotions, illnesses, and marriage or divorce can and do have important impacts on income. Through it all, people generally try to maintain a fairly stable level of consumption.

Figure 1
Lifecycle theory of consumption



Why measure consumption inequality?

The near-singular focus on income inequality is misplaced. There are several reasons why measuring consumption inequality might be preferred when examining the extent of economic inequality.

Less likely to be underreported

A significant concern with the measurement of income inequality is that income is substantially underreported. The latest study of underreporting, by Bank of Canada economists Dunbar and Fu (2015), indicates that underreporting is far more of a problem at the bottom of the income distribution. Tax evasion and tax avoidance are the main reasons. This means that, using reported income data, measured income inequality will be overstated. While reported consumption is not perfect and suffers from some of the same problems as income (e.g., low response rates, respondent errors), there is not the same underlying motivation to understate consumption. So consumption data is likely to be more accurate.

More closely connected to people's actual living standards

Economists frequently argue that consumption (actual expenditures) is a better reflection of a family or individual's standard of living than disposable income. Because people can consume more than their income (via borrowing and dissaving) or less than their income (when they save), the aggregate level of consumption better represents economic well-being than income. On a disaggregated basis, consumption reflects the specific choices that people make to improve their well-being, whereas income merely represents purchasing power or stored potential. Consumption is one step closer than income to people's actual living standard. "Furthermore, consumption is what ultimately generates well-being—consumption, not income, is typically the argument of utility functions in economic models" (Norris and Pendakur, 2015: 2).

Less volatile

Income is subject to a wide variety of exogenous shocks and influences over a person's lifetime. For many people, current income has substantial variability because of such events as unemployment, job change, promotion, retirement,

marriage, and divorce. Consumption, on the other hand, is more stable than income as people try to smooth out the vagaries of income by maintaining, as far as possible, a “normal” level of consumption that reflects their situation (short and long term). In combination with the previous rationale, this suggests that measuring consumption inequality is a preferred way to examine economic inequality.

For these reasons, consumption inequality should be measured and compared to income inequality. It is, at least, a useful complement to measures of income inequality. And there are practical reasons why it might be preferred over income inequality. Having said that, income is a very important indicator as well. Income not only represents potential consumption (and the utility that is generated from that consumption), but also generates utility directly. People derive a psychic benefit from the power and potential that income represents, and this includes the utility derived from saving or gifting a portion of that income.

The problem with income, of course, is that the term covers a large number of somewhat related concepts. Depending on the definition of income used in empirical work, we can get different (and sometimes substantially different) results. Market income (largely earnings), total income, after-tax income, and adjusted after-tax income have all been used in various studies of inequality, and cases have been made for the relevance of the particular definition used in each. For further discussion of the multiple conceptions of income and the different inequality results obtained, please see Sarlo et al. (2015). However, despite this complication, it would be hard to conclude that consumption is a superior indicator. It would be better to state that, for the measurement of differences in actual living standards, there are some good reasons to prefer consumption inequality.

Conceptual, definitional, and measurement issues

What does consumption include?

Defining consumption is not a simple matter. Current expenditures on food, clothing, household items (including supplies, utilities, and personal items), transportation, entertainment, and so on are obvious inclusions. But what about gifts? And for home owners, what about mortgage interest? Should the latter be included as part of consumption of current services or should it be classified as debt repayment?²

2. Statistics Canada, in its measurement of consumption, has struggled with these questions and has changed how it treats such items in the past. They now include both items as consumption. See the SHS 2009 Users Guide, p. 14 and p. 70.

What about durable assets?

Perhaps more challenging is how to include durable assets that yield a stream of services over time. Owner-occupied housing is the most obvious example, but autos, many furnishings, appliances, and electronic devices also qualify. For households that own their own principal residence, mortgage payments are, on average, the largest shelter-related expenditure. In Canada in 2009, mortgage payments comprised about half of total shelter spending for home owners. However, about 45 percent of homeowners were mortgage-free. Clearly there is a wide variation in mortgage payments and in overall shelter costs for homeowners. Yet the stream of services (the value of consumption) of housing is not nearly as variable and is not adequately represented by actual spending on housing.

There are techniques to estimate the equivalent rent for owner-occupied housing using relevant observable variables. This imputed rent is designed to capture the consumption flow of services of housing for owners. In a recent paper, Norris and Pendakur (2015) employ a method to estimate imputed rent for homeowners. They argue that this is an important correction which can affect measured consumption inequality.

Even if there exists a reliable way to impute rent (flow of consumption) for homeowners, what do we do about the many other durable assets (like cars, furnishings, major appliances, and computers) that households acquire and that have consumption flows over a longer period of time? The household purchasing a \$40,000 vehicle in 2015 would have roughly the same stream of services from that vehicle in 2016 but records zero spending on that item in that year. There is a similar concern with other durable assets. Finding a reliable and practical method to account for flow of consumption from durable goods may be impossible. However, unless there are fundamental changes over time that would be likely to drive unadjusted consumption inequality in a particular direction, the naive, unadjusted approach to measurement may be reasonable.

What about prices?

Some studies examining consumption inequality over time adjust (or deflate) raw consumption expenditures for price changes. If the goal is to measure the amount of consumption, then expenditure amounts driven by price changes will mask the underlying quantity changes. By taking prices out of the picture, we should ideally be left with the focus of our interest, which is “real” consumption (quantities). As well, if there are different prices and price patterns regionally, a single, national estimate of consumption inequality will not capture potentially interesting regional differences.

Finding the appropriate price indexes for the various categories of expenditures could be a challenge. Generally, agencies that collect consumption data also use this data for the construction of price indexes, so that many

of the categories should match. But not all categories of consumption have corresponding price information so the list constituting (measured) consumption must shrink and could be an issue.

There is also a real concern about the relevance of just capturing raw price changes but not any substitutions that will naturally occur. This is a long-standing issue with price indexes. For example, if poorer-than-average people do more “price searching” and spend less money purchasing the same items than better-off people, there will be an improvement in their living standard. People who make substitutions based on relative prices changes do so to make themselves better off. And if this is true, measures of consumption inequality (unadjusted) will overstate consumption inequality.

Other technical considerations

It is well known that income data is underreported.³ What about consumption data? Are there any reasons why consumers might either deliberately or inadvertently understate or, at least misrepresent, their consumption? Since most consumption spending surveys rely on self-reporting, do people naturally underestimate how much they are spending? And if so, is that underreporting likely to occur more at one tail of the distribution than the other? Some evidence along these lines is presented in the next section. However, unlike the case of income, there does not appear to be any obvious motivation behind underreporting of consumption.

What is known about consumption surveys is that there is typically a low response rate. This is likely due to the fact that most surveys ask people to keep a consistent log of purchases over a period of time. The question is whether certain groups are more likely to underrespond to such surveys and whether that could lead to some bias in the results (in the consumption data) unless appropriate adjustments are made. In the next section there is some evidence presented on this matter as well.

3. For some detail on the nature and magnitude of this underreporting, see Sarlo (2001: 41–42), Clemens (2012: 18–21), and especially Dunbar and Fu (2015).

Studies of consumption inequality

Research on economic inequality has been dominated by income inequality largely because of data availability but also because income seems to be a more popular point of comparison. However, that is changing. More and more, economists are emphasizing the advantages of consumption as an indicator of economic well-being, and as new data has become available we are seeing more studies of consumption inequality. In the US, Cutler and Katz (1991) were among the first to measure consumption inequality and compare it to income inequality. They found that “trends in income and consumption inequality closely parallel each other during the 1980s” (p. 9). Krueger and Perri (2006), using US data to 2001, found that, in contrast to rising income inequality, consumption inequality has been relatively flat after a modest rise in the early 1980s. This result supported an earlier study by Slesnick (2001), which concluded that “the widely reported u-turn in inequality in the United States is an artifact of the inappropriate use of family income as a measure of welfare. When well-being is defined to be a function of per equivalent consumption, inequality either decreased over the sample or remained essentially unchanged depending on the choice of equivalent scale” (p. 154).

Attanasio and his colleagues have produced a more recent series of studies of consumption inequality in the US. In the latest paper, Attanasio et al. (2012) found that consumption inequality in the US rose between 1980 and 2010, at a rate comparable to the rise in income. A similar result was found by Aguiar and Bils (2011). However, in a more recent study of consumption inequality over the period 2000–2011 in the US, Meyer and Sullivan (2013) find that while income inequality clearly rose over this period, consumption inequality displayed a much different pattern.⁴ It rose from 2000 to 2005 and then fell after that and ended up slightly lower than it was in 2000.

4. Meyer and Sullivan (2013) articulate a particularly strong case for using consumption in the measurement of inequality. “For example, consumption better reflects long-run resources. Income measures fail to capture disparities in consumption that result from differences across families in the accumulation of assets or access to credit. ... there is (also) empirical evidence that consumption provides a better measure of well-being than income” (p. 178). They cite some of their earlier work in this regard, and state that “other measures of material hardship or adverse family outcomes are more severe for those with low consumption than for those with low income” (p. 178).

Hassett and Mathur (2012) examine consumption inequality in the US over the period 1984–2010 and make the case that consumption is strongly preferred for making living standard comparisons. They use both flow consumption data and the ownership of key household durables (like dishwashers, home entertainment devices, air conditioning, and computers) to show that the living standard gap in America has narrowed over time. While income inequality has increased, measured consumption inequality has been flat and the ownership of household durables, facilities, and services (like internet) has been strongly equalizing in the sense that the gap between lower income households and higher income households has narrowed. They point out that the data ignores such things as quality improvements in some important durables (like electronic devices and autos) which benefit lower income consumers more. They adjust the consumption data for household size and they also present evidence which shows that consumption data in the US (the CEX file) is substantially underreported.

Crossley and Pendakur (2003) were among the first to examine consumption inequality in Canada. They used a shortened list of nondurable consumption items and added an estimate of the consumption flows from owned accommodation (based on the opportunity costs of home equity). The shorter list of nondurables was determined by the availability of price data for matching categories. They used this price data to deflate family consumption levels and then further adjusted “real” consumption with the use of an equivalence scale to convert to equivalized (or individual) consumption levels. Their empirical results showed that consumption inequality in Canada had declined slightly over the thirty years up to the late 1990s.

Sarlo (2009) examined inequality of income, consumption, and wealth in Canada over the period 1969–2004. In terms of consumption, he looked specifically at the consumption of Canadians in various income groupings (i.e., top 20 percent, top 5 percent, top 1 percent, bottom 10 percent, etc.) and, on an adult equivalent basis, found no change over the entire period. Bottom income groupings had increases in consumption at about the same rate as top income groupings. In addition, he found that the acquisition of key household facilities (like freezers, air conditioning, washers, dryers, and dishwashers) from 1985–2004 was faster at lower income quintiles than higher income quintiles. Aside from adjustments to account for family size (using an equivalence scale), Sarlo employed no other adjustments to the consumption data acquired from Statistics Canada.

Clemens (2012) looked at consumption inequality as part of his examination of inequality in Canada. Adjusting only for family size using an equivalence scale and using a decile ratio, he found that consumption inequality increased only marginally over the past 40 years to 2008.⁵

5. The decile ratio is the ratio of the share of the top decile to the share of the bottom decile.

Norris and Pendakur (2015) examined a shorter time period (1997–2009) and made a number of adjustments to the raw consumption data. First, they used a selection of consumption categories which covered about 84 percent of all current consumption. The exclusions were either because they could not find satisfactory price data for the category or because the items were too durable (like vehicle ownership). Next they added in imputed rent for home owners and used a deflator to get values for real household consumption. They used an equivalence scale to derive individual level real consumption values. It is noteworthy that they excluded “subsidized renters and others whose reported rent is not informative” (p. 8). This exclusion is significant as the authors point out that “22% of rental tenure households report either reduced/subsidized rent or payment via in-kind.”

They measured income inequality as well. Using the Gini coefficient as their inequality indicator, they find that while household income inequality is essentially flat over the period 1997–2009, both household and individual consumption inequality displays a hump shaped pattern—rising during the early part of the period and falling afterwards.

In the discussion of their methodology, they pay special attention to possible non-response bias. They argue that certain groups (like aboriginals, poor households, young people, and the rich) are more likely not to respond to the survey. While Statistics Canada does adjust for this possible non-response bias in a number of ways that researchers in this area will be familiar with, the authors clearly regard this as insufficient and suggest an alternative way to adjust the data based on the expected nature of the true distribution.

Estimating consumption inequality in Canada, 1969–2009

Data issues

In order to estimate the changes in consumption inequality over time, we need data. But, while the data drawn from Statistics Canada’s household expenditure surveys is the best we have, it certainly is not perfect. The issues with the data are largely due to the difficulty of collecting accurate consumption data, not to StatsCan deficiencies. It is important that readers be made aware of the data limitations so that they can make an informed judgment as to the validity of any results drawn from this data. It is this author’s view that, often, researchers gloss over the issue of data quality, creating the illusion that clear and definitive results can be drawn.

Given the diversity of the readership, a very brief list of issues with the data is presented here. A more detailed list of data concerns is presented in the Appendix.

As discussed earlier, reported consumption has some of the same issues as reported income. Low response rates, respondent reporting errors, imputation of missing data, changes in the nature of the survey (interview vs. diary method), and changes in the definition of certain key variables are some of the more important concerns. As well, spending on major durable goods, especially homes, does not adequately capture the consumption flow of services of the asset. And changes in household size and in prices may have important implications that raw consumption data does not account for.

Methodology

The purpose of this paper is to track consumption inequality in Canada over the period from 1969 to 2009 and to compare it to the path of income inequality over the same period. The raw data (for both income and consumption) is drawn from two Statistics Canada surveys—the FAMEX survey prior to 1997 and the SHS survey from 1997 onward. During the period when FAMEX surveys were conducted, they were done only occasionally—about every four years, on average.

However, this is sufficient to capture the long term trend in both income and consumption inequality. For this paper, occasional data points (usually every two or three years) were gathered as well even though, after 1997, the surveys were done more frequently. The availability of raw consumption data for Canada that could be used to determine consumption inequality effectively ended in 2009.

After-tax income is the most reasonable income measure for comparison purposes. This measure is used in the bulk of academic studies because it represents the income that people can make choices about. It is a useful proxy for a standard of living—one step removed from consumption. However, the author notes that a small number of recent reports continue to use pre-tax (or total) income, unadjusted, in measuring inequality.⁶ Using pre-tax income results in higher levels of measured inequality which is, undoubtedly, the intended purpose. For comparison purposes, this study also shows calculations using pre-tax income in table 2.

For the present study, it was decided to limit the adjustments to comprehensive and easily explained changes that would clearly and reliably improve the quality of the data. For sure, the raw data is not perfect. However, there is always a risk of making it more imperfect with incomplete and somewhat heroic adjustments.

Therefore the only significant change in the raw data for this study is to account for household size by using an equivalence scale. The scale employed is the common square root scale. This scale has been used in a multitude of inequality studies and purports to capture the approximate economies of scale that happen when people live together and share accommodation and a number of durable goods (like appliances, TV sets, and internet services). Questions can be asked as to whether this scale is appropriate for both high and low income households and whether it is equally valid for small families and very large families. Nevertheless, size of household clearly matters to the measurement of consumption inequality and some reasonable account must be taken of it. Specifically, for this study, both after-tax income and consumption have been adjusted by dividing them by the square of household size for all of the data points utilized.

**A serious blow to researchers:
The end of the SHS**

It is a serious problem for researchers in this area that the public use files for consumption are no longer being provided by Statistics Canada—the last file was for 2009. The decision to fundamentally change the nature of the SHS survey so that annual consumption data will no longer be collected is also a very serious blow to the many academics who use this very valuable socio-economic data. It brings to an end a great many important projects involving consumption poverty and inequality, food security, housing adequacy, detailed living standards comparisons, estimation of various implicit elasticities, and equivalence scales, to name just a few.

6. See for example OECD (2014) and Klein and Yalnizyan (2016).

Results

Figures 2, 3, and 4 display the results for three common indicators of inequality (the Gini coefficient, the decile ratio, and the quintile ratio) on adult equivalent (after-tax) income and consumption over the period 1969 to 2009 (see **table 1** for data). For all three measures of inequality, consumption inequality is below income inequality. This is not surprising given the smoothing that occurs with consumption. This is an expected pattern.

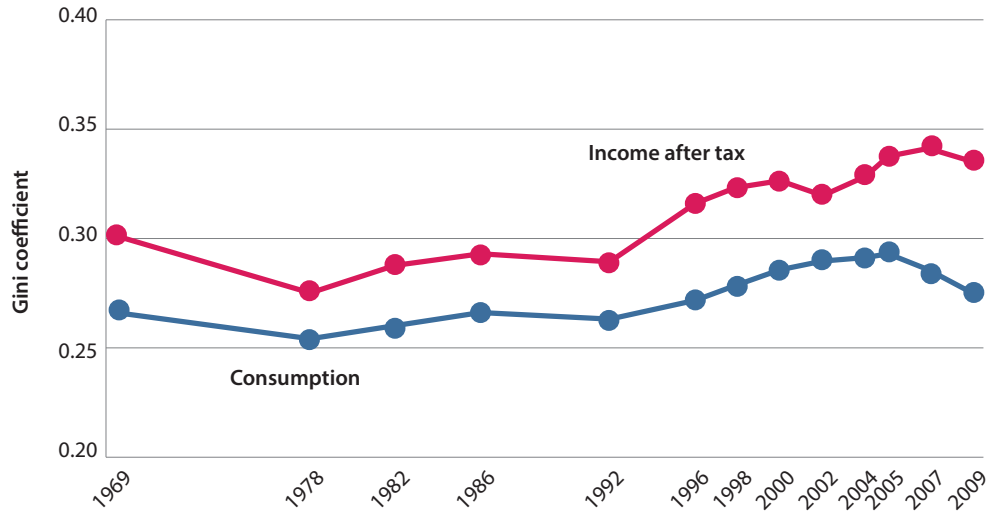
What is somewhat surprising is the fact that while income inequality has increased over the past 40 years (by between 11 percent and 16 percent depending on the indicator used), consumption inequality has essentially been flat. Using the Gini, 2009 consumption inequality is only 3 percent above where it was 40 years earlier. Based on this evidence, it would be hard to make a case that living standards are more unequal in 2009 than they were in 1969.

This result stands in sharp contrast to the prevailing view that economic inequality is rising and “getting worse.” There have been scores of media stories (*Toronto Star*, *Globe and Mail*, CBC, CTV, etc.) about the alarming rise in inequality in Canada. While these are based on studies of income inequality, usually from left-wing think tanks like the CCPA, the Broadbent Institute, and the Conference Board, they create the clear impression that the gap between the rich and the poor is widening and we are becoming a much more polarized society. And with these studies, of course, come renewed demands for the government to “fix” the problem with more redistributive actions.

Income inequality can be especially overstated using pre-tax income instead of after-tax income. **Table 2** displays the results using total pre-tax income—both unadjusted and adjusted. It is noteworthy that measures of inequality using pre-tax income follow a somewhat similar pattern as that for after-tax income, but at a much higher level. Further, the rise in inequality using pre-tax income has been sharply higher. The increase in inequality for unadjusted pre-tax income over the 40 year period was about 23 percent using the Gini. For pre-tax income adjusted for household size, the increase was about 10 percent, again using the Gini coefficient. All of the income inequality measures (pre-tax and after-tax) declined initially but increased after the late 1980s or early 1990s. This rise, which coincided with the rapid growth of the welfare state and with it poverty and dependency, is in contrast to the pattern of consumption inequality.

At the very least, this study of the long term trend in consumption inequality—and the result that differences in living standards have barely changed since the late 1960s—should give pause. To the extent that consumption (adjusted appropriately for household size) is a preferred indicator for the examination of economic well-being, this paper shows that inequality of well-being in Canada has been pretty stable over a long period of time. Regrettably, we cannot bring the analysis right up to the present due to the unavailability of the relevant data.

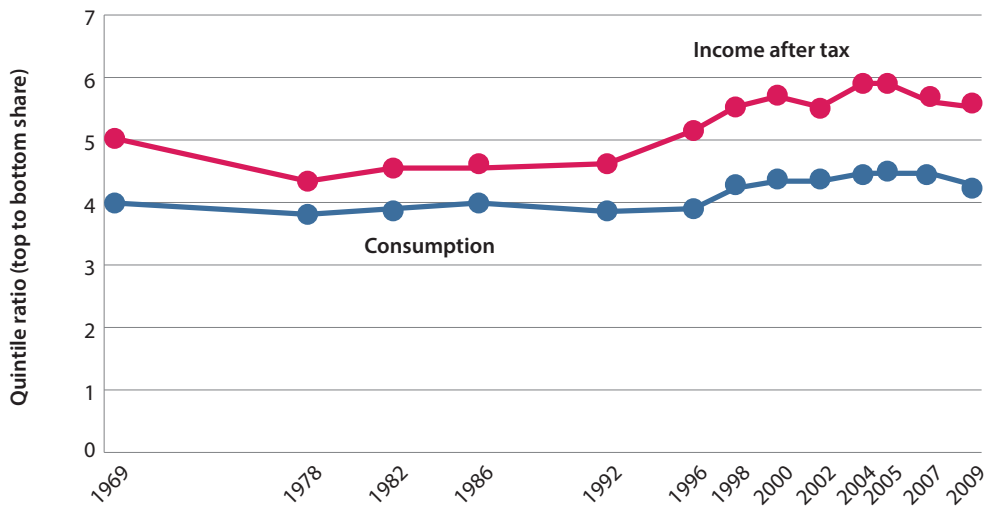
Figure 2
Inequality of (adult equivalent) income and consumption, Gini coefficient, 1969–2009



Notes: Income and consumption data has been adjusted for household size using the square root scale. Both income and consumption data are drawn from two Statistics Canada surveys, which were conducted only occasionally, not every year. Consequently, the data in the figures are from the particular years listed only. (See the methodology section for full details.)

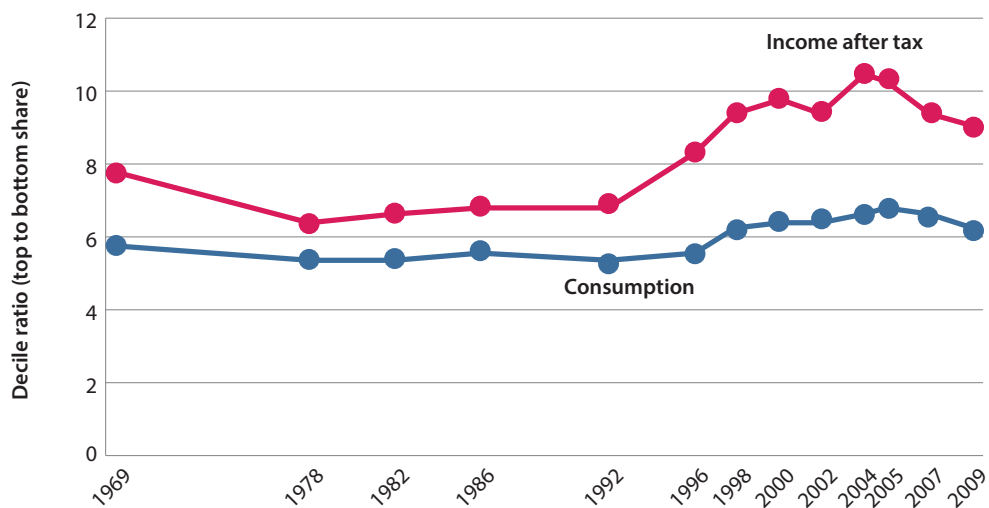
Sources: Statistics Canada, Family Expenditure in Canada and Survey of Household Spending micro-data files, various years; calculations by author.

Figure 3
Inequality of (adult equivalent) income and consumption, quintile ratios, 1969–2009



Notes and sources: See figure 2.

Figure 4
Inequality of (adult equivalent) income and consumption, decile ratios, 1969–2009



Notes and sources: See figure 2.

Table 1
Household after-tax income and consumption, adjusted adult equivalencies, 1969–2009

		Gini		Quintile ratio		Decile ratio	
		Income after tax	Consumption	Income after tax	Consumption	Income after tax	Consumption
1969	Famex	0.3009	0.2662	5.01	3.99	7.77	5.74
1978	Famex	0.2765	0.2543	4.34	3.81	6.32	5.36
1982	Famex	0.2880	0.2594	4.52	3.86	6.60	5.42
1986	Famex	0.2927	0.2657	4.59	3.97	6.83	5.56
1992	Famex	0.2894	0.2627	4.61	3.84	6.88	5.31
1996	Famex	0.3160	0.2718	5.15	3.89	8.33	5.51
1998	SHS	0.3227	0.2780	5.53	4.24	9.37	6.24
2000	SHS	0.3262	0.2853	5.70	4.35	9.75	6.43
2002	SHS	0.3192	0.2891	5.52	4.38	9.41	6.45
2004	SHS	0.3285	0.2910	5.91	4.45	10.43	6.61
2005	SHS	0.3370	0.2931	5.92	4.50	10.28	6.77
2007	SHS	0.3418	0.2836	5.66	4.45	9.37	6.58
2009	SHS	0.3355	0.2752	5.58	4.25	8.99	6.22

Note: Income and consumption data has been adjusted for household size using the square root scale.

Sources: Statistics Canada, Family Expenditure in Canada and Survey of Household Spending microdata files, various years; calculations by author.

Table 2
Household pre-tax income, adjusted and unadjusted adult equivalencies, 1969–2009

	Gini		Quintile ratio		Decile ratio	
	<i>Adjusted</i>	<i>Unadjusted</i>	<i>Adjusted</i>	<i>Unadjusted</i>	<i>Adjusted</i>	<i>Unadjusted</i>
1969	0.3322	0.3281	6.03	7.57	9.63	13.68
1974	0.3008	0.3294	5.06	6.48	7.94	11.33
1978	0.3067	0.3305	5.28	6.64	7.89	10.94
1982	0.3204	0.3466	5.62	7.07	8.43	11.58
1986	0.3276	0.3696	5.76	7.62	8.78	12.31
1992	0.3341	0.3694	5.90	7.61	9.07	12.46
1996	0.3589	0.3963	6.58	8.47	10.77	14.35
2000	0.3816	0.4159	7.37	9.85	12.99	18.17
2005	0.3674	0.4110	7.54	10.12	13.42	19.05
2009	0.3667	0.4035	7.14	9.50	11.85	16.73

This result is particularly important given the recent confirmation that incomes at the bottom end of the distribution are substantially under-reported, resulting in overstated income inequality. The study by Dunbar and Fu (2015) effectively undermines previous studies of poverty and inequality using income data. They further suggest that policies based on such studies risk having “unwelcome, and regressive, social efficiency costs.” To the extent that consumption information is much less likely to be misreported, the evidence that consumption inequality has barely changed in forty years is especially important.

Clearly, a lot has changed over the intervening four decades. Dramatic changes in demographics (especially the aging of the population), divorce rates and the proportion of single parent families, the rapid rise in female participation in the labour force, structural changes in the economy (fewer factory and industrial jobs and more service sector jobs), the rise in university and college participation, and the sharp increase in two earner families—all would have some impact on economic inequality. So it is, in fact, surprising that there has been such a small impact on consumption inequality.

This result stands in contrast to that of Norris and Pendukur (2014). They made a number of adjustments to the data⁷ and find that over the period 1997 to 2009, income inequality was essentially flat and consumption

7. They use price indexes for categories for which price information is available; they impute consumption flows for homeowners; for individual level consumption, they adjust for household size using the square root scale; and they employ a further adjustment to remedy the non-response problem.

inequality increased, although by a fairly modest 5.2 percent.⁸ This compares with a 6.2 percent increase in income inequality and a 1.3 percent increase in consumption inequality over the same period in the present study. While the differences are not huge, they are somewhat surprising because of the different direction of the trends. The fact that there is no increase in income inequality over the period differs from the results of other studies.⁹

Clearly, the differences in the results, even over the more limited time period for which the SHS survey data was available, is due to the adjustments in the data—especially the use of price indexes, the smaller list of consumption items, and the imputation for homeowners. It is noteworthy that the adjustments result in a completely different trend in both consumption inequality and in income inequality than is found with unadjusted (or modestly adjusted) data.

Regrettably, the data for this study stops in 2009. Normally, by now, we would have had data up to about 2013. However, Statistics Canada’s decision to cease doing the household spending survey in the prior manner and making it available in public-use form to researchers means that the study is incomplete to that extent.

Fortunately, in the US, the data on consumption continues to be produced. And results using US data appear to be similar to the results here—at least as far as they go. The most recent study of consumption inequality in the US (Meyer and Sullivan, 2013) shows a distinct “hump” shape since 2000, peaking around 2005 (for both adjusted and unadjusted data)—a result that mirrors the Canadian picture.

8. The authors do not specify what definition of income is used in their determination of income inequality.

9. These include Walks (2013), Corak (2012), Conference Board of Canada (2013), and Sarlo (2015).

Conclusion

Using the raw consumption data drawn from two Statistics Canada surveys (the FAMEX and the SHS) and adjusting for household size, consumption inequality (using what is arguably the most comprehensive indicator, the Gini coefficient) has increased by about 3 percent over the past forty years. This remarkably small change is noteworthy, given all of the substantial changes in society and in the economy over that period. When compared to income inequality, which has itself risen a fairly modest 11 percent (again using the Gini as an indicator), consumption inequality in Canada has effectively been flat.

The results of this study stand in contrast to the prevailing impression of a sharply growing gap and increasing polarization in Canada. The virtual torrent of media stories about the “alarming” rise in inequality have been effective in creating an image of a far more economically divided society.¹⁰ When we use consumption as a proxy for economic well-being, we find that the inequality between households in Canada has barely changed in 40 years.¹¹ And these observed differences in living standards may, in fact, be overstating the gap.

This result ignores such things as quality improvements (which likely benefit lower income households more) as well as price searching and substitution behaviour, which is likely to be equalizing. While this is certainly not the final word on the trend in consumption inequality in Canada, it does suggest that living standards are not more unequal now than was the case

10. In fairness, almost all of the media commentary about rising inequality refers to income inequality, which has increased somewhat over the past 40 years. All of the studies, including this one, show income inequality increasing over time—although the extent of the increase varies substantially depending on the definition of income and the indicator used. Here, income inequality is shown to increase by about 11 percent over the period 1969–2009, using the Gini coefficient on adult equivalent after-tax income for households.

11. It is important to underline that this result for Canada is broadly similar to the outcomes of recent studies using US data. As well, a very recent paper examining consumption inequality in New Zealand (Ball and Creedy, 2015) finds that, for the 30 year period from 1984–2013, consumption inequality in that country has declined somewhat.

several decades ago. It might be premature to claim, at least in Canada, that the gap between the rich and the poor is growing.

Care must be taken not to overstate these results. The data is far from perfect and the adjustments made, although fairly standard in this type of research, are limited in scope. More work needs to be done on such things as the treatment of durable goods, the role that deflators might (or might not) play, the impact of price searching and substitutions on measured consumption inequality, and whether non-response and underreporting might be issues of sufficient importance to warrant further adjustment.

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Appendix

Data issues and adjustments

Data issues can be divided into two categories. First, there are concerns about the actual survey, data collection, and imputation. Second, there are concerns about the interpretation of the data and the fact that researchers may wish to adjust the raw data to try to get more meaningful results.

Survey, data collection, editing, and imputation

- /// The data is collected using surveys (personal interviews before 1997 and diary survey beginning in 1997). The quality of the resulting data is dependent on the diligence that respondents apply to the task and the accuracy of their memory or personal records. Sloppiness, impatience, spotty records and files, and deliberate misinformation are potential sources of inaccurate data.
- /// Low response rates: Consumption surveys, in Canada and in the US, apparently have lower than average response rates and certain populations (the poor and the wealthy) have disproportionately lower response rates. This would suggest that both tails of the distribution might be undercounted. However, Statistics Canada does, through its imputation and editing process, attempt to adjust for that. However, imputation is never a perfect substitute for missing data. Whether they are able to adequately account for these differential response rates is an open question.
- /// The 40 years between 1969 and 2009 saw a change in the nature of the survey. The FAMEX survey (1969–1996) was replaced by the Survey of Household Spending (1997–2009). Changes included the reporting of mortgage interest and other loan payments. As well, spending on gifts was not included in consumption prior to 1997.

Interpretation and the need for adjustments

- /// Over time, both absolute and relative prices change and people (especially those with budget constraints) make corresponding changes in their expenditures. They do this in two ways. They do price searching, particularly with major purchases like furnishings and appliances, and are sometimes prepared to postpone purchases until they find a satisfactory price. Second, and perhaps more importantly, they make substitutions based on relative prices. These critical savings strategies are not captured by conventional consumer price indices. Indeed, if a lower income household used price searching and substitutions to pay a lower price for a comparable basket of goods, their nominal consumption might appear to fall giving the appearance that they are less well-off and creating more measured inequality than is in fact the case.
- /// For a variety of reasons, households are smaller than was the case 30–40 years ago. Thus, a given household income or consumption level is now spread among fewer people, which suggests that just comparing household consumption levels (even “real” levels) will not accurately reflect the changes in living standards. A common adjustment in the data is to determine adult-equivalent income or consumption using an equivalence scale.
- /// Spending on major durable goods, especially homes, does not adequately capture the consumption flow of services of the asset. With homes, for example, operating costs (like heat, electricity, maintenance, and repairs) are fine but mortgage payments vary widely for homes with the same flow of services. This problem occurs, to a lesser extent, with a whole range of durable goods (furniture, major appliances, automobiles, computers, etc.).
- /// People who have rent-subsidized accommodation or who live rent-free will have reported consumption that does not adequately reflect their true consumption flow of services for housing. Their lower reported consumption belies (and significantly understates) their true living standard.
- /// Prices, overall, vary by region and also over time. Consumer price indexes can be used to adjust nominal consumption in order to try to uncover real consumption changes and regional differentials in those real values. However, it is important to recognize that such adjustments ignore price search and substitution behaviour by individual households as they attempt to improve their living standards.

Adjustments

In terms of adjusting the raw data, several considerations were at play. First, not all of the issues discussed above are capable of being reliably handled by adjusting the data in some way. As well, not all authors of papers on the subject of consumption inequality employ the same set of adjustments. Second, some adjustments are not as transparent as others. For example, Statistics Canada itself tries to account for low response rates by certain groups by an imputation process, editing, and changing weights. Some authors have pointed out that users cannot easily see what has been done. If studies employ several layers of econometric estimation and imputation this may also present transparency concerns for many readers.

The question of the role that prices potentially play in inequality measurement is worthy of further comment. Using a price index to deflate nominal consumption is certainly valid. It can get at real changes in consumption and, if used regionally, it can uncover geographical differences in consumption. However, a more important question is this: Is it possible to use price information and price indexes to capture such things as distributional differentials and substitution behaviour? Gordon and Dew-Becker (2008) argued that there had not been (up to that time) any systematic study of price index bias by income class. However, their view, based on the available evidence, is that for the bottom half of the income distribution relative prices have declined, while for the top income classes (top decile, for example) relative prices have been rising. If that is the case and no (reliable) account is taken of it, measured consumption inequality will exaggerate the actual living standard differential between different economic classes.

Making adjustments is never a straightforward business. Sometimes, the list of consumption items has to be reduced because no price information is available for some categories. And, as mentioned, price indexes (or sub-indexes) cannot take account of normal economic behaviour like price searching and substitutions. Imputation transparency is an issue and it is up to the researcher to demonstrate clearly the nature of the imputation, the method of determination, and the advantage bestowed. A potential concern of relevance here is a partial imputation, for example, with some durable goods but not all.

No database is perfect

It is important for researchers and readers to understand that all databases are flawed. The problems largely stem from the intrinsic difficulties in collecting reliable data from households using survey or diary methods. There are a range of issues. Some databases exclude some components of income.

For example, the Survey of Labour and Income Dynamics (SLID) excludes realized capital gains but includes taxes on capital gains. As well, it was discovered after the fact that the SLID underrepresents very low and very high income households (Frenette et al., 2013). This understatement of the tails of the distribution has potentially important implications for the measurement of inequality and poverty. However, underreporting of income also has important implications in the other direction. Additional issues having to do with prices and substitutions, as well as the concerns expressed in the previous section, can influence measured inequality. Some studies take the data as is and make estimates with little or no qualification. Others make significant adjustments to try to make the data more reliable. Whether all adjustments succeed in improving the quality of the data is an open question. Ideally, data should be improved at the source—by the relevant data collection agent. Until that happens, it is best to be as transparent as possible and to be cautious about making any definitive conclusions based on a set of estimates using imperfect data.

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