Summary Report on
Retirement Income Adequacy Research

By

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*This report is a summary of research prepared for the Research Working Group on Retirement Income Adequacy of Federal-Provincial-Territorial Ministers of Finance.

Acknowledgements

The research undertaken by academic and other experts to provide analysis for the Research Working Group on Retirement Income Adequacy had to be developed in a short period of time over the late summer to the end of November. As such, the authors drew on a substantial body of existing literature and their own expertise on this topic in preparing their papers.

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Introduction

This report is a summary of research undertaken for the Research Working Group on Retirement Income Adequacy. Six research areas were developed to provide analysis that would assist Federal-Provincial-Territorial Ministers of Finance in assessing retirement income adequacy in Canada. The research itself is "policy-neutral" in the sense that it is only intended to provide background information to assist Ministers with their deliberations.

With the sharp decline in stock market values in the fall of 2008, Canadians found that their retirement wealth was adversely affected, especially those who had already or were about to retire. Several defined benefit plans became insolvent as they no longer had sufficient assets to cover their pension liabilities. While stock market values have recovered in part since reaching their bottom in March 2009, Canadians realize that their efforts to provide adequate income upon retirement is perhaps more challenging than what was presumed when asset values were at peak levels.

Concerns with respect to retirement income adequacy even preceded the 2008 financial crisis. With declining enrolment in private pension plans, several provincial governments became increasingly worried that many middle-income Canadians would have inadequate retirement income. Task force studies in Ontario and Nova Scotia and a joint study in British Columbia-Alberta recommended various policy actions.

In the wake of these events, Federal-Provincial-Territorial Ministers of Finance agreed at their May 25, 2009 meeting to create a Research Working Group on Retirement Income Adequacy. The main objective of this initiative was to expand Canadians' knowledge of retirement income adequacy and explore related issues. Even though each jurisdiction is responsible for its pension and other retirement income policies, there is value to co-operating on this research. Any policy actions should be based on sound comprehensive evidence given the long-term nature of retirement planning.

The Federal-Provincial-Territorial Ministers of Finance established a Ministerial Steering Committee, chaired by Mr. Ted Menzies on behalf of Minister Flaherty and comprised of Ministers from British Columbia, Alberta, Manitoba, Ontario and Nova Scotia, to oversee the Research Working Group's research program. I was asked to be the research director and to pull together the best available researchers to assess retirement income adequacy in Canada.

To make this assessment, a work plan was prepared and approved at a meeting of the Ministerial Steering Committee in Calgary on July 22. Leading experts were commissioned to bring together research evidence on the key issues identified in the work plan. Kevin Milligan, University of British Columbia and Michael Baker, University of Toronto, were asked to explore the justifications for government involvement in retirement income provision and assess the adequacy of retirement incomes of today's elderly Canadians. Keith Horner, a leading consultant on pensions, was asked to examine savings levels among Canadian households and examine retirement income adequacy of current and future retirees. Malcolm Hamilton, from Mercer (Canada), was asked to look at the investment risk and longevity risk in the context of retirement income. Vijay Jog, from Carleton University, was asked to provide an analysis of the potential impact of investment performance and costs of pension and other retirement savings funds in Canada on wealth accumulation and retirement income. James B. Davies, from the University of Western Ontario, was asked to review the efficiency and effectiveness of tax-sheltered savings instruments design in the Canadian context. Finally, Edward Whitehouse from the OECD provided an international perspective of Canada's retirement income system.

Federal, provincial and territorial officials were engaged at each step of the process to determine the research work plan and provide feedback on the research. A number of conference calls were organized to allow federal and provincial officials to comment on detailed proposed outlines for each project. An Experts' Day with academics and professionals with expertise in a range of relevant areas was held on October 27, 2009 to review the draft research papers with federal, provincial and territorial participation.

In addition, as part of a provincial and territorial process, Ontario undertook its own research on pensions and retirement income adequacy, commissioning a paper by Robert Baldwin. This research was also reviewed at the Experts' Day.

Retirement Income and the Role of Government[1]

Governments in all developed economies, including Canada, are involved in retirement income to promote equity and address market failures. Government transfers to seniors provide basic levels of support. Given that retirees have fixed income and are unable to work, providing basic support to combat poverty among seniors is an issue of fundamental fairness in society.

Also, governments help address market failures in retirement income markets. In life insurance markets, individuals buy annuities that provide benefits during their lifetime after retirement and possibly thereafter to surviving spouses and beneficiaries depending on contract terms. The cost of an annuity would therefore depend on the term, which, if known by the insurance company, can be pooled with other annuity contracts (the longer the term the lower benefits received by the annuitant). Adverse selection problems arise if insurance providers are unable to sort out high from low risk insurees. If all contracts are the same, people with shorter expected lives are less willing to buy insurance that is priced according to the average. Markets then break down since only long-lived people would be willing to buy insurance. To avoid these difficulties, insurance companies use contracts with different prices, fixed terms and deductibles to sort out different claimants. Nonetheless, a market failure still prevails since short-lived individuals will still underinsure themselves given that the offered contracts are set at terms to discourage long-lived insurees from buying them.

Governments also regulate pensions, and provide tax incentives to encourage people to accumulate wealth for their retirement. By exempting the return on savings from income tax, people who save for retirement pay the same tax over their lifetime as those who do not save. This provides a neutral tax treatment of consumption and saving, which helps improve both fairness and efficiency in the tax system.

Canada's Retirement Income System

Governments pursue retirement income policies in a variety of ways, but there are similarities across many countries in the main pillars, with some basic support provided, other support related to income, with a third pillar of retirement income more related to choices made by individuals.

In Canada, the retirement income system has three pillars that balance public and private responsibility.

For most Canadians, federal and provincial governments provide a minimum level of support through Old Age Security (OAS), the Guaranteed Income Supplement (GIS) and provincial top-up programs (both benefits are clawed back when the recipient's income exceeds a threshold level). Federal and provincial

[1] This section borrows heavily from the Baker-Milligan (2009) paper.

governments also support seniors by providing personal tax relief and in-kind benefits or subsidies related to public programs such as Medicare, disability and long-term care, and pharmaceutical purchases.

Working Canadians support their retirement by contributing to the Canada Pension Plan/Quebec Pension Plan (CPP/QPP) to provide benefits upon retirement. Many working Canadians also have either public or private pensions or are saving in tax-sheltered retirement accounts and non-tax sheltered insurance, financial and business assets and owner-occupied housing. And some people work beyond their retirement age or are supported by their working children.

Terminology is frequently used in a confusing way in public discussions about pensions and retirement income. "Pensions" may be defined narrowly to include registered pension plans (RPPs). "Defined benefit plans" provide retirement income based on the employer's commitment to provide a pension benefit typically based on a percentage of employment income and years of service. "Defined contribution plans" provide benefits based on the investment performance of the plan held on behalf of the individual.

Alternatively, pensions may be defined broadly (as by the OECD) to include all forms of mandatory and voluntary savings, including group and individual Registered Retirement Savings Plans (RRSPs) and the new Tax-Free Savings Accounts (TFSAs).

In this summary report, pensions are defined narrowly to include government and private pension plans. The "retirement income system" is used to cover the broad OECD definition of pensions and to include other savings vehicles that can provide support in retirement, such as home ownership and financial assets.

Specific features of the Canadian retirement system include the following:

1. Seniors support programs (the first pillar) are transfers to individuals financed by general tax revenues based on qualifying years of residency and possibly an income-test to determine eligibility. The federal government provides OAS (currently $517 per month) and GIS (currently $653 per month for an individual and $431 for each partner) to those over 65 years of age who have lived in Canada for 10 years. Both payments are reduced when income exceeds a threshold. OAS is clawed back by 15 cents per dollar when individual income is above $66,335, and GIS is clawed back 50 cents for each dollar such that no payment is made when income reaches $15,672 for an individual and $20,688 for a couple. Provincial top-up programs vary but also are income-tested.

2. Mandatory pension programs provide retirement income in the form of either defined benefit or defined contributions programs. Canada's second pillar is the CPP/QPP, which provides retirement support up to 25 percent of lifetime contributory earnings. Employer and employee contributions are assessed equally at a combined rate of 9.9 percent of earnings in excess of the yearly basic minimum ($3,500) and up to the yearly maximum pensionable earnings (now at $46,300). Benefits are indexed with inflation. The normal age of CPP take-up is 65 but a reduced monthly payment can be claimed as early as age 60 and higher monthly payments can be claimed if take-up of the CPP is delayed until after the age of 65 (up to the age 70).

3. Voluntary pension and saving programs include tax-assisted RPPs and individual and group RRSPs (the third pillar under the OECD definition). Canada has a well-integrated system which enables individuals to accumulate wealth for retirement income on a tax-sheltered basis. Investment income and capital gains earned in the plans are exempt. Withdrawals of built-up income and principal are taxable and contributions to RPPs and RRSPs are deductible from income to calculate

personal income tax. Contributions to RPPs and RRSPs cannot exceed an annual limit of 18 percent of earnings up to a specified dollar limit[2] (unused RRSP contribution room can be carried forward indefinitely). For RPP members, an adjustment to the annual RRSP limit is made to reflect the estimated amount of annual RPP saving in order to provide comparable tax-assisted savings opportunities to Canadians whether they save in an RPP, an RRSP or both. In 2009, Canada introduced the TFSA which limits annual contributions to $5,000. TFSA contributions are not deducted from income for tax purposes but investment income (including capital gains) and withdrawals are not subject to income tax. In addition, TFSA investment income and withdrawals do not affect income-tested benefits (e.g., OAS and GIS).[3]

As mentioned, Canadians also have significant savings in other assets, including owner-occupied housing. Under the Income Tax Act, the principal residence is treated similarly to TFSAs in that no imputed rental income or capital gains are taxed, no deduction is given for investments in housing and no tax is applied upon disposal. Some Canadians have significant investments in their own businesses. The lifetime capital gains exemption (LCGE) provides small business owners, farmers and fishers with a tax exemption on up to $750,000 of capital gains realized on the disposition of qualified property or shares.

There are significant differences among countries in the approach used by governments to support retirement income but certain elements are common (see Whitehouse 2009). Like Canada, many industrialized countries provide basic support to seniors, and some, like Canada, provide it on an income-tested basis. Mandatory pension programs are provided in most countries and most tend to be defined benefit programs.

How are retired or nearly retired Canadians faring?

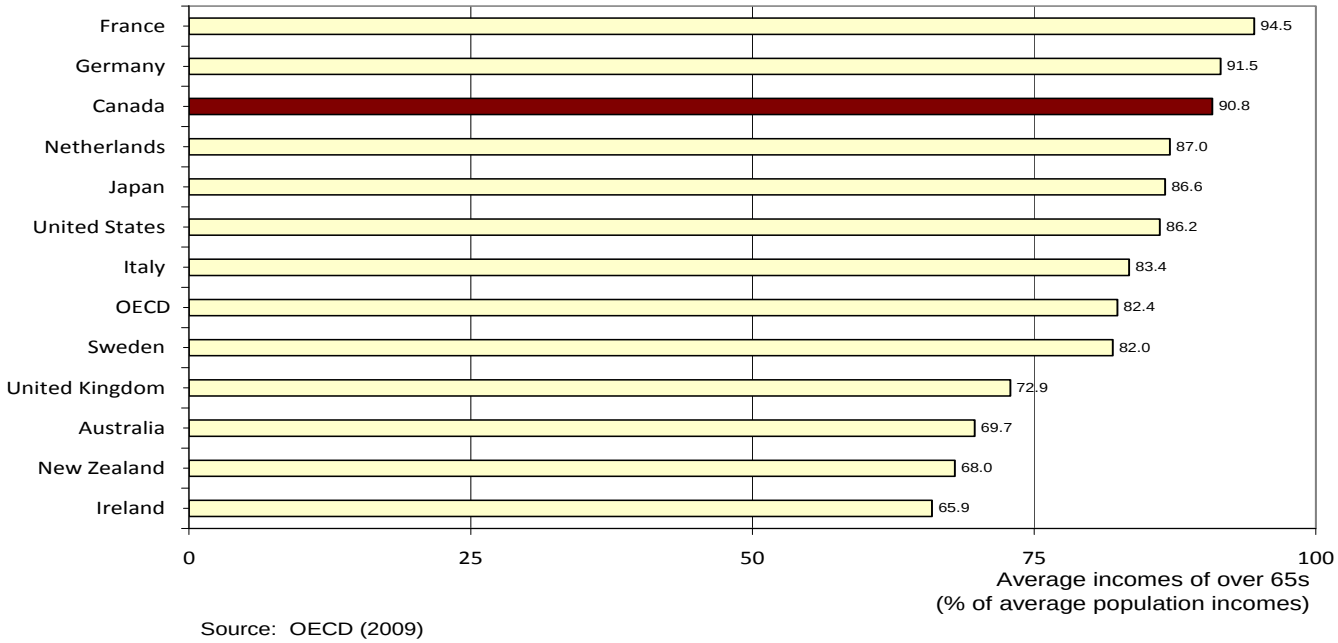
Evidence provided by Baker and Milligan in their paper suggests that federal and provincial governments have successfully supported low-income seniors so that most have adequate income security with retirement incomes equal to or more than income earned during their working lives. The OECD paper (2009) has shown that the Canadian poverty rate in the mid-2000s among seniors was, at 4.4 percent, one of the lowest in the OECD, compared to an OECD average of 13.3 percent (the poverty rate is defined as 50 percent of median income in a country).

Among OECD countries (Figure 1), the disposable income of those aged 65 years or over is about 90 percent of the average disposable income of all Canadians, third highest of selected OECD countries. Canada has reasonably good replacement rates on average for retirement income; the issue is whether there is a significant minority of Canadian seniors who do not.

[2] For 2009, the RPP and RRSP dollar limits are $22,000 and $21,000 respectively.

[3] Other tax and regulatory rules apply to RPPs, RRSPs and TFSAs. Interest incurred to finance the purchase of investments is not tax deductible.

Figure 1: Relative incomes of older people (aged over 65)
Equivalent household disposable income, mid-2000s



Source: OECD (2009)

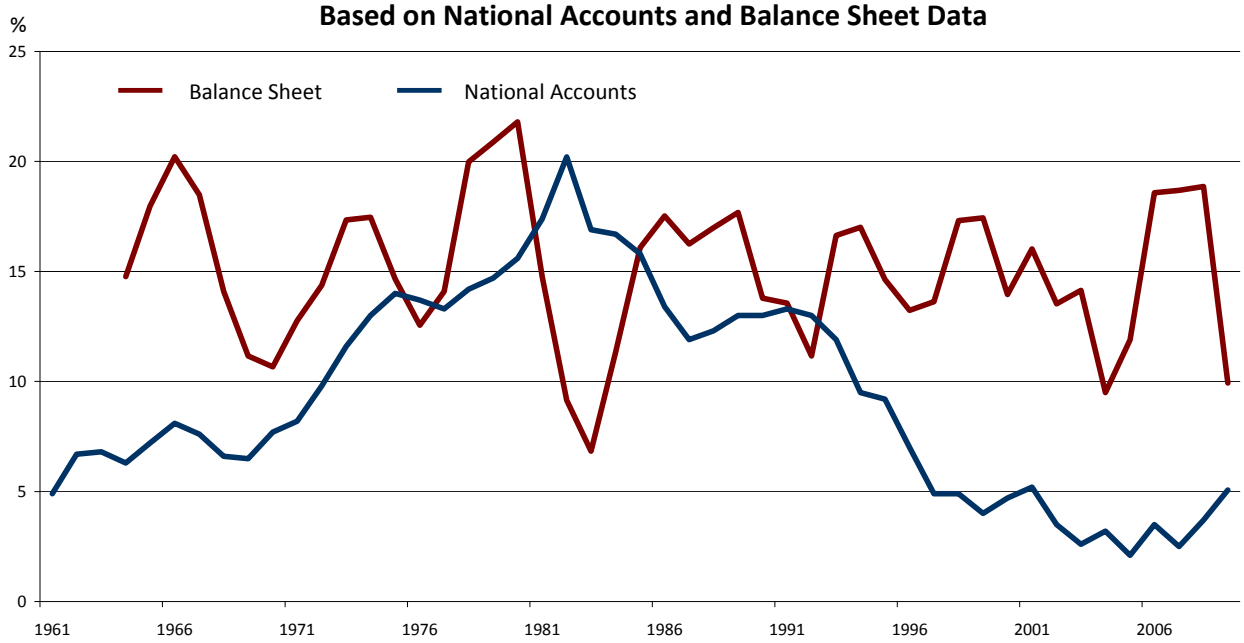
Have Canadians saving declined?

To achieve a reasonable level of savings, it is important for Canadians to save enough so that accumulated wealth will provide a reasonable level of income upon retirement. Saving is simply the difference between annual income and consumption of goods and services.

Studies on personal saving rates based on National Accounts data have shown that Canadians have been saving less since 1980, when personal savings rates peaked at 20 percent. Currently, personal saving rates on a National Accounts basis are 5 percent of disposable income. However, as Horner (2009) points out, the National Accounts savings rates that are measured simply as income minus consumption may be distorted for several reasons. First, consumer spending on durables is treated as spending rather than saving even though purchases of consumer durables provide annual consumption services over the life of the asset. Second, capital gains are excluded from National Accounts data although they are an important component of rising household wealth. Third, National Accounts data are distorted by inflation since investment income includes a payment to individuals to compensate them for the loss in their purchasing power of their wealth. The inflation premium tends to raise the measured income and savings especially during the high inflation years of the late 1970s and early 1980s.

An alternative approach to measuring savings is to estimate the annual service value of consumer durables, include capital gains, whether realized or not in income, and correct investment income and capital gains for inflation. The balance sheet savings rate as shown in Figure 2 below indicates that saving rates have been generally higher than those measured under National Accounts data and much more volatile due to asset prices changes.

Figure 2: Personal Savings as Percent of Personal Disposable Income: Based on National Accounts and Balance Sheet Data



Note: National Accounts personal saving is the difference between personal income minus outlay. Balance sheet saving is equal to change in net worth at book value, which includes net accumulation of all household assets (including consumer durables) and capital gains. Balance sheet saving rate is adjusted for inflation by removing inflation (based on GDP deflator) on the beginning-of-year household wealth from numerator and denominator. Balance sheet saving rate is a smoothed 3-year moving average measure. 2009 value is based on 2009Q2 data assuming no change in 2009Q3 and 2009Q4.
Source: Department of Finance

While this broader measure of personal saving rates has been reasonably stable in Canada in the past half century, a more critical question is whether individuals and families are saving enough today to provide adequate retirement income for the future. On a going-forward basis, are Canadians today saving enough for their retirement in the next several decades? To answer this question, we need to understand what is meant by adequate retirement income and to assess whether current savings are likely to produced adequate retirement income.

What is the right level of income adequacy?

It has typically been suggested that retirement income, including pensions, RRSP or RRIF withdrawals and other sources of income, should be 70 percent of working income. While 70 percent may be preferred by some individuals, optimal replacement rates vary considerably depending on individual circumstances. It is likely that low-income Canadians need to replace higher levels of income upon retirement while higher-income Canadians, particularly those with significant expenses during pre-retirement years that are no longer incurred during retirement, may need to replace less.

As Baker and Milligan (2009) emphasize, it would be expected that Canadians would consume less than their available income during their working lives in order to fund consumption after retirement. It would be expected that retirement income need not be nearly as large as working income since accumulated wealth would finance retirement consumption.

A better standard than assuming a certain replacement rate for income is to consider consumption-smoothing whereby Canadians would be able to maintain a roughly similar standard of living when they retire. Evidence suggests that income needed to fund consumption tends to drop after retirement for a variety of reasons:

- While working, Canadians raise their children and might need to support their own parents. After retirement, these costs are no longer important and fewer resources are needed as a result.
- When working, individuals must incur commuting, clothing and other work-related costs that are no longer necessary upon retirement.
- During retirement, Canadians have more time to perform household duties such as preparing food rather than eating out. On the other hand, at retirement, Canadians are willing to spend money on entertainment and travel.
- Consumer expenditures, as opposed to consumption services, tend to be higher during working years. Many Canadians buy a home, furniture, automobiles and other consumer durables that provide consumption services during their retirement years. Thus, they have stored up saving in their consumer durables available at retirement. In the case of owner-occupied housing, Canadians may decide to access their savings by downsizing their housing or taking on a reverse-mortgage.
- Canadian governments cover certain age-related expenditures that relieve the elderly from paying for them particularly with respect to medical services, long-term care and drugs.
- Tax payments are less during retirement years including payroll and personal taxes. This suggests that retirement income adequacy should be based on after-tax incomes to better understand required income levels.

Based on recent studies, Baker and Milligan (2009) provide evidence suggesting as a rough rule of thumb that 60 percent replacement levels of pre-tax incomes are adequate to maintain expenditures. This is generally consistent with calculations in Horner (2009) that will be discussed further below. The OECD (Whitehouse 2009) uses a replacement rate of 60 percent for average earners based on pre-tax income but 50 percent for people with earnings that are double average earnings. What the research does point out, however, is that no exact rule of thumb should apply in all circumstances since replacement levels depend on a variety of factors such as the number of members of a household, whether a member is disabled, and income levels.

A critical issue is to understand not just how well Canadians are doing on average but also the extent to which some may not have sufficient income upon retirement (in other words knowing the distributions around the averages). A recent study based on longitudinal tax data on household incomes looks at income adequacy with respect to various sources of income, including government transfers, RPP/RRSP income, investment income and capital gains and employment earnings after the age of 65 (LaRochelle-Côté, Myles and Picot 2008). The study concludes that the Canadian retirement income system is doing well for Canadians with median levels of income. However, the study shows that replacement rates in 2005 fall below 60 percent of after-tax incomes for roughly 20 percent of individuals aged 54-56 in the years 1983, 1986 and 1989 with very few having inadequate saving at the lowest income level (since they have other means of support), 20 percent to 25 percent at the medium income level, with the highest proportion of inadequate saving being in the top quintile (about 35 percent). They also find that employment earnings "is the single most important factor differentiating persons with low- from those with high-income replacement rates at least until the cohort enters their 70s. After that age, the difference in income from private pensions (*RPPs and RRSPs*) is the most important discriminating factor." They also find that "investment and capital gains play a surprising large role, accounting for

around 40 percent of the difference between the high- and low-replacement rate groups at all reported ages" (p. 18, italics added for clarification).

As the LaRochelle-Côté, Myles and Picot 2008 study shows that a significant minority of Canadians may not have sufficient retirement replacement income, it would be important to understand what factors may play a role in explaining the income replacement ratios. Some individuals may have not been saving sufficiently in RPPs, RRSPs and other financial assets and/or may have suffered from poor investment returns. Some may have had bad luck losing a job or wealth during economic downturns. Others might be immigrants who may have had insufficient savings brought to Canada. Some had other assets such as consumer durables that do not show up in income tax data -- owner-occupied housing is a major component of retirement income assets as discussed below.

Are Canadians saving enough for the future?

Concerns have been raised by some groups that Canadians may not be saving adequately to fund their retirement especially if they do not voluntarily save enough money in tax-sheltered saving plans like RRSPs. RPPs are viewed as imposing some discipline upon employees to save for the future. Baldwin (2009) points to recent declines in RPP coverage in the private sector as an indication that today's working Canadians are not saving enough for retirement, on average. This is particularly important with respect to defined benefit plans, which by far dominate as the most common pension plan held by Canadians (approximately 90 percent of pension assets as shown in Table 5 below).

Clearly, the adequacy of saving is difficult to assess since we cannot predict exactly what retirement income will be available in, say 2040, for a young family saving today. One needs to make assumptions about life expectancy, investment returns on assets and wage and salary growth as well as future expenditures and taxes to be paid by households. Any simulation about the adequacy of saving today needs various assumptions about the future that can best be estimated by current data or past trends. As Baldwin (2009) points out, demographic changes will also be important since a larger number of individuals will be retired relative to the working population. This can affect future returns on investment relative to wage and salary growth that could have an impact on the funding of pensions. Also, the aging population will increase fiscal pressures on governments to fund public health care programs that have been important to many seniors as part of their consumption.

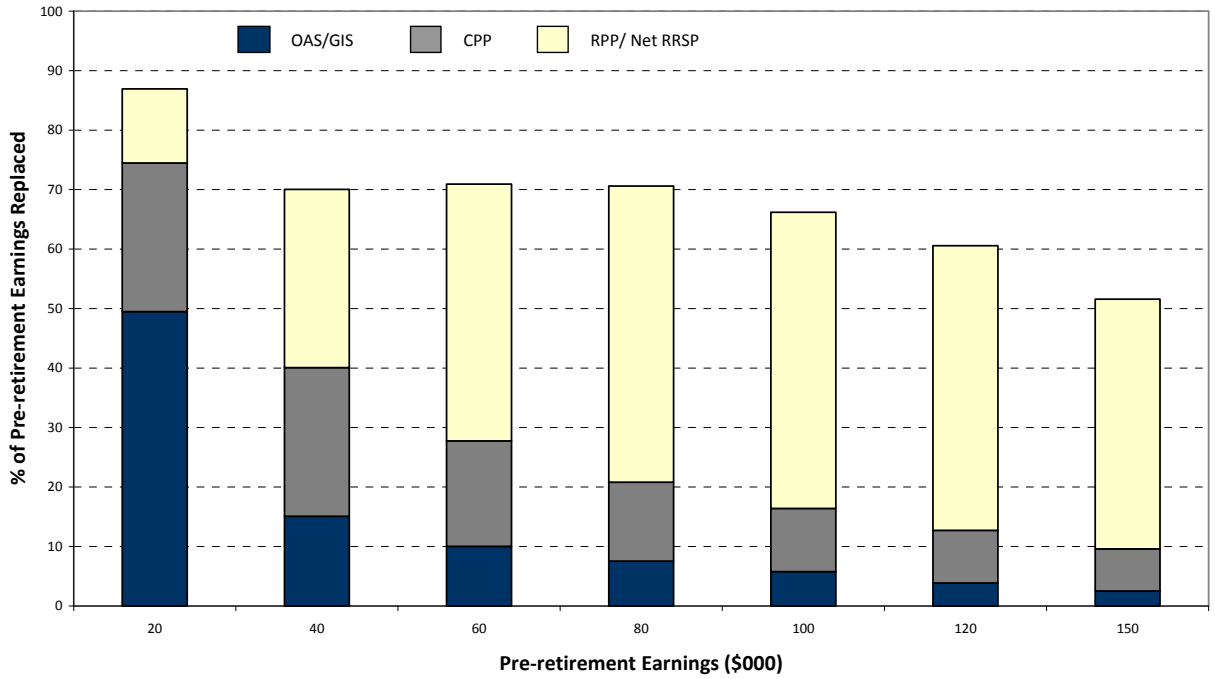
The importance of the three pillars in achieving retirement income adequacy by income group is illustrated in Figure 3. It presents estimates of income replacement rates from OAS and the GIS, the CPP/QPP, and RPPs and RRSPs based on average RPP/RRSP contribution rates, using 2006 tax data for average savings rates. Of course, some people are below the average, which could mean that their replacement income is lower than shown, and some will be above the average, meaning they are saving more than is shown. The figure does not take into account other private savings or provincial top-ups. The chart is not based on benefits actually paid out and is, therefore, a stylized indication of how the system may perform for current savers.

- Due to high replacement rates from public pensions, those earning $20,000 achieve a replacement rate of about 90 percent, even with low levels of RPP/RRSP savings.

- Replacement rates for those earning $120,000 and $150,000 are affected by the RPP/RRSP dollar limits. With recent increases in RPP/RRSP limits and the introduction of the TFSA, these individuals will be able to achieve higher replacement rates through tax-assisted savings.

Figure 3: Estimated income replacement by each pillar of retirement income system, all individuals

(Average savings rate)



Notes:

The key assumptions underlying the chart are:

- It assumes a single individual with annual saving at 2006 RPP/RRSP contribution rates over 35 years.
- RPP/RRSP contribution rates are converted to income replacement rates using the cost factor of 9 underlying the 18 percent of earnings RRSP limit (which assumes a constant 3.5 percent real rate of return).
- The pension adjustment (PA) is used as a proxy for RPP contributions.
- OAS/GIS reductions based on CPP and RPP/RRSP income is taken into account.

Source: Finance Canada calculations based on 2006 tax data.

Horner (2009) estimates the extent to which Canadians are saving enough to achieve income adequacy in the future. His model is solely based on the motive to save for retirement and therefore does not consider other motives, such as precautionary saving (to provide resources when contingencies occur) or savings for legacy purposes (to provide wealth for their heirs beyond a spouse).

The analysis is based on the presumption that Canadians try to achieve retirement consumption levels equal to 100 percent or 90 percent of their consumption in working years. It makes the simplifying assumption that people live only two periods: a pre-retirement period including 35 years working from age 30 to 64, and a retirement period of 20 years, from age 65 to 84. Horner breaks down various cases to take into account whether single or two-earner families own a home or not and whether they have children. Data are based on a 2006 snapshot of income, taxes and contributions to RPPs and RRSPs.

To estimate the target savings rates, several other assumptions are applied. Inflation is 2 percent and the real return on assets is 3.5 percent per year. Real wages grow at 1 percent a year. Saving rates are constant during the accumulation period and the tax system is indexed for wage inflation during working years and price-indexed thereafter. Saving takes the form of either retirement accounts

(pensions and RRSPs) or principal residence ownership. With respect to home ownership, a household buys a home equal to three times earnings during working years with the value of household savings exhausted at the end of life. In all years they pay the required federal and provincial taxes net of tax credits (with some credits being refundable) and no longer pay an estimated amount of work-related expenses after retirement.

Given these assumptions, Horner (2009) estimates the proportion of Canadians successfully achieving their saving target by comparing savings in 2006 with target savings needed to smooth consumption over time. Table 1 provides the estimate of households meeting 90 percent or 100 percent of their consumption replacement.

Table 1: Percent of households meeting savings rate benchmarks

	Single	***1PF***	***1E C***	***2E C***	***1E 2PF***	***2E 2PF***	***All***
			% saving enough for 100% consumption replacement				
Low	83	100	100	100	100	100	91
Modest	44	77	72	52	83	78	60
Middle	56	78	64	56	66	71	63
High	24	56	37	57	51	74	61
All	**61**	**88**	**79**	**56**	**82**	**74**	**69**
			% saving enough for 90% consumption replacement				
Low	95	100	100	100	100	100	97
Modest	52	91	86	71	94	96	72
Middle	65	82	71	66	72	78	71
High	35	63	45	67	57	79	68
All	**71**	**94**	**86**	**68**	**88**	**82**	**78**

1PF = single parent family, 1E C = 1-earner couple, 1E 2PF = 1-earner two-parent family
Low (23% of total): $0-25k for singles and 1PF or $0-40k for couples and 2PF; Modest (27% of total): $25k-60k for singles and 1PF or $40k-100k for couples and 2PF; Middle (23% of total): 60k-100k for singles and 1PF for $100k-166.7k for couples and 2PF; High (17% of total): $100k+ for singles and 1PF or $166.7k+ for couples and 2PF.

The estimates suggest 70 percent of households achieve 100 percent and 78 percent achieve 90 percent of replacement consumption. Those with low incomes generally have sufficient retirement income to achieve desired consumption levels after retirement due to government transfers and CPP/QPP benefits. High-income households are less able to achieve their targeted consumption levels with RPPs and RRSPs since limits are imposed on contributions made to these plans (other financial assets would then be needed to fund higher levels of consumption if desired). A greater degree of inadequate savings is estimated for modest- and middle-income Canadians, with two-earner couples and singles less likely to be able to achieve consumption replacement at retirement.

While the data suggest that a portion of Canadians are not saving enough, several caveats are in order.

First, only one year of data is used – some households may choose not to put money into retirement accounts because they are buying a home, paying for education, investing in their business or are temporarily laid off. These non-savers may appear to be saving inadequately but they will be able to

invest in retirement assets in other years. On the other hand, some may be saving more in 2006 than in other years given the health of the Canadian economy in that year.

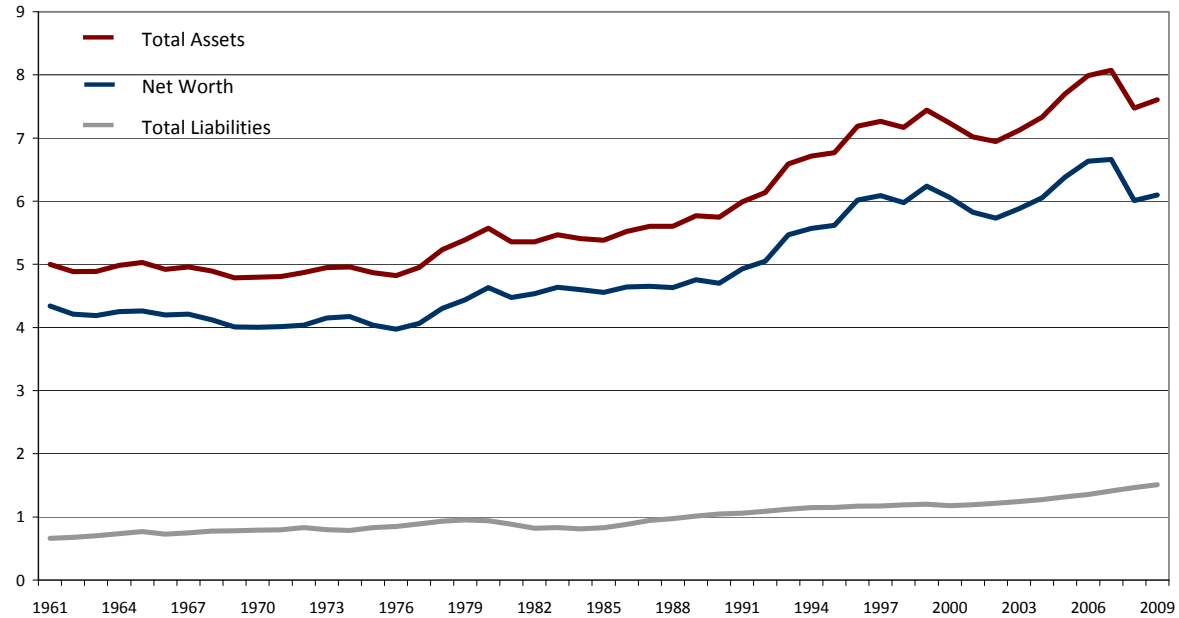
Second, the degree of adequacy depends on the assumed returns on savings. Horner looks at the impact of lowering the real return on savings from 3.5 percent to 2.5 percent per year. This would increase the share of Canadians insufficiently saving by 4 and 3 percentage points for the cases of 100 percent and 90 percent of replacement consumption respectively. Of course, if real returns are better than 3.5 percent per year, more people would have adequate saving.

Third, the data do not include other assets held by Canadians that could also provide retirement income. While Horner (2009) suggests that such income is concentrated at upper income levels, it is clear from LaRochelle-Côté, Myles and Picot (2008) that both investment income and employment earnings play an important role in retirement income adequacy. It would be useful to understand the role of other assets, a topic discussed in more detail next.

The Role of Other Assets

Canadians have financial and business assets beyond RPP and RRSP wealth that provide support in retirement years. These assets can be quite substantial, particularly in later pre-retirement years. Household assets have generally been rising faster than their liabilities since the early 1990s except for 2008 when financial market values sharply dipped (Figure 4). Household net worth is six times earnings in 2009 compared to four times earnings in 1970. The growth in assets and debt is influenced by a number of factors, especially demographic effects as people tend to save most in later parts of their career – the populous baby-boomers are now reaching retirement.

Figure 4 : Ratio of household assets and debt to household earnings



K. Horner (2009). Cansim tables 3780009 and for pr-1990 data, 3780004

In the paper by Davies (2009), a breakdown of assets and liabilities per household is provided for working and retired Canadians for 2005 (Table 2 below). He finds that on average, Canadians in retirement have $485,000 in net worth. The most important category is pension and tax-sheltered savings ($174,000 per household) although disposals of these assets are fully subject to tax. The principal residence category is $152,000 per household but disposals are not taxed. Other financial, business and real estate assets at retirement are $170,000 per household of which the income and capital gains from disposals are taxed. Retired Canadians have relatively low debt ($11,000 per household), about one-sixth of the level when working.

The information presented in Table 2 does not include the value of public services provided to seniors that reduce their cost of living. Nor does it reflect additional tax relief provided to seniors in recent years, such as the increases in the pension income credit amount and age credit amount as well as pension income splitting.

Any assessment of retirement income adequacy would need to consider the mix of pension and savings assets, including owner-occupied housing and other financial assets. Of course, averaging across households does not indicate the extent to which Canadians vary with respect to their ability to fund their retirements – some do better and some do worse than the average. The median net worth and asset levels of household are well below the average. For example, median net worth for the 65+ group was about $300,000 in 2005, well below the average of $485,000 reported in Table 2 below. In other words, wealth tends to be concentrated in the hands of higher-income Canadians so the average net worth is higher in value than the net worth for those at the median.

The importance of other assets in supporting retirement income has been shown in some very recent analysis made available by Statistics Canada. Ostrovsky and Schellenberg (2009) show that those with RPPs on average do not have better retirement income than those without RPPs. This result is contrary to Horner (2009) who finds those with RRSPs only are less likely to achieve replacement consumption. As discussed above, the Horner result may in part reflect the lack of data available for his analysis to incorporate other sources of market income that was used in the Statistics Canada study.

Ostrovsky and Schellenberg provide detail on the source of income and replacement ratios for men and women between the ages of 70 and 72 years (in 2006) who reported whether they had an RPP in 1991 (Tables 3 and 4). Replacement income ratios are defined as retirement income from all sources as a share of employment earnings only (averaged for 1989-91). Generally, replacement income ratios are well above 70 percent on average for all income groups and genders, although women's earnings in 1989-91 were substantially lower than those of men (and their retirement income replacement is, therefore, more dependent on government transfers).

Table 2: Assets and debts of family units by age of major income recipient, 2005

	Aged less than 65		Aged 65 or over	
	Mean ($)	% of After-tax Income	Mean ($)	% of After-tax Income
Financial Assets				
Deposits	11,796	22.7	45,503	129.4
Bonds	1,815	3.5	6,148	17.5
Stocks and Mutual Funds	15,741	30.3	34,511	98.1
Other Financial Assets	4,361	8.4	4,329	12.3
Total Financial Assets	35,573	68.3	91,332	259.8
Saving Plans and Pension Assets				
RRSPs/LIRAs	38,977	74.8	16,605	47.2
RRIFs	1,219	2.3	37,809	107.5
Employer Pension Plans	68,344	131.2	120,023	341.4
Total Savings Plans and Pension Assets	108,540	208.4	174,437	496.1
Non-Financial Assets				
Principal Residence	138,467	265.9	151,664	431.4
Other Real Estate	36,581	70.2	32,682	93.0
Business Equity	50,340	96.7	16,314	46.4
Other Non-Financial	34,993	67.2	29,983	85.3
Total Non-Financial	260,381	500.0	230,643	656.0
Total Assets	**404,493**	**776.7**	**496,412**	**1411.9**
Debt				
Mortgage Debt	43,393	83.3	4,392	12.5
Total Debt	66,918	128.5	11,264	32.0
Net Worth	**337,576**	**648.2**	**485,148**	**1379.8**
Market Income	58,935	113.2	22,986	65.4
After-tax Income	52,076	100.0	35,160	100.0

Source: J. Davies 2009, Table 2. Calculations using Statistics Canada public use micro data file, 2005 Survey of Financial Security.

Two important results are obtained from this analysis. First, those with RPPs are more likely to be retired between the ages of 67 and 72 than those without RPPs. Second, even excluding employment earnings, those with RPPs have less retirement income than those without RPPs, except for the highest income quintile. Those with RPPs had less investment income, capital gains/losses and other market income (excluding employment earnings) than those without RPPs. When employment and self-employed earnings are included, those without RPPs clearly have more market income than those with RPPs.

These results suggest that declining RPP coverage may not lead to insufficient retirement saving since Canadians are investing in RRSPs and other assets to fund their retirement. They also suggest that

declining RPP coverage may result in an increasing proportion of Canadian deferring retirement to older ages. This may be a necessity to fund their retirement, indicating insufficient saving from earlier years, or simply be a matter of choice to continue working past age 65.

The results are thus quite striking but need to be interpreted with care. There is some reliance on the GIS even in third and fourth quintiles and more so for those without RPPs. Retirement income is compared to labour earnings in pre-retirement years, ignoring the role of other financial assets earned when the person works. It would also be useful to consider families and not just individuals and important to evaluate distributions in each group since the data are based on average values for each income group and gender.

Table 3: Retirement income received in 2006 as a percent of average annual earnings 1989-1991: Men aged 70-72 and by RPP status

	First Quintile		Second Quintile		Third Quintile		Fourth Quintile		Fifth Quintile	
	No RPP	RPP	No RPP	RPP	No RPP	RPP	No RPP	RPP	No RPP	RPP
Transfer Income*	0.67	0.58	0.40	0.38	0.30	0.29	0.23	0.22	0.11	0.13
Market Income (excluding employment earnings)**	0.37	0.38	0.32	0.33	0.36	0.36	0.39	0.40	0.40	0.47
Capital Gains and Losses	0.05	0.02	0.07	0.02	0.05	0.02	0.04	0.02	0.10	0.05
Earnings and Self-employed Income	0.09	0.06	0.09	0.02	0.11	0.02	0.11	0.02	0.16	0.06
Total	**1.18**	**1.04**	**0.89**	**0.75**	**0.83**	**0.69**	**0.77**	**0.66**	**0.77**	**0.71**

Source: Ostrovsky and Schellenberg (2009).

Lower bounds of income to determine quintiles (average 1989-91 earnings of non-RPP and RPP members in brackets)

First: $10,000 ($22,300, $25,500)
Second: $32,800 ($39,850, $40,150)
Third: $45,750 ($51,450, $51,800)
Fourth: $58,200 ($65,800, $66,500)
Fifth: $76,100 ($138,500, $107,750)

*Transfer income includes payments made by governments to individuals including C/QPP, OAS, GIS and other.

**Includes pension income, RRSPs and other superannuation, interest, dividends and other investment income and other market sources.

Table 4: Retirement income received in 2006 as a percent of average annual earnings 1989-1991: Women aged 70-72 and by RPP status

	First Quintile		Second Quintile		Third Quintile		Fourth Quintile		Fifth Quintile	
	No RPP	RPP	No RPP	RPP	No RPP	RPP	No RPP	RPP	No RPP	RPP
Transfer Income*	0.91	0.86	0.62	0.61	0.47	0.46	0.36	0.37	0.20	0.24
Market Income (excluding earnings)**	0.54	0.69	0.46	0.50	0.45	0.42	0.59	0.46	0.54	0.55
Capital Gains and Losses	0.11	0.10	0.10	0.04	0.08	0.02	0.11	0.04	0.09	0.05
Earnings and Self-employed Income	0.08	0.03	0.08	0.03	0.09	0.03	0.12	0.02	0.17	0.03
Total	**1.64**	**1.68**	**1.26**	**1.18**	**1.09**	**0.93**	**1.18**	**0.90**	**1.00**	**0.87**

Source: Same as in Table 3.

Cost of Saving Money in Face of Investment and Longevity Risks

Defined benefit and defined contribution pension plans require employers and employees to contribute to funds in order to provide benefits post-retirement. The plan may be fully funded (the contribution rate to fund the pension obligation at the rate of return earned by invested assets) or funded on a pay-as-you-go basis (contributions based on wage growth to fund pension obligations). When the return on assets is more than nominal growth in wages, generally fully funded pension programs require lower contribution rates.

Malcolm Hamilton (2009) considers how risk factors affect contribution rates. With respect to investment risk, contribution rates will vary significantly depending on the expected return earned on assets and salary growth. Wage growth increases contribution costs while higher expected returns significantly reduce contribution costs. Indexing retirement benefits for inflation also has a significant impact on contribution costs.

While pension and retirement funds might invest in risky assets to earn higher expected returns, such investment policies impose greater risk on employers and employees to achieve pension benefit targets. If a major investment loss is experienced, as in 2008, a large gain is needed in the future to make up for the loss. The longer the loss is ignored, the greater the gain required to make up for the shortfall.

Longevity risks also influence contribution costs. Typically, individuals live 22 years after the age of 65 with women living three years longer than men. About one in 10 Canadians will live 10 years past their normal life expectancy. The sharing of longevity risk through life annuities can theoretically enable individuals to earn significantly more income over time. These gains are reduced by distribution costs, profit margins and lower mortality rates built into annuity rates. It also means that heirs will not receive income if annuities provide income only to the insuree.

In general, longevity risk is not as significant as investment risk in determining pension costs. However, new medical technologies that significantly increase longevity could have a major impact on pension plan costs.

Investment Performance and Costs of Pensions and Other Savings Vehicles

Retirement adequacy not only depends on how much people save but also on the investment performance of their funds. The higher the return on assets, net of costs and taxes, the better off Canadians will be when they retire, a point emphasized by Jog (2009).

For example, a person with $1,000 in savings earning 6.5 percent per year that is reinvested in the asset will have $4,828 after 25 years. If the net return on assets is 8 percent per year, the same individual would have $6,848 per year.

This illustration also demonstrates the importance of taxation on investment yields. If the 8 percent is the return on assets in RPPs, RRSPs or TFSAs[4] and 6.5 percent is the after-tax yield on non-tax- sheltered assets (implying a marginal tax rate approximately equal to 20 percent), an investor will have 42 percent more wealth accumulated for retirement if invested in tax-sheltered assets. Even though savings is the same in both instances, the removal of tax on investment returns increases substantially the amount of wealth available at retirement.

Canadians can choose a variety of investment opportunities to accumulate wealth. The most riskless assets are government bonds and Guaranteed Investment Certificates (GICs) covered by Canada Deposit Insurance – the main choice is with respect to the term structure of investments. To improve long-run returns on investment, Canadians invest in riskier assets, including stocks, corporate bonds, mutual funds and real estate. While the expected return on assets, net of investment costs, is greater than a government bond or GIC, the actual investment performance will depend on the state of financial markets and the specific performance of a business issuing securities. Given that investors need to be savvy in investment choices, they often turn to advisors to help make their decisions.

Indeed, the role of financial intermediation is to reduce risk and information costs for investors. Intermediaries, including financial institutions, pension funds, insurance companies and investment funds pool diversified investments together to reduce risk faced by investors. Financial intermediaries also invest in resources to determine and monitor the quality of investments, whether loans made to businesses or securities issued by firms. These activities cost money so investors accept a lower return on their investments if they wish to avoid risk and information costs.

For example, an investor who holds five-year GICs today earns a rate of return equal to 1.98 percent (Bank of Canada Monthly Series November 2009). If a financial intermediary invests the money in a conventional five-year mortgage, the return on the investment is 5.59 percent (Bank of Canada Monthly Series November 2009). The investor could try to invest directly in the mortgage but would need to bear the risks involved as well as cover the information costs incurred to determine credit worthiness and the administrative, accounting and legal costs involved with the investment. However, the investor could leave these costs to the financial intermediary and accept the return on the relatively riskless GIC. We can think of the spread between the mortgage and the GIC rates as the cost of financial intermediary services whereby the financial institution uses labour and capital resources to match borrowers and lenders. This spread, 3.61 percentage points in this example, is the cost born by investors in the GIC to minimize risk and information costs.

[4] The tax on RPPs and RRSPs investments is equal to zero if the investor's tax rate at the time of contribution is equal to tax rate at the time of withdrawal, assuming that the rate of return, adjusted for risk, is equal to investor's discount rate.

Seen in this light, some investors prefer to avoid risk and information costs by investing in low-return assets. Others might wish to accumulate wealth more rapidly by investing in riskier assets, requiring financial knowledge to do so. Investors may invest their own time to choose assets or hire advisors to provide information on the best opportunities. The expectation is that the investor will obtain better investment performance even though greater costs are incurred to do so.

Retirement income assets and performance

In the case of retirement income, investors rely on pension funds and other providers to maximize returns net of costs given their degree of risk tolerance. To gain an idea as to how Canadians invest their money in pension accounts, one can look at investment holdings as shown in Table 5 on next the page (data on RRSP holdings are not available). About 36 percent of pension funds are invested in pooled, mutual and investment funds, 32 percent in equities, 22 percent in bonds and the balance in other assets. Defined benefit funds, much larger than other types of pension funds, are invested more in equities and bonds compared to defined contribution funds.

In Jog (2009), a detailed analysis is provided regarding the investment performance and costs with respect to pension plans and other retirement income providers including insurance companies, financial institutions and mutual funds. His conclusions are based on a review of the literature and his own analysis of new data provided by CEM Benchmarking, the Canadian Life and Health Insurance Association of Canada, and the Investment Funds Institute of Canada. Results are summarized as follows:

- *Investor performance*: On average, investors on their own tend to make mistakes by selling assets at low values and purchasing assets at high values. Studies in the United States suggest that poor investment strategies could cost investors 1.1 percent annually relative to the market-weighted index and 3.7 percent for investments tilted toward small stocks. This suggests that purchasing advice can be important to investors. Canadian evidence suggests that poor timing decisions are not as significant as in the United States.

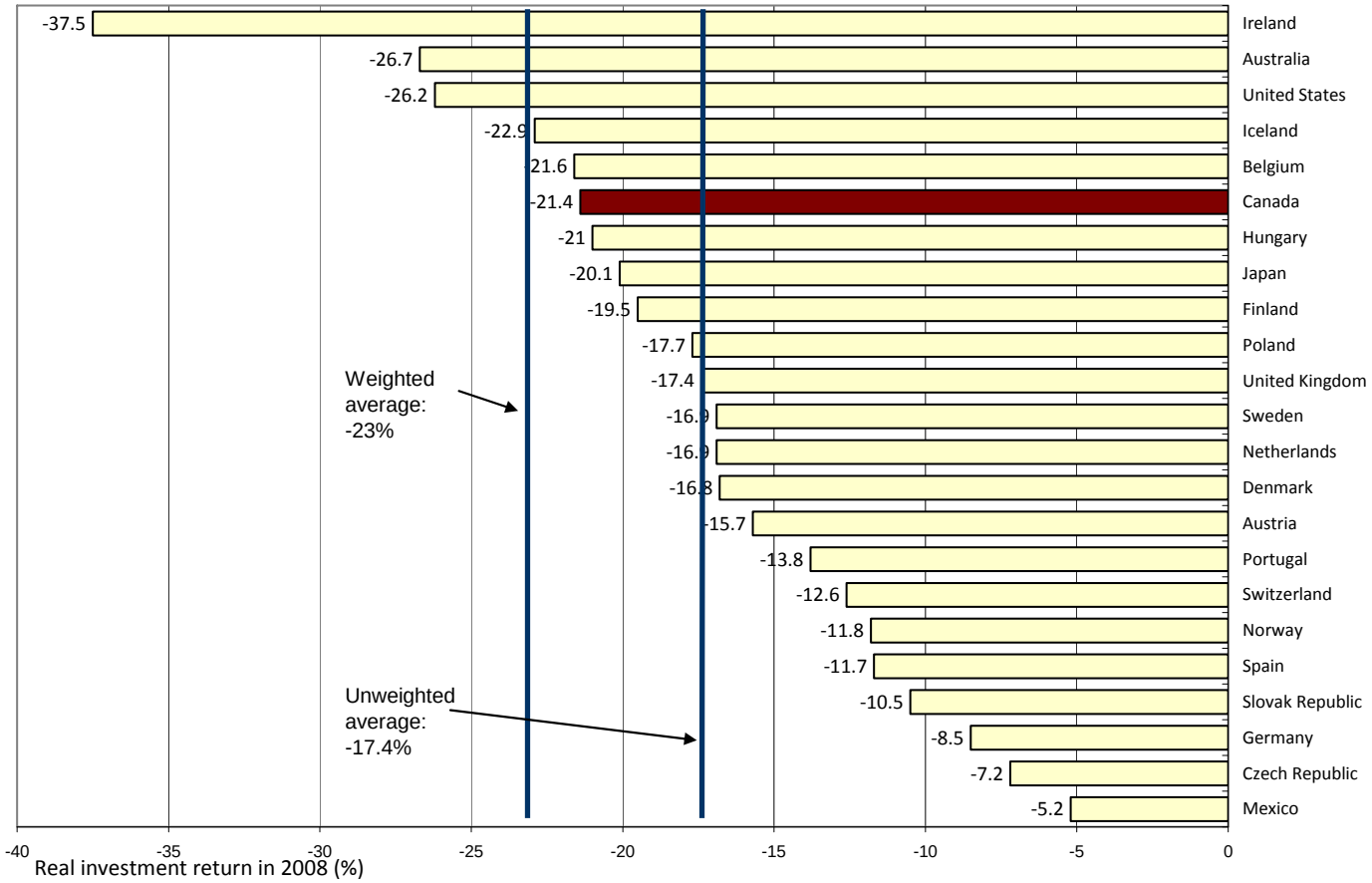
- *Mutual fund performance*: Studies in both the United States and Canada have shown that active managed mutual funds do not perform better than passive investments in indexed and exchange traded funds. Given the management fees that are incurred as discussed below, investors therefore receive a lower return on their active managed investments compared to passive strategy investments. Mutual funds do not use performance-based fee structures. Such fee structures would provide incentives for improving performance.

- *Other professional managed savings*: There is much less evidence available on the performance of pension funds. Defined benefit and defined contribution funds invest in passive and active management funds (Table 5). Evidence on performance is mixed but, overall, Jog concludes that active management by pension plans does not lead to persistently better performance than passive investment strategies on a sustained basis. Using Canadian pension fund data, Jog finds that pension fund performance is not consistently better than passive indexes although some pension funds do perform better in some (down market) years. There is some evidence that pension funds returns improve when management fees are performance-based although pension fund managers do not lose money if performance is less than the benchmark, thereby encouraging greater risky investment in active management.

- *2008 experience and performance*: Canadians experienced significant declines in the value of their retirement income assets arising from losses in portfolio values. During the 2008, mutual funds on average lost 21 percent of their value in net assets. Canadian pension funds lost a similar amount. Compared to other countries, Canadian pension fund losses were sixth highest among OECD countries (Figure 5). Much of the difference in 2008 performance among pension funds can be explained by the extent to which pension assets were held as equities.

- *Costs of Investing*: There are significant differences among pension funds and other savings vehicles with respect to the cost of investing. Costs include administrative costs, reporting requirements, advice, asset management, taxes and, in case of insurance, reserve costs to fund guarantees. Pension plan administrative costs are 30 to 45 basis points for private plans and 25 to 35 basis points for public sector plans. The CPP costs are 20 basis points. The use of external managers could increase costs by about 45 basis points.

Figure 5: 2008 pension fund losses by country



Source: OECD 2009

Table 5: Asset Mix of Defined Benefit and Defined Contribution Plans (2006)

Assets	Total		Defined benefit		Defined contribution		Combination		Other	
	$'000	%	$'000	%	$'000	%	$'000	%	$'000	%
Pooled, mutual and investment funds:										
- Equity fund (Canadian)	74,452,423	8.2	65,912,150	7.9	2,661,545	12.8	5,436,723	10.1	442,007	7.9
- Bond fund (fixed income)	94,907,920	10.4	83,853,332	10.1	2,707,465	13.0	7,050,188	13.1	1,296,937	23.1
- Mortgage fund	9,066,703	1.0	8,745,553	1.1	45,233	0.2	95,144	0.2	180,776	3.2
- Real estate fund	16,579,726	1.8	16,326,281	2.0	19,879	0.1	229,709	0.4	3,859	0.1
- Money market fund	7,584,145	0.8	6,566,259	0.8	352,836	1.7	654,935	1.2	10,117	0.2
- Foreign fund	103,148,747	11.3	92,991,348	11.2	2,770,348	13.3	6,970,066	13.0	416,986	7.4
- Other	25,898,879	2.8	22,394,392	2.7	2,217,440	10.7	1,285,196	2.4	1,853	0.0
- Sub-total	**331,638,540**	**36.4**	**296,789,311**	**35.7**	**10,774,741**	**51.8**	**21,721,957**	**40.4**	**2,352,531**	**41.8**
Equities:										
- Canadian common and preferred	131,725,751	14.4	118,550,129	14.3	3,043,975	14.6	9,008,671	16.8	1,122,978	20.0
- Foreign common and preferred	156,864,923	17.2	145,272,190	17.5	2,416,752	11.6	8,278,548	15.4	897,435	16.0
- Sub-total	**288,590,674**	**31.7**	**263,822,318**	**31.7**	**5,460,726**	**26.3**	**17,287,219**	**32.2**	**2,020,413**	**35.9**
Bonds:										
- Federal	82,319,908	9.0	76,089,914	9.1	1,355,449	6.5	4,395,947	8.2	478,600	8.5
- Provincial	54,779,203	6.0	49,864,339	6.0	899,406	4.3	3,784,296	7.0	231,164	4.1
- Municipal	1,411,904	0.2	1,222,278	0.1	44,670	0.2	140,494	0.3	4,464	0.1
- Other Canadian (corporate)	40,439,759	4.4	36,260,391	4.4	1,153,915	5.6	2,746,053	5.1	279,402	5.0
- Foreign	22,076,257	2.4	21,560,461	2.6	61,928	0.3	453,869	0.8	0	0.0
- Sub-total	**201,027,029**	**22.0**	**184,997,380**	**22.2**	**3,515,364**	**16.9**	**11,520,658**	**21.4**	**993,628**	**17.7**
Mortgages:										
- Residential	1,386,429	0.2	1,250,499	0.2	1,937	0.0	133,994	0.2	0	0.0
- Non-residential	2,774,571	0.3	2,531,520	0.3	14,180	0.1	227,935	0.4	937	0.0
- Sub-total	**4,161,000**	**0.5**	**3,782,019**	**0.5**	**16,117**	**0.1**	**361,929**	**0.7**	**937**	**0.0**
Real estate	39,928,155	4.4	38,750,742	4.7	391,195	1.9	691,463	1.3	94,756	1.7
Cash, deposits, short-term:										
- Cash, deposits, GICs	7,425,101	0.8	6,653,954	0.8	284,247	1.4	427,624	0.8	59,277	1.1
- Government of Canada t-bills	4,246,326	0.5	3,845,439	0.5	96,239	0.5	265,471	0.5	39,178	0.7
- Foreign short-term investments	909,241	0.1	809,234	0.1	4,823	0.0	91,384	0.2	3,802	0.1
- Other short-term paper	9,997,425	1.1	9,029,684	1.1	83,353	0.4	841,880	1.6	42,510	0.8
- Sub-total	**22,578,092**	**2.5**	**20,338,310**	**2.4**	**468,660**	**2.3**	**1,626,359**	**3.0**	**144,765**	**2.6**
Miscellaneous:										
- Accrued interest and dividends receivable	2,537,685	0.3	2,360,022	0.3	46,188	0.2	121,008	0.2	10,470	0.2
- Accounts receivable	3,393,121	0.4	3,162,655	0.4	24,408	0.1	200,680	0.4	5,380	0.1
- Other assets	17,896,859	2.0	17,602,133	2.1	89,550	0.4	204,898	0.4	279	0.0
- Sub-total	**23,827,664**	**2.6**	**23,124,809**	**2.8**	**160,145**	**0.8**	**526,584**	**1.0**	**16,128**	**0.3**
Gross assets	**911,751,150**	**100.0**	**831,604,885**	**100.0**	**20,786,946**	**100.0**	**53,736,167**	**100.0**	**5,623,153**	**100.0**

Source: Jog (2009) and Statistics Canada.

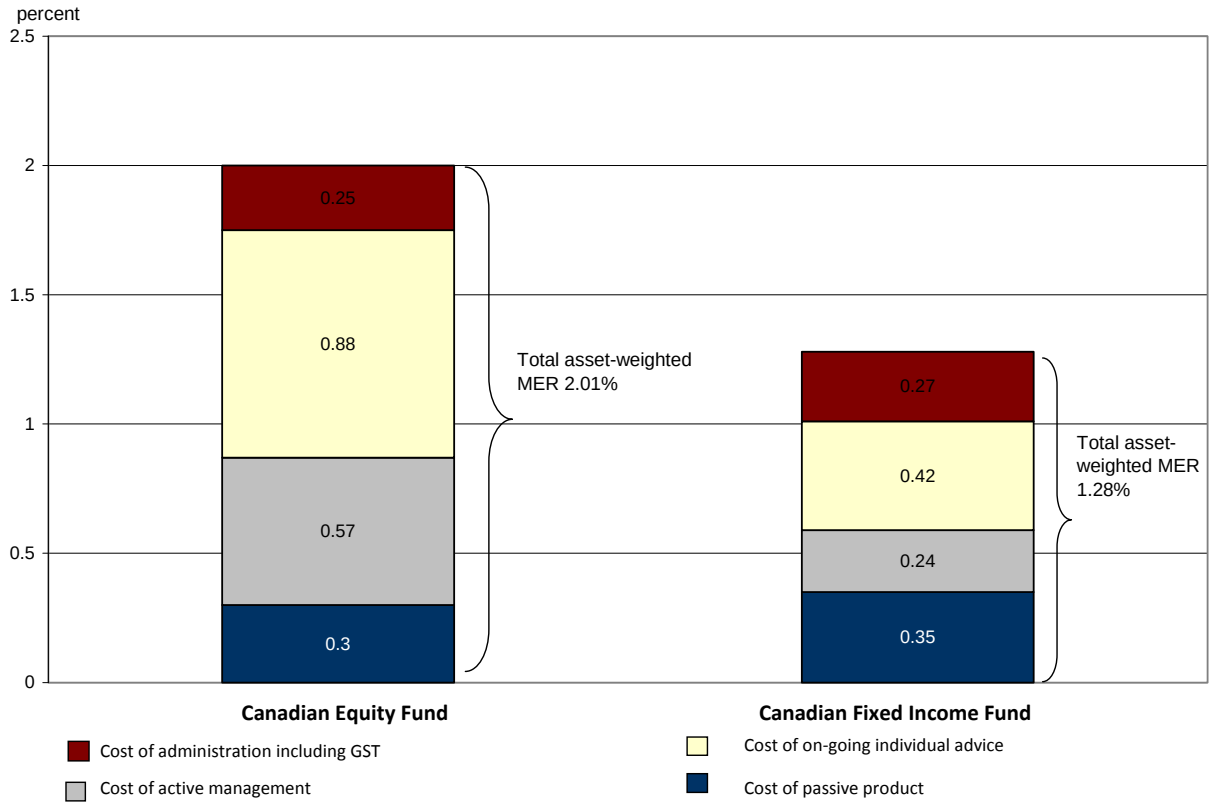
Insurance companies handling defined contribution and group-RRSPs incur costs equal to 60 and 70 basis points respectively. Insurance companies incur higher costs than pension plans for several reasons. Unlike pension funds whereby investors are "captive" in the sense they cannot easily withdraw funds, insurance companies must operate with a larger administrative structure in part to compete with assets outside their organization and to deal with individuals. Insurance funds also include the cost of any guarantee of payment (this could add 27 basis points to fees and in the case of Guarantee Withdrawal Balance an additional 62 basis points). Unlike insurance funds, pension funds do not need to earn a rate of return on invested capital and do not pay taxes since they are non-profit entities.

Mutual fund costs vary depending upon the type of fund involved. These costs include asset management costs, advisory costs and other trading expenses (administration, trustee/custody, audit and legal fees). Unlike pension funds, mutual funds price daily and provide information to investors as well as earn a return on invested capital and pay taxes charged on fees.

Exchange traded funds are cheapest with equity, bond and balanced funds approximately costing 40 basis points and specialty funds costing 80 basis points. Bank-managed mutual funds cost 100 basis points for indexed funds and 200 basis points for non-indexed funds. Non-bank-managed (retail) mutual funds cost on average less than 100 basis points for money market funds, 200 basis points for bond and North American funds and 250-300 basis points for specialty and global funds. Overall, costs average 200 basis points[5] for retail mutual funds.

Jog breaks down the costs of Canadian equity and fixed income funds into four categories: cost of administration including GST, cost of on-going individual advice (which can include estate planning), cost of active management and cost of passive products (Figure 6). Administrative costs are 25 and 27 points respectively for Canadian equity and fixed income funds. Passive investment costs are 30 and 35 basis points respectively and active management costs are 57 and 24 basis points respectively for Canadian equity funds and fixed income funds. Advisory costs are the greatest amount – 88 and 42 basis points respectively for each fund type.

Figure 6: Average costs incurred by retail Canadian equity and fixed income funds



[5] These estimates are less than the Morningstar analysis comparing Canadian fees with those of other countries. Comparisons are difficult to do since reporting requirements for costs differ across countries and, in the case of the Morningstar study, information was based on analyst perceptions.

- *Economies of scale and costs*: Very few studies have been undertaken to assess economies of scale that would relate costs to size of activity for pension and other investment funds. To determine whether economies of scale exist, a researcher must sort out the effect of asset size on costs relative to the types of activities undertaken by the fund. For example, large funds might be more willing to invest in active management that is more costly compared to small funds that pursue passive investment strategies.

  Generally, as the fund gets larger in size, one would expect per asset costs to decline as fixed costs are spread over a larger number of accounts. Nevertheless, at some point, minimum efficient size may be reached whereby unit costs no longer fall with size since larger capital requirements to service investors are required. It is possible that diseconomies of scale can arise whereby unit costs rise with asset size when large organizations become inefficient in their operations.

  Jog (2009) reports that defined contribution and group RRSP costs fall as the size and number of accounts increase, demonstrating economies of scale. Also, the Canada Pension Plan, which is fairly large, has relatively low costs although these costs have risen as the fund has become more engaged in active management. Using the Canadian pension fund data, Jog finds little evidence of economies of scale in that there seems to be little correlation between costs and size of funds, in contradiction to the insurance company data. It might be that minimum efficient scale effects are attained once a fund reaches a certain size but the research is still inconclusive on this point.

Overall, it is clear that pension plans offer opportunities to save costs for investors compared to retail mutual funds but not so much compared to exchange-traded funds, indexed funds and perhaps group-RRSPs (when other factors such as taxes, a return on invested capital, guarantee costs and customer assistance is considered in handling group-RRSP accounts). Income adequacy is better assured if low-cost saving opportunities enable Canadians to accumulate wealth at a faster rate, assuming all else equal.

Pension saving and group and individual RRSPs do not share the same properties. Pension funds provide much less liquidity compared to other investments since individuals cannot easily withdraw funds for contingencies or to invest in assets like housing. Also, when an individual passes away, pension benefits are not payable to an heir except to a spouse. Greater choice is also given to Canadians when investing in group and individual RRSPs, although guidance is often needed. Compared to government bond and GIC investments, an investor might find retail mutual funds improve their opportunities to earn more retirement income with greater flexibility and liquidity.

There remains, however, an important puzzle that is not explained by the research. Given that both pension plan and mutual fund active management performance seems no better than passive income performance on a persistent basis, it is unclear why managers engage in active management, given the costs involved. Uninformed individual investors and pension beneficiaries may not be able to determine whether active or passive strategies are better to pursue, but fund managers in competitive financial markets should advise pursuing more passive strategies. Perhaps, there is optimism that active management improves returns on savings, but the studies do not bear this out.

Efficiency and Effectiveness of Savings Instruments Design

Government transfers to the elderly (OAS, GIS and provincial top-ups), mandatory savings plans (CPP/QPP) and voluntary tax-assisted savings (RPPs, RRSPs and the new TSFAs) play an important role in supporting retired Canadians. These programs differ with respect to their effectiveness and impacts on economic decisions related to saving, work and retirement.

In Davies (2009), savings design is analyzed in terms of its impact on effectiveness and economic efficiency. Plans have been introduced with different rationales. Basic income for the elderly is provided through transfer programs including OAS/GIS. A minimum replacement level of income is provided on a mandatory basis through the CPP/QPP on a defined benefit basis (benefits depend on earnings during working years). Income earned in RPPs and RRSPs is exempt from taxation to encourage retirement saving on a voluntary basis. Contributions to these plans are deductible from income and withdrawals are included in income for income tax purposes.[6]

New saving instruments could also be introduced including mandatory or voluntary defined benefit or defined contribution plans sponsored by governments. The recent introduction of TFSAs enables individuals to earn investment income and capital gains on a tax-free basis but without any upfront tax deduction for contributions. This is an alternative approach to encouraging saving, especially for individuals who face high tax rates at retirement due to clawbacks applied to income-tested benefits.

Would new saving programs encourage savings?

The introduction of saving programs may be intended to increase saving for retirement, but the impact on savings can be blunted if Canadians substitute existing assets for new one.

As Davies (2009) reviews in his paper, a wide variety of studies, especially in the United States, have been undertaken to determine the extent to which voluntary tax-sheltered saving is substituted for non-tax sheltered saving when new plans have been adopted. Higher income groups tend to exhibit a greater tendency to substitute one form of savings for another since they tend to be bound by limits, thereby holding taxable assets that cannot be transferred to retirement accounts. Overall, correcting for statistical issues, the introduction of a tax-sheltered saving plans increases net private saving by about 30 percent of the amount of funds placed in the tax-sheltered plans with one Canadian study suggesting that new net saving ranges from 20 to 50 percent for RRSPs.

Results regarding the substitutability of saving may differ with respect to private pension saving and mandatory saving. There is some empirical evidence based on experience in the United States with 401k plans that enrolment in employer-provided pension plans increases when individuals are automatically enrolled with the right to opt-out. Further, if newly introduced plans are included in limitations imposed on the degree to which contributions may be deductible for tax purposes, saving may not increase for individuals who are constrained (i.e., saving up to their limit), since they would more likely substitute one type of saving for another (e.g., RRSP for a private pension plan). The introduction of a government public pension fund could also result in the substitution of private pension plans for the public pension fund.

[6] Other saving programs have been introduced such as Registered Education Saving Plans. Contributions are not deductible and withdrawals typically are exempt from tax if the student spends money on education costs or has little taxable income. The government provides a grant to the plan.

Even if little new saving is encouraged by the introduction of new saving instruments, the removal of tax on income derived from saving can result in a faster accumulation of wealth for retirement. Different instruments may also have varying impacts on returns, as discussed above if they result in better investment performance (net of costs).

Saver's risk

The type and design of a savings instrument affects the risk faced by investors. Defined benefit pension funds and annuities enable investors to share longevity risks as well as pool risky investments to diversify risks. Defined contribution plans, group-RRSPs and investment funds enable investors to pool investment but not longevity unless annuities are purchased.

With the tax-free status of retirement income accounts, it would be expected that investors would prefer the most taxed assets such as bonds to be placed in pension and RRSP accounts unless they need liquid bond assets outside of retirement accounts to fund contingencies. Given that retirement savings accounts hold a significant share of assets in equities that are tax preferred under capital gains and dividend tax regimes, financial experts have puzzled as to why such funds invest in equity. The typical argument is that an investor prefers to hold risky assets in order to improve their investment performance to achieve targeted replacement income upon retirement. Certainly, for those individuals who can shelter all their savings from taxation, this approach makes sense. However, for those with taxable financial assets, it would be better to invest the most heavily taxed assets in tax-sheltered accounts since overall riskiness of the portfolio is unchanged.

Defined benefit plans minimize risk faced by employees since employer and employee contributions are expected to fully fund future benefits. The plan sponsor covers the risk involved with defined benefit plans by being responsible for any shortfalls. Since many defined benefit plans hold risky assets, the ability to meet obligatory payments at retirement is affected by business cycles. When asset values fall below pension liabilities as in 2008, the plan sponsor must make up for shortfalls by increasing contributions to the plan in order to fully fund future benefits. Under tax law, limitations are imposed on the build-up of surpluses making it harder to use surpluses in good years to cover losses in bad years (the federal government has recently relaxed this rule). If, at the same time, the employer is facing the possibility of bankruptcy, employees will find that their benefits are no longer assured. A recent study (DBRS 2009)[7], reviewing 70 private-sector DB plans, found that most were solvent (or close to solvent) despite the 2008 downturn in markets. Nonetheless, several large defined benefit pension plans became insolvent, in some cases when a company becomes financially distressed (e.g., Chrysler-Daimler and General Motors).

The risk of job loss and employment changes also affect retirement benefits for employees, in part explaining the movement away from defined benefit plans as a result of higher rates of firm turnover.

Defined contribution plans, group and individual RRSPs are not subject to default risk as in the case of defined benefit plans. Instead, the investment risk is borne entirely by the employee. As Davies (2009) points out, financial assets used for retirement accounts can be highly risky when invested in equities. Investors could reduce these risks sharply if they held fixed income assets instead. Taking into account both financial and housing assets, Davies estimates that the average Canadian would have recouped

[7] Dominion Bond Rating Service (DBRS), "Canadian Private Pension Plans – Losing or Cruising?" *DBRS Canada Newsletter*, 1(16), August 5, 2009.

losses in net worth by 2009 (compared to 2005) although those holding investments primarily in equities would be worse off.

The ability to cash out of saving plans when funds are needed for contingencies has not been a focus for the analysis of saving instrument design. Most analysis has focused on retirement as a motive for savings yet precautionary saving can also play a role in wealth accumulation. The reluctance of people to lock-up their savings in pension and other less liquid investments could deter saving in retirement assets. On the other hand, some individuals may prefer the discipline of a pension and similar types of plans to create a habit of saving.

Macroeconomic stability

The design of pension and savings instrument can also affect macroeconomic stability. Asset price fluctuations both affect household consumption and business investment at least to some extent. Most economic studies have shown that consumption is sensitive to fluctuations in housing prices but have been inconclusive with respect to consumption and financial asset price fluctuations. Traditionally, it has been believed that consumption rises at most between 3 cents and 7 cents per dollar increase in stock market values, although more recent studies provide estimates above and below this range. It would therefore be expected that household consumption would be little affected if retirement wealth is primarily held in the form of define benefit pension assets. On the other hand, macroeconomic instability would be somewhat aggravated by asset price fluctuations if households hold their retirement assets in the form of defined contribution pensions, group RRSPs or individual retirement accounts.

Labour market impacts

Retirement income arrangements with employers affect labour markets in two ways. They could have an impact on the costs of moving from one job to another, as mentioned above. They might also have an impact on the decision to retire.

Defined benefit programs typically include incentives to retain employees. However, if individuals in defined benefit plans change jobs frequently, there can be costs related to the value of termination benefits and portability issues. Inter-plan portability is provided by reciprocal arrangements in the public sector.

Other forms of retirement savings are more conducive to labour mobility than defined benefit plans since the employee effectively takes the full value of employer and employee funded assets with them. Unlike group and individual RRSPs, defined contribution plan assets may only be transferred to locked-in RRSP accounts when an employee quits. This reduces the ability of employees to withdraw funds early and is generally subject to maximum limits on withdrawals after retirement. Some provinces have partially allowed these assets to be transferred to normal RRSP accounts after a certain age with Saskatchewan fully unlocking pension assets placed in locked-in retirement saving accounts.

Defined benefit plans also impact on retirement decisions since the net return from work may be small once an employee is eligible for an unreduced pension. Canadian studies suggest that public pensions have had little impact on retirement decisions[8].

[8] The low impact that CPP/QPP has on retirement decisions is in part related to its design – workers receive a smaller benefit when retiring up to five earlier than 65 years of age and receive a higher benefit if retiring within 5 years after the age of 65. Also, some employees retire early given the terms of their defined benefit plans.

With defined contribution plans and RRSPs, retirement decisions can be affected by the amount of wealth available at retirement. If Canadians experience a loss in wealth as in 2008 just when they expect to retire, they may choose to work longer to make up for the loss of resources. Large accumulated gains in wealth may encourage people to quit earlier if they reach their target retirement income.

Conclusions

Governments are concerned about the degree to which the current retirement income system provides an adequate level of retirement income. They are also concerned about the efficiency and fairness of the system.

The first conclusion from the research is that Canadians are, by and large, doing relatively well in ensuring that they have adequate savings for their retirement. The OECD suggests the Canadian retirement income system performs exceedingly well by international standards, with the three pillars enabling Canadians to provide enough retirement income to sustain an adequate standard of living in retirement. Canada has one of the lowest poverty rates among elders among OECD countries. OAS/GIS, CPP/QPP and provincial top-up programs ensure that low-income Canadians are able to achieve high income replacement rates, even exceeding 100 percent. As for other income levels, tax-assisted saving accounts as well transfers and pension programs have provided an adequate retirement income at all income levels for the majority of Canadians.

Although 70 percent replacement of pre-retirement income has been used as a typical guide to determine adequacy, both theory based on life-cycle considerations and empirical evidence suggest that optimal replacement rates vary considerably. Low-income Canadians need a higher level of replacement income to avoid poverty. Some middle- and high-income Canadians may need even less than 60 percent of their pre-retirement income to sustain an adequate standard of living (for example, the OECD suggests 50 percent for individuals with incomes over $90,000 in Canada, twice the median). Much depends upon individual circumstances that affect personal consumption levels, including the need to support dependents, health requirements and the cost of housing and other basic necessities.

There is, however, evidence that not all working Canadians are saving enough to obtain the same level of consumption in their retirement as in working years. These estimates suggest that one fifth of Canadians may not have sufficient RPPs and RRSP assets to replace at least 90 percent of their pre-retirement consumption, with higher degrees of inadequacy especially for modest- and middle-income Canadians. Further study is needed to determine the degree of saving inadequacy since the estimates are based on a stylized model and exclude other sources of retirement income.

To reach adequate levels of retirement income, Canadians need to contribute sufficiently to their retirement account over their working lives. Investment and longevity risk affect the cost of contributions if the aim is to build up sufficient resources to fund retirement. Defined benefit plans provide secure retirement income but contribution costs will widely differ according to mortality rates, returns on investment, risk and wage or salary growth.

Canadians invest not only in tax-assisted pension and saving accounts to fund their retirement but also in other assets including owner-occupied housing and other financial assets. They can also choose to work full- or part-time jobs for some years after the age of 65. Contrary to the impression that individuals without private pensions are not saving enough in RRSPs, some very recent evidence has

shown that Canadians with RPPs have somewhat less retirement income than those without RPPs because non-RPP holders tend to have other assets to support their retirement as well as more likely work after the age of 65.

Retirement income adequacy depends not only on saving but also on the investment performance of retirement funds. The role of financial intermediaries is to help investors reduce risk and information costs as well as provide liquidity to investors when they need it. The objective is not to eliminate risk but to use it wisely and better distributed it in a sensible way. Some individuals may simply need government support and CPP/QPP benefits in retirement and the house they purchased during their working lives.

Given the complexities involved in investment and estate-planning decisions, Canadians often pay for asset management and advice, with the most expensive fees associated with retail mutual funds (about 200 basis points). This comes at a cost to the income they earn on their investments. These costs are acceptable to the extent that they improve returns on their saving. The research suggests that active management does not provide returns on a persistent basis any better than passive management for both pension plans and mutual funds. Once taking into account active management costs, passive managed assets would provide superior returns. Individual investors do not seem to be advised sufficiently to invest in indexed and exchange-traded funds to improve fund performance. Nor is it clear as to why pension fund managers invest in active managed funds for the same reason. The research that has been undertaken to date does not explain why pension and retirement accounts are not invested more heavily in passively managed funds.

The design of savings instruments has different economic impacts. The introduction of new savings instruments or the expansion of current plans may potentially have a limited impact on savings since many Canadians, especially at higher income levels, will substitute other assets for investments in new plans.

Defined benefit plans reduce retirement income risk faced by retirees who receive a pension based on their working years and salary levels. However, defined benefit plans with risky securities are more prone to becoming insolvent during downturns, thereby potentially putting at risk pension benefits that cannot be covered by employers who in turn go bankrupt. With the shift towards defined contribution plans and group-RRSPs, retirement income benefits paid to Canadians depend on the investment performance and riskiness of assets. Defined-benefit plans play an important role in retaining workers for many employers. However, if individuals in defined benefit plans change jobs frequently, there can be costs related to the value of termination benefits and portability issues. Defined contribution plans and group or individual RRSPs and fully transferable defined-benefit plans maintain their value when workers move from one job to another.

Retirement income issues are important to the well-being of all Canadians who need to ensure adequate retirement income. The retirement income system also contributes a well-functioning economy by making more funds available for investment, reducing the cost of capital for businesses and improving labour market performance.

Overall, the Canadian retirement income system is performing well, providing Canadians with an adequate standard of living upon retirement. The evidence does strongly suggest that some Canadians do not have sufficient replacement income. It is not always clear precisely which Canadians are under-saving, by how much, and why especially given data limitations on assets. Several factors are involved including job losses, inadequate saving discipline, losses in wealth due to bad luck or poor investment

choices and late migration to Canada without much saving. These issues are complex and given the long-term effects of saving decisions, it is important to make sure that any policy decisions do not have unintended consequences that impact on the ability of Canadians to save for retirement and other needs.

The research undertaken for this retirement income study sheds some important new light on the state of retirement income adequacy in Canada. Not all answers to questions are known, some of which are critical to developing sound retirement income policy including:

- the level of consumption or replacement rates below which might constitute a serious drop in living standards, since the research has generally considered individuals who may not be saving enough to maintain full (or almost full) consumption continuity;

- a more thorough analysis of subgroups that appear not to be saving enough, differentiated by family type and income level, and based on a comprehensive analysis of all forms of savings, including the role of assets outside the retirement income system, (e.g., housing equity) in financing retirement consumption;

- a better understanding of the reasons for investment choices made by Canadians with respect to returns, risk and liquidity and fees incurred to make those investments; and

- a more detailed analysis as to how saving instrument design impact on the efficiency of markets, especially taking into account both retirement and precautionary motives for saving.

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