The Evolution of Elderly Poverty in Canada
Abstract:

I extend the analysis of head-count measures of income and consumption poverty to all currently available microdata. Along with standard measures, I implement a relative poverty indicator using the wellbeing of working-age families as a benchmark. I find that poverty among elderly families decreased sharply through the 1970s and 1980s. In the 1990s, relative measures of income poverty have increased, reflecting higher income among working age families more than decreases among elderly families. Since the 1980s, a sharp spike in income poverty has emerged between the ages of 55 and 64, with no counterpart in the consumption data.

JEL Codes: D31, J14, D63
Keywords: income, consumption, elderly, poverty, Canada
1.0 Introduction

The economic environment for elderly Canadians has changed remarkably over the last 35 years. A 70 year old couple in 1971 received public benefits consisting of an Old Age Security pension, and possibly a small Guaranteed Income Supplement cheque. In addition, there may have been some benefits from an employer-provided pension, typically from the husband’s job. In 2006, a similar 70 year old couple would draw from more sources including the Canada/Quebec Pension Plan, an expanded Guaranteed Income Supplement, Registered Retirement Savings Plans—and moreover would be more likely to have retirement benefits from the wife’s employment. In short, the income received by the elderly has changed dramatically both in levels and in composition over the space of one generation.¹

An important result of expanded retirement income for the elderly has been a sharp reduction in elderly income poverty. This reduction has been documented and discussed by previous authors including Myles (2000) and Osberg (2001), and surveyed by Baker and Gunderson (2005). In international comparisons such as Hauser (1999) and Smeeding and Sandström (2005), the Canadian experience compares well to other developed countries. Less previous research has focused on consumption-based measures of poverty, but Pendakur’s (2001) study of consumption poverty does break out some numbers specifically for the elderly, and Crossley and Pendakur (2006) show cohort patterns of consumption poverty and inequality.

In this paper, I build on previous work in several ways. First, I extend and update the previous research on income poverty among the elderly in a purely temporal sense by including the most recent years of data available, and stretching back as far as the
microdata allow. Second, I supplement the normal Statistics Canada indicators of low income with a special measure of poverty that compares the wellbeing of the elderly to the working age population. Third, I calculate consumption poverty measures and contrast the time-pattern with what is observed for income. Finally, I examine the age structure of poverty among the elderly and near-elderly, and its evolution through time.

2.0 Methods

I use several different indicators of poverty, all of them focusing on ‘headcounts’ of families below a given line. For headcount measures, a cutoff line is calculated, followed by the proportion of families that lies below the line. I begin with measures of low income developed by Statistics Canada, which include aspects of relative and absolute measures of poverty. In addition to the Statistics Canada measures, I use another measure which is developed specifically for addressing the wellbeing of the elderly.

The first measure from Statistics Canada is known as the Low Income Measure (LIM). The LIM is calculated by finding the median adjusted family income in Canada, and setting the line at 50% of this median. In this way, it is a purely relative measure. The economic unit is the economic family, so economic family income is the primary input. The adjustment made to economic family income is for family size. Statistics Canada uses a particular equivalence scale, with the first adult getting a weight of 1.0, additional adults 0.4 each, and children age 15 and under at 0.4 for the first and 0.3 for any additional. LIMs are available for different measures of income, but in this paper I use the after-tax LIM.
The second Statistics Canada measure is the Low Income Cutoff (LICO), which also sets a line defined by a percentage of average family income. However, for the LICO the percentage is calculated as the average share of family income spent on food, clothing, and shelter, plus an additional 20 percent. By comparing a particular consumption basket (food, clothing and shelter) with average income, the LICO is a measure that mixes relative and absolute notions of poverty. Using the 1992 base year (after-tax), the percentage is $43\% + 20\% = 63\%$. It is calculated separately for five different community sizes and seven family sizes, on both a before- and an after-tax basis. Several different base years have been used to estimate the food shelter and clothing percentage. In this paper, I use the 1992 base year. To move from a base year to other years of interest, the lines are calculated by adjusting for the all-items consumer price index.

Finally, I add another measure of poverty not calculated by Statistics Canada, which I call the Elderly Relative Poverty Measure (ERPM).\(^4\) For this measure, the wellbeing of the elderly population age 65 and older is compared to a benchmark generated from the working age population. To be specific, I form the line by taking 50 percent of the median among the working age population. Including all families when forming the median would render the ERPM equivalent to the LIM. By comparing to the working age population, the ERPM implicitly assumes that society’s goal is to help the elderly keep pace with today’s workers, rather than merely maintain the lifestyle they had when younger.\(^5\) If one is concerned with the welfare of the elderly as a group, then for the analysis to be well-defined, they must be compared to a benchmark that does not contain them. Otherwise, changes in the distribution of wellbeing among the elderly may
be confused with shifts in the overall wellbeing of the elderly. Another feature of the ERPM is that it can be implemented for any desired indicator of wellbeing. In particular for my work in this paper, I can use this same measure for both income and consumption. Despite these advantages, I do not attempt to make the case that the ERPM is the ‘right’ way to measure elderly poverty—it just provides a view from a different, and interesting, angle.

3.0 Data

The analysis encompasses both income and consumption surveys spanning the years 1969 to 2004. On the income side, I use the economic family files of the Survey of Consumer Finances (SCF) for the earlier years and combine elements of the person and the economic family files of the Survey of Labour and Income Dynamics (SLID) for the later years. For both surveys, I analyze both economic families and persons not in an economic family (unattached individuals). There are two years of overlap, which is useful since the two surveys differ in some important ways. For consumption, I combine the Survey of Family Expenditures (FAMEX) and the Survey of Household Spending (SHS). In this section I describe the important features and limitations of these data for the purposes of measuring poverty, and describe how I create the variables used in the analysis from the raw data.

The SCF and the SLID are based on the sampling frame of the Labour Force Survey. This excludes residents of the territories, in institutions, military bases, or Indian reserves. With the provided weights, resulting statistics should be nationally representative of that population. A difference is that the SLID is designed as a longitudinal data set, with cross-sections pulled out of the longitudinal data each year.
The FAMEX and SHS files are also based on the Labour Force Survey sampling frame, but further restrictions are made in some years to include only residents of certain large cities. Specifically, in 1974, 1984, and 1990 only the large urban centres are represented in the sample. The other years of the FAMEX, and all of the SHS years, use the complete set of 10 provinces. I leave the restricted FAMEX years in the analysis, but inferences about trends from those years should be treated with appropriate caution. For all years of each survey, I remove observations that have masked data, where province is unknown, or there is negative income. This results in relatively little shrinkage. Another difference across years of the consumption data is the unit of analysis. The unit of analysis pre-1992 in the FAMEX is the ‘spending unit’, whereas from 1992 on it is the household. It is important, therefore, to note that some small differences persist before and after 1992 in the composition of the sample.

The key variable in the income surveys is after-tax income. In this paper, I simply use the Statistics Canada definition of after-tax income. The important aspects of this gross definition are the exclusion of capital gains income and lump-sum withdrawals from pension plans or RRSPs. For the after-tax income definition, only income taxes are included as ‘tax’, meaning that payroll taxes are therefore included in after-tax income.

In the consumption surveys, the goal is to measure each family’s consumption during the year of the survey. Creating an annual flow of consumption is made difficult by the purchase of consumer durables and accounting for the flows from durables purchased previously. In this paper, I use three different measures of consumption. The first measure includes a narrow definition of consumption that includes only non-durables. I take the definition from Crossley and Pendakur (2006). The second
definition takes the non-durables and adds an imputed amount for housing consumption flows. Again, I use an imputation method similar to Crossley and Pendakur (2006). Finally, I use the value for current consumption reported in the survey. This measure is calculated as total expenditure less personal taxes, personal insurance payments, and gifts and contributions. It therefore includes expenditures on capital goods, durables, and expenditure on housing (rent or mortgage payment). By moving from a narrow to a broad definition of consumption, the sensitivity of the conclusions to the definition of consumption will be clear.

The unit of analysis presents some challenges. Ideally, I would count the number of elderly persons who live in an economic family that lies below a given cut-off line. This would deliver the best description of the welfare of elderly Canadians. However, because the economic family files of the Survey of Consumer Finances do not report the number of elderly individuals in the family until 1979, it is not possible to construct such a measure going back to 1973. Instead, in order to maintain a consistent series through time I define the object of interest as the elderly family, which I define as a family headed by someone age 65 or older. A challenge arising in categorizing the age of families relates to top-coding and age grouping. In all cases, we can observe whether the age is greater or less than age 65, so categorizing families as elderly is not problematic. The problems come when examining the poverty measures by individual age. Because top-coded age groups contain individuals of many ages, I simply remove observations with the top-coded age for the age analysis—but they are left in for the annual elderly poverty analysis. For the SHS from 2002 onward, five-year age groups are reported rather than individual ages. For these years, I create an observation for each age within the age
group, effectively quintupling the size of the sample. The resulting graphs by age resemble step function for the SHS in these years, as all ages within each 5 year range are identical. This construction allows me to pool together and compare the post-2002 SHS with other years and surveys.

For constructing equivalence scales, the age of children is required in order to properly classify them as being children or adults. In practice, the reporting of children’s ages varies across the surveys. For most years, it is possible to construct the number of children aged 0 to 15, which is the age cutoff for the Statistics Canada equivalence scale. For other years, I impute ages to children and select those with imputed ages 0 to 15.  

Another issue for the formation of equivalence scales is inconsistent reporting of community size, which is a necessary input for the LICO measurement. In the SCF, the available community size measure does not line up exactly with the categories for the LICO for some years of the survey. I fix this by assigning the families to the larger community size category, which may tend to overstate the poverty measure for those years.

Given the available data, I generate two sets of poverty measures. The first set of measures extends the after-tax LICOs and LIMs both backward and forward. For the LICOs, I assign the Statistics Canada LICO to each family in the income data based on reported family size and community size. I then update the LICO from the base year for the CPI, and compare the result to reported family income. The benefit is that longer series can be generated than using only the measures reported directly in the surveys. The potential downside is the differences in consumption patterns over longer time periods—the base is not updated. For the LIMs, I calculate each family’s adjusted family income
using the Statistics Canada equivalence scales and compare to the after-tax LIM to generate an indicator. The second set of measures is the ERPMs. To construct the ERPM, I calculate the median among working age families (ages 25-54) and generate dummy variables for families of all ages that lie under 50 percent of this median.

4.0 Results

I present the results graphically. I begin with the income measures and then proceed to the consumption measures. For both income and consumption, the analysis follows the evolution through time, then turns to some cross-sectional extracts of the patterns by age. In all graphs, I have separated the data points for the SLID/SCF and FAMEX/SHS, in order to emphasize the discontinuities in the time series. In all figures, dollar amounts have been converted to 2004 dollars using the consumer price index. For all figures, I have implemented family-size adjusted measures using the Statistics Canada equivalence scales unless otherwise noted.

Income results

To analyze income poverty, I begin with some annual graphs of the levels of income. I then graph the Statistics Canada measures (LICOs and LIMs) and compare the results to the ERPM in order to place the ERPM in the context of measures that may be more familiar. Finally, I look at the evolution through time of the age patterns of income poverty. Further robustness checks and graphs can be found in Milligan (2007).

Figure 1 displays the 10th, 50th, and 90th percentile after-tax income for economic families aged 65 or more. The 50th percentile of the working age 25-54 population is also shown. All four of the lines are indexed to a 1973 level of 100. The starkest result is for
the 10\textsuperscript{th} percentile of elderly income, attaining a height in 2003 of 99.3 percent above its 1973 level. In person-equivalent dollar terms, this was an increase from $7,373 to $14,696. The 90\textsuperscript{th} percentile incomes among the elderly, in contrast, rose only 37 percent over this period, attaining a person-equivalent level of $44,664 by 2003. Among the working age, growth was still worse. At the median, the increase was 27 percent since 1973—with more than half of the growth coming since 1997. The decrease in inequality among the elderly over this time period is in some contrast to the trends in overall inequality (see Frenette, Green, and Milligan (2007)), suggesting that changes in the income of the elderly have been an equalizing force in overall inequality measures.

In order to build a complete time series for any of the income poverty measures, I take the published LICO-1992 and LIM cutoffs and adjust for CPI inflation in order to get a complete set of cutoffs for each measure for each year.\textsuperscript{19} I then construct poverty indicators using these cutoffs and reported after-tax income, appropriately adjusted for family size. These are graphed in Figure 2, along with the ERPM comparing to the median working family income. Poverty rates by all three measures drop from over 40 percent in 1973 to around 10 percent in 2003. The ERPM follows similar trends to the LIM, but lies everywhere above it. This is because the LIM includes elderly families when calculating the median adjusted income to use for the cutoff, which tends to pull down the median, resulting in fewer families falling below the LIM.

Both the LIM and the ERPM show upswings since the mid 1990s. The LIM increases by 151 percent from 0.028 to 0.070 between 1996 and 2003. Looking back at Figure 1, there have been continued real increases among elderly incomes at the 10\textsuperscript{th} percentile. This suggests that higher incomes among the better-off are driving these
relative measures higher, rather than absolute drops at the low end of the distribution. This is confirmed by looking at the LICO—there has been no increase since the mid 1990s using this more absolute measure.

Whether the increase in LIM and ERPM poverty is caused by increasing incomes among well-off elderly or a shift in relative wellbeing between the working age and the elderly is not clear from the LIM, however. This creates an opportunity for the ERPM to provide clarity. The ERPM increases by 76 percent, from 0.071 to 0.124 over the same time period. This suggests that some of the increase in the LIM has been driven by increases in income among the higher-income elderly and some by increases in income among the working age population.

In analysis not shown here, I decompose the lines shown in Figure 2 into separate lines for married, single females, and single males. All three lines follow the same trend, with the married poverty rate about half the single rates. Single females fare slightly worse than single males.

The final two income graphs investigate the age structure of poverty by graphing the ERPM against age for different years. I group several years together in order to generate sufficient data in each age cell to lower sampling variability. The first graph in Figure 3 shows data from the SCF in three different year ranges. Between 1975 and 1979, poverty as measured by the SCF is quite flat for ages less than 60. Starting at just before 60, however, the poverty rate increases tremendously, reaching 20 percent at age 60, 30 percent at 65, and 45 percent by age 74. In this time period, the elderly were far and away the age group suffering the highest ERPM rates.
For the time periods 1980-1984 and 1985-1989, however, a striking new pattern emerges. The ERPM rate at lower ages continues as in 1975-1979 until hitting age 66 when it drops considerably. For 1985-1989, the drop is more than half. Figure 4 repeats the age graph for three more recent time periods. The same pattern as for 1985-1989 continues for those over age 60, with even higher pre-age 65 spikes and lower post-65 declines.

The explanation for this drop may lie in policy changes. From 1978 to 1980, the real value of the Guaranteed Income Supplement (GIS) pension increased by 42 percent. Then, from 1983 to 1985 the GIS increased again by 19 percent, in real terms. The GIS is an income-tested pension paid to individuals age 65, so these increases in the GIS line up well with the tremendous drop in poverty among the elderly households. In addition, as time passes through the 70s to the 80s to the 90s, the proportion of seniors who retired with a Canada/Quebec Pension Plan entitlement grew ever larger.

To look more closely at the role of public pensions in these trends, Table 1 displays the average income from different sources for bottom quartile elderly families, in constant 2004 dollars.20 The increase in the GIS is evident in the first column between 1977 and 1986, when total OAS, GIS, and SPA income increased by $3,395 or 48 percent. This is over 60 percent of the total after-tax income gain over this time period, and supports the notion that the sharp drop in elderly poverty in the late 70s and early 80s was related to policy. The column with CPP/QPP income shows a more constant evolution, which may have contributed to the long-run downward trend in elderly poverty observed in the figures. Among bottom quartile elderly families, private pension income
has remained unimportant over the entire time period. See Myles (2000) for a more
detailed treatment of elderly income composition.

To summarize the income poverty results, the incomes of the elderly have grown
more quickly than the working age population since 1973. Overall, the gains have been
highest for the lowest-income elderly, resulting in a very sharp drop in income poverty by
almost any measure between 1973 and 1990. Since 1990, poverty rates have been fairly
constant, with some increase post-1997 in relative measures, reflecting the gains in
income of those of working age and among better-off elderly families since the mid
1990s.

**Consumption results**

In order to gain a different view of the poverty of the elderly, I turn to some
measures of consumption poverty. I use the same ERPM procedure as I used for income
poverty, with the Statistics Canada equivalence scales used to adjust consumption and the
line set at 50 percent of the working family median value. For consumption, I make use
of the three measures described earlier—non-durables with imputed housing, non-
durables without imputed housing, and current expenditure. Further analysis is available
in Milligan (2007).

As with income, I start with a graph of the index of consumption for each chosen
percentile with the first year set to 100. I use the non-durables plus housing measure of
consumption for this graph. In Figure 5 there is a sharp increase from the 1969 to the
1974 FAMEX, with larger increases for the less well off elderly. However, unlike income
in Figure 1, there is less growth after 1974—and the working age families at the median
drop slightly after 1974.
The lack of growth at the bottom for elderly consumption is interesting since there was strong growth at the bottom for income. Several potential explanations arise. First, housing imputation makes a large contribution to consumption at the 10th percentile in Figure 5. When using the current expenditure measure of consumption instead, there is much higher 34 percent growth from 1974 to 2004 at the 10th percentile. Second, it is not obvious that the lowest consuming households are the same as the lowest income households, as some low income earners may be drawing down assets or consuming flows from durables. Third, there may be sampling differences across the consumption and income surveys that underlie the finding. Finally, it could be that a share of the increased income was saved—Milligan (2005) shows that wealth at the 25th percentile among the elderly was higher in 1999 than 1977. Understanding the consumption behaviour of the income-poor elderly and near-elderly remains an interesting topic for future research.

Taking all three measures of adjusted consumption for each family and the ERPM cutoff lines, I can now construct ERPM rates. In Figure 6 the ERPM rates are graphed for each of the three consumption measures. Each line falls from the 1970s to the 1990s. The decrease in the ERPM rate from 1978 to 1997 is 74 percent for the non-durables with housing, 50 percent for the non-durables without housing, and 59 percent for current expenditure. This downward trend mirrors the income graph in Figure 2, although the percentage drop is less for consumption than for income.

The data points for non-durables with housing lie far beneath the other two consumption measures. This results from the importance of the housing imputation. For the elderly, housing outlays are low since many have paid off their mortgages (Chawla
and Wannell 2004). On the other hand, working-age families still have substantial mortgage payments. This results in a very large sensitivity in the level of consumption poverty among the elderly, depending on how one treats housing.

In the final set of graphs I turn to the analysis of poverty rates by age. Because there are fewer observations available in the consumption surveys, I group the data into three-year age groups to decrease the sampling variability. In Figure 7, the poverty rates in are very similar and roughly constant through time, with some higher data points post-age 65. Importantly, there is no spike at ages 55 to 65 as was the case for income poverty in Figures 3 and 4. In Figure 8, the more recent years in the SHS are shown. The results for younger ages are nearly identical to Figure 7. After age 65, there is no evidence of any increase in consumption poverty. Again, there is no spike before age 65.

The consumption poverty analysis produces three major findings. First, the time-trend in consumption poverty measures is sharply down over the last 35 years, similar to income. Second, the level of consumption poverty among the elderly is very sensitive to the treatment of housing flows—when these flows are imputed poverty rates are quite low, but they are high when no imputation is made. Finally, there is no spike in consumption poverty that resonates with the pattern observed immediately before and after age 65 for income poverty measures.

5.0 Discussion

In this paper, I have assembled data on head-count poverty rates for income and consumption among elderly families using all currently available microdata; a period stretching from 1969 to 2004. Over this long time period several important trends become evident. Income poverty rates dropped tremendously through the 1970s and 1980s, but
were fairly constant through the 1990s. A recent upswing in income poverty is observed in relative measures, reflecting both an increase in working family incomes and better-off elderly incomes since the late 1990s; an increase not shared by lower income elderly families. For consumption, all measures of poverty show a decrease through time, but not as sharp as for income. There are substantial differences for the level of consumption poverty depending on which measure of consumption is used—with housing consumption imputations being pivotal.

The most striking finding may be the sharp spike in income poverty at ages leading up to 65. This pattern is not evident in any way in the consumption poverty data. This presents somewhat of a mystery I hope to resolve in future work. Some possible explanations include differences in survey methodology across the income and consumption surveys, consumption maintenance through transfers from family or charity, or consumption maintenance through drawing down assets.

There are several limitations to the analysis. First, I use only headcount measures of poverty; more subtle measures may uncover further important trends. Second, I cut the data only by age and year, leaving out separate analysis of gender, region, immigrant status and other dimensions across which poverty may differ. Third, the sampling methodologies of the surveys may understate poverty due to inadequate coverage of poor families and because of the higher propensity of the elderly to live in institutions where they are missed by surveys. Finally, the poverty cutoffs chosen in the paper are arbitrary and the levels—although less so the trends—show sensitivity to the chosen cutoff.
References


Figure 1: After-tax Income Percentiles, Relative to 1973

![Graph showing after-tax income percentiles relative to 1973.]

Figure 2: Comparing LICO, LIM, and ERPM through time

![Graph comparing LICO, LIM, and ERPM through time.]

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Figure 3: ERPM Rates Across Ages for 1975-1979, 1980-1984, 1985-1989

Figure 4: ERPM Rates Across Ages for 1990-1994, 1995-1999, 2000-2003
Figure 5: Consumption Percentiles, Relative to 1969

Figure 6: ERPM for different consumption measures
Figure 7: ERPM for Consumption Across three-year age groups, 1974-1990 (Non-durable plus Housing)

Figure 8: ERPM for Consumption Across three-year age groups, 1992-2004 (Non-durable plus Housing)
Table 1: Evolution of Public Pension Income Among Bottom Quartile of Elderly

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<th>CPP/QPP Total</th>
<th>Total Public Pensions</th>
<th>Private pension and RRIF income</th>
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</table>

Notes: The years 1973 to 1995 come from the economic family files of the Survey of Consumer Finances. The 1996 to 2003 years come from the economic family files of the Survey of Labour and Income Dynamics. Only observations from the bottom quartile among elderly families are included. OAS, GIS, and SPA stand for income from Old Age Security, the Guaranteed Income Supplement, and the Spouse’s Allowance / Allowance programs. CPP is the Canada Pension Plan and QPP is the Quebec Pension Plan. The column labeled Total Public Pensions sums the first two columns. The column labeled Private Pension and RRIF Income contains income from Registered Pension Plans and Registered Retirement Income Funds.

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The label ‘poverty’ is attached to these measures by me, not Statistics Canada. Fellegi (1997) lays out the position of Statistics Canada, which is to eschew the use of the word ‘poverty’ in the absence of legislative guidance. This restriction of terminology, while understandable for a statistical agency, does not limit researchers in their choice of how to describe the measures they use. See Giles (2004) for a description of Statistics Canada low income measurement methodology.

An economic family is defined as two or more people related by blood, marriage, common-law relationship, or adoption living in the same dwelling. Those who are unattached (single) are not considered to be in an economic family, but are often compared along with economic families. I include single persons in all of the analysis in this paper.

A similar measure is used in Baker, Gruber, and Milligan (2005). The idea to compare the elderly to a measure defined on the non-elderly population comes from the organizers of the NBER International Social Security project, Jonathan Gruber and David Wise. Hauser (1999) also compares elderly to non-elderly households in his cross-country analysis.

This question of the right comparison group for the elderly often arises in the discussion of elderly incomes. See, for example, the discussion in Johnson and Stears (1998).

These differences are discussed and analyzed in Webber et al. (1999). The implications of using survey data for the measurement of inequality and poverty are examined in Frenette, Green, and Picot (2006), and Frenette, Green, and Milligan (2007). In particular, the surveys may under-sample families near the bottom of the income distribution, which would tend to understate poverty.

If poor elderly are more likely to be resident in institutions, then the Labour Force Survey sampling frame may undercount poverty relative to the full national population.

The spending unit definition includes individuals living together who pool their income. There is no requirement for blood relationships among the individuals, setting the definition slightly apart from the economic family.

Lump-sum withdrawals from pension plans or RRSPs represent a shift of assets from one account to another and therefore do not represent economic income no matter the tax status of the transfer. In the data, non-elderly families have much higher lump-sum withdrawals since elderly individuals tend to withdraw through RRIFs rather than lump-sums. Capital gains represent income under a Haig-Simons definition as they accrue, but are only reported in the data when the gains are realized. Therefore, including them would tend to distort inequality measures because of this temporal bunching of the reporting of capital gains.

The treatment of housing is particularly important for the elderly, since the great majority of the elderly own their own home outright, meaning that they expend very little for housing yet may receive substantial consumption flows. This stands in contrast to working age families who are much more likely to pay for housing at a rate closer to the consumption flow. See Chawla and Wannell (2004) for a description of housing expenditures in the elderly and non-elderly populations. See also Crossley and Curtis (2006) for a detailed treatment of the measurement of consumption poverty for the case of children.

There are eight categories: food purchased from stores, restaurant food, household operation, household furnishings and equipment, clothing, private transportation operation, public transportation, and personal care.

They impute housing flows by finding the mean rent among renters in year/region/room size cells and imputing that rental amount to everyone within that cell. My imputation differs from theirs slightly, in that I use the median within each cell and I cap room size at 9 rather than 11. For a handful of empty cells, I borrow the rental value from a neighbouring cell.

Crossley and Pendakur (2006) argue that welfare analysis ought to be done at the individual level, since most economic welfare analysis takes individuals as the basic unit. I have reproduced the tables appearing in this paper using individual weighting for the years it is possible and the trends are very similar.

For the SLID, the major income earner is used, since household head is not designated. For the consumption surveys, the ‘reference person’ is used in place of the head when head is not available. In almost all cases, the person I designate as the head or head equivalent is the oldest person.
This imputation is necessary only in the 1996 FAMEX and the SHS. For the 1996 FAMEX, the number of children age 0 to 16 is reported. Using the SLID, I calculate the proportion of children aged 0 to 16 who are exactly age 16, and impute 16 year olds to the 1996 FAMEX using the reported number of age 0 to 16 year olds. I then can calculate a number for 0 to 15 year olds. I follow the same procedure for the SHS, where children aged 5 to 17 are grouped together.

Specifically, from 1973 to 1982, the largest community size category is for 100,000 and higher, while the LICO splits this into 100,000 to 499,999 and 500,000 plus. For these years, I assign the families in the 100,000 plus category the LICO for 500,000 plus.

The sources used for the LICOs and LIMs are Statistics Canada (1998) and Statistics Canada (2006). In Milligan (2007), I compare these poverty rates with those that are directly reported in the income surveys. The poverty rates I create from reported income are quite close to those reported directly in the surveys.

The SLID and the SCF provide low-income indicators, but not for all cutoffs in all years. My constructed low-income indicators are almost identical to the provided ones. See Milligan (2007) for a detailed comparison.

All economic families in the survey are sorted into quartiles according to size-adjusted, real after-tax income.