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**The surprisingly large policy implications of changing
retirement durations**

Peter Hicks

SEDAP Research Paper No. 284

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The surprisingly large policy implications of changing retirement durations

Peter Hicks¹

Abstract

The paper reviews evidence that suggests that, over the coming two decades, people are likely to stay in the work force at least five years longer, possibly by considerably more. The implications for policy are surprisingly large and surprisingly unrecognized.

Recent trends, if extended into the future, suggest that changes of this magnitude are quite likely given a continuation of past labour market conditions. However, these past trends do not reflect new pressures that will work strongly in the direction of even shorter durations of retirement and longer durations of work.

These new pressures will result from changes in labour supply and demand that will result from the baby boom generation moving into traditional retirement years in large numbers, increasing the demand for older workers. On the supply side, there will be a large increase in the educational levels and skills of older people. The effect of market forces could be further enhanced by policy action.

In other words, a five year extension of working life is the minimum that should be included in most future labour market scenarios. Delaying work-retirement transitions by even this amount would have large, positive economic and fiscal effects, significantly reducing the well-known negative effects of population ageing. They would have particularly important consequences for pension policy, with a dramatic reduction in the need for retirement savings and, particularly if accompanied by flexible work-to-retirement pathways, would reduce the risk of changed income needs in old age.

A range of other social benefits, including greater individual choice and well-being, also seem likely – if harder to quantify. However, as with any large social change, distributional consequences are inevitable. A few groups could be relatively worse off in a world where the norm was for work to be extended later in life. In the absence of strategy for addressing the needs of these potential losers, there may well be reluctance to take policy action, despite the likelihood of large gains for most, and on many fronts.

Keywords: Income replacement, pension systems, pensions, retirement, retirement age, life expectancy, older workers, aging, Canada, projections, public policy

JEL Classification: D78, H53, H55, H60, J08, J10, J18, J20, J26, J32, L38

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Résumé

Ce document passe en revue tous les faits qui suggèrent que les deux prochaines décennies verrons un prolongement de la vie active d'au moins cinq ans et probablement considérablement plus. Les implications pour les politiques publiques sont étonnamment importantes et très méconnues.

Une projection dans le futur des tendances récentes suggère que l'ampleur anticipée de ces changements est bien réelle si les conditions qui prévalurent sur le marché du travail dans le passé persistent. Cependant, ces tendances ne reflètent pas encore totalement les pressions futures qui contribueront fortement au recours au temps passé à la retraite plus et à l'allongement de la durée du travail.

Ces nouvelles pressions, provenant du départ en grand nombre des baby-boomers du marché du travail, vont affecter les conditions de l'offre et de la demande de travail à la faveur d'une hausse de la demande de travailleurs âgés. Du côté de l'offre, nous enregistrerons une augmentation significative du niveau d'éducation et du niveau des compétences des personnes âgées. Les effets du marché pourraient être encore davantage renforcés par l'amélioration des politiques actives déjà en place.

En d'autres termes, le rallongement de la vie active de cinq ans est l'hypothèse minimale qui devrait être retenue dans la plupart des scénarios retenus pour simuler l'évolution future du marché du travail. Retarder simplement le départ à la retraite de cette durée aurait des effets économiques et fiscaux positifs et importants réduisant sensiblement les effets négatifs bien connus liés au vieillissement de la population. On observerait des conséquences importantes sur la politique des pensions, avec une réduction significative du besoin d'épargne de retraite, et en particulier, un accompagnement flexible de la période transitoire du passage à la retraite, permettrait de réduire le risque de voir un changement des besoins financiers durant la vieillesse.

Une série d'autres avantages sociaux, incluant plus de choix individuels et une amélioration du bien-être, semblent également envisageables – même si difficilement quantifiables. Cependant, comme pour n'importe quelle grande restructuration sociale, des impacts redistributifs sont également à prévoir. Certains groupes pourraient se retrouver relativement moins bien lotis dans un monde où l'allongement de la vie active deviendrait la norme. En l'absence d'une stratégie pour répondre aux besoins de ces perdants potentiels, il pourrait bien y avoir une réticence à la mise en place de ces nouvelles politiques, en dépit du fait que la plupart des travailleurs ont une probabilité chance d'enregistrer des gains importants, et ce, sur de nombreux fronts.

CONTENTS

1. INTRODUCTION AND STRUCTURE OF THE PAPER	3
1.1 The paper was triggered by a gap in pension analysis.....	3
1.2 Structure of the paper	5
2. TIME SPENT IN WORK AND RETIREMENT: LOOKING BACKWARD	6
2.1 The key issue: duration of life spent in work and in retirement.....	6
2.2 Past trends in average retirement ages	8
2.3 Expressed retirement intentions – data requiring careful use	13
2.4 Employment (or non-employment) rates give a better picture of what may lie ahead.....	14
2.5 Can we draw lessons from the past at an historic turning point?	19
3. TIME SPENT IN WORK AND RETIREMENT: LOOKING AHEAD	21
3.1 The demand for labour: scenarios for an uncertain future	21
3.2 The skills and education of older workers will increase dramatically in the future	25
3.3 Policy initiatives could re-enforce market pressures.....	27
4. WHY CHANGES IN RETIREMENT BEHAVIOUR ARE POTENTIALLY IMPORTANT.....	31
4.1 Economic, fiscal and labour market effects	32
4.2 Implications for retirement income policies.....	35
4.3 Life course flexibility and spin-off effects on health and well-being	43
5. CONCLUSION	47
5.1 An analogy to untapped natural resources.....	47
5.2 A case for better knowledge of distributional effects	48

1. INTRODUCTION AND STRUCTURE OF THE PAPER

1.1 The paper was triggered by a gap in pension analysis

This paper had its origins in the observation that current discussions about pension reform in Canada are based on research that assumes, almost certainly incorrectly, that retirement ages are stable and will be subject to only small changes in the coming years. These assumptions are made despite the volatility of past retirement patterns, despite a widely-expected upward trend in the labour market demand for older workers and despite the fact that the extension of work to later periods of life would have large, direct implications for pension policy.

If the goal of the policy debate in question were to compare the possible effects of different types of incremental reforms to a particular pension program, then it would make sense to assume no large exogenous changes in retirement behaviours. However, if the goal were an examination of what might actually happen in the future, and how that future might be shaped by policies introduced today, then it would be important to examine how retirement behaviours are likely to change in the future as the result of demographic, market and societal forces.

Such an examination typically does not take place, either here or in other developed countries. Instead the assumption, often implicit, of stable work and retirement patterns gets built into the underlying research that informs the policy debate. For example, the assumption is often built into the macro- and micro-modelling economic modelling that is used in analysis.

Current pension discussions in Canada illustrate this point. These discussions centre on the adequacy, security and efficiency of the retirement income system. An important underlying concern is that many people are not adequately saving for retirement and that new pension instruments may therefore be required. However, the factor that will likely make the most difference in determining whether retirement savings are adequate (i.e., the number of years spent in work and contributing to a pension versus the number of years retired and receiving a pension) has not reached the policy table.

While it is the pension example that gave rise to this paper, the paper takes a broader view and examines a range of policy issues that would be touched by later transitions to retirement.

... the argument is not that good research does not exist

It is important to underline that the contention of this paper is not that retirement ages and retirement durations have been entirely ignored by Canadian researchers. Indeed, there have been many important contributions to the topic, including work by researchers associated with the SEDAP network², the C. D Howe Institute³ and the Policy Research Initiative⁴.

... but rather that there is a disconnect between the research and policy discussions

Rather, the argument is that significant extensions of working life are largely ignored in the research that most directly supports the big policy discussions of the day – particularly as they relate to pensions, but also to the social, economic and fiscal consequences of aging more generally.

For example, in the case of pensions, the Canadian policy community received the message from the research community that retirement savings may be inadequate for a considerable number of people, given a continuation of existing retirement patterns. They did NOT receive the message that it is highly unlikely that retirement ages and durations will remain unchanged – a message that completely changes the policy implications of the research.

The reasons for this failure in the policy-research dynamic are not discussed in the present paper, but will be explored in a parallel paper (Hicks, forthcoming). Some of the problem may simply reflect unsuccessful attempts in the 90s to change ages of pension eligibility or concerns about distributional consequences. However, the parallel paper

² SEDAP (Program for Research on Social and Economic Dimensions of an Aging Population) papers include recent work by Denton and Spencer (2010) and Hering and Klassen (2010)

³ Including Banerjee and Robson (2009), Dodge Laurin and Busby (2010) and Moore, Robson and Laurin (2010)

⁴ Especially (PRI 2004) and (PRI 2005)

will argue that there are deeper issues at play, some of them arising from the way in which policy research is commissioned and funded in Canada.

1.2 Structure of the paper

Section 2 looks backward at recent trends in work and retirement patterns – reporting on, but largely dismissing, the relevance of data on average retirement ages and on people’s reported retirement intentions as guides to the future. The emphasis instead is on actual employment rates.

Section 3 looks ahead, taking account of new demand and supply pressures that are likely to result in a significant increase in the duration of work and shortening of the duration of retirement.

Section 4 demonstrates the surprisingly large positive consequences of such a shift on a range of topics of interest to policy-makers.

Section 5 concludes by noting that policy reforms may be impeded by our present lack of understanding about the distributional consequences of working longer.

2. TIME SPENT IN WORK AND RETIREMENT: LOOKING BACKWARD

This section describes existing evidence about recent trends in retirement durations.

- Section 2.1 introduces the topic with a discussion of individual and population aging.
- Section 2.2 shows that recent history has seen major changes in average retirement ages – the usual, but flawed, marker between work and retirement.
- Section 2.3 rejects the temptation to use data about retirement intentions as a guide to average retirement ages in the future, but argues that the data is useful for future distributional analysis.
- Section 2.4 turns to a more reliable indicator, namely employment rates by age, and finds large changes likely lie ahead.

2.1 The key issue: duration of life spent in work and in retirement

Two demographically-related trends are at play in discussions of work and retirement.

- First, people are living longer and living longer in good health. If average retirement ages remain unchanged, this means that a greater percentage of time during an individual's healthy lifespan is spent in retirement, relative to the amount of time spent in work.
- Second, falling fertility has resulted in populations with more older people and, in the case of Canada and many other countries, has resulted in baby boom phenomena with large numbers of people of working age in recent decades, but with the baby boomers reaching traditional retirement ages in large numbers starting about now. If average retirement ages remain unchanged, this will lead to much larger numbers of retirees relative to workers.

The second, population aging, effect has larger economic effects and has dominated policy research for decades, as briefly described in Figure 1. The traditional analysis has relied heavily on demographic factors alone, usually some version of an ‘old-age dependency ratio’ that compares the size of the

Figure 1. The evolution of the population aging story

<p>In the 1980s and most of the 1990s, the standard narrative about the policy effects of demography centred on baby boomers and old-age dependency ratios (i.e., the ratio of the population aged 20-64 to the population aged 65 and over).</p> <p>The message was that the baby boomers were of working age. A relatively large number of employees produce a relatively large amount of goods and services that are consumed by themselves and by a relatively small dependent population, mainly youth and retirees. Starting about 2011, the baby boomers will be entering retirement age and the dependency ratios will start to grow, posing difficult economic and fiscal challenges.</p> <p>In the early 90s, these narratives were mainly cast in terms of huge crises ahead – with titles like ‘averting the old age crisis’, and relying on images such as tsunamis.</p> <p>Policy solutions were passive – coping with the inevitable demography, mainly by fiscal means or by relying on exogenous (and undefined) productivity improvements.</p> <p>By the late 1990s, the rhetoric had toned down. It was more about ‘managing’ a large demographic transition or, in the words of the OECD (1998), ‘Maintaining Prosperity in an Ageing Society’.</p> <p>Increasingly as we have got nearer to the critical date of 2011, the emphasis shifted away from demographic factors taken in isolation and towards analysis that also took account of the actual time people spend in the labour force, regardless of age.</p>	<p>This was a crucial shift:</p> <ul style="list-style-type: none"> • In reality people were retiring earlier than 65, and retirement patterns had been changing quickly (with retirement ages dropping sharply during the decades preceding the mid-1990s and then starting to rise more recently). • As well, while policy can do little about population aging directly; policy can potentially influence the time that people spend in work. That is, the broader perspective opened up the possibility of policy shifting to a work active stance – especially dealing with the removal of policy-induced incentives to early retirement. <p>What has remained largely missing from these policy narratives, even in their most sophisticated form, is an empirically-based assessment of the likely magnitude of future changes in the duration of retirement. Generally it has been assumed that one-time adjustments of perhaps a year or two extra years of work might be possible, a shift that would not have a large or continuing effect on labour supply or on dependency ratios. Even the PRI (2004 and 2005) analyses, which reflected current life-course thinking in its descriptive analysis, limited its main empirical modelling to a scenario that involved one-time extensions of working life of only two years.</p> <p>As noted in Section 1, in the last year or two some researchers have started examining larger changes in the durations of work and retirement, changes that could have large social and economic effects. This paper joins these efforts in attempting to bring these effects to the attention of the policy world.</p>
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working age population with the size of the retirement age population – making the often implicit assumption that that ages at which people actually retire will remain largely unchanged.

The contention of this paper is that this neglect of the actual ages at which people make the transition for work to retirement is quite unrealistic. The paper also pays more attention to individual ageing than is customary.

This section examines past trends in the borderlines between working life and retirement.

2.2 Past trends in average retirement ages

The average age of retirement has been the traditional marker for measuring the boundary between work and retirement – a marker which we will quickly review, but which we will suggest has limited value.

Figure 2 shows the Statistics Canada data on average retirement ages. For women, the average age fell by 5 years from about age 65 in the mid-1970s to about age 60 in the mid-90s. For men, the drop was a little less, from a little over age 65 in 1976 to between 61 and 62 years in the mid-90s.

That is, average retirement ages dropped by some 3 to 5 years during a 20 year period in which the labour force was growing as a result of the baby boom generation being of working age. The last decade has seen more stability, with a slight increase in average retirement ages. The 1990s marked a reversal of trends towards declining retirement ages in most OECD countries.

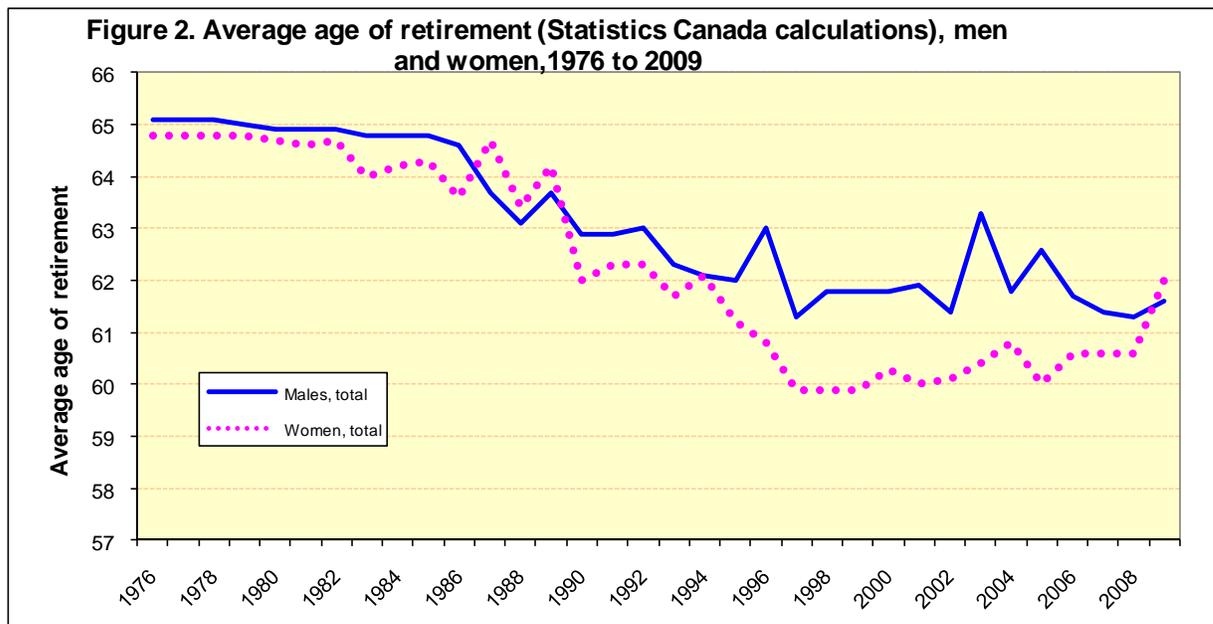
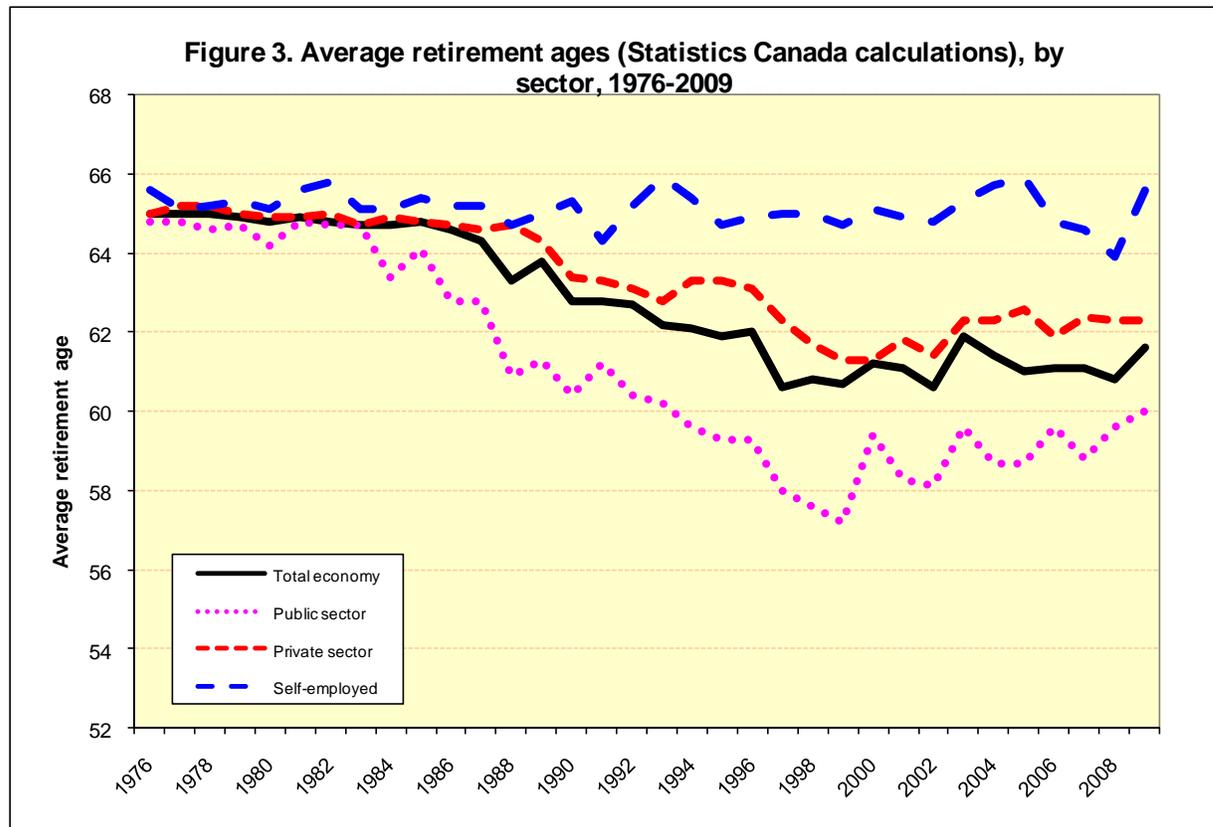


Figure 3 shows the average retirement age for both sexes, including averages for the public and private sectors and for self-employed people. It strongly re-enforces the conclusion that retirement ages are not stable over time.

- In 1976, the average retirement age for all three groups was about 65.
- In the public sector, average retirement ages plummeted to less than 58 years by the mid-90s, a drop of 7 years – and have been rising since then.
- The private sector average retirement age also fell during this period, but less sharply.
- There has been less movement in retirement ages among the self-employed, possibly in part because they were less touched by pension changes during this period. Census data show that the self-employed (particularly those with higher-level educational attainment and family income) make up a significant portion of people who work after the age of 64 – about a third in 2006.



The retirement age experience of other countries

The OECD has a different method⁵ of calculating international retirement ages that uses 5 calendar year groupings. Comparing the mid-90s (1993 - 1998) with the most recent period for which data is available (2002 to 2007), we see that many countries have seen significant change in this short nine year period. In some countries such as Canada, this happened during the period before the real upward pressures on retirement ages began as a result of the retirement of the baby boomers. (In some countries, the baby boomers reached retirement ages earlier – but, in nearly all countries, the OECD data show a shift towards later retirement).

⁵ Because of the way countries keep their statistics, the OECD must use 5 calendar year averages, meaning that their numbers are unfortunately always out of date. The OECD data can be found at http://www.oecd.org/document/47/0,3343,en_2649_34747_39371887_1_1_1_1,00.html. The Canadian data is current, but more subjective, since the Labour Force Survey asks people why they are not employed, with ‘being retired’ as one optional response.

- Canada's average retirement age increased by 1.3 years in this nine year period to 62.1, using the OECD methodology.
- Australia's average retirement age jumped 2.6 years (to age 64.4).
- In Germany, there was an increase of 1.3 years (to age 62.1).
- In the Netherlands, the growth was smaller, 0.6 years (to age 61.6).
- In New Zealand, there was a huge growth of 3.2 years (to age 66.5).
- In Sweden, the increase was 1.6 years (to age 65.7).
- In the United Kingdom, the increase was 1.5 years (to age 63.2).
- In the United States, there was a small decline in this 9 year period of 0.2 years (64.6).

In other words, current average retirement ages in Canada are in the middle of the pack when compared to countries that are roughly similar to us, as are recent trends towards increasing levels of those ages.

Conclusions are hard to draw from average retirement age data

It is hard to draw firm conclusions from these overall average retirement age figures:

- Especially for women where trends also reflect their growing participation in the labour force during this period.
- As well, changes in average retirement ages are hard to interpret since they reflect the combined effect of two different phenomena: population aging and changes in employment rates. That is, retirement ages are calculated based on the number of people at each age (affected by demographic changes) who withdraw from the labour market (affected by changes in labour market behaviour). For most analytic purposes, it is better to separate out the effects of demography and labour market behaviour. This is done for illustrative purposes in Figure 7 in the next section.
- In addition, the very concept of average 'retirement' is ambiguous. The word 'retirement' has many meanings. Does it refer to leaving ones full-time 'career' job? Or withdrawing entirely and permanently from the labour force? Or does it refer to receipt of a pension or other form of retirement income? A recent study

(Denton and Spencer 2008) clearly shows that the concept of an average retirement age may have little practical meaning as a way of marking the divide between the worlds of work and retirement. This is particularly worrisome in Canada where the official data reflect self-reported perceptions about whether the person is ‘retired’ – without reference to any standard definition of retirement⁶.

- Further, an ‘average’ retirement age has little meaning given the heterogeneity of the pathways from work to non-work in later life. Micro data that trace individuals over time have shown much heterogeneity in the paths that people follow in moving from participation in the labour force in the middle portions of their lives to full withdrawal often quite late in life (PRI 2005). In light of this wonderful complexity of the real world, the data on ‘average’ retirement ages begins to look quite abstract and unhelpful.

Perhaps the only conclusion that can be drawn is that changes in average retirement ages have been quite large and that they vary across sectors and countries, reflecting differences in employment rates and demographic profiles.

There is nothing much that policy can do about the demography, but policy can affect employment rates. For example, it is hard to imagine that the large drop and subsequent recovery retirement ages in the Canadian public sector was unconnected to public policy – including the effects of pension changes and industrial relations within the public sector as well as early retirement incentives in the early to mid-90s. The OECD (2011) shows how policy changes in different countries, especially those related to age of pension eligibility, can have large effects of people’s retirement ages.

However, these effects are easier to see by looking at employment behaviour directly, as we do in Section 2.4.

⁶ That said, the Canadian data are not greatly different from more standard approaches that calculate average retirement ages by using changes in participation (or employment) rates by age groups. The real problem with use of average retirement ages is that, at bottom, it assumes a pattern where people work until set time and then move into retirement – and stay retired until they die. As noted, the pathways to retirement are more complex than that, and often take place over many years.

2.3 Expressed retirement intentions – data requiring careful use

Another way of examining people's work and retirement behaviour is to study people's reported retirement intentions. There is reasonably rich data here, as Statistics Canada surveys have examined the topic from various perspectives and the results have been carefully analyzed particularly by Schellenberg and Ostrovsky (2008). However, here too the use of average ages of retirement is problematic given the ambiguities in the meaning of retirement, and given the often long and complex pathways from full time work to full time retirement. The use of data on past intentions is particularly problematic for forecasting ahead, as is discussed below.

The data shows a recent gradual increase in the ages at which people expect to retire. Schellenberg and Ostrovsky (2008) compare data for 1991, 2002 and 2007 for three age groups: 45-49, 50-54 and 55-59. Among the youngest of these age groups (which contains many baby-boomers) there was a significant rise in the age of expected retirement ages over this period. For example, in 1991 only 20% those aged 45 to 49 thought they would retire at age 65 or older. By 2007, this has risen to over 27%. There was much less change in expectations among the older age groups.

Views on reforms to increase retirement ages

Data on people's intentions and opinions also support the view that people would accept well-designed reforms that favoured later retirement. Hering and Klassen (2010) review the Canadian literature and international experience on public reactions to reforms that increased the age of pension eligibility. They conclude that the public would react positively to gradually introduced, small changes in the context of public debate that examined the alternatives. This conclusion is in line with virtually all the research on the subject over the past decade. We return this theme in Section 3.3.

Caution is needed in using these data to look ahead...

Given that the year 2011 is a major demographic turning point, it would be prudent to assume that data based on past intentions and opinions are of limited use as indicators of future retirement behaviour, at least on

average. That is, people's past decisions on when to retire, and on their retirement pathways, were influenced by the supply and demand considerations of the day – by a set of push and pull factors that will no longer apply in the future. Yesterday's demography reduced the demand for older workers; tomorrow's demography will increase incentives to stay longer in the labour market.

That said, the intentions data do clearly point in the direction of later retirement among the baby boomers over the next decade or so, although extent of this is not easily quantified. In analysing cross-sectional data such as this, it is difficult to sort out the effects of different expectations held by boomers, overall changes in public expectations about retirement during this period, and the nearness to actual retirement (and, hence, more realistic understanding of retirement needs and existing retirement preparations). However, the change could be quite large⁷. Certainly nothing in these data would contradict the view that an increase in retirement ages of five years is the minimum that might be expected over the coming 10 or 15 years.

...but they still provide important distributional information

While past data on retirement expectations may offer little guidance about average age of future retirement, they are most useful in distributional analysis. That is, they are almost certain to have something important to say about the way in which future retirement patterns are likely to vary across people with different characteristics, including immigration status, health status, education, class of work, industry and occupation, home ownership, employment history, the roles of two-earner families and other variables that may be important in distributional analysis.

2.4 Employment (or non-employment) rates give a better picture of what may lie ahead

What people actually did in the labour market, their employment rates and hours of work, are relatively simple, solid concepts on which to build

⁷ Indeed Sharpe (2011) refers to a recent study by Sun Life Financial Inc. reported which found that the age at which the average Canadian now expects to retire is 68, up from 65 in 2010.

analysis, when compared with ambiguous concepts such as retirement – whether actual ages of retirement or retirement expectations.

Denton and Spencer (2008) point out that the core meaning of retirement is negative; it refers to older people who do not work in the labour market and who therefore need some form of income support other than earnings. Figure 4 puts an emphasis on the negative nature of the concept by displaying the inverse of the usual data on employment rates; it looks at men and women in different age groups who were *not* employed in 2009 – including time spent in school, care-giving, unemployment, sickness and retirement.

...it is better to simply look at employment rates, or ‘non-employment rates’

Figure 4 shows, not surprisingly, that the ‘non-employment rate’ is U-shaped over life. However, some readers may find it a little surprising to see the extended period of life in which work decreases and ‘retirement’ grows.

- Many younger people are in school, not in the labour force.
- Work is concentrated in the middle of life and withdrawal from work starts at about the age of 50 and gradually grows in successively older age groups.
- The same basic U-shape exists for both sexes, with work attachment being somewhat stronger among males in older age groups and among women in younger age groups. The data for women mainly reflect the growth of the number of women who have participated in the labour force in recent decades, as opposed to having different retirement patterns.

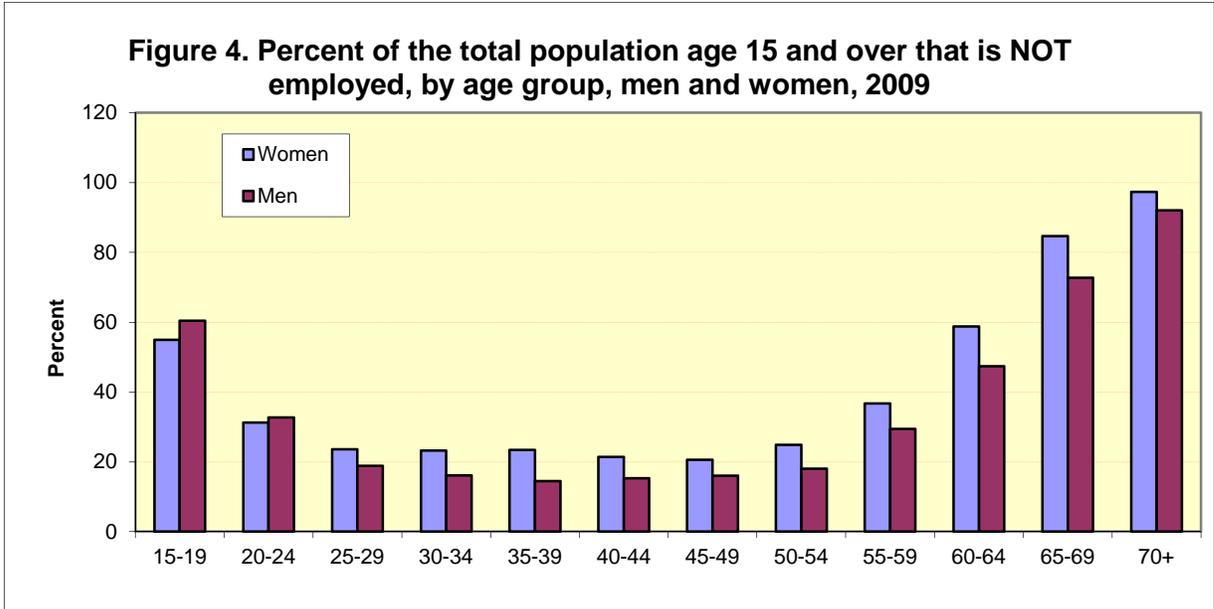
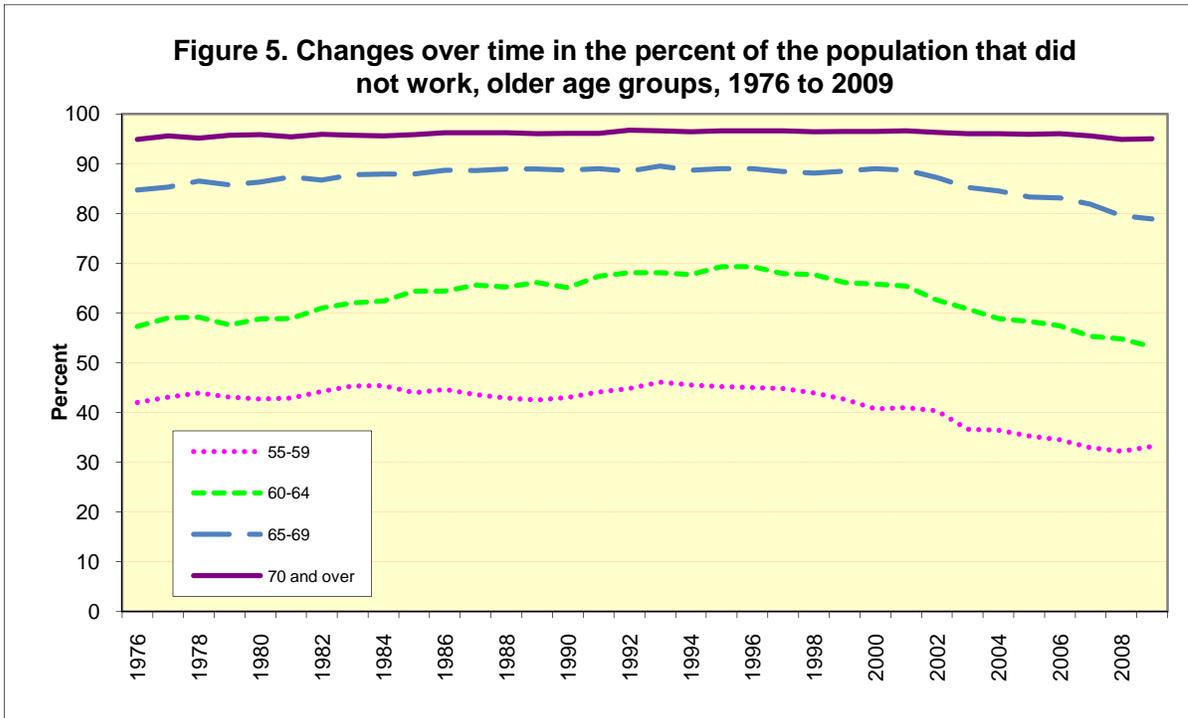


Figure 5 shows trends in these non-employment rates for older age groups, where non-work is usually referred to as retirement.

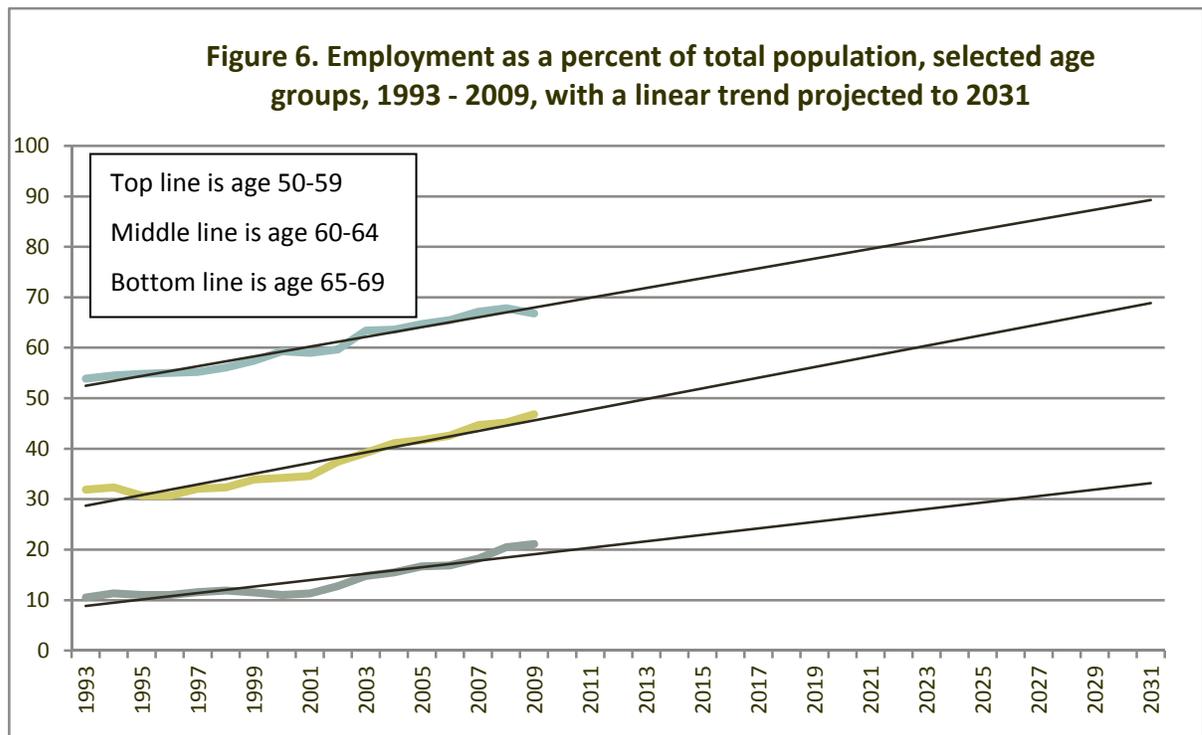


Trends were flat during the period from 1976 to the mid-1990s in most older age groups, but with some upward trend towards 'retirement' for those aged 60-64.

However since the mid-1990s, there has been a clear decline in the proportion of the 'retired' population in all of these age groups – although with a blip up in the most recent period among in the 55-59 group, reflecting the recent economic downturn. There has been relatively little change in 'retirement' patterns among people over the age of 70 over the entire period.

... with past employment rate trends suggesting the likelihood of significantly later retirements in the future

What do these trends suggest for the future? Figure 6 shows the same data for the main age groups of interest, but reverts to the more customary way of presenting them as employment rates. This chart starts in the mid-1990s when the growth in employment rates began and extends a simple linear trend line out to 2031.



This mechanical extension shows a very large growth in employment rates:

- For the age group 55-59, there is an increase of 20 percentage points from 67% in 2009 to 87% in 2031.
- The increase is equally large for people age 60-65, moving up from 47% to 27%.
- The increase for people 60-69 is smaller than that for the other groups, but still quite dramatic: 11 percentage point increase from 21% to 32%.

It might be felt that the magnitude of the upward trend in the figure has been exaggerated because the time series begins only in 1993 and shows a linear trend that only takes account of a period when employment rates have been growing. However, we also ran trend lines from 1976 on, using a polynomial trend line that can capture changes in the direction of trends. These showed an even more extreme growth in employment rates in most older age groups, even exceeding 100% in 2031 in some cases – an impossible result that points to the risks of using mechanical projections over such long time periods.

In the next section, we will use a more moderate, conservative approach to looking at future employment patterns by age, one that takes better account of cohort effects. However, this simple graph is a reminder that we should not rule out the possibility of surprisingly large changes in the coming years.

Enriching the analysis using cohort and longitudinal analysis

The analysis to this point has used traditional point-in-time averages from the past to examine what might lie ahead. This has the great advantage of simplicity and ease of explanation, but it could well be misleading if used in isolation. In looking to the future, what is really needed is analysis based on longitudinal data and on an understanding of changing patterns among cohorts of people. Section 3.2 gives an example of what can go wrong if we rely only on cross-sectional data.

Fortunately, in the case being examined here, other research does exist that uses data that tracks the same individuals (or the same cohort of individuals) over time. Those studies provide a more nuanced picture but with the same basic conclusions.

For example, Denton, Finnie and Spencer (2009) use cohort analysis based on both employment data and income data to show that changes in retirement patterns are more gradual than shown by the cross-sectional data used here and in most studies. However their analysis confirms that early retirement was growing until the mid-90s and has been decreasing since then. Their study also shows that, from a cohort perspective, the retirement patterns of men and women look more similar than is seen in the cross-sectional data. It also finds that while there is still a peak in retirement at age 65, it has become less pronounced in later cohorts.

Denton, Feaver and Spencer (2009) use cohort analysis to show that life expectancies are significantly longer than appear when using traditional cross-sectional data – almost 4 years longer for males age 50 in 2006. They conclude that ‘continued reductions in mortality, and consequent gains in life expectancy, will result in people living longer than is suggested by period life tables, and that almost all of that gain will be spent in retirement.’”

2.5 Can we draw lessons from the past at an historic turning point?

This section has attempted to be cautious about drawing conclusions about future durations of work and retirement based on past trends. Our conceptions of what constituted ‘normal’ participation in school, work and family changed radically as the baby boomers participated in those institutions. Completion of secondary school and participation in post-secondary education became the norm, not the exception. The nature of work evolved extremely rapidly with the spread of the knowledge economy. Two-earner families became the norm; gender equality improved in the education system (greatly), in the work force and, to a lesser extent, in household work. Health improved with the prospect of further gains in life expectancy.

In other words, the aging of the baby boom generation was associated with profound changes in our economic and social structures. In looking ahead to the period when the baby boomers enter their older years, it would seem likely that there will be equally large changes in the nature of retirement, a concept that has already become ambiguous in its meaning.

It is wise to be cautious in predicting the future at big societal turning points such as this. We simply do not know what the future will hold. However, caution in this case certainly does not mean assuming there will be no change ahead in retirement behaviour or that past trends will continue. No change is the least probable outcome in these circumstances. What is needed is an examination of a range of quite different scenarios for the future, as discussed in Section 3.

3. TIME SPENT IN WORK AND RETIREMENT: LOOKING AHEAD

The future duration of work and retirement will be mainly determined by the effects on older workers of future trends in labour demand and supply. The demand side factors are complex and can be only be reasonably quantified in the context of scenario-building as set out in Section 3.1.

The supply-side factors – the number of potential workers in older age groups and their skills – are relatively easy to assess. They are discussed in Section 3.2.

These market forces could be supplemented by policy changes as briefly described in Section 3.3.

3.1 The demand for labour: scenarios for an uncertain future

Section 2 ended by observing that, in looking to the future in areas such as labour demand, we need to construct a range of scenarios about what the future might hold, and not rely on simplistic projections. In building scenarios, we should anticipate changes in future retirement patterns could be large, paralleling radical past changes associated with the boomers in the areas of school, work and family. Scenarios are especially important in looking to the future demand for labour, which can be affected by many forces.

Developing such scenarios is certainly feasible, but difficult and resource-consuming, including the use of recent technologies such as micro-simulation analysis. It would involve looking at a wide range of factors, including:

- Business cycles and the overall health of the labour market.
- Changing patterns of work, learning and leisure at all stages of life (e.g., the timing of the transition from school to work and mid-career learning, changing patterns of gender and family roles in care-giving).
- Possible policy changes, including society's response to the potentially very large effects on health and long-term care when the

baby boomers reach their 80s and 90s a couple of decades from now.

Scenario-building on these lines is far beyond the scope of the present paper. Rather, this paper has the modest goal of showing why, regardless of the scenario, we should assume that there will be significant change in the durations of work and retirement, as opposed to the status-quo assumptions that are embedded in much existing research used for policy purposes.

The analysis of past trends in Section 2 suggests that about five years of increased lifetime work might be considered as a reasonable minimum that could apply in most future scenarios. (We will explain how we arrive at this ‘about five years’ figure shortly.) It is important to note that a five year extension of work does not automatically lead to a five year shortening of the duration of retirement since life expectancy is also likely to continue to increase over the coming decades (Denton and Spencer 2010).

In order to illustrate the effects an extension of working life of this magnitude, we developed a simple estimate that assumes that, by 2031, people in older age groups (over age 55) have the same employment rates as did those in the preceding 5 year age grouping in 2009:

- For example, it assumes that the percentage of people in the age group 55 to 54 in 2031 was the same as in the age group 50-54 in 2009.
- An exception is made for people over 70, where it is arbitrarily assumed that only 10% will be employed in 2031. This is roughly equivalent to an increase in the employment rates for people in their early 70s so that they reach the 20% level now experienced by those 65-69, but with little change in the current rates, about 5%, for those age 75 and over.

Although we are not using statistics on average retirement ages in our analysis for reasons discussed in the last section, these averages are useful in illustrating the magnitude of the effects of the assumed changes in employment rates. These are seen in Figure 7.

Figure 7 shows that average retirement ages will increase both as a consequence of changing demography and changing employment rates. If both are taken into account, there could be an increase of about 6 years in average retirement ages between 2009 and 2031, about 4 of them being the result of the higher employment rates. It these 6 year and 4 year additions that are the basis for our use of the phrase of delaying retirement by about 5 years.

We will use the recalculated employment rate figures in the analysis of policy implications in the next section. Here we simply note that they should be treated as a cautious, minimum estimate:

- It is a lesser increase than that implied by the mechanical projections in Figure 6, in the last section.

Figure 7. How increased employment rates for older workers would translate into average retirement ages

<p>In a simplified¹ model where everyone makes an abrupt transition from work to retirement:</p> <ul style="list-style-type: none"> • The average retirement age in 2009 would be 62.9 years, assuming existing employment rates. If we continue to use these 2009 employment rates, by 2031 the average age of retirement would be 64.9, up by 2 years as a consequence of the aging of the population between now and 2031. • If we applied the higher employment rates for older people (i.e., those that we have assumed for 2031) to the data for 2009, the average age of retirement in 2009 would have increased from the actual 	<p>figure of 62.9 to 65.7 – an increase of 2.8 years accounted for by these higher employment rates.</p> <ul style="list-style-type: none"> • Assuming the higher employment rates, the average age of retirement in 2031 would be 69.1 – up by 6.2 years from 2009, as a consequence of the changes in both the age structure and the higher employment rates. • Looking only at 2031, the average retirement age would be 69.1 assuming the higher employment rates – and 64.9 with existing employment rates for older workers, a difference of 4.2 years
<p>¹ These rough estimates were calculated by single years of age using Statistics Canada's M2 population projections. Employment rates by single year were simply imputed from the five year Statistics Canada averages from the Labour Force Survey, assuming a steady pattern of labour force withdrawal from year to year (i.e., no clustering around specific ages such as 65), and assuming no retirement prior to age 55 and no employment after the age of 75.</p>	

- The trends and mechanical projections of Figure 6 relate to the labour market situation that existed when the baby boomers were still of working age and female employment was growing. The demographically-induced labour shortages will only begin to be felt in the coming years, where they will be replaced by demographically-induced labour surpluses. That is, we should anticipate strong new demand-side pressures towards longer retention of older workers in the labour market.
- Those past trends do not yet fully include the complementary supply-side effects of the increased education levels and experience that the older baby boomers will bring to the labour market, as discussed in Section 3.2.
- These labour market pressures are likely to be re-enforced by financial market trends that are likely to see the returns to capital fall relative to wage growth⁸.
- The international literature (e.g., OECD 1998 and 2006) has made it clear that later retirement would be the only large source of new labour supply that could respond to the demographically-induced labour shortages. Other sources, such as reduced unemployment or increased immigration might play a supporting, but small role.
- Policy changes, particularly in pensions, could reinforce later retirement, as discussed in Section 3.3.

However, we cannot quantify the effects of these pressures in the absence of the scenario work. So all we can safely conclude is that labour demand for older workers will increase and that, in most reasonable scenarios, could result in retirement ages well beyond those shown in Figure 7.

⁸ Unpublished calculations by Bob Baldwin based on CIA (2010) indicate that we are likely to see a considerable closing of the gap between the returns on investments and the growth of real wages. For example, in recent decades a portfolio with containing both stocks and bonds would have had returns that exceeded average annual wage growth by 6 per cent or more. Looking ahead, for CPP purposes, the Chief Actuary predicts that assets managed by the CPPIB will exceed wage growth by a relatively small 2.9 per cent.

3.2 The skills and education of older workers will increase dramatically in the future

Happily, forecasting on the labour supply side is easier. The numbers of potentially available older people is a simple demographic calculation. Section 4 provides some illustrative numbers. As well, estimating the future skills and individual productivity of those older people is equally straightforward, at least to the extent that we can rely on educational attainment as a rough proxy for skills, and hence productivity and earnings. We already know a lot about tomorrow's older workers; they are simply today's middle age workers, but with more experience.

Future retirees – baby-boomers and subsequent generations – are much better educated than the generations that preceded the boomers. The 2006 census tells us that among people aged 45 to 54, some 84% had some form of degree or certificate (including secondary graduation) and that only 16% did not. Among those 65 to 74 (pre-boomers) there were twice as many people without any certificate (32%) and only 68% with a certificate. Among those age 45 to 54, some 25% had a university degree or certificate, compared with only 16% for those age 65 to 74.

This gain in education levels will, of course, result in a comparable gain in the future educational levels of older people as a result of the simple aging of cohorts. In 2026, for example, the educational attainment of those 65 to 74 years will be about the same as it was for those 45 to 54 at the time of the 2006 census.

Is educational attainment and experience a good proxy for skills and productivity?

Educational attainment is an imperfect proxy for skills and hence for individual productivity, earnings and increased demand for labour. However, it is one of the few measures that do exist and, in the absence of other evidence, we must assume a large increase in the potential human capital of older people in the coming decades. This is particularly so for people between the ages of 65 and 74; issues related to mental and physical capacity may exist in ages older than that.

It is important to underline the importance of cohort analysis when looking to the future. Quite different, and quite misleading, results are obtained if one looks only at current cross-sections such as age-earnings

profiles. Here one sees that earnings flatten off and even decline among older workers. However, these effects are not due to age but to larger numbers of lower-skilled people among older workers and to differences in working hours. For example, the 2006 census allows us to make better cross-sectional comparisons. Looking only at people at the same education level (university degree or certificate in this example), and looking only at people who worked full-time, full-year, we see that average employment earnings in 2005 *rose* with age, and quite dramatically. For people in this category who were:

- Age 15 to 24, average employment earnings were \$30,000.
- Age 25 to 44, average employment earnings were \$65,000.
- Age 44 to 64, average employment earnings were \$74,000.
- Age 65 and over, average employment earnings were \$88,000.

Data such as these can be misleading as well unless carefully interpreted. For example, it may be that a disproportionate number of high earners work later in life. Nevertheless, the data that does exist tends to support the common sense notion⁹ that skills, productivity and earnings increase with experience – with age being a reasonable proxy for experience.

⁹ The literature on the relationship among age, earnings and productivity is not entirely conclusive. Sharpe (2011) reviews the international literature on the relation between age and productivity and concludes that the effects are quite small and, even if negative, can be overcome by factors such as training and education. He argues that there is certainly nothing in the international or Canadian literature that suggests that individual productivity factors should work against a policy of encouraging later retirement. Some years ago Kesselman (2005) had already effectively demolished the economic arguments for mandatory retirement, including the notion that this practice is needed in those skilled trades where seniority results in people being underpaid (relative to their productivity) when they are young – and overpaid when they are old.

A more complex and interesting hypothesis, but one that is untested to the knowledge of this author, would be that three factors are at play in age/productivity analysis. First, productivity does increase with experience and age in most (but not all) occupations in the knowledge economy, although there is much variation by occupation. Second, individual health and capacities do decrease with age, but with much heterogeneity across different groups of people. For most occupations in the knowledge economy, this reduction in capacity is likely to offset the first ‘experience’ effect only when people are over the age of 75 on average. Third, there may be a link between productivity and anticipated date of retirement (regardless of the age at which retirement occurs). That is, once people have a planned retirement age, their interest in their job may wane and there may be less work-related human capital formation such as training.

Conclusion

The evidence suggests that, in coming decades, the potential supply of skilled older workers is large enough to meet any reasonable labour demand scenario. Over the long term, employers are likely to adjust the conditions of work to make them even more attractive to recruitment and attention of older workers.

That is, supply side considerations are likely to reinforce the demand side pressures towards later retirement that were discussed earlier.

3.3 Policy initiatives could re-enforce market pressures

This paper does not attempt to describe the many policy changes that have already been introduced that encourage later retirement, and discourage early retirement. The purpose of the section is simply to remind readers that policies directed to these ends are a main theme of government policy agendas around the developed world and may well spill over to Canada, re-enforcing the market pressures to working later.

For this purpose, it is simplest to look at the international literature, particularly OECD reports which have carefully studied many aspects of the issue. The OECD findings mirror many Canadian studies and, indeed, Canadian research has played a large role in the OECD findings about the situation here.

In its pivotal *Maintaining Prosperity in an Aging Society* (OECD 1998), the OECD proposed a multi-stranded strategy for dealing with the policy implications of aging populations. Emphasis was placed on the importance of later retirement, on the need for balance among the sources of the retirement income, on cost effectiveness reforms in the area of health and especially long-term care, on the labour market situation of older workers, and on pension and financial market reform.

An integral part of its proposal was that national strategies should include a framework for coordinating the implementation of the various reforms, for overseeing the development of needed data and analytic tools and for building public understanding and support.

In the years since then, the OECD has monitored progress and enriched its analysis in most of the areas of proposed reform, although often on separate tracks. In particular, health and long-term care reforms are

usually treated as part of a different policy agenda from those relating to older workers and pensions.

A detailed study of retirement income in nine countries (OECD 2001) found that Canada had the least problems of the nine in ensuring pensioner's well-being and protecting vulnerable groups, but was only average in balancing time spent in work and retirement. Public pensions are modest in size compared with other countries. However, pension spending would grow faster than other countries in the absence of changes in retirement behaviour – reflecting the rate of population aging in Canada.

OECD reports during the past decade have continued to argue that Canada's retirement income system, and its policies and practices directed to older workers, compare favourably with other OECD countries. In other words, the OECD reports do not suggest that, when compared with other countries, there is a big problem in Canada that needs to be fixed; rather Canada is blessed with big opportunities that can be even further exploited.

For example, in its large comparative study of employment policies that could support longer time spent in work (OECD 2006), it was noted that Canada was comparatively well placed to meet the challenges of population aging and that there had been improvements in the situation of older workers.

- It was argued that more should be done to improve the employment opportunities of older workers where participation rates are below those in several other OECD countries.
- There were recommendations directed to increase flexibility for combining pensions with work income, using surveys to better understand the extent of age discrimination in the labour force, and strengthening employment service for older workers.
- However, the recommendations were quite minor when compared with those suggested for many other countries. They would have modest effects only in increasing the employment of older people.

Similarly, an OECD specialist examined Canada's pension system in conjunction with the current federal-provincial-territorial pension review (Mintz 2009) and found, once again, that our pension system compared

favourably with those in other countries on most criteria. While labour force participation of older workers is slightly lower than average, this was not the result of features of the public pension system.

Would any policy changes make a big difference?

What kind of policy change could make a big difference in changing retirement behaviour in a country such as Canada where the system is fundamentally sound and where work disincentives for older workers are comparatively small? A recent, major OECD report on the subject provides a simple answer. The 2011 edition of *Pensions at a Glance* (OECD 2011) devotes much attention to measures that would have the effect of bringing retirement ages in line with increased life expectancy.

- One approach being used in about half the OECD countries is to use various means to tie pension benefits to life expectancy. These means include greater use of defined contribution schemes in both public and private pensions as well as direct links between benefit levels and life expectancy. The basic logic is that if people live longer, they will receive less benefit unless they work longer. The OECD sees drawbacks with this kind of approach to incenting later retirement, particularly for low-income workers
- Linking pension eligibility more closely to life expectancy is a better route, the OECD argues. Half of OECD countries are already increasing statutory pension ages or will do so in the coming decades. However, in all but five countries, projected gains in life expectancy over the next four decades will outstrip prospective increases in pension ages.

In the introduction to the report, the OECD authors express surprise that so few countries have taken the approach of simply linking age of eligibility to life expectancy. (The authors would presumably be especially surprised that age of pension eligibility is not even on current policy agendas in Canada). It is not a complete solution as the report notes, but it is one that the evidence shows will work in practice. It helps resolve the 'pension paradoxes' found in many other approaches. It would provide a clear signal of the need to work longer. As well, as described in Section 2.3, it would be likely meet little public resistance, as recent experience in the United States has demonstrated.

In Canada, age of eligibility reforms would likely involve gradually raising the age band at which one could receive C/QPP, perhaps starting by shifting it from 61 to 71, with small additional increases in subsequent years. Denton and Spencer (2010) provide practical examples of how this could be done and examine the consequences of different phase-in scenarios.

Conclusion

The argument of this sub-section is not that Canada will, or should, raise the age of pension eligibility. Market forces, by themselves, will result in later retirements. However, the OECD evidence suggests that reforms along these lines would provide important additional incentives for working longer. Over the course of the next two decades, it seems reasonable to assume that Canada may well adopt a policy reform that is being adopted in so many other countries and that appears to make such good sense.

4. WHY CHANGES IN RETIREMENT BEHAVIOUR ARE POTENTIALLY IMPORTANT

Spreading work in a flexible manner over a longer period of people's lives, with later retirement on average, could have far-reaching effects.

- Section 4.1 shows that later retirement would significantly reduce the negative economic, fiscal and labour market consequences of population aging.
- Section 4.2 shows effects on pension policies, including a reduced need for retirement savings and better tools for managing income risks in older ages.
- Section 4.3 describes possible effects on health and individual well-being.

In looking at these consequences, it is important to disentangle the effects of:

- The rise in effective retirement ages.
- The extent to which this rise results in additional life-time years spent in work.
- The extent to which this rise results in additional life-time years spent in non-work activities at other stages of life, including during the transition to retirement.

In this section, unless otherwise stated, we assume that effective retirement ages and life-time years spent in work will both increase by at least five years between now and 2031. As indicated in Section 3, five years is a conservative assumption, one that does not take account of the new supply and demand pressures that seem likely to result in even larger increases.

Near the end of Section 4.2 and in Section 4.3, we also explore the consequences of further reallocations of leisure now spent in retirement to some combination of learning, care-giving and leisure at other stages of life. However, this discussion is speculative, with no quantification of the extent to which this is possible or likely. The further work on scenario-building that was referred to in Section 3 should take these non-work life-course reallocations into account.

4.1 Economic, fiscal and labour market effects

... a 'producer-consumer ratio' that shows how life-course changes can overcome many of the negative effects of demographic change

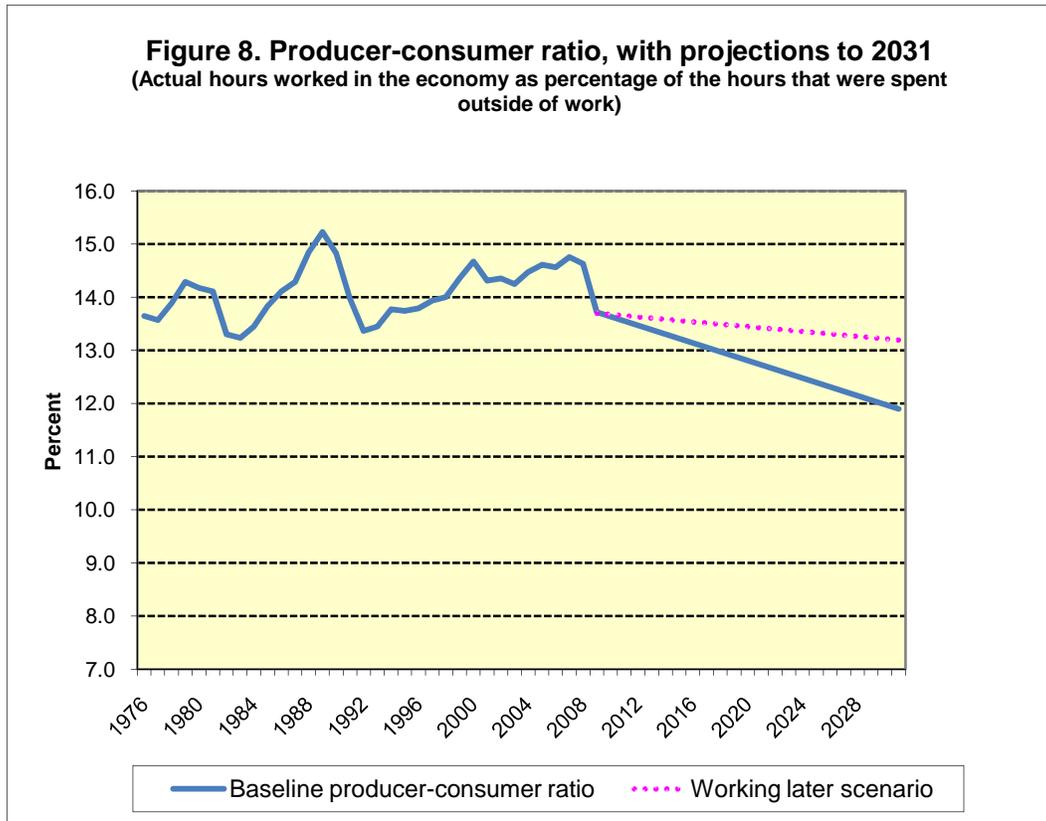
As noted earlier in Figure 2, policy narratives about the effects of population aging have evolved over the years and now take account of the combined effects of population aging and changing patterns of work. A comprehensive measure of this is an hours-based 'producer-consumer' ratio: the time actually spent at work producing the goods, services and income needed to support the activities of life outside of work.

Figure 8 shows such a producer-consumer ratio. It provides a time series showing the total numbers of hours that are actually worked in an average week by the whole population aged 15 and over, taken as a percent of the total amount of time that is not worked during that week.

Figure 8 shows that:

- Between 1976 and 2009, the ratio was at a high level because most of the large baby boom generation was of working age. The late baby-boomers were still entering the labour market during the earlier part of this period and one might have expected to see greater growth in the ratio then. In reality, the ratio moved up and down considerably during this period, mainly in line with the business cycle, but showed no significant underlying trend.
- The positive demographic effects were partially offset by trends among males towards early retirement (until the mid-1990s) and by longer longevity. In other words, the economic gains that resulted from the favourable demography and productivity gains of those years were used, in part, to fund ever-longer periods of leisure in retirement.
- The baseline projection shows a large deterioration in the producer-consumer ratio in the period between now and 2031. It reflects the effect of the retirement of the baby boomers, using the same assumption that is implicit in much of today's policy discussions, namely that retirement ages remain unchanged.
- This baseline projection suggests that, unless other things happen, there will be a significant decline in time spent producing goods,

services and income – with the resulting negative fiscal and economic consequences that are well documented in the Canadian and international literature.



Note on the construction of Figure 8

The chart shows the actual hours worked by all people age 15 and over as a percent of their hours not spent at work. This shows the combined effects of population aging and changing retirement patterns on the economy by comparing:

- o The time spent producing goods, services and income
- o The time spent using those goods, services and income outside work (e.g., in leisure, learning, caregiving, personal time such eating and sleeping, holidays, vacations, unemployment or sickness.)

The data from 1976 to 2009 are from the Labour Force Survey.

The baseline projection uses Statistics Canada's medium population projections and assumes that the 2031 employment-to-population ratio and hours worked data remain unchanged from 2009.

The 'working later' projection uses same population and hours data, but assumes that, by 2031 people in older age groups have the same employment rates as did those in the preceding 5 year age grouping in 2009.

- o See Section 2.1 for a more detailed discussion of the employment rate methodology and how the resulting data can be translated in terms of average retirement ages.
- o Average weekly hours in the different age groups have not changed greatly during the period from 1976 to 2009 and are therefore assumed to remain unchanged into the future, although this may be a conservative assumption with respect to cohort trends among older women.

- The ‘later retirement scenario’ which approximates an increase in retirement ages of five years over this 20 period, greatly reduces this drop, although does not eliminate it entirely.

In other words, a significant extension of work over a longer period of life would also greatly ease collective economic and fiscal problems associated with population aging¹⁰. For reasons outlined in Section 3.1, increases in the duration time spent in work are likely to rise by more than those used in calculating Figure 8. It is easy to envisage scenarios where the negative economic effects of population aging would be completely offset.

In Canada, Denton and Spencer (2010) use much more refined techniques¹¹ than those in Figure 8 to explore the consequence of different approaches and different implementation strategies for moving to higher normal retirement ages. Several of their scenarios result in a 5 year increase in retirement durations by 2035. The results for these are similar to those in Figure 8:

- They use still another version of the familiar old age dependency ratio: a ‘support’ ratio that compares the size of the population that is normally entitled to public pensions (age 65 and over) to the total population. That ratio doubled from 7.7% in 1966 when the CPP was introduced to 14.1% today. If ages for pension eligibility remain unchanged, this figure would jump to 24% by 2035 – the result of population aging and increased longevity. However, if the normal retirement age were to increase by five years over the next 25 years, the support ratio would only reach 18.3% – significantly reducing the negative economic impact of demographic changes.
- If retirement ages remain unchanged, by 2035 men would spend some 30% of their adult life in retirement – a very long period

¹⁰ Moving in this direction would also be fair from an intergenerational perspective (Hering and Klassen 2010).

¹¹ The analysis in Denton and Spencer (2010) is more sophisticated than that used in Figure 7. For example, their calculations are based on single years of age; they trace the effects during the whole period between now and 2035; and they control their results so that no one will lose eligibility as result of the changes.

indeed, up from 23% in 1966 and 28.5% today. However if retirement ages were to increase by 5 years, only some 24% of adult life would be spent in retirement – lower than today but still a little higher than in 1966. Women spend more of life in retirement, but the pattern over time is similar.

- Similar results are found on the fiscal side. If labour force participation rates were to grow in line with higher ages of pension eligibility, and if the age of eligibility were to reach age 70 by 2030, the Denton and Spencer numbers show that the contribution rate to sustain the public pension system would increase somewhat, from 6.4% in 2010 to 7.3% in 2030. By comparison, with no change of eligibility, the contribution rate would be 11.6% that year, a large jump.

Labour market effects

As to labour market consequences, the later retirement scenario would see the number of employees in 2031 being some ten percent higher than in the baseline scenario. And, particularly as a consequence of more flexible work-retirement transitions, labour markets would likely be more efficient and could more easily adjust to economic cycles – although we are unaware of any evidence that would allow the extent of this to be quantified.

4.2 Implications for retirement income policies

Why does public policy support ever-growing periods of time spent outside work?

We begin by asking why we have publicly-supported pensions in the first place and why we have designed them so that the period in which pensions are received grows with increasing longevity.

Life expectancy has been increasing sharply in recent decades, with most of the additional years spent good health. Since 1966 when the CPP and QPP were introduced, life expectancy has grown by about ten years for men and eight years for women. Life expectancy at age 65 has grown by more than 5 years in the same period for both sexes. The trends towards longer, healthier lives are likely to continue in the decades to come) and, in the absence of change, most of this additional period of life will be

spent in retirement. (Denton and Spencer 2010 and Hering and Klassen 2010).

Figure 9 suggests that, if we were to look only at the underlying rationale for retirement, there would seem to be no problem, at least in principle, with a reduction in the duration of retirement of 5, 10 or more years over the coming decades. Retirements would still be longer than those that were originally envisaged.

If longer retirements are not a policy goal, why have we continued to support pension policies such as the OAS and CPP/QPP that have fixed ages of entitlement (or an actuarially adjusted band around a fixed age) and hence have encouraged longer periods of retirement?

Figure 9. Why does public pension policy support healthy, increasingly skilled people in not working during a growing period at the end of their life?

<p>From the perspective of historical hindsight, we can deduce that there were several reasons for the introduction of public policy to support a period of non-work starting at a fixed age near the end of average lives.</p> <ul style="list-style-type: none">• Much work was too physically demanding to be handled by older workers, particularly during the period in later life when health often begins to deteriorate – typically in the several years before death.• A sense that workers should be rewarded by a period of leisure after a long, hard lifetime of contributing in the labour market, together with the declining role of families as the primary support for retirees.• In the labour market, private pensions were often seen as deferred wages that became entrenched in compensation systems, with retirement (including mandatory retirement) being seen as a needed device to ensure that older workers do not become overpaid relative to their declining productivity.	<p>Nothing in these rationales would support retirement durations of some 25 or 30 years that we can see on the horizon in the absence of changes in retirement ages. And no new rationale along these lines has emerged. Quite the opposite is true.</p> <p>As discussed in Section 3.2, a smaller percentage of people are engaged in hard physical work and, in most jobs in the knowledge economy, the productivity of people in their 60s and even 70s is higher than it is for young, and less experienced, workers. And, as discussed earlier (see footnote 9), Kesselman (2004) has clearly shown why the argument that some older workers may be overpaid relative to their productivity is not an important consideration for policy.</p> <p>Social discussions today, at least at the level of rhetoric, put a premium on greater individual choice in making lifecourse choices – greater work-life balance, spreading learning more evenly into mid-careers and later in life. There would seem to be little room in this line of thinking for policies that provide strong incentives for concentrating leisure at a particular period of life.</p>
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Several factors account for the continuation and entrenchment of policies that support increasing amounts of leisure being concentrated in the past

third of life. Economic growth and productivity gains in recent decades have produced large payoffs that have manifested themselves in terms of increased time being freed up for leisure and learning – away from work:

- Since the 60s there has been a large increase in time spent in learning, particularly at the post-secondary level.
- There has been a less dramatic, but still significant reduction in the time that employees spend at work. According to labour force survey data, average weekly hours actually worked fell by 2 hours between 1976 and 2009, from 38 hours to 36 hours.
- However, much the largest gain in leisure has been among retirees, where gains in leisure are measured in years not hours.

In other words, past economic prosperity has been translated into gains in leisure/learning throughout the whole life-course and, aside from continuing concerns about work-life balance and lifelong learning, there has been no strong societal incentive to question the way in which the newly available non-work time was allocated across the stages in the life-course. In the labour market, the loss of labour supply that resulted from early retirement was more than compensated for by new sources of supply: the baby boomers were of working age and more women were joining the labour market.

To the extent that this analysis is correct, then we should anticipate quite rapid changes in the coming years as pension and older worker policies catch up with the move of the baby-boomers into retirement. In past decades, policies directed towards encouraging later retirement were working in the opposite direction to market forces. In the coming decades they will be working in complementary directions.

Reducing the need for retirement savings

The obvious pension payoff from shorter retirement durations would be a reduced need for retirement savings. Figure 10 illustrates the dramatic consequences on individual retirement savings that could result.

In order to simplify things, Figure 10 looks at a full-career worker in some hypothetical country that has no pension schemes per se (neither public nor private), but that relies entirely on individual savings during working life, with the resulting annuity providing the needed retirement income. It

shows what would happen if that individual were to retire at age 55, 60, 65 and 70.

- While the example is far removed from the real world, comparisons across the scenarios can give a reasonably good sense of the magnitude of the effects of retiring at different ages that would occur over the longer run:
- In all scenarios, the annual pension benefit is identical and adequate to maintain living standards.
- The person who retired at age 55 would need to save 37% of their annual earnings to finance his or her retirement.
- If he or she retires at age 60, the needed savings drop to 25% of average annual earnings. Retiring at age 65 reduces this amount to 16%, while retiring at age 70 means that only 10% of annual earnings are needed for retirement savings.

Figure 10. Scenarios showing individual-level effects of different retirement ages on retirement income contributions and benefits, using highly simplified assumptions

<p><i>Individual retires at age 55</i> Contributes \$22,380 annually for 30 years <i>(Total contribution of \$671,400)</i> Receives annual pension of \$42,000 for 30 years <i>(Total benefit of \$1,302,000 – coming from direct savings plus returns on those savings)</i></p>	<p><i>Individual retires at age 65</i> Contributes \$9,552 annually for 40 years <i>(Total contribution of \$382,080)</i> Receives annual pension of \$42,000 for 20 years <i>(Total benefit of \$840,000 – coming from direct savings plus returns on those savings)</i></p>
<p><i>Individual retires at age 60</i> Contributes \$15,036 annually for 35 years <i>(Total contribution of \$526,260)</i> Receives annual pension of \$42,000 for 25 years <i>(Total benefit of \$1,050,000 – coming from direct savings plus returns on those savings)</i></p>	<p><i>Individual retires at age 70</i> Contributes \$6,144 annually for 45 years <i>(Total contribution of \$276,480)</i> Receives annual pension of \$42,000 for 15 years <i>(Total benefit of \$630,000 – coming from direct savings plus returns on those savings)</i></p>

Simplifying assumptions

The individual was born in 1985, starts work in 2010 and will have a life expectancy of 85 years.

Salary throughout working life is \$60,000 annually and retirement income during each year of retirement is 70% of that (\$42,000). The 70% figure is often used to calculate the income needed to avoid a drop in material living standards in retirement, although it has weaknesses that will be referred to later.

All retirement income comes from an annuity that was built up with equal contributions made in each year of working life.

Annual yields are 3% during the contribution period and 1% after retirement. Inflation is 0%.

In other words, later retirement requires significantly reduced savings in order to ensure adequate income throughout retirement. These effects are large, at least in the long-run. The answer to the question about whether people are saving enough for their retirement therefore depends hugely on assumptions made about retirement ages and durations of retirement.

Table 1 tests the sensitivity¹² of the Figure 10 findings by making three changes:

- It adds CPP and OAS to the calculations. At one the level, this adds realism. At another level, however, it is less realistic in that the existing rules of the CPP and OAS are necessarily followed in making the calculations. It is much more likely that, in those scenarios where people retire at much later ages, the ages of eligibility for these programs would rise in the long run.
- It uses a more sophisticated approach to determining what income is needed in retirement. Figure 10 used the traditional 70% of pre-retirement earnings (which is typically assumed to be enough to ensure that consumption levels do not fall after retirement). Table 1 uses a more direct measure of consumption replacement levels (based on pre-retirement income less taxes and savings). People typically consume less after they retire and an (arbitrary) figure of

¹² The table and associated sensitivity analysis were based on work provided by Gordon Lenjosek of Human Resources and Skills Development Canada who kindly undertook to read and criticise an early draft of this paper. His contribution reflects his own views and not necessarily those of HRSDC. The present author takes full responsibility for the quality and interpretations in the adaption presented in this paper.

75% of pre-retirement consumption is used. (The table also shows the comparable earnings replacement figure¹³.)

- It uses Canadian average earnings of \$47,200, rather than the \$60,000 in Figure 10.

As in Figure 10, Table 1 considers four full-time career workers in Canada, each of whom earns the average wage (in 2010) and relies on both private and public savings during their working lives, and both an annuity and public pension benefits in retirement. It shows what would happen if those individuals were to retire at different ages (55, 60, 65 and 70) in terms of how well the retirement income system is helping them avoid a significant drop in their material standards of living in retirement.

- An individual who retires at age 55 must save almost 21% of his or her earnings per year. This drops, by a factor of four, to 5.5% for the individual who retires only 15 years later at age 70. (If CPP contributions are included with private savings, the total savings rate falls from 25% to 10 %.)
- A separate calculation (not shown) was made for people who earn 1.5 times the average wage (\$70,800). While private savings rates rise slightly (by between 1.4 and 2.5 percentage points) in this case, the same pattern exists of a greatly reduced need for savings for individuals who retire later.

Table 1. Scenarios showing individual-level effects of different retirement ages on consumption replacement

	<i>Individual retires at age 55</i>	<i>Individual retires at age 60</i>	<i>Individual retires at age 65</i>	<i>Individual retires at age 70</i>
<i>Work</i>	<i>30 years</i>	<i>35 years</i>	<i>40 years</i>	<i>45 years</i>
Annual earnings (\$)	47,200	47,200	47,200	47,200
Private savings (\$)	9,865	6,891	4,248	2,596
CPP contributions (\$)	2,163	2,163	2,163	2,163
Net income (\$)	35,172	38,146	40,789	42,441

¹³ It would have varied over time – suggesting that an earnings replacement rate is a weaker indicator of individual needs in retirement. The consumption figure takes better account of the heterogeneity among individuals: both in the durations of work and retirement and in expenditure (private savings) differences over the life course.

<i>Retirement</i>	<i>30 years</i>	<i>25 years</i>	<i>20 years</i>	<i>15 years</i>
Annual pension (\$)	18,731	19,487	18,282	17,881
CPP pension (\$)	3,536	4,243	6,061	7,879
OAS benefits (\$)	4,173	5,008	6,259	6,259
Annual income (\$)	26,439	28,737	30,603	32,020
<i>Replacement rates (%)</i>				
Consumption	75	75	75	75
Annual earnings	56	61	65	68
<i>Private savings rate (%)</i>	20.9	14.6	9.0	5.5

Simplifying assumptions

- Each individual was born in 1985, starts work in 2010 and will have a life expectancy of 85 years.
- Taxes are ignored in this analysis.
- Retirement income comes from an annuity that was built up with equal contributions made in each year of working life, from CPP pensions to which the persons contributed (at the 2010 rate) each year of their working lives, and from OAS benefits financed from general tax revenues. Average July 2010 benefits levels are used for CPP and OAS.
- Annual yields are 3% during the contribution period and 1% after retirement. Inflation is 0%.

Sensitivity analysis was undertaken (not shown here) that examined the reasons for the gap in private savings between the ages 55 and age 70. It found, not surprisingly that by far the largest contributors were years retired and, especially, years worked (together accounting for 65% of the gap). Only 6% was due to interest rate assumptions, with remainder due to differences in public pension benefits from retiring at different ages.

...Dodge, Laurin and Busby on private savings rates

Dodge, Laurin and Busby (2010) make much richer calculations related to the need for private retirement savings, with results in the same order of magnitude. They use still more sophisticated analysis and sensitivity testing – including analysis by income decile. Calculations are made assuming 50%, 60% and 70% replacement rates. Savings rates vary with age. They compare scenarios where individuals retire at ages 63, 65 and 67, with retirement savings starting at age 30 in all cases (to take account of the volatility of earnings and savings in the early working years, including earnings interruptions).

- Their analysis shows that the need for private retirement savings decreases sharply given a five year delay in retirement. For

example, take people in the 6th income decile and assume a 70% replacement rate. In this case, the constant private savings rate would be 17% of annual pre-tax earnings if they were to retire age 63. If they were to retire at 67 that savings rate would be only 10%.

- Note that these figures are *in addition* to public pension savings such as the CPP and QPP. In the case of people in the 6th income decile who retire at age 65, the private savings rate would be 13% while the C/QPP savings would be 6%, for a total of 19%.

Managing the risks of changing income needs during the course of later life

Shorter retirement durations not only reduce the need for retirement savings, they also reduce income-related risks that may occur during the course of old age. Retirement planning involves much risk including:

- The much-studied risks associated with the market value of retirement investments at the time of retirement, the vulnerability of company pensions to bankruptcy and sharp economic downturns, and other risks associated with the savings and pensions instruments themselves.
- Uncertainties about one's future income needs – how long one will live after retirement and how much income will be required during those retirement years.

In some cases, the risks of longevity are pooled through defined-benefit pension and annuity schemes but, in all cases, there is much uncertainty about what level of income will actually be needed during the course of retirement – often many years in the future. Adequate retirement income as determined by a fixed percent of pre-retirement income, or pre-retirement consumption, may make sense on average. However, circumstances and needs can vary greatly across individuals and can change during the course of retirement – in ways that are not predictable.

Income risks in later life are best managed in a system with flexible retirement pathways and multiple sources of income during a person's older years. These sources include not only the standard pension pillars but also other savings and assets, earnings from own employment, home

ownership, the earnings of other family members, access to services such as health care and long-term care, tax breaks, etc.

Retirement ages are central to risk management at the level of individuals. In the case of abrupt transitions from work to complete retirement, the illustration in Figure 10 shows that:

- If the individual retired at age 55, he would be out of contact with the labour force for an extremely long period of 30 years, more than a third of an average (and growing) life-span. Most of those 30 years would be spent in good health and with good labour-market skills – at least at the outset of retirement. However, these skills would quickly fade away through lack of use.
- If the individual retired at age 70, his sources of income would be much more balanced in these last 30 years of life, with earnings still playing the key role in the first half of that period and, in the second half, there would be less time away from the labour market for skills to fade.

Risks are even better managed in cases where there is a flexible transition to retirement extending over a number of years – allowing greater choice in the balance between earnings and retirement income sources. Working longer on a part-time, or part-year basis has the additional advantage of maintaining skills and job contacts, facilitating greater participation in the labour market at a subsequent time – should there be a need or desire to do that.

While extending work to a later stage of life will reduce income risks on average, it may well create distributional issues. Some people will not be able to work longer. The consequences are discussed in Section 5.

4.3 Life course flexibility and spin-off effects on health and well-being

There would be many potentially positive effects both to individuals and society if pension or other reforms could create incentives such that work would be spread more flexibly over a longer period of life, with more time spent in work in later years.

What is meant by life-course flexibility? How does it relate to retirement durations?

In the absence of changes in retirement ages, a large and growing portion of life will be spent in leisure in retirement. We have argued that could amount to perhaps 25 years on average by the year 2030. Greater life-course flexibility refers to a situation where there is greater choice in how people allocated time over the course of life to work, leisure, learning, family life such as raising children and care-giving generally. This includes the possibility of taking some of the 25 years of concentrated leisure that (in the absence of change) would be spent in retirement and allocating it to activities at other stages of life:

- This paper has argued that it would be reasonable to assume that at least 5 of those 25 years would likely be reallocated to work (some of which might be part-time but which, in total, would amount to the equivalent of five years of full-time work). This would take place mainly when people are in their 60s and early 70s.
- It seems likely that many people would choose to retain a long period of retirement. However some may choose a duration that is more in keeping with earlier conceptions of retirement – a period of perhaps 5 to 10 years or more of leisure spent in good health before the onset of health problems that are usually concentrated in the years before death. Others may choose to blend work and leisure over an even longer period in later life, for example by working part-time or part-year during the transition to retirement.
- That still leaves many years that could be potentially re-allocated, for example to more leisure at earlier stages of life (e.g., longer vacations or occasional sabbaticals), to longer periods of initial education, mid-career training and education, or to time-off for raising children or caring for frail parents.

While there is good evidence to suggest that the reallocation towards work will be reasonably large, there is little evidence that would help us estimate the magnitude of the reallocations referred to in the second and third bullets above. About all that can be said is that reallocations will likely vary greatly from individual to individual, in part depending on the extent to which the life-course choices are real or constrained.

Effects of working longer on well-being

Greater life-course choice, of course, would by itself represent a major step forward in social progress. As well, the balance of evidence suggests that maintaining a longer attachment to employment, one of the main institutions that provide structure in our society, could result in a net improvement in health and individual life satisfaction. However, a lot depends on whether people like their jobs:

- Statistics Canada's General Social Survey of 2005 found that people got more satisfaction from paid work activities than they did from most leisure and cultural activities (as reported in Wolfson 2010) – making nonsense of much economic analysis on this subject¹⁴. Indeed, for people over the age of 65, paid work was at top of the list of activities that people said they enjoyed the most.
- On the other hand, stress, which in some cases can arise from work, is negatively related to health and well-being. Many of those with stressful jobs will have retired before the age of 65.

Spreading work in a more flexible fashion over a longer period of life should, therefore, result in major gains in health and well-being – at least on average.

- For those who like their job, that satisfaction is spread over a longer period of life.
- Spreading work over a longer period of life opens up opportunities for a greater spreading of learning, leisure and care-giving over life – reducing work-life stresses and time-crunches at earlier stages of life, and increasing human capital. (PRI 2004)
- For those who are without adequate retirement savings, working longer provides greater opportunities to manage uncertainty and the risk of inadequate income in retirement – although income per

¹⁴ However other surveys, here and abroad, show that people also like their life in retirement, particularly when comparing their early years of retirement with the time they spent before retirement. It would be interesting to see research that reconciles these results. The author's hypothesis in footnote 9 that work may become in less satisfying in the years immediately before expected retirement might be a possible factor.

se does not appear to be a major driver of perceived well-being, at least among older workers. (Statistics Canada 2010)

- Among some of those who dislike their jobs, the longer time-frame and greater life-course flexibility (including a longer period in which to recoup the returns to investments in mid-career training) will provide more opportunities to change jobs in mid-career.
- However, some workers may not be in a position to exercise this flexibility and, in a world where the norm shifts to working longer, their well-being may decline. As noted, the next section returns to these difficult distributional issues.

These social benefits are potentially important, but difficult to quantify. At minimum, one can be confident that shorter retirement durations and flexible retirement pathways will have a net positive effect on both individual and societal well-being, with significantly more winners than losers.

5. CONCLUSION

5.1 An analogy to untapped natural resources

For decades, population aging has dominated policy agendas, often using images of tsunamis and cataclysms. This paper has suggested the changing labour market forces could well offset some or all of the negative consequences of population aging. Figure 12 speculates about the effects of this on policy agendas.

A more positive policy metaphor may therefore be needed. One might be found in a comparison between human resources and natural resources.

The paper has argued that Canada and other developed countries are sitting on a rich pool of largely untapped human resources that, if exploited in sensible manner, will bring large benefits on many fronts. Like many natural resources that have been built up over the years, they can be tapped only once – but the benefits will nevertheless last for many years.

The resource in question is the wave of older people of the baby boom generation who have the health and skills to make a large and major contribution to the labour market, particularly when they are in their mid- to late 60s. Demand and supply pressures that, in the past, worked towards earlier retirement will reverse starting about now and will create incentives towards working longer in life and towards more flexible pathways to retirement.

Figure 9. Population aging as a way of framing policy agendas

For decades, population ageing has been used as device for framing policy agendas, especially at the international level. The core issue has been the multi-dimensional, and largely negative, fiscal and economic consequence of the retirement of the baby boomers.

However, the analysis here suggests that, in the coming period, when the baby boomers actually start retiring, population aging may disappear from the centre stage of big macro policy agendas. That is likely a good thing on balance, since there is little that policy can do to change population aging.

Demographic analysis will, of course, remain of central importance in policy analysis, but be used in conjunction with other kinds of analysis, such as changes in labour market behaviour.

Moreover there are specific policy areas where population aging will remain in the forefront. This is particularly in the area of health and long-term care policies. In a couple of decades, baby boomers will reach advanced old age, when frailty and health problems become common. It would be wise to tap their labour market resources now in order to help prepare for the greatly increased costs of health and disability care at that time.

Market forces can be supplemented by policy action

That is, most of benefits from the exploitation of this valuable new resource will occur as a result of market and society forces alone. However, the evidence is clear that they can be re-enforced by policy action as discussed in Section 3.3. Policy action may however be difficult without a better understanding of the distributional consequences of later retirement.

5.2 A case for better knowledge of distributional effects

While tapping the time and skills of older people for use in the labour market is a potential success story on a surprisingly large number of fronts, we are not suggesting that the news is entirely positive.

As already noted, demographically-induced health and long-term care challenges will continue to grow. More generally, while most people will gain in a society where, on average, work takes up a longer period of life, a minority of people may lose.

A commonly used example is the case of those vulnerable workers with stressful or otherwise unpleasant jobs, whose health suffers and whose life expectancy is short. A combination of dying early and working longer may rob them of a decent period of retirement – a much needed time of recuperation and leisure at the end of their lives. There seems to be deep unfairness here because they contributed to pensions that they cannot fully use.

Less dramatic, but still real are older workers who simply do not have the skills or health to work later in life. Social well-being is, at the end of day, measured in a relative manner. Low-income lines are determined in relation to the income of our neighbours. In a world where, on average, people work longer, the well-being of those who cannot work longer may fall relatively. In some cases, this may result in higher off-loading pressures – people moving off pensions and onto social assistance or disability pensions. Even today, many countries find that their disability or unemployment programs become a substitute, and costly, form of transition from work to retirement.

Until we have some solutions to distributional issues such as these, or even better knowledge of the likely extent of these problems, there may

be reduced appetite for policy changes that involve extending retirement ages.

It is important not to exaggerate the distributional consequences:

- As noted earlier, the size of the groups that might be negatively affected by later retirement is becoming smaller over time. Hard manual work is shrinking as portion of the workforce and healthy life expectancy is growing.
- The most vulnerable are not those who work longer now. It is people in better health, with higher educational attainment and with higher incomes that now choose to work longer (Denton and Spencer 2008, p 19). There no reason to expect this to change in the future.
- As well, in a world where most people are retired for fewer years, there would be large fiscal savings from reduced pension costs. These could be used for many purposes, but among them could be programs directed to other approaches to compensate for any losses that might result from higher retirement ages – if the evidence suggests that these are needed.

Nevertheless, in the absence of evidence of the magnitude of the distributional effects, they have potential to de-rail reforms that would have high pays-offs for most. This line of argument suggests that there would be much benefit from greater research on the distributional consequences of a changing balance in time spent in work and retirement over the course of life – and of the changing nature of the pathways that connect the two. It is an area where current knowledge is weak and, where compared with many other countries, our analytic tools (such as microsimulation) are relatively strong.

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