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by Tahsin Mehdi

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A cross-cohort comparison of economic well-being during retirement years

by Tahsin Mehdi

Abstract

This study analyzes the extent to which pre-retirement lifestyles can be maintained into retirement years by comparing family incomes of five cohorts of individuals as they age from their mid 50s to late 70s. The cohorts considered were from 1984, 1987, 1990, 1993 and 1996. Three main results are uncovered from this study. First, median and average family incomes have generally risen across cohorts. Second, recent cohorts of retirees were able to maintain more of their pre-retirement family incomes compared with previous cohorts, partly driven by an increase in private pensions. Third, family incomes have become more stable across cohorts. The extent of the improvements across cohorts varies across the income distribution.

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Introduction

The financial security of seniors has long been a concern, especially in recent years, against the backdrop of an aging population (LaRochelle-Côté, Myles and Picot 2008). Working-age individuals usually rely on earnings as a major source of income, but as they age and exit the labour force, they rely to a greater extent on pension benefits coming from the Canada Pension Plan (CPP) and Quebec Pension Plan (QPP), Old Age Security (OAS) and Guaranteed Income Supplement (GIS), registered pension plans (RPPs), and Registered Retirement Savings Plans (RRSPs). This places the issue of financial security of seniors front and centre since it affects not just beneficiaries of pensions, but also workers currently contributing to the CPP, the QPP and RPPs.

Business cycles, in conjunction with the policy landscape, ultimately shape people's economic experiences. For example, retirees from the 2010s likely had a very different experience than their counterparts from the 1990s. It is important to measure these potential cross-cohort differences in economic outcomes to identify gaps and better understand future policy needs. Using a longitudinal database, this study follows various cohorts of individuals 54 to 56 years of age until they reach ages 78 to 80 and assesses (1) the extent to which pre-retirement living standards are maintained through retirement years and (2) family income stability before and after retirement. Both are important in assessing economic well-being. Income growth alone is not sufficient to conclusively say whether recent cohorts are better off than previous ones. Income instability can also affect well-being in several ways. Unless offset by the tax and transfer system, unexpected fluctuations in family income can cause uncertainty and adversely affect well-being (Morissette and Ostrovsky 2005).

Cross-cohort studies on income replacement and income stability of seniors have been done in the past (LaRochelle-Côté, Myles and Picot 2008, 2010), but the underlying data in those studies are now more than a decade old and may no longer reflect the experiences of more recent cohorts of retirees. Those studies identify individuals at ages 54 to 56 and again at ages 78 to 80, with their incomes compared at those two points in time.[1] Since Canadians usually retire at age 65, focusing on such a narrowly defined concept of "retirement years" (i.e., 78 to 80 years of age) misses a lot of crucial information leading up to ages 78 to 80 and, more importantly, fails to capture the experiences of retirees who died before reaching that age. Therefore, while this study still maintains 54 to 56 years of age as a suitable proxy for "pre-retirement years," it opts for a more comprehensive concept of "retirement years" by averaging measures from ages 65 to 80 whenever comparing retirement and pre-retirement indicators, rather than limiting the comparison to just ages 78 to 80.[2]

While previous Canadian studies on income replacement and stability are not recent, they offer useful information and will partially guide this study's methodology. LaRochelle-Côté, Myles and Picot (2008) found that lower-income individuals experienced higher levels of income instability than higher-income individuals during their late 50s and early 60s, but the gap closed and incomes became more stable later in life when individuals started receiving the CPP or QPP and OAS and GIS. Morissette and Ostrovsky (2005) also found government transfers to play an important role in reducing income instability. LaRochelle-Côté, Myles and Picot (2010) found that more recent cohorts improved their income positions relative to previous ones, in part because of higher income from private pensions such as RPPs and RRSPs. Schellenberg and Ostrovsky (2009) found a strong correlation between RPP coverage and the

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1. Ideally, it would suffice to follow cohorts of individuals who were the same age (e.g., 54 to 78, 55 to 79, or 56 to 80), but including adjacent ages (e.g., 54, 55 and 56) boosts the sample size for more accurate measurement. Terminating the series at ages 78 to 80 may be viewed as rather arbitrary, but the simple reason is that there is not a lot to gain by analyzing incomes beyond age 80 since the sample becomes smaller because of deaths.
2. Though not reported, measures were also averaged from ages 60 to 80 to capture early retirement, but this did not make any material difference to any of the indicators.

likelihood of being retired but did not find any significant difference in income replacement rates between RPP and non-RPP members, although the latter typically retired at older ages.

The topic of income replacement and stability warrants another examination because of recent developments in the labour market, such as the increasing share of women in education, health care, social services and public administration, which could have contributed to higher incomes among more recent cohorts of female retirees resulting from higher RPP coverage. To put this into perspective, the share of women 25 to 54 years of age working full time in public administration increased from 29% in 1980 to 48% in 2020. Similarly, the share increased from 48% to 70% in educational services, while it increased from 71% to 80% in health care (Statistics Canada, 2022a). Moreover, the average job tenure of women in these industries with relatively higher RPP coverage has increased over time (Statistics Canada, 2022b). The purpose of this study is to not only update the results of previous studies with more recent data and more comprehensive indicators, but also analyze the issues within the purview of current policy.

This study highlights three major findings. First, median and average family incomes have generally risen across cohorts. As a result, recent cohorts of retirees have a higher family income at their disposal than previous ones. Second, income replacement rates at ages 65 to 80—family income at ages 65 to 80 as a share of family income at ages 54 to 56—have improved across cohorts, partly driven by an increase in income from RPPs and RRSPs. Third, family income has become more stable for recent cohorts.

Data

This study pulls together data from the Longitudinal Administrative Databank (LAD), which is a 20% sample of all tax filers and their families in Canada. A prominent feature of the LAD is that tax filers are linked across years so their income profiles can be traced over time starting from 1982 (if available). The database, which had annual data up to the year 2020 at the time of this study, contains a rich set of information on income and tax components, as well as basic demographic information. Although the LAD is an individual-level database, it contains useful information on the families of these individuals, such as family size and family income.

The population of interest for this study consists of individuals who were 54 to 56 years of age in 1984, 1987, 1990, 1993 and 1996. Their family incomes were tracked for 24 years, at the end of which they would be 78 to 80 years of age. Four additional cohorts—1999, 2002, 2005 and 2008—were considered, but a complete age–income profile up to ages 78 to 80 could not be constructed since these cohorts are younger.[3] Individuals who passed away before reaching ages 78 to 80 are included in the sample and hence their incomes still contributed to all the indicator calculations before their death. For this reason, the results of this study are best interpreted as reflecting the economic well-being of all individuals within a cohort, taken collectively.

After-tax family income is the income concept used in this study. Income includes earnings, pensions, investments, net capital gains and other sources. Family income captures potential resource sharing between family members and therefore better measures economic well-being than do individual-based income measures.[4] In line with the well-being literature, family income is adjusted for family size by dividing it by the square root of the family size to account for economies of scale available to individuals

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3. For instance, individuals 54 to 56 years of age in 1996 would be 78 to 80 years of age in 2020. However, since the LAD did not have data beyond the year 2020 at the time of this study, information up to ages 78 to 80 for individuals from cohorts after 1996 would not be available in the database.
4. While past studies on income replacement rates considered only federal and provincial income taxes, this study also accounts for employment insurance and CPP and QPP contributions in calculating taxes.

in larger families (OECD 2013). All incomes are converted to 2020 constant dollars using the national all-items Consumer Price Index from Statistics Canada (2022c). To identify specific income sources, certain portions of this study disaggregate family income into its constituent parts. Since not all income sources are taxable, income before taxes is used in those parts of this study.

Methods

Since the income that a family receives in a given year *t* is partly influenced by positive or negative shocks that do not reflect its earnings capacity, this study uses a measure of "permanent" income that averages family income over three years when considering year *t*. For example, the permanent income of someone 55 years of age is calculated as the average of their annual adjusted after-tax family incomes when they were 54, 55 and 56 years of age. Further references to "income" in this study should be interpreted as permanent after-tax family income adjusted for family size, unless stated otherwise.

One of the indicators used in this study for measuring economic well-being is the income replacement rate, which is an individual's income at any age as a share of their income when they were 54 to 56 years of age. Replacement rate in this study is calculated in three steps. First, the rate is calculated at the individual level for each age (e.g., 54 to 56, 55 to 57, …, 77 to 79, 78 to 80). Second, the median or average of the rates at each age is computed across individuals. Third, to calculate the replacement rate at ages 65 to 80, the average of the median rates or the average of the average rates is taken across ages 64 to 66 through 78 to 80.

To capture distributional variations, the initial samples of individuals aged 54 to 56 were divided by sex and into five groups of roughly equal sizes ranked by their income—income quintiles. The income quintile thresholds are calculated separately for women and men to better capture the differential patterns in the indicators.

A common problem with tax data is the inadequate coverage of lower-income individuals, who are less likely to file taxes (although this has improved over time). To overcome this obstacle, the study follows LaRochelle-Côté, Myles and Picot (2008) and excludes individuals who initially had incomes below $10,000 (2005 dollars), which amounts to approximately $13,000 in 2020 constant dollars.[5] Because of changes in the data (e.g., new income components) and methodology, some of the indicators presented in this study may not be directly comparable with those of LaRochelle-Côté, Myles and Picot (2008, 2010), but, nonetheless, underlying patterns, trends and relative differences can still be compared.

This study also assesses another important aspect of financial security: income instability during retirement. Income instability can have a detrimental effect on retirees' well-being because it creates uncertainty and may adversely affect consumption levels. To quantify income instability, this study estimates the mean absolute deviation (MAD) of lifecycle-adjusted family incomes. The MAD is a simple measure of instability and has an intuitive interpretation. It simply measures the deviation from the average, in percentage terms. For example, a MAD of 0.1 would indicate that individuals, on average, deviated from their average income level by 10%. Therefore, a higher MAD value would be associated with greater financial instability.[6] Annual adjusted after-tax family income is used to analyze income instability since the interest is on examining the degree of year-over-year variation in income levels at

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5. This results in sample sizes of 271,315, 282,530, 290,500, 310,675 and 341,880 women and 293,710, 299,240, 295,585, 309,940 and 340,860 men for the 1984, 1987, 1990, 1993 and 1996 cohorts, respectively.
6. Another possible measure of instability requires the decomposition of the variance of the lifecycle-adjusted family incomes into permanent (between-group) and transitory (within-group) differences, where the latter can be viewed as a measure of instability (Morissette and Ostrovsky 2005; LaRochelle-Côté, Myles and Picot 2008). This measure was calculated but the results did not differ much from the MADs.

different stages of retirement. The $10,000 (2005 dollars) lower-bound restriction from earlier is relaxed in this part of the study. A version of the method described below has been applied by Morissette and Ostrovsky (2005) and LaRochelle-Côté, Myles and Picot (2008).

Income instability is examined separately by sex and for five age groups (55 to 59, 60 to 64, 65 to 69, 70 to 74, and 75 to 79). The method starts out by estimating the following fixed-effects regression model separately by sex and age group:

$$y_{it} = \beta_0 + \beta X_{it} + e_i + u_{it}, \tag{1}$$

where y_{it} is the natural logarithm (log) of annual adjusted after-tax family income of individual i at time t, X_{it} is a vector of observable personal characteristics (age and age squared in this study), e_i is the individual fixed effect, and u_{it} is the error term. After the model is estimated, lifecycle effects are removed by replacing the actual incomes, $y_{it,}$ by the lifecycle-adjusted family incomes, $y_i t^*$:

$$y_{it}^* = y_{it} - \hat{\beta}_0 - \hat{\beta} X_{it} = \hat{e}_i + \hat{u}_{it}. \tag{2}$$

If N individuals are observed across T years and $\bar{y}_i^*$ is the average of the lifecycle-adjusted family incomes of individual i over T years, the MAD can be calculated as

$$MAD = \frac{1}{NT} \sum_{i=1}^{N} \sum_{t=1}^{T} \left| y_{it}^* - \bar{y}_i^* \right|. \tag{3}$$

After-tax family incomes of retirees have generally increased across cohorts

Median adjusted after-tax family incomes at various ages for nine cohorts are reported in Table 1. It is difficult to compare the incomes observed across cohorts because of business cycle effects in different periods of time. For instance, someone 60 years of age in 2008 would have had a different experience than someone 60 years of age in 1990. In Table 1, two observations can be made. First, as expected, median incomes tend to fall with age, driven by the fact that earnings decrease as individuals exit the labour market (LaRochelle-Côté, Myles and Picot 2008, 2010). Second, incomes during retirement years have generally increased across cohorts. For example, women 65 to 67 years of age in 1995 (1984 cohort) had a median income of $38,200. At the same stage in life, the 1987 cohort's median income slightly drops to $36,600. However, this amount gradually increased starting from the 1990 cohort. And by 2019, women 65 to 67 years of age (2008 cohort) had a median income of $48,900. A similar pattern holds for men with the only difference being higher income levels than women.

Average incomes, unlike the median, are more susceptible to outliers. But nonetheless, it is important to ensure that the conclusions drawn from this study are robust to different measures so average incomes still add value to the analysis (Table 2). The averages tell a similar story in terms of cross-cohort income gains, but, within each cohort, the decline in income with age is not as apparent as it is with median incomes. This is because average incomes are influenced by relatively few individuals who might have substantially more income than others.

Table 1
Median adjusted permanent after-tax family income (2020 dollars), by sex and cohort

Age (years)	1984	1987	1990	1993	1996	1999	2002	2005	2008
					dollars				
Women									
54 to 56	44,000	44,500	45,700	44,000	45,200	44,600	48,600	50,800	54,700
55 to 57	44,100	44,500	44,600	45,100	42,600	45,300	48,100	51,300	54,800
56 to 58	43,700	44,800	43,100	43,900	42,000	45,500	47,600	51,900	54,200
57 to 59	43,500	44,100	42,100	42,800	41,800	45,500	47,300	52,100	53,300
58 to 60	43,300	42,800	42,800	39,900	42,100	44,600	47,600	51,800	52,600
59 to 61	42,400	41,000	41,500	39,300	42,200	44,000	47,800	51,100	52,100
60 to 62	41,100	39,800	40,200	38,900	41,800	43,800	47,800	50,100	51,900
61 to 63	39,500	40,300	37,400	38,900	40,800	43,800	47,500	49,100	51,500
62 to 64	38,400	39,300	36,900	38,800	40,200	44,100	46,600	48,400	50,800
63 to 65	39,300	38,400	36,800	38,700	40,100	44,200	45,800	48,000	50,200
64 to 66	38,700	36,700	37,200	38,200	40,500	44,200	45,200	47,800	49,600
65 to 67	38,200	36,600	37,600	38,000	41,000	43,700	44,700	47,200	48,900
66 to 68	36,500	36,400	37,500	37,900	41,100	43,000	44,400	46,600	47,800
67 to 69	36,000	36,500	37,000	38,200	40,900	42,100	44,000	45,800	..
68 to 70	35,800	36,800	36,700	38,600	40,400	41,500	43,400	45,200	..
69 to 71	36,100	36,800	36,800	38,900	40,000	41,300	43,100	44,600	..
70 to 72	36,500	36,400	37,200	39,100	39,500	41,600	42,800	..	..
71 to 73	36,500	36,100	37,700	38,900	39,600	41,500	42,700	..	..
72 to 74	35,900	36,000	37,900	38,600	39,500	41,300	42,500	..	..
73 to 75	35,500	36,200	37,900	38,000	39,700	40,800	..	..	..
74 to 76	35,200	36,500	37,400	37,500	39,300	40,500	..	..	..
75 to 77	35,300	36,700	36,800	37,300	39,000	40,200	..	..	..
76 to 78	35,700	36,700	36,200	37,300	38,500	..	..	..	..
77 to 79	35,900	36,200	35,800	37,000	38,300	..	..	..	..
78 to 80	36,000	35,600	35,700	36,800	38,200	..	..	..	..
Men									
54 to 56	45,600	46,900	48,300	46,900	48,000	48,000	52,100	53,600	57,000
55 to 57	46,000	47,500	47,400	48,800	45,900	49,200	52,200	54,800	57,800
56 to 58	46,300	48,200	46,100	47,800	45,900	49,800	52,100	55,900	57,500
57 to 59	46,600	47,900	45,100	46,700	46,000	50,100	52,300	56,500	57,000
58 to 60	47,000	46,500	46,700	43,800	46,600	49,600	52,800	56,500	56,500
59 to 61	46,400	44,700	45,700	43,400	46,900	49,200	53,400	55,900	56,400
60 to 62	44,700	43,500	44,600	43,200	46,900	49,100	53,700	55,000	56,400
61 to 63	42,700	44,700	41,300	43,500	46,000	49,500	53,400	54,200	56,300
62 to 64	41,500	43,400	40,600	43,500	45,500	49,800	52,500	53,600	55,700
63 to 65	42,400	42,100	40,200	43,200	45,000	49,700	51,500	53,200	55,200
64 to 66	41,300	39,100	40,400	42,200	45,100	49,300	50,400	52,800	54,400
65 to 67	40,100	38,500	40,300	41,400	45,300	48,300	49,500	51,900	53,500
66 to 68	37,700	38,000	40,100	40,900	45,100	47,200	48,900	51,100	52,000
67 to 69	37,400	38,300	39,400	41,300	44,800	46,100	48,500	50,200	..
68 to 70	37,300	38,700	39,300	41,900	44,100	45,400	47,900	49,600	..
69 to 71	37,900	39,200	39,500	42,300	43,800	45,300	47,600	48,800	..
70 to 72	38,600	39,000	40,200	42,600	43,300	45,500	47,300	..	..
71 to 73	38,700	38,800	41,000	42,500	43,400	45,500	47,200	..	..
72 to 74	38,400	38,800	41,400	42,200	43,400	45,500	46,800	..	..
73 to 75	38,200	39,300	41,600	41,700	43,700	45,200	..	..	..
74 to 76	38,200	40,000	41,300	41,500	43,300	45,000	..	..	..
75 to 77	38,600	40,400	41,000	41,400	43,200	44,600	..	..	..
76 to 78	39,200	40,600	40,400	41,700	42,700	..	..	..	..
77 to 79	39,800	40,300	40,100	41,400	42,600	..	..	..	..
78 to 80	40,000	40,000	40,100	41,200	42,500	..	..	..	..

.. not available for a specific reference period
Notes: Only individuals with at least $10,000 (2005 dollars) at ages 54 to 56 are included. Permanent income here is calculated by taking a three-year average of an individual's annual after-tax family income adjusted for family size.
Source: Longitudinal Administrative Databank, 1982 to 2020.

Table 2
Average adjusted permanent after-tax family income (2020 dollars), by sex and cohort

Age (years)	1984	1987	1990	1993	1996	1999	2002	2005	2008
					dollars				
Women									
54 to 56	50,600	51,900	54,700	52,700	54,200	53,900	59,600	62,200	67,500
55 to 57	51,100	53,100	53,500	55,500	50,400	55,700	58,800	64,200	67,500
56 to 58	51,800	54,700	51,500	54,000	50,600	56,500	58,500	66,000	66,300
57 to 59	52,400	53,800	51,100	52,100	51,000	56,600	59,200	66,300	65,500
58 to 60	53,400	52,200	53,400	47,500	52,500	55,200	60,700	65,400	64,500
59 to 61	52,100	49,900	51,600	47,500	52,800	54,700	62,200	63,900	64,000
60 to 62	50,600	49,400	49,700	47,700	52,600	55,300	62,000	62,600	63,900
61 to 63	48,100	51,400	45,100	48,600	50,900	56,700	60,700	61,300	64,400
62 to 64	47,800	49,700	45,200	48,700	50,300	58,100	58,700	60,000	63,800
63 to 65	49,800	48,200	45,200	48,500	50,800	58,100	57,500	59,700	63,200
64 to 66	48,700	44,400	46,700	47,200	52,500	57,100	56,700	60,200	62,000
65 to 67	47,700	44,600	47,000	47,200	54,100	55,500	56,000	59,700	61,300
66 to 68	44,000	44,400	47,300	47,800	53,900	54,400	55,600	59,500	60,300
67 to 69	44,000	45,500	46,000	49,200	52,500	53,300	55,800	58,600	..
68 to 70	43,800	46,100	46,000	50,400	50,700	52,700	55,400	58,300	..
69 to 71	45,100	46,600	46,800	50,900	50,200	52,700	55,700	57,700	..
70 to 72	46,000	45,700	48,800	50,200	49,900	53,800	55,400	..	..
71 to 73	46,400	45,600	50,600	49,500	50,400	53,900	56,200	..	..
72 to 74	45,400	46,400	50,800	49,000	51,000	54,300	56,000	..	..
73 to 75	45,100	47,600	49,600	48,700	52,400	53,700	..	..	..
74 to 76	45,800	48,900	48,100	47,800	52,000	54,200	..	..	..
75 to 77	46,800	49,200	47,100	48,100	51,900	54,000	..	..	..
76 to 78	48,000	48,400	46,900	49,000	51,200	..	..	..	..
77 to 79	48,100	47,200	46,300	49,800	51,500	..	..	..	..
78 to 80	47,700	46,500	46,700	50,200	51,900	..	..	..	..
Men									
54 to 56	51,900	54,000	57,300	55,400	57,300	57,200	63,200	64,600	70,900
55 to 57	52,700	56,100	56,600	58,900	54,100	59,600	63,300	67,400	71,500
56 to 58	54,000	58,200	54,600	57,800	54,800	61,200	63,700	70,200	70,900
57 to 59	55,600	57,600	54,600	56,400	55,700	61,800	65,100	71,100	70,300
58 to 60	57,700	56,000	57,800	52,100	57,600	60,900	66,900	70,600	69,700
59 to 61	56,900	53,600	56,400	52,400	58,500	60,900	69,200	69,100	69,400
60 to 62	55,000	53,100	54,700	53,200	58,700	61,700	69,600	68,200	69,700
61 to 63	51,900	55,800	49,500	55,100	57,200	63,400	68,400	67,300	70,300
62 to 64	51,200	53,900	49,500	56,000	56,900	64,900	66,700	66,700	69,500
63 to 65	53,800	52,100	49,600	55,200	57,300	64,900	65,200	66,200	68,900
64 to 66	52,300	47,300	50,800	53,300	58,800	63,500	64,000	66,500	67,800
65 to 67	50,700	47,200	51,500	52,900	60,300	61,400	62,900	65,500	67,600
66 to 68	46,200	47,100	51,400	53,200	59,800	60,000	62,400	64,900	65,900
67 to 69	46,600	48,300	50,100	54,900	58,200	58,700	62,800	63,500	..
68 to 70	47,100	48,900	49,500	56,600	56,200	57,600	61,900	63,200	..
69 to 71	48,800	49,500	50,500	57,200	55,300	57,500	61,700	62,500	..
70 to 72	49,500	48,600	52,500	56,400	55,100	58,400	60,900	..	..
71 to 73	50,100	48,800	54,500	55,400	55,000	58,800	61,300	..	..
72 to 74	49,100	49,900	55,000	54,700	55,900	59,300	60,800	..	..
73 to 75	49,100	51,800	54,300	54,200	57,200	59,000	..	..	..
74 to 76	50,000	53,800	53,100	53,700	56,900	59,000	..	..	..
75 to 77	51,900	54,100	52,500	54,300	56,800	58,300	..	..	..
76 to 78	54,000	53,200	51,900	55,700	56,400	..	..	..	..
77 to 79	54,300	52,200	51,800	55,500	57,200	..	..	..	..
78 to 80	53,500	52,100	52,500	55,800	57,300	..	..	..	..

.. not available for a specific reference period
Notes: Only individuals with at least $10,000 (2005 dollars) at ages 54 to 56 are included. Permanent income here is calculated by taking a three-year average of an individual's annual after-tax family income adjusted for family size.
Source: Longitudinal Administrative Databank, 1982 to 2020.

Table 1 and Table 2 illustrate differences in income across cohorts, on average, but they say nothing about the actual distribution of income. To better understand how the income gains across cohorts are distributed, median and average incomes are calculated for the bottom, middle and top income quintiles in Table 3. For ease of presentation, only the incomes at ages 54 to 56 and ages 65 to 80 are reported for the 1984, 1987, 1990, 1993 and 1996 cohorts. Income at ages 65 to 80 refers to median and average incomes averaged across ages 64 to 66 through 78 to 80. Table 3 shows that the income gains at ages 65 to 80 observed across cohorts are, in absolute terms, more pronounced in the middle and top quintiles than in the bottom quintile.

Women 54 to 56 years of age in the **top** quintile had a median income of $80,500 and average income of $96,500 in 1984. By ages 65 to 80, the average of the median incomes was $59,600, while the average of the average incomes was $80,600. For the 1996 cohort, pre-retirement median income grew by 12%, while average income grew by 16%. The average of the medians and average of the averages at ages 65 to 80 also grew by similar rates, respectively. Similar patterns hold for men except that their income levels were higher.

Median and average incomes of women aged 54 to 56 years in the **middle** quintile were around $44,000 in 1984. The average of the median incomes at ages 65 to 80 was $35,100, while the average of the average incomes was $38,700. The pre-retirement incomes grew by around 2%, while the retirement incomes grew by 11% for the 1996 cohort. Men had higher incomes and marginally higher growth rates.

Even though women and men from the **bottom** quintile saw a decrease in pre-retirement median and average incomes across cohorts, the average of median incomes and average of average incomes at ages 65 to 80 remained similar or increased.

Registered pension plans and Registered Retirement Savings Plans represent increasingly important sources of retirement income

So far, the data have shown that incomes have increased across cohorts and most of the gains were made by the middle and top quintiles. But from a policy standpoint, a closer examination of the underlying income sources is needed to gain insights as to which sources are actually driving improvements. Since not all incomes are taxable, decomposing after-tax income is not possible. For this reason, Table 4 decomposes **average income before taxes** (median income cannot be decomposed) into five sources: (1) earnings (wages and self-employment), (2) pensions (CPP and QPP, OAS and GIS, RPPs, and RRSPs), (3) investments, (4) net capital gains and (5) other sources.

Table 3

Median and average adjusted permanent after-tax family income (2020 dollars), by age, sex, cohort and selected income quintile

	Bottom quintile						Middle quintile						Top quintile					
	1984	1987	1990	1993	1996	Change from 1984 to 1996	1984	1987	1990	1993	1996	Change from 1984 to 1996	1984	1987	1990	1993	1996	Change from 1984 to 1996
									dollars									
Women																		
Ages 54 to 56																		
Median income	22,400	22,000	22,500	20,800	20,300	-2,100	44,000	44,500	45,700	44,000	45,200	1,200	80,500	83,600	87,000	87,200	89,800	9,300
Average income	21,900	21,600	21,900	20,600	20,100	-1,800	44,200	44,600	45,800	44,100	45,200	1,000	96,500	101,900	111,500	107,700	112,100	15,600
Ages 65 to 80																		
Average of the median incomes	25,100	24,800	24,300	24,200	24,700	-400	35,100	35,400	36,200	37,100	39,000	3,900	59,600	59,800	61,500	63,400	66,600	7,000
Average of the average incomes	28,700	28,200	27,900	28,600	28,800	100	38,700	39,100	39,900	41,300	42,900	4,200	80,600	82,200	84,600	86,400	94,300	13,700
Men																		
Ages 54 to 56																		
Median income	23,400	24,000	24,400	22,400	21,800	-1,600	45,600	46,900	48,300	46,900	48,000	2,400	81,100	85,400	90,100	90,400	93,800	12,700
Average income	22,800	23,300	23,600	21,900	21,500	-1,300	45,700	47,000	48,500	47,000	48,100	2,400	97,300	103,900	115,000	111,400	117,800	20,500
Ages 65 to 80																		
Average of the median incomes	26,600	26,500	26,100	26,300	27,000	400	37,100	37,900	38,600	39,800	41,700	4,600	61,600	62,600	64,600	67,000	71,500	9,900
Average of the average incomes	30,500	30,300	30,700	31,600	32,700	2,200	41,400	41,800	42,500	44,600	46,400	5,000	88,200	87,000	92,600	99,500	103,100	14,900

Notes: Only individuals with at least $10,000 (2005 dollars) at ages 54 to 56 are included. Income quintiles are calculated separately by sex based on permanent after-tax family income adjusted for family size at ages 54 to 56. Permanent income here is calculated by taking a three-year average of an individual's annual after-tax family income adjusted for family size. The average of the median incomes and average of the average incomes at ages 65 to 80 are calculated by averaging the median or average incomes across ages 64 to 66 through 78 to 80.

Source: Longitudinal Administrative Databank, 1982 to 2020.

Table 4

Average adjusted permanent family income before taxes (2020 dollars), by age, sex, cohort and selected income quintile

	Bottom quintile						Middle quintile					
						Change from						Change from
	1984	1987	1990	1993	1996	1984 to 1996	1984	1987	1990	1993	1996	1984 to 1996
						dollars						
Women												
Ages 54 to 56												
Total	23,500	23,400	23,800	21,900	21,700	-1,800	52,500	54,000	56,200	54,000	55,700	3,200
Earnings	14,800	14,300	13,100	10,400	10,300	-4,500	41,200	42,100	42,900	38,900	39,500	-1,700
Wages	13,000	12,500	11,500	9,100	9,200	-3,800	39,500	40,300	41,200	37,400	38,000	-1,500
Self-employment	1,800	1,800	1,600	1,300	1,100	-700	1,700	1,800	1,700	1,500	1,500	-200
Pensions	3,000	3,300	4,000	4,000	4,400	1,400	3,400	4,200	5,800	7,200	8,700	5,300
CPP and QPP	1,500	1,800	2,200	2,100	2,300	800	800	1,100	1,500	1,900	2,000	1,200
OAS and GIS	300	300	300	500	500	200	200	200	200	300	300	100
RPP and RRSP	1,200	1,200	1,500	1,400	1,600	400	2,400	2,900	4,100	5,000	6,400	4,000
Investments	2,600	2,300	2,100	1,500	1,100	-1,500	4,500	4,200	4,300	3,200	2,200	-2,300
Net capital gains	200	200	100	100	300	100	400	600	400	400	1,500	1,100
Other	2,900	3,300	4,500	5,900	5,600	2,700	3,000	2,900	2,800	4,300	3,800	800
Ages 65 to 80												
Total	29,800	29,300	28,800	29,800	29,900	100	42,900	43,300	43,800	45,000	46,900	4,000
Earnings	3,500	3,500	3,200	3,700	4,000	500	4,600	5,100	5,200	5,600	6,300	1,700
Wages	3,200	3,100	2,800	3,200	3,500	300	4,200	4,700	4,700	5,100	5,700	1,500
Self-employment	300	400	400	500	500	200	400	400	500	500	600	200
Pensions	20,600	20,800	20,800	20,800	21,300	700	30,400	31,100	32,000	32,600	34,100	3,700
CPP and QPP	6,600	6,500	6,100	5,800	5,700	-900	9,300	9,300	9,400	9,500	9,600	300
OAS and GIS	10,700	11,000	11,600	12,000	12,300	1,600	8,800	8,900	9,000	9,200	9,100	300
RPP and RRSP	3,300	3,300	3,100	3,000	3,300	0	12,300	12,900	13,600	13,900	15,400	3,100
Investments	2,300	2,000	1,500	1,600	1,200	-1,100	4,100	3,800	3,100	3,000	2,600	-1,500
Net capital gains	1,200	900	1,200	1,600	1,200	0	1,900	1,500	1,700	1,900	1,900	0
Other	2,200	2,100	2,100	2,100	2,200	0	1,900	1,800	1,800	1,900	2,000	100
Men												
Ages 54 to 56												
Total	25,000	26,000	26,400	24,200	23,800	-1,200	55,400	58,100	60,800	59,200	61,000	5,600
Earnings	18,400	18,900	18,000	14,500	14,400	-4,000	47,500	50,000	51,600	48,700	49,000	1,500
Wages	15,600	16,200	15,500	12,600	12,500	-3,100	45,600	47,900	49,300	46,900	47,000	1,400
Self-employment	2,800	2,700	2,500	1,900	1,900	-900	1,900	2,100	2,300	1,800	2,000	100
Pensions	900	1,200	1,900	2,100	2,500	1,600	1,400	1,700	2,600	3,300	4,900	3,500
CPP and QPP	400	600	1,000	1,100	1,200	800	200	300	500	700	800	600
OAS and GIS	0	0	0	0	100	100	0	0	0	0	0	0
RPP and RRSP	500	600	900	1,000	1,200	700	1,200	1,400	2,100	2,600	4,100	2,900
Investments	2,000	1,800	1,800	1,400	1,000	-1,000	3,300	3,200	3,500	2,400	1,700	-1,600
Net capital gains	200	200	200	200	300	100	400	600	400	500	1,600	1,200
Other	3,500	3,900	4,500	6,000	5,600	2,100	2,800	2,600	2,700	4,300	3,800	1,000
Ages 65 to 80												
Total	32,100	32,000	32,300	33,500	35,000	2,900	46,600	47,000	47,200	49,500	51,400	4,800
Earnings	5,500	5,500	5,600	7,000	8,600	3,100	7,200	7,300	8,000	9,500	10,500	3,300
Wages	4,800	4,900	4,900	6,000	7,000	2,200	6,500	6,700	7,200	8,500	9,500	3,000
Self-employment	700	600	700	1,000	1,600	900	700	600	800	1,000	1,000	300
Pensions	20,400	20,800	20,800	20,600	20,900	500	31,600	32,600	32,400	32,900	34,200	2,600
CPP and QPP	6,900	6,900	6,600	6,400	6,200	-700	9,400	9,500	9,500	9,600	9,500	100
OAS and GIS	10,000	10,200	10,600	10,800	11,000	1,000	8,300	8,400	8,400	8,500	8,500	200
RPP and RRSP	3,500	3,700	3,600	3,400	3,700	200	13,900	14,700	14,500	14,800	16,200	2,300
Investments	2,300	2,100	2,000	1,900	1,700	-600	3,800	3,700	3,400	3,200	2,700	-1,100
Net capital gains	1,500	1,200	1,500	1,700	1,500	0	2,000	1,500	1,500	1,900	2,000	0
Other	2,400	2,400	2,400	2,300	2,300	-100	2,000	1,900	1,900	2,000	2,000	0

Notes: CPP = Canada Pension Plan; QPP = Quebec Pension Plan; OAS = Old Age Security; GIS = Guaranteed Income Supplement; RPP = registered pension plan; RRSP = Registered Retirement Savings Plan. Only individuals with at least $10,000 (2005 dollars) at ages 54 to 56 are included. Income quintiles are calculated separately by sex based on permanent after-tax family income adjusted for family size at ages 54 to 56. Permanent income here is calculated by taking a three-year average of an individual's annual after-tax family income adjusted for family size. The average of the average incomes at ages 65 to 80 is calculated by averaging the average incomes across ages 64 to 66 through 78 to 80.

Source: Longitudinal Administrative Databank, 1982 to 2020.

Table 4
Average adjusted permanent family income before taxes (2020 dollars), by age, sex, cohort and selected income quintile (continued)

	Top quintile					
	1984	1987	1990	1993	1996	Change from 1984 to 1996
			dollars			
Women						
Ages 54 to 56						
Total	120,700	128,200	143,700	136,400	146,700	26,000
Earnings	83,800	85,700	97,200	92,700	96,300	12,500
Wages	76,400	77,900	87,300	83,600	85,000	8,600
Self-employment	7,400	7,800	9,900	9,100	11,300	3,900
Pensions	7,100	8,500	8,200	9,400	9,800	2,700
CPP and QPP	500	700	900	1,100	1,200	700
OAS and GIS	200	200	100	100	100	-100
RPP and RRSP	6,400	7,600	7,200	8,200	8,500	2,100
Investments	19,200	18,600	21,400	14,600	13,000	-6,200
Net capital gains	5,000	9,600	10,300	11,300	22,500	17,500
Other	5,600	5,800	6,600	8,400	5,100	-500
Ages 65 to 80						
Total	100,000	101,300	103,200	103,500	112,700	12,700
Earnings	14,000	15,400	16,600	16,400	18,500	4,500
Wages	11,300	12,600	13,600	13,200	14,900	3,600
Self-employment	2,700	2,800	3,000	3,200	3,600	900
Pensions	53,000	53,700	54,200	56,600	56,500	3,500
CPP and QPP	10,900	10,900	11,100	11,200	11,400	500
OAS and GIS	7,600	7,700	7,800	7,800	7,800	200
RPP and RRSP	34,500	35,100	35,300	37,600	37,300	2,800
Investments	19,800	19,500	19,800	17,800	20,600	800
Net capital gains	10,300	9,600	9,600	9,400	13,400	3,100
Other	2,900	3,100	3,000	3,300	3,700	800
Men						
Ages 54 to 56						
Total	124,900	133,200	150,800	143,200	157,000	32,100
Earnings	94,600	96,500	112,700	105,500	114,100	19,500
Wages	85,500	87,300	101,400	94,200	101,000	15,500
Self-employment	9,100	9,200	11,300	11,300	13,100	4,000
Pensions	4,700	5,500	5,200	5,800	5,500	800
CPP and QPP	100	200	300	300	400	300
OAS and GIS	0	0	0	0	0	0
RPP and RRSP	4,600	5,300	4,900	5,500	5,100	500
Investments	16,800	16,300	17,100	12,100	11,300	-5,500
Net capital gains	4,500	9,900	9,500	11,500	21,400	16,900
Other	4,300	5,000	6,300	8,300	4,700	400
Ages 65 to 80						
Total	111,800	109,200	114,600	122,500	124,400	12,600
Earnings	23,900	23,600	27,500	30,500	29,500	5,600
Wages	19,300	19,200	22,400	23,900	23,600	4,300
Self-employment	4,600	4,400	5,100	6,600	5,900	1,300
Pensions	51,500	52,200	54,000	55,900	55,200	3,700
CPP and QPP	10,700	10,700	10,800	10,900	11,100	400
OAS and GIS	7,000	7,100	7,100	7,100	6,900	-100
RPP and RRSP	33,800	34,400	36,100	37,900	37,200	3,400
Investments	21,700	20,400	19,300	21,100	22,900	1,200
Net capital gains	11,400	9,900	10,500	11,300	13,500	2,100
Other	3,300	3,100	3,300	3,700	3,300	0

Notes: CPP = Canada Pension Plan; QPP = Quebec Pension Plan; OAS = Old Age Security; GIS = Guaranteed Income Supplement; RPP = registered pension plan; RRSP = Registered Retirement Savings Plan. Only individuals with at least $10,000 (2005 dollars) at ages 54 to 56 are included. Income quintiles are calculated separately by sex based on permanent after-tax family income adjusted for family size at ages 54 to 56. Permanent income here is calculated by taking a three-year average of an individual's annual after-tax family income adjusted for family size. The average of the average incomes at ages 65 to 80 is calculated by averaging the average incomes across ages 64 to 66 through 78 to 80.
Source: Longitudinal Administrative Databank, 1982 to 2020.

As was the case with after-tax income, much of the cross-cohort gains in income before taxes were made by women and men from the middle and top quintiles (Table 4). Pre-retirement incomes at ages 54 to 56 increased significantly for the top quintile across cohorts, and an increase in net capital gains played a major role.[7]

At ages 65 to 80, women in the **top** quintile from the 1984 cohort averaged $100,000, while men averaged $111,800. For the 1996 cohort, these amounts increased by $12,700 and $12,600 for women and men, respectively, and much of the gains were because of increases in earnings, RPPs and RRSPs, and net capital gains, with earnings being the dominant source for both women and men. The proportion of women and men with earnings after age 65 increased across cohorts, notably for the top half of the distribution. These increases were mostly because of wages rather than self-employment. The differences in the proportion of individuals with earnings across cohorts start to disappear after age 75.

At ages 65 to 80, women in the **middle** quintile from the 1984 cohort had an average income before taxes that amounted to $42,900, which steadily increased to $46,900 for the 1996 cohort. More than $3,000 of this increase came from an increase in RPPs and RRSPs. To put this into context, the share of total income from RPPs and RRSPs increased from 29% for the 1984 cohort to 33% for the 1996 cohort. For men, earnings played a more prominent role. Their average income before taxes increased from $46,600 (1984 cohort) to $51,400 (1996 cohort), with $3,300 coming from a cross-cohort increase in earnings and $2,300 coming from an increase in RPPs and RRSPs (investments decreased by $1,100).

Income before taxes at ages 54 to 56 in the **bottom** quintile decreased by more than $1,000 from the 1984 cohort to the 1996 cohort, but retirement income before taxes at ages 65 to 80 remained similar for women across the different cohorts, while it increased by $2,800 for men from the 1984 cohort to the 1996 cohort. Contrary to what was observed in the middle and top quintiles, RPPs and RRSPs did not contribute to the cross-cohort growth of retirement incomes at ages 65 to 80 in the bottom quintile. OAS and the GIS were the main source of income for retired women in the bottom quintile, making up 40% of total income for the 1996 cohort. OAS and the GIS made up one-third of total income for men in the bottom quintile across cohorts, but a rise in earnings, especially wages, helped increase incomes of men 65 to 80 years of age in the bottom quintile.

Recent cohorts of retirees maintain more of their pre-retirement family income compared with previous cohorts

Median and average incomes are relatively simple yet effective indicators for measuring economic well-being, but they do not fully capture individual welfare. A complementary tool is considered in this section: the income replacement rate, i.e., the adjusted permanent after-tax family income at a given age expressed as a share of income at ages 54 to 56. The average of the median replacement rates and the average of the average replacement rates across ages 64 to 66 through 78 to 80 (referred to as ages 65 to 80) are reported in Table 5. Just like income, the median replacement rates reflect the experience of the typical individual, while average replacement rates are more prone to being influenced by outliers. However, both are valid measures in assessing well-being and serve as complementary measures, especially in ensuring results are robust.

On the basis of the median replacement rate, women at ages 65 to 80 belonging to the 1984 cohort were able to maintain around 85% of their income from when they were aged 54 to 56. Members of the 1996

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7. In 1994, there was a capital gains exemption for up to $100,000, and since higher-income individuals are more likely to have capital gains, a significant rise in income at the top of the distribution around 1994 is not unusual.

cohort were able to maintain 90% of their income.[8] The corresponding percentages for the average replacement rate equal 97% (1984 cohort) and 103% (1996 cohort). Regardless of the metric used, increases in replacement rates were also observed for men. In general, the averages of the average replacement rates were generally higher than the average of the median rates.

Regardless of cohort or sex, income replacement rates were likely to be higher for lower parts of the distribution, and this might appear counterintuitive since previous sections showed that the top parts of the distribution saw the most gains in average and median incomes. Moreover, individuals in the bottom quintile had replacement rates all exceeding 100%, thereby implying that the average person in the bottom quintile ended up with more income during retirement years than they had at ages 54 to 56. These patterns are actually consistent with Table 3, which showed a slight decrease in pre-retirement average and median incomes of the bottom quintile across cohorts but a slight increase in retirement incomes.

The average of the median replacement rates for the 1996 cohort of women in the middle quintile was 86%, which is about a seven percentage point improvement compared with their 1984 counterparts. Similar rates were observed for men. The averages of the average replacement rates tell a similar story but, as mentioned before, are higher than the average of the median rates.

The replacement rates for the top quintile were lower than the other parts of the distribution and did not increase by much across cohorts, and this may seem counterintuitive because the top quintile saw its average and median incomes grow the most. However, this is entirely consistent with Table 3, which showed that individuals in the top quintile saw their incomes at ages 54 to 56 and ages 65 to 80 grow by similar rates across cohorts. The replacement rates and income measures each tell one side of the story, but taken together, they put economic well-being of retirees into a broader context.

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8. These results are not completely comparable to those of LaRochelle-Côté, Myles and Picot (2008, 2010) since the underlying data are slightly different because of updates and this study includes more income sources.

Table 5

Adjusted permanent after-tax family income replacement rates at ages 65 to 80, by sex, cohort and income quintile

	Cohort				
	1984	**1987**	**1990**	**1993**	**1996**
	average of the median replacement rates				
Women					
All quintiles	84.5	83.9	82.8	87.6	90.0
Quintile 1	118.7	118.9	115.3	122.9	128.5
Quintile 2	87.9	87.8	86.4	91.6	95.2
Quintile 3	79.6	79.6	79.2	84.0	86.4
Quintile 4	74.4	74.2	74.2	78.1	79.5
Quintile 5	71.1	68.7	67.5	69.9	71.5
Men					
All quintiles	86.1	84.5	83.1	88.3	90.4
Quintile 1	119.9	117.4	115.2	125.5	131.3
Quintile 2	90.0	89.2	87.5	93.6	97.3
Quintile 3	81.5	80.9	79.9	85.0	86.8
Quintile 4	76.5	74.9	75.2	79.7	80.4
Quintile 5	72.9	70.6	69.1	71.4	73.4
	average of the average replacement rates				
Women					
All quintiles	96.6	95.5	94.2	100.5	102.8
Quintile 1	136.2	135.2	131.3	142.3	146.6
Quintile 2	98.2	98.1	96.8	103.7	107.6
Quintile 3	87.8	87.8	87.3	93.7	95.1
Quintile 4	82.2	80.9	82.2	87.0	87.3
Quintile 5	82.0	79.1	77.4	81.1	83.2
Men					
All quintiles	99.1	96.9	95.5	103.1	106.8
Quintile 1	138.1	134.5	134.1	147.3	162.2
Quintile 2	100.7	99.6	98.8	107.8	110.7
Quintile 3	90.8	89.2	87.8	95.0	96.4
Quintile 4	84.8	83.4	82.8	88.0	88.4
Quintile 5	86.7	83.2	80.5	85.4	86.6

Notes: Only individuals with at least $10,000 (2005 dollars) at ages 54 to 56 are included. Income quintiles are calculated separately by sex based on permanent after-tax family income adjusted for family size at ages 54 to 56. Permanent income here is calculated by taking a three-year average of an individual's annual after-tax family income adjusted for family size. Replacement rates are calculated in three steps, which involve (1) computing at the individual level income at all ages between 64 to 66 and 78 to 80 as a share of income at ages 54 to 56, (2) taking the median or average of these shares across all individuals, and (3) averaging the median shares or average shares across ages 64 to 66 through 78 to 80.

Source: Longitudinal Administrative Databank, 1982 to 2020.

Family incomes have become more stable for recent cohorts

Up to this point, the focus has been exclusively on permanent income, which essentially smooths out income over a three-year period in this study. Year-to-year fluctuations in income can cause uncertainty for individuals, so income instability can have a significant impact on financial security. As described earlier, income instability in this study is measured by the MAD of lifecycle-adjusted annual after-tax family income obtained from fixed-effects regression models. It is measured separately by sex and for five age groups: 55 to 59, 60 to 64, 65 to 69, 70 to 74, and 75 to 79.

Table 6 reports the MAD indicator, which measures the absolute deviation from the average income level in percentage terms.[9] A relatively higher MAD indicates more instability. Regardless of sex, cohort or income position, the MADs indicate that income tends to become more stable with age (lower year-

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9. Another indicator of instability, the within-group variance (not shown in Table 6), was also calculated and indicated similar patterns as the MAD.

over-year variations) when the CPP and the QPP, as well as OAS and the GIS, kick in. The bottom quintile faces more instability before age 65 than the middle or top quintile, but this instability declines to similar levels as the middle quintile during retirement years when individuals start receiving the CPP and the QPP and OAS and the GIS.

Table 6
Mean absolute deviation of adjusted annual after-tax family income, by cohort, age group and income quintile

	Bottom quintile					Middle quintile					Top quintile				
Age (years)	1984	1987	1990	1993	1996	1984	1987	1990	1993	1996	1984	1987	1990	1993	1996
									mean						
Women															
55 to 59	0.293	0.274	0.268	0.241	0.217	0.152	0.147	0.149	0.162	0.136	0.194	0.205	0.200	0.217	0.169
60 to 64	0.219	0.204	0.197	0.189	0.189	0.147	0.166	0.153	0.134	0.134	0.174	0.203	0.187	0.159	0.173
65 to 69	0.133	0.122	0.123	0.129	0.131	0.124	0.107	0.106	0.111	0.109	0.151	0.129	0.139	0.133	0.149
70 to 74	0.090	0.085	0.084	0.085	0.085	0.086	0.083	0.085	0.087	0.088	0.112	0.109	0.119	0.116	0.132
75 to 79	0.079	0.080	0.078	0.078	0.076	0.079	0.079	0.075	0.079	0.078	0.108	0.112	0.105	0.111	0.118
Men															
55 to 59	0.273	0.248	0.241	0.241	0.224	0.144	0.142	0.144	0.158	0.136	0.193	0.205	0.195	0.213	0.170
60 to 64	0.218	0.218	0.215	0.194	0.195	0.151	0.174	0.164	0.137	0.134	0.176	0.210	0.191	0.165	0.178
65 to 69	0.162	0.145	0.147	0.155	0.157	0.134	0.112	0.115	0.119	0.118	0.161	0.138	0.148	0.144	0.160
70 to 74	0.098	0.096	0.097	0.100	0.099	0.082	0.082	0.087	0.089	0.090	0.114	0.109	0.119	0.116	0.139
75 to 79	0.087	0.085	0.083	0.084	0.084	0.071	0.073	0.070	0.074	0.073	0.100	0.102	0.100	0.108	0.111

Note: Income quintiles are calculated separately by sex based on permanent after-tax family income adjusted for family size at ages 54 to 56.
Source: Longitudinal Administrative Databank, 1982 to 2020.

Comparisons across cohorts indicate that incomes have become more stable. For instance, among women 55 to 59 years of age in the bottom quintile, the MAD decreased from 0.293 (1984 cohort) to 0.217 (1996 cohort). A similar result applies to their male counterparts. For the middle and top quintiles, the reductions are not quite as large. In contrast, income instability for individuals aged 70 years or older in the top quintile rose across cohorts, but the increases amount to, at most, a few percentage points and thus are not sizable.

Conclusion

This study assessed economic well-being across five cohorts of retirees or those approaching retirement, by using a longitudinal database and following family incomes of individuals in their mid 50s into their late 70s. The four main cohorts considered in this study consisted of individuals 54 to 56 years of age in 1984, 1987, 1990, 1993 and 1996. Three main findings came out of this study.

First, median and average family incomes have increased across cohorts, albeit not strictly because of business and economic cycle effects. However, living standards varied across the income distribution, with the top half of the distribution experiencing greater income growth. A combination of increases in earnings, RPPs and RRSPs, and net capital gains drove income growth in the top quintile across cohorts of retirees. For retired women in the middle quintile, cross-cohort income growth was mainly driven by increases in RPPs and RRSPs, while for men, it was a combination of RPPs and RRSPs, as well as wages. In the bottom quintile, women and men 54 to 56 years of age saw their family incomes decrease slightly across cohorts but by ages 65 to 80, their incomes had either remained similar across cohorts or increased (in the case of men). OAS and the GIS played a key role in keeping the income of retired women stable across cohorts. OAS and the GIS, combined with an increase in wages, helped the income of retired men in the bottom quintile grow.

The second finding is that recent cohorts of retirees were able to maintain more of their pre-retirement family incomes compared with previous cohorts. The average of the median replacement rates for women across ages 65 to 80 increased from 85% (1984 cohort) to 90% (1996 cohort). For the top quintile, the replacement rate remained at around 72% between the two cohorts. The middle quintile saw its replacement rate increase from 80% to 86%. For the bottom quintile, it increased from 119% to 129%. Similar trends were observed for men.

The third finding is that family incomes have become more stable for recent cohorts. Using the MAD of lifecycle-adjusted family incomes as the metric, this study showed that family incomes have stabilized across cohorts and that family income becomes more stable as individuals age and start to receive government transfers.

Issues surrounding the well-being and financial security of seniors will continue to evolve against the backdrop of an aging population, which will test the resilience of the pension system. The extent to which future cohorts of retirees can maintain their pre-retirement lifestyle remains to be seen.

Appendix

This study followed an unbalanced panel of individuals from ages 54 to 56 until ages 78 to 80. This means that individuals remained in the sample even if they passed away at some point in between those ages. There may be concerns that this might bias some of the estimates because of the correlation between economic and health outcomes, whereby the unbalanced panel might overrepresent higher-income individuals. To address this issue, this study repeated the analyses using a balanced panel and found no material difference in the results. In the 1984 cohort, 62% of women and 50% of men are retained in the balanced panel, while in the 1996 cohort, 66% of women and 57% of men are retained.

The income instability analysis was based on log incomes, and since logs of negative numbers are undefined, only individuals with strictly positive incomes were part of the analysis. Besides excluding individuals with no income, this also effectively excluded self-employed individuals with negative incomes. Therefore, the income instability analysis was repeated using income levels as opposed to logs to capture more individuals, but the results remained the same as the original analysis.

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