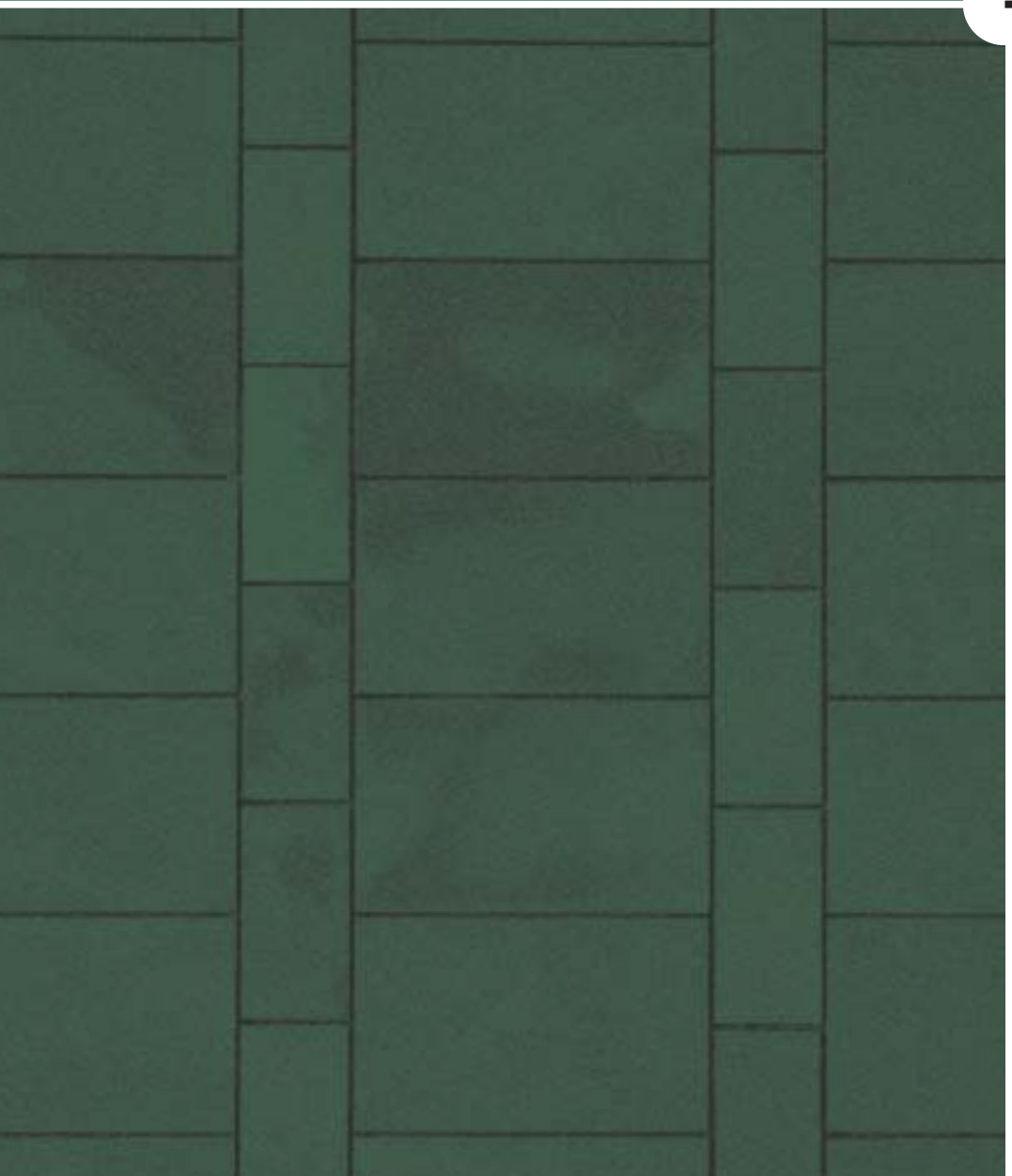
Policy Research Initiative
Projet de recherche sur les politiques

Population Aging and Life-Course Flexibility

The Pivotal Role of Increased Choice in The Retirement Decision

Discussion Paper

March 2004



PRI Project
Population Aging and Life-Course Flexibility

Canada

Population Aging and Life-Course Flexibility: The Pivotal Role of Increased Choice in The Retirement Decision

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This discussion paper has been prepared for the PRI-SSHRC Roundtable on Life-Course Based Policies, January 30, 2004. The paper is intended for discussion purposes only, and does not necessarily reflect an official position of the Government of Canada.

Rationale for the Project

Our success as a society is determined, in large part, by the opportunities individuals have and the choices they make, over the course of their lives, in how they spend their time in learning, working, providing care to their children and elderly parents, volunteering and undertaking unpaid work at home, and in retirement. These choices are made at the personal level, but are highly influenced by institutional arrangements and policy, including a five day/40 hour "standard" work week, two or three weeks of holidays a year, a set starting age for going to school, and a "normal" retirement age of between 60 and 65.

The social and economic importance of how people allocate their time – the sequencing, duration, and overlaps among the main activities in life, and the successful and unsuccessful transitions from one stage of life to another – is obvious, as is the direct and indirect influence of policy on that allocation. However, life-course perspectives have not played a major role in policy analysis.

Recently, our empirical understanding of some key life transitions (e.g., from welfare to work, from school to work) has improved, and policies have been developed to support these transitions. On the horizon are results from new longitudinal surveys and analysis, and new analytic tools, such as microsimulation models that allow comprehensive policy analysis from a life-course perspective.

A year ago, the Policy Research Initiative (PRI) launched an interdepartmental research project to explore the hypothesis that major economic and social gains could flow from policy-induced changes in the allocation of time throughout life. The project's premise is that, as a consequence of the coming retirement of the baby-boom generation, now would be a good time to consider policy changes that have the effect of giving people the choice to work later in life and have more flexibility in how work, leisure, learning, and caregiving can be allocated throughout the life-course.

Later retirement, for those who would like to keep working[1] (i.e., more time spent at work and a more productive use of the ever-growing period of time now spent in retirement) would have major macroeconomic benefits and, possibly, could be an integral part of a policy framework that would result in a range of social benefits.

Added life-course flexibility refers not only to later or gradual retirement (more flexibility in balancing work and leisure during the years before full withdrawal from the labour force), but also to using some of the added work in later life to compensate for more time off from work at earlier phases of life, for training or caregiving, for example.

This hypothesis was timely since conventional wisdom on several large medium-term policy issues all pointed to the centrality of life-course issues.

- The coming retirement of the baby-boom generation is likely to lead to a reduced rate of economic growth after 2011, unless there are changes in the balance of time devoted to work and leisure during the transition to retirement resulting in a later effective average age of retirement.

- Economic growth can be accomplished by increased productivity as well as more time in work. One determinant of higher productivity is increased human capital. And conventional wisdom is that a stronger system of lifelong learning should be an important part of human capital policies. But, how much time should people allocate to learning and at which phases of their life?
- At the level of public policy, there is a strong probability that growth in age-related government spending after 2011 will crowd out other forms of social spending, including spending on programs and policies that have a greater potential to increase well-being than income transfers to support retirement. This could be offset to some extent if people choose to remain employed longer – producing goods and services and paying more taxes – and reversing the trend toward less of life being spent in work and more of life being spent without work and in receipt of public pensions.
- Another key strand of the conventional human capital story puts high priority on strengthening early childhood development. Again, current wisdom is that flexibility in working arrangements (such as parental leave) when children are young can be an important part of the policy solution.
- A related set of issues arises with respect to a work-family balance that better supports caregiving for the elderly – a growing problem. While family caregiving certainly cannot be the whole solution, it is typically felt to be an important part of the solution.
- More generally, there is growing concern about the balance of time devoted to work, learning, and caregiving in people's "working years," particularly with respect to the negative influences on health and well-being of time crunches, and in view of the social benefits that can be derived from more personal choice in the work-life balance. The problem is one of allocating leisure time throughout life. (The total amount of time not at work has been growing rapidly. That growth has, however, been almost entirely concentrated in retirement in the last third of life, with less flexibility in the use of time in the middle years of life. During "working years," there has been little change in average hours worked in recent decades.)
- Questions of life-course choices and time allocation are increasingly shaping the way we examine distributional issues, including policies addressing poverty and exclusion. We are increasingly concerned about life-course risks, the duration of exclusion over the course of life, the role of prevention as opposed to remedial policies, the role of dysfunctional transitions from one life phase to the next, and the difficulties many people with low skills would face in working longer in life, even if that was their preference. These areas are largely neglected by existing policies, which were designed to address poverty and exclusion situations at one point in time and fail to consider the linkages between various states and situations experienced over the course of life.

There was, therefore, ample reason to launch a project that examined the state of the evidence in these areas. Policy implications are potentially very large. In fact, two PRI projects started from a life-course perspective – Population Aging and Life-Course Flexibility, and New Approaches to Poverty and Exclusion. This presentation focuses on the former, but makes links to the distributional aspects of time allocation when this is important for policy.

The Research Questions

The following questions[2] should guide policy analysis. There is a serious lack of data in many of these areas, but new longitudinal data and the development of a new microsimulation model (the LifePaths model[3]) can be drawn upon.

Later sections describe the evidence to date on the various topics, and how we plan to get better evidence in the coming year.

Questions Relating to Economic Dimensions

1. Are the macroeconomic challenges posed by population aging larger or smaller when viewed from a life-course perspective?
2. Is later or gradual retirement the only major solution?
3. How much later would people have to work to offset the negative economic effects of population aging?
4. How many individuals would choose to work longer and for how much longer, if they did not face barriers (legislative or institutional) that discourage them from doing so? To what extent will those barriers be reduced as a result of the pressures of market forces?
5. If working longer became the norm, who would be the winners and losers – both among groups of individuals and sectors – and how could losses be minimized?

Questions Relating to Other Dimensions of Life-Course Flexibility

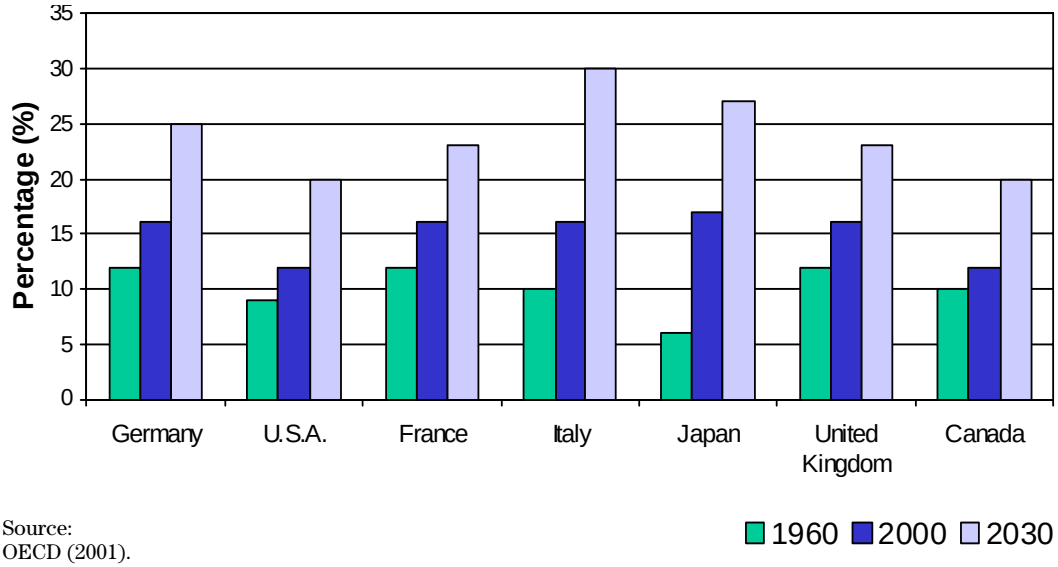
6. To what extent would the choice to work later in life in exchange for more flexibility in time allocation over the life course result in greater health and well-being? To what degree are market forces likely to lead to an improvement or deterioration of life-course flexibility?
7. To what extent would more time devoted to lifelong learning increase productivity or lead to working longer, and at what phase of life?
8. To what extent would more flexibility for devoting time to caring/volunteering over the life course result in better individual and collective outcomes and what are the resulting distributional consequences?

Questions Related to Policy Strategies

9. What are the implications of this analysis for fiscal policy?
10. What principles and priorities should guide overall policy development in these areas, and what are the most promising areas for federal policy development?

1. Are the macro-economic challenges posed by population aging larger or smaller when viewed from a life-course perspective?

Figure 1
Proportion of Total Population Age 65 and Older



Source:
OECD (2001).

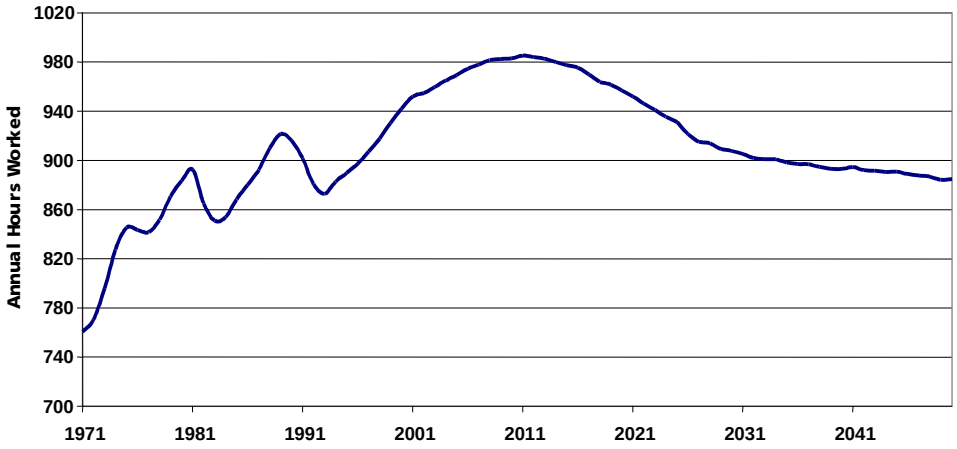
Figure 1 presents a familiar international comparison of population aging. Compared with the other countries, Canada's population is relatively young but the projected increase in the size of the older population over the next 30 years is large. The OECD has identified Canada as one of the countries facing the largest aging challenges in this time period.

Traditionally, the challenge has been expressed in the form of a dependency ratio – the ratio of older people who are "dependent" to the working age population. Figure 2 shows the results of a far more sophisticated and reliable measure of how aging will impact on the overall work effort of a population in relation to the needs of that population.

Based on past assumptions about retirement behaviour, average hours per capita will peak after 2011 – after having risen (with cyclical ups and downs) during the preceding decades – and then the long-term trend will be a decline over the decades that follow.

The decline in average annual hours of work shows a similar pattern to earlier traditional dependency rate analysis. However, it provides a more accurate picture as it takes account of the fact that many workers do not work full time or full year, and also factors in the expected increased participation in the labour market likely to flow from higher education levels.

Figure 2
Average Annual Hours Worked per Person*: 1975-2050



Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

Falling hours per capita is a problem for economic growth. Gross domestic product (GDP) per capita is a function of hours worked and productivity within those hours. So, for any given level of productivity, GDP per capita will be lower with fewer hours worked. In other words, around 2011 we will shift from many decades where a growing labour supply supported economic growth to one where a shrinking labour supply will cut the rate of economic growth. Recent OECD calculations suggest the rate of growth in GDP per capita could be cut in half, depending on assumptions made.

Clearly then, the changes brought about by population aging, in the amount of time devoted to work and leisure in retirement has negative consequences[4] for economic growth and, therefore, on our future prospects for improvements in standards of living.

Will the deterioration in the employment to population ratio be offset by the potential improvements that population aging will bring on the productivity side of the equation?

Mérette (2002) has argued, that population aging will not necessarily lead to an inevitable growth slowdown, fiscal crisis, or declining level of well-being. The author suggests that population aging is likely to lead to an increase in wages relative to interest rates, which should promote an accumulation and deepening of human capital in younger cohorts, and thus, in the context of a knowledge-based economy, will be a main driver of economic growth through productivity improvement.

Fougère and Mérette (HRDC, 2000a) described an endogenous growth overlapping-generations model calibrated to the Canadian situation,[5] which incorporates several institutional features of government programs. In their baseline scenario, the human capital formation arising from population aging increases at a steady rate between 1995 and 2050, resulting in a stock of human capital that is 17 percent higher in 2050 compared with a scenario where population aging does not occur.

In sum, according to these studies, it is possible to expect positive productivity impacts from population aging through human capital accumulation.

In the next phase of the project, work will continue refining our micro and macro modelling, including testing the sensitivity of various assumptions related to the labour market, productivity, and human capital accumulation, outlined later in this paper. We do not anticipate any major changes in the basic projections of average hours worked.

2. Is later or gradual retirement the only major solution?

According to the OECD, reversing trends to earlier retirement is the least painful way of offsetting the negative macroeconomic effects of aging.

To test this, we first examined other potential methods of offsetting these negative effects. Increased productivity is a central means, of course, as discussed in the later questions on lifelong learning and human capital. But there may also be other ways of increasing hours worked in the economy.

Increased Immigration

- Mérette et al. (HRDC, 2003) using a regional overlapping generations model, found that increasing immigration levels could significantly mitigate some of the negative impacts of population aging on real per capita GDP. Increasing the number of immigrants to one percent of the population above the current (1997-2001 average) rate of 0.75 percent could prevent a 10 percent decline in real GDP per capita in the long run. However, the impact of increased immigration is negligible until the mid-2030s, with the larger positive impacts not fully realized until approximately 2050.
- Denton and Spencer (2003) argued that, although increased immigration could have an immediate positive and continuing effect on GDP growth as indicated in Table 1, it would have only a negligible effect on the growth of GDP per capita. Furthermore, to use immigration as a policy tool to sustain even modest labour force growth, immigration targets would have to be increased without delay and sustained at very high and unprecedented levels.

Table 1
Effect of Immigration on GDP

	2001-2011	2011-21	2021-31	2031-41	2041-51
	Average Annual GDP Growth %				
Status quo	2.52	1.66	1.45	1.54	1.4
Increased immigration (50% increase in annual immigration or 345,000 immigrants annually)	2.83	2.08	1.89	1.93	1.75
	Average Annual Growth in GDP per Capita %				
Status quo	1.77	1.09	1.11	1.45	1.45
Increased immigration	1.80	1.16	1.2	1.48	1.45

Source:
Denton and Spencer (2003)

People are often surprised by the seemingly modest gains from immigration in terms of offsetting population aging. The reason is that immigration affects both halves of the "dependency" ratio equation. If one thinks of the ratio of employed

people to the total population as a ratio of producers to consumers, then solutions, such as later retirement or increased participation rates at other ages, increase the number of producers, while leaving the number of consumers constant. Increasing immigration increases the number of producers, but it also increases the number of consumers – greatly reducing the effects of immigration on the ratio.

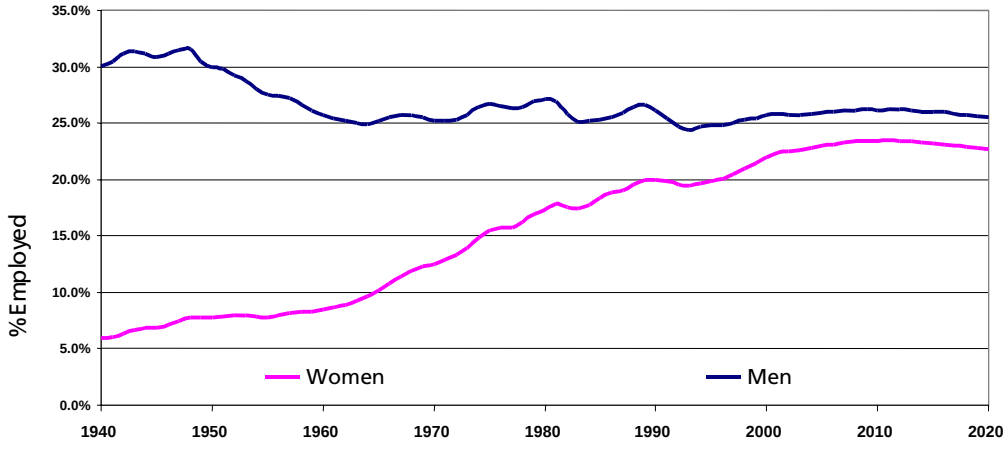
In the next phase of the project we will repeat earlier analyses using the common assumptions developed among participating departments for the project, but there is nothing to suggest there will be any noticeable change from received wisdom.

Even Higher Participation by Women

In many countries, increasing women's participation in the labour market is seen as one possible way to increase the labour supply. However, this policy response appears unnecessary in Canada. Women's participation in the labour market has already increased dramatically since the 1950s, reflecting rapidly changing social and economic realities, as well as a trend toward higher post-secondary schooling for women.

Note that, as indicated in Figure 3, our assumption[6] is that women's employment to total population ratio will not reach that of men in the period projected. In the next phase of work, we will undertake sensitivity analysis that will let the model work unconstrained in this respect. This will result in higher female employment levels,[7] reflecting the large recent gains in educational attainment among women. However, it is unlikely that this will fundamentally change the shape of the hours per capita chart.

Figure 3
Employment to Total Population Ratio*: 1940-2020



Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

Reduced Unemployment and Underemployment

Earlier work by the OECD and others suggests that, as important as such a reduction is for many reasons, the main effect would be to delay the timing of the fall in hours per capita; however, this would not otherwise change the basic picture significantly. We plan to confirm this in the next phase of our modelling.

Less Time in School

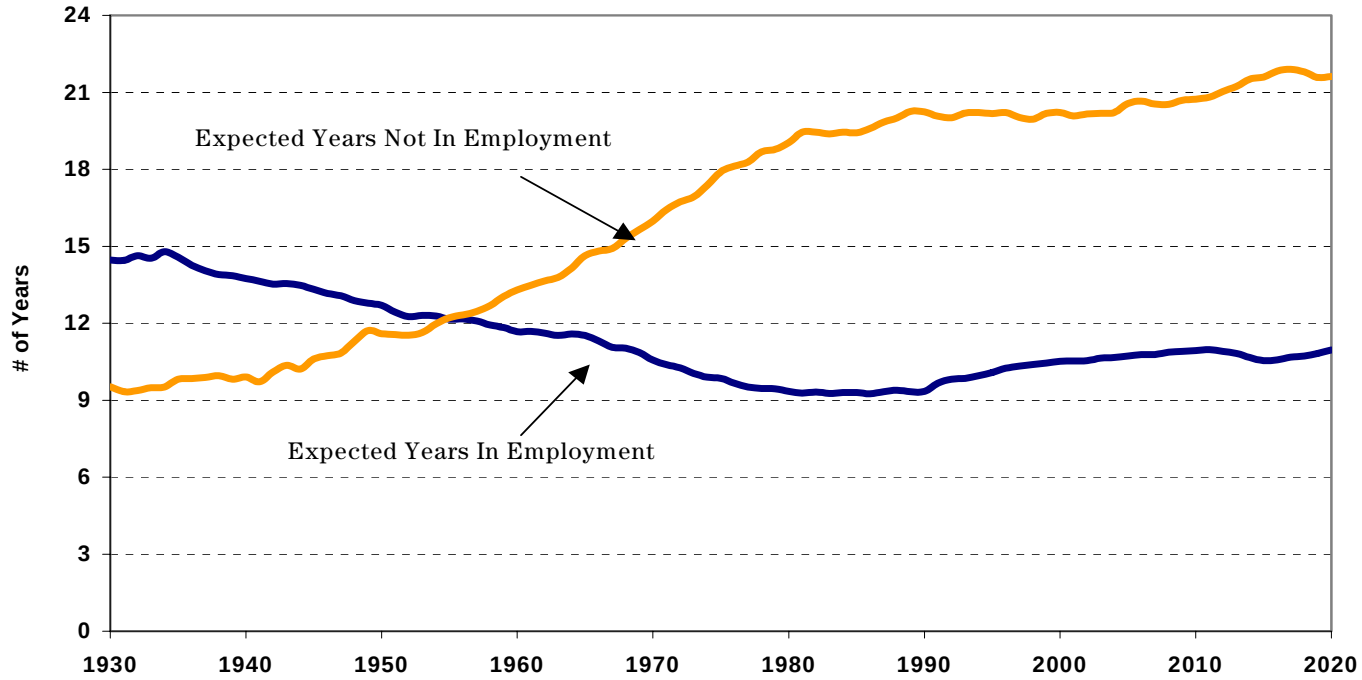
It is sometimes argued that there is too much "front-end loading" in our post-secondary education system, and the transition to work should take place earlier and more gradually, combined with more apprenticeship and on-the-job training. However, conventional wisdom is that staying in school longer is a good thing, and it would be bad policy to attempt to increase participation rates among the young by shortening their period of schooling. Reducing the length of schooling is, of course, possible as shown by the recent reduction of one year in the duration of secondary schooling in Ontario. We are, however, not modelling further reductions over the next year, although this is technically possible.

Conclusion

The conventional wisdom is likely correct. The main gains are likely to come from later retirement, with higher immigration being a possible supporting solution but only in the very long run. We have, therefore, concentrated on examining the effects of working longer – the solution indicated by nearly all the recent analyses.

3. How much later would people have to work to offset the negative economic effects of population aging?

Figure 4
Expected Remaining Lifetime Years In and Out of Employment*
For Men at Age 50



Note:
* Expected remaining lifetime years in and out of employment, for men with at least some paid work and attachment to the labour force by age 50 and beyond.
Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

Retiring later is typically seen as the best solution (for those who argue that a solution is needed) to the macroeconomic challenge of population aging. There is a growing pool of time now spent in retirement. Figure 4 illustrates this trend for Canada, showing that men who have some attachment to the labour force by age 50 and beyond are spending less total time in employment later in life. At the same time, increases in life expectancy mean that Canadians are spending more time in retirement than ever before. Table 2 summarizes international comparisons of the median age of withdrawal from the labour force and the duration of "complete" retirement (i.e., life expectancy at the median age of withdrawal). Note that the effective retirement ages in Canada are in the middle of the pack internationally, but significantly lower than in the United States, our main point of comparison in terms of economic outcomes.

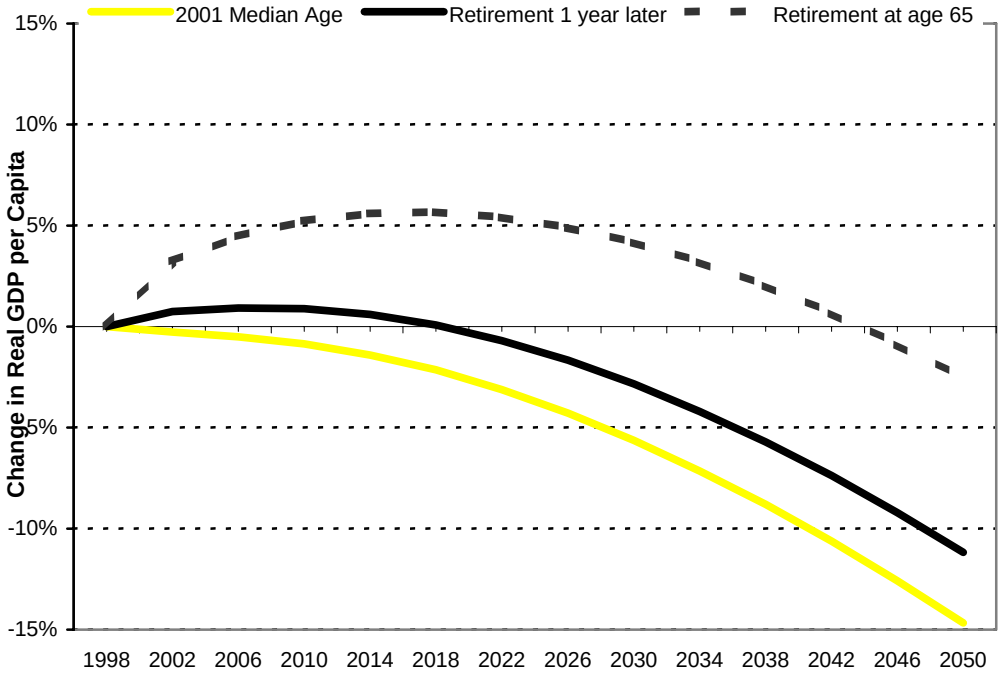
Table 2
Age of Withdrawal from the Labour Force and Retirement Duration for Men, 1999

	Median Age of Withdrawal	Duration of "complete" retirement
Canada	62.4	18.2
Finland	59.6	18.9
Germany	60.3	18.8
Italy	58.8	20.7
Japan	68.5	14.9
Netherlands	60.4	18.2
Sweden	63.7	17.5
United Kingdom	62.6	16.8
United States	64.6	16.3

Source:
OECD (2001).

Early retirement, in the context of population aging, has the potential to exacerbate the negative macroeconomic effects associated with a decline in labour supply. Fougère et al. (HRSD, 2004) used a computable general equilibrium model to examine the potential economic benefits of raising the effective age of retirement from 61.2, its 2001 level. As illustrated in Figure 5, they found that working later can mitigate some negative economic impacts related to demographic changes, although they do caution that these estimates act as an upper bound. If the median effective age of retirement remained at its 2001 level, real GDP per capita has the potential to fall by over 14 percent compared to a situation with no demographic changes. However, increasing the effective age of retirement by only one year could increase real GDP per capita by 3.5 percent in the long term. Furthermore, if the effective retirement age were increased from its 2001 level to 65, real GDP per capita could be 12 percent higher in the long run.

Figure 5
The Combined Effect of Population Aging and Increasing the Effective Age of Retirement in Canada: Projected Effect on Real GDP per Capita Compared to a Situation with No Population Aging



Source: HRSD (2004) presentation made at the February Federal/Provincial/Territorial Canadian Occupational Projection System conference.

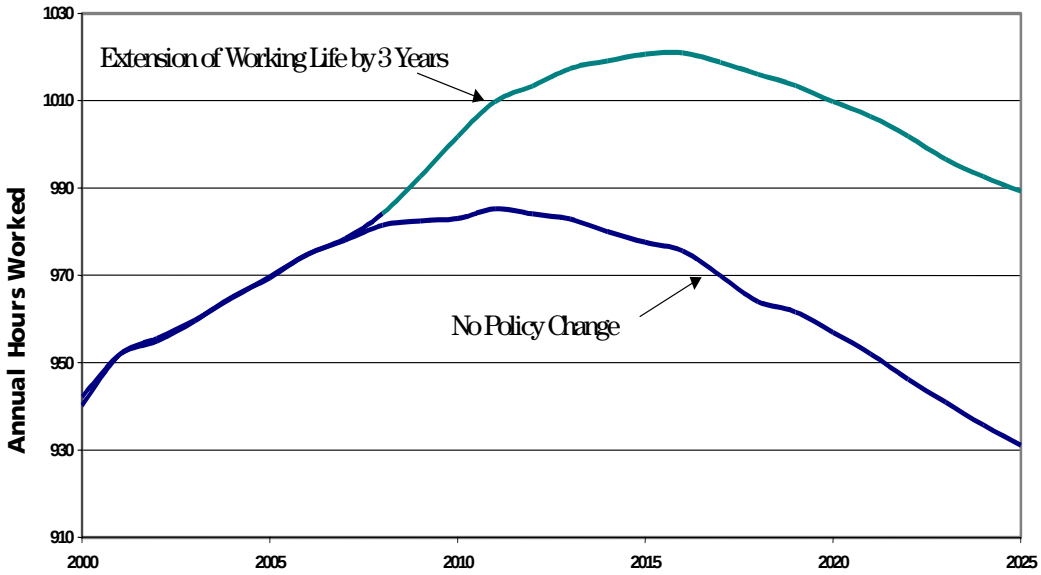
Figure 6 shows that working an additional three more years (compared to the base case scenario) would more than offset, over the next two decades, the contraction in labour supply resulting from population aging and thus, its related negative macroeconomic effects.

- The model assumes that people's labour force transition patterns (e.g., work to unemployment, unemployment to work) are extended by three years.[8]
- We have runs for one, three, and five more years of work (three years seems a quite attainable possibility[9]) over the next decade or so, well within the range of patterns in countries with similar economies and within the range of historic changes in Canada.
- Figure 6 shows that there will still be a peak in the ratio of hours per capita, but later, at a higher level and with a slightly more gradual fall after the peak. In the next phase of the work, we will explore scenarios where the drop might be even less sharp. Sweden has, for example, introduced pension reforms that removed incentives for early retirement and made the pension system approximately actuarially neutral. That is, the reforms more closely link benefits to the age at which a worker retires and reflect

increases in life expectancy over time, a change that should result in more stable trends in average hours per capita.

- The shape of the curve suggests there would be ample room to introduce changes gradually and still achieve levels of annual hours worked that meet or surpass today's levels.

Figure 6
Average Annual Hours Worked per Person*: 2000-2025



Note:
* Total hours of work divided by total population.

Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

4. How many individuals would choose to work longer, and for how much longer, if they did not face barriers (legislative or institutional) that discourage them from doing so? To what extent will those barriers be reduced as a result of the pressures of market forces?

There are two basic schools of thought about retirement behaviour. One school says people retire for economic reasons related to living standards. People prefer leisure to work, and retire when they feel they have enough money to support retirement. People are basically happy in retirement, and prefer retirement to the higher material living standards that would result from working longer. Retirement behaviour is influenced considerably by work disincentives imbedded in pensions and transfers.

An OECD study of nine developed countries on financial resources and retirement, including Canada, shows that people adjust so they have the same material standard of life after retirement as before, regardless of pension arrangements in their country. This occurs on average, and for people at all income levels (except for the poorest, whose living standards usually increase on retirement). People adjust their earnings, transfers, savings, and household living arrangements to get this result.

This suggests that material living standards are a key determinant of retirement decisions. Long periods of retirement are a recent phenomenon and have only recently become the cultural norm. We suggested above that this means they could be reversed quite quickly. However, it can also be argued that now that the pattern has been established, it will be hard to reverse. That is, people are using increased productivity to purchase more leisure in retirement, and a culture of long retirement durations is becoming entrenched.

Analysis of the economic disincentives to work that are built into pensions and other transfers do a fair job of predicting at least some of the retirement patterns observed internationally, suggesting that people are motivated at least to some extent by income and wealth calculations. We know however, that most people, in most countries, have poor knowledge of their own pensions, thus, the linkages between economic incentives in the pension rules and actual behaviour are not easily observed.[10]

A second school of thought suggests that retirement is driven less by income per se, than by the quality of life before and after retirement, particularly related to job and workplace quality. People retire because leisure is preferable to the jobs they actually have, but if appropriate jobs were available, people would prefer to work than to retire. They would prefer a combination of a higher overall standard of living and a more balanced distribution of leisure over the course of life (with greater work-life balance being, in turn, an integral part of job and workplace quality) than early retirement.

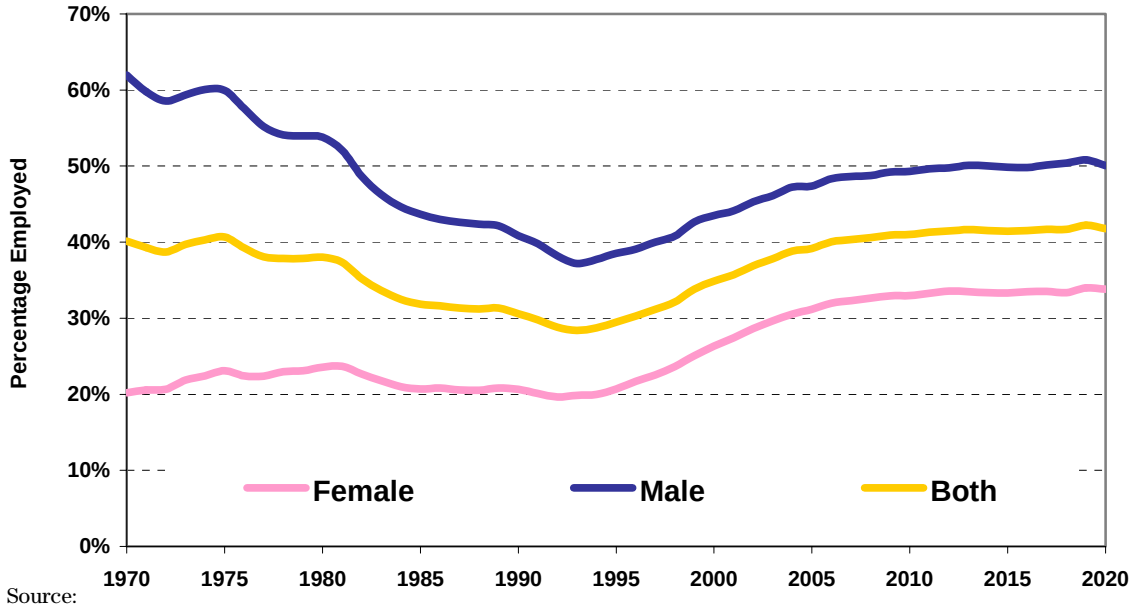
The OECD nine-country study on retirement and financial resources examined public attitudes using comparable data and found that people in all countries hold a preference for working later in life (retired people say they would prefer to be at work) but, when working, nevertheless still look forward to retiring early and prefer life in retirement to their life at work. For instance, the OECD data show that 36 percent of retired Canadians would choose to take paid work. Some 30 percent of Canadians over age 65 would like to hold a part-time job and 21 percent would choose to work full time if a suitable position were available.

The OECD study concludes that people are thinking about theoretical good jobs, not the actual jobs they held at retirement age or that would actually be open. Since the surveys were conducted in the '90s at a time of high unemployment and layoffs among older workers, public opinion results are not that surprising.

This line of argument would suggest that retirement ages will increase over time as the demand for labour grows – especially after 2011 when a shrinking labour supply may induce employers to increase the quality of their jobs.

In fact, as Figure 7 demonstrates, trends to earlier retirement seem to be reversing with the improved economy of recent years. This reversal is projected to continue over the next decade reflecting gains in educational attainment. For example, in 2000 the employment to population ratio for men age 60 to 64 was 39.7 percent, but in 2020 the employment to population ratio for men of this age group is expected to rise to 52.2 percent. Older women are also increasing their levels of labour force participation. In 2003 alone, Statistics Canada reported that employment among women aged 55 and older increased 14.2 percent.

Figure 7
Employment to Population Ratio
Age Group 55-69, by Gender



Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

Statistics Canada (2004) found that very recent data from the 2002 General Social Survey[11] suggest that quality of work – and dissatisfaction with retirement – are critically important factors in the retirement decision.

- There is great uncertainty about retirement plans. Nearly one third of non-retired Canadians aged 45 to 59 are either unable or unwilling to state the age at which they plan to retire. Some simply do not know when they plan to retire (12.1 percent), while others say they do not intend to retire at all (18.4 percent).
- There is much evidence to support the existence of a culture of early retirement if this is defined in terms of aspirations. There is certainly considerable appetite among near-retirees for leaving the labour force sooner than later. Indeed, the majority of near-retirees (66 percent) would prefer to leave the paid labour force before they reach the age of 60, and in this respect, early retirement remains an ideal to which most Canadians aspire, including those with high educational attainments.
- The picture changes somewhat if plans rather than preferences are considered. More specifically, less than one quarter of near-retirees (22 percent) plan to leave the labour force before age 60, and even among those aged 45 to 54 (who tend to be most optimistic in this respect) only about one quarter plan to leave the labour force before 60. In short, there is quite a gap between retirement preferences and plans. Moreover, when comparisons are drawn between different age cohorts, the plans of near-retirees in 2002 look

very similar to those of near-retirees in 1991 and, in this respect, expectations of early retirement are no more prevalent now than they were a decade ago.

The 2002 General Social Survey also examined recent retirees (those who have retired in the decade preceding 2002) as shown in Table 3.

- A majority of recent retirees in Canada (73.1 percent) retired on a voluntary basis, while a significant minority (26.9 percent) retired involuntarily.
- A majority of recent retirees (59.3 percent) would have continued to do paid work had circumstances been different (i.e., they would have deferred retirement) while 40.7 percent would not have done so.
- The number of recent retirees who said they would have deferred retirement (i.e., would have continued working) was about twice as large as those who said they retired involuntarily (59 and 27 percent respectively).

Table 3
Recent Retirees: The Intersection of Retirement Preferences and the Voluntary/Involuntary Nature of Retirement, Canada 2002

	Retirement was Voluntary %	Retirement was Involuntary %	Total %
Would not have continued working	37.8	2.9	40.7
Would have continued working	35.3	24.0	59.3
Total	73.1	26.9	100.0

Source:
Schellenberg (2004), unpublished data.

Retirees can be broken down into three groups: "by choice" retirees (37.8 percent), "would have stayed" retirees (35.3 percent) and "involuntary retirees"(26.9 percent), with the first two groups being the largest.

Table 4
Recent Retirees: Selected Reasons for Retirement, by Retiree Group, Canada 2002

Selected Reasons for Retirement	By Choice Retirees %	Would Have Stayed Retirees %	Involuntary Retirees %
Own health	9.4	30.7	42.8
Retirement financially possible	78.8	73.8	34.2
Job was downsized	6.1	13.5	24.9
Eligible for pension	46.5	53.2	25.9
Unemployment	0.9	3.3	15.2
Mandatory retirement policies	10.9	11.9	15.3
Early retirement incentives	18.7	27.1	13.5
Care for family members	7.0	9.7	7.9

Source:
Schellenberg (2004), unpublished data.

The "would have stayed" group is of great interest. Table 5 shows a wide variety of conditions under which people would have stayed at work, with very little difference by gender.

Table 5
Recent Retirees: Percent Who Say They Would Have Continued to Do Paid Work at the Time They Retired, by Reason Cited and Gender, Canada 2002

Would Have Continued to Do Paid Work if…	Total	Men	Women
	%	%	%
Could work fewer days without affecting pension	28.3	29.0	27.5
Could work shorter days without affecting pension	25.6	25.9	25.2
Had more vacation leave without affecting pension	19.0	19.5	18.4
Any of above three reasons	31.9	32.3	31.5
Could have worked part time	27.9	28.3	27.3
Health had been better	26.4	26.8	26.0
Salary was increased	21.2	21.9	20.4
Mandatory retirement policies had not existed	11.8	11.9	11.6
Could have found suitable care giving arrangements	6.3	6.6	5.9
Other reasons	11.3	9.8	12.9

Source:
Schellenberg (2004), unpublished data.

The wish to return to work is not academic. About 29 percent of those who "retired" in fact returned to work later – and in all three categories discussed above. People who retired early were most likely to return. Among those who did return, about 40 percent were in part-time jobs.

Financial reasons were one factor that respondents mentioned for returning to work. However, other factors – dissatisfaction with retirement, looking for something to do, being asked to "help out" or liking the work – were more important.

Next Phase of the Work

Most policy analysis today is based on the first set of assumptions discussed above – that economic incentives related to income and wealth dominate the decision to retire. The analysis suggests that income is an important factor in some population groups. However, other aspects of quality of life – both in work and in retirement – are at play and could well dominate trends over the medium term. In the next phase, the project will look at the following.

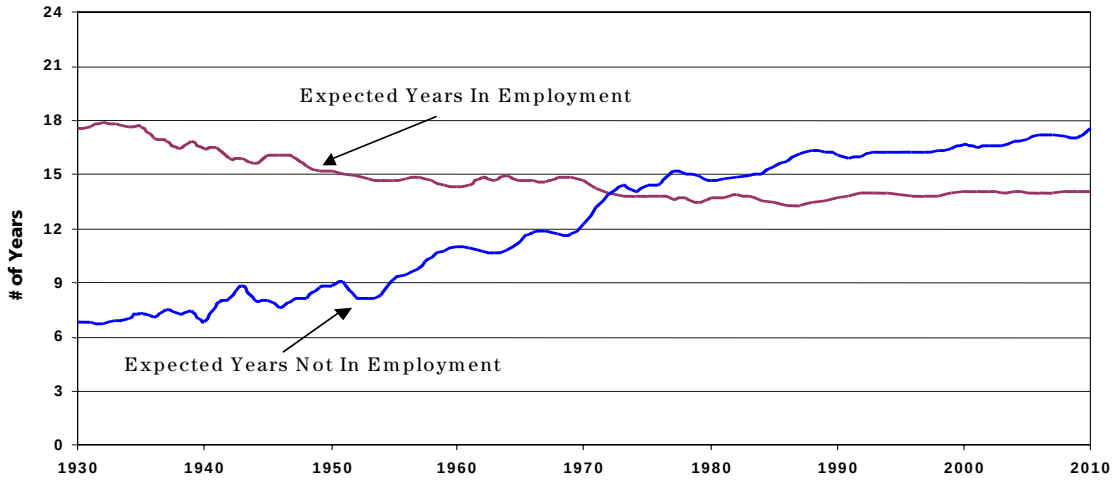
- Further examine the General Social Survey data which is very rich in observations on health, income, and occupation, as well as the usual SES characteristics.

- Undertake focus group analysis on preferences for working longer given realistic choices concerning living standards, job quality, and opportunities for work-life balance. This will be done separately for groups with high and low education levels. The focus groups will be carried out this winter. We are also interested in exploring the possibility of using laboratory experiments to further explore retirement plans and decisions.
- Review barriers to later retirement, recognizing that work disincentives in public pensions and other government transfers are not as high in Canada compared with other countries. To what extent are work disincentive in private pensions, which are larger, likely to be modified by employers? Do the pension arrangements of federal public servants provide an example?

  Most of the international literature on retirement incentives of pensions applies pension rules to a "typical" worker holding a single job over a lifetime. This can give quite misleading results compared with modelling based on actual life-course trajectories that will be examined in the next phase of the work.
- Assess the extent to which demographic changes will affect the quantity and type of labour demanded after 2011. Assess the extent to which the private sector is experiencing or anticipating future challenges related to population aging, and whether this will result in changes to human resource management and the provision of higher-quality jobs for older workers.

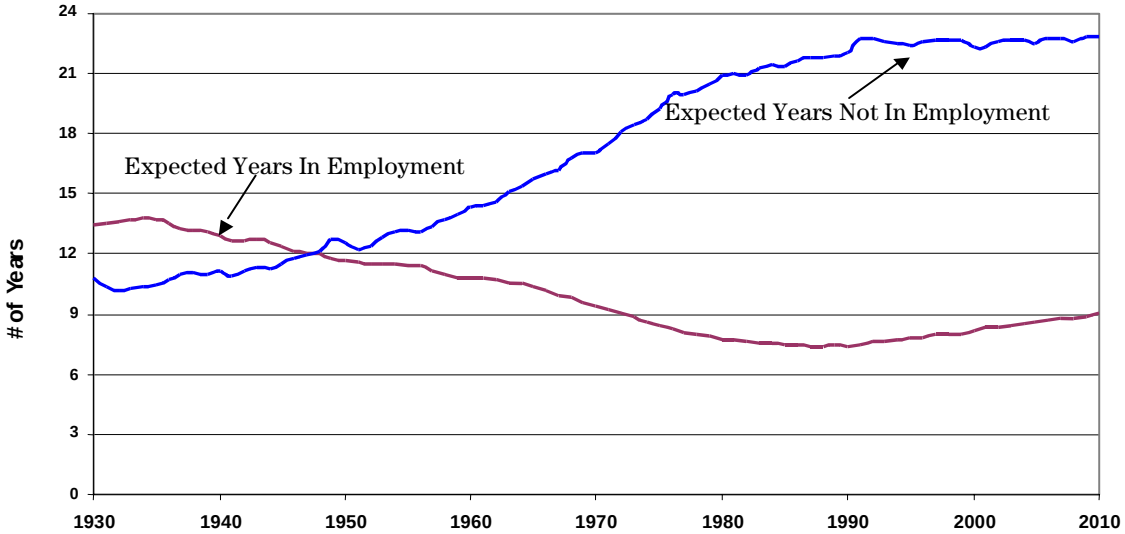
5. If working longer became the norm, who would be the winners and losers – both among groups of individuals and sectors – and how could losses be minimized?

Figure 8
Expected Remaining Lifetime Years In and Out of Employment For Male University Graduates at Age 50



Note:
* Expected remaining lifetime years in and out of employment, for men with at least some paid work and attachment to the labour force by age 50.
Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

Figure 9
Expected Remaining Lifetime Years In and Out of Employment For Men at Age 50 Who Did Not Graduate From High School

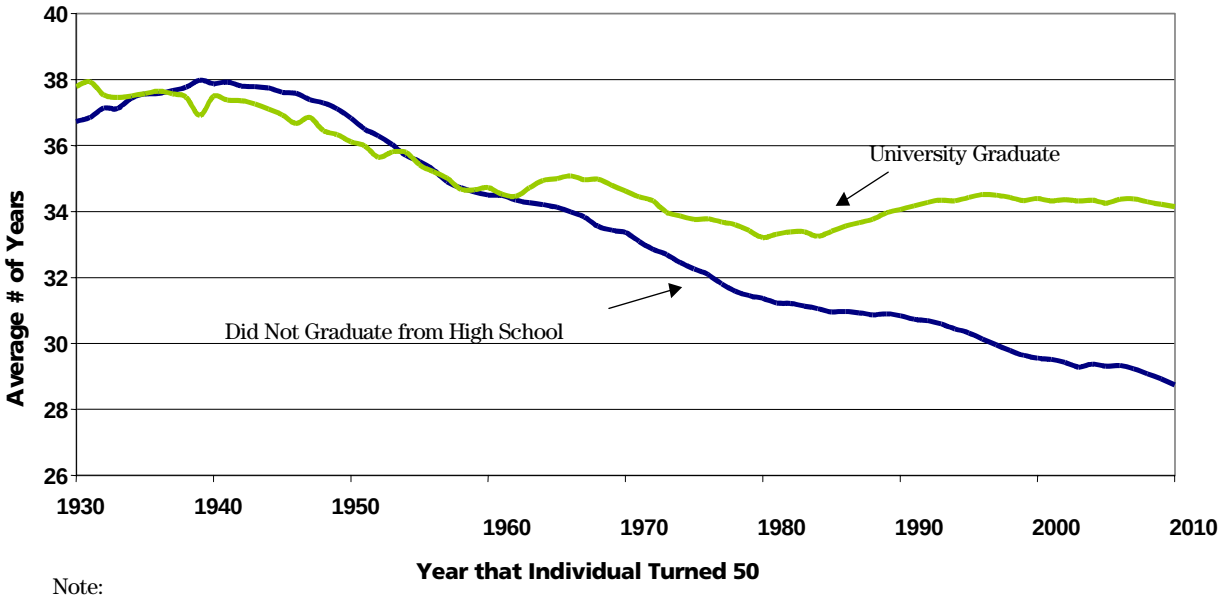


Note:
* Expected remaining lifetime years in and out of employment, for men with at least some paid work and attachment to the labour force by age 50 and beyond.
Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

These two figures show that expected retirement durations are much longer for those with lower education. Note that the figures do not take into account differences in life expectancies between socio-economic groups. However, a recent report from the Office of the Chief Actuary (OCA, 2003) suggests that the differences in life expectancy for individuals at age 65, with high and low levels of attachment to the labour force, are not large.[12]

It might be thought that people with lower education levels retired earlier because they started work earlier, after a shorter period of schooling. That is, they might have put in at least as much work over their life as the most highly educated, but at an earlier stage of life. Figure 10 shows that this is *not* the case.[13] The trend toward fewer total lifetime years spent in employment, that was so noticeable in the 1940s and 1950s affected people at all educational levels. Since the 1960s however, there has been a noticeable divergence. For people with lower education levels, this downward trend has continued. For those with higher levels, the trend has stabilized and even increased slightly. As these trends indicate, a shift toward later retirement could have substantial distributional implications. Thus, it is essential that policy development consider the best way to minimize losses to groups of individuals over the life course.

Figure 10
Expected Total Lifetime Years in Employment*, Men



Note:
* Expected total lifetime years in employment, once schooling has been completed for Canadian born males.
Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

As tables 6 and 7 indicate, the effects of population aging are not evenly distributed across sectors. A study by MacKenzie and Dryburgh (Statistics Canada, 2003) used age distributions and current measures of turnover and unfilled vacancies to determine which industries and occupations are likely to feel the effects of population aging. The education and health care sectors are most affected by population aging, with 64 percent of men and 63 percent of women, 40 years of age or older in 1999.

Table 6
Percentage of Individuals Age 40 and Over Employed By Selected Industry

Sector	% of Workers Age 40 and Over
Education, Health Care	
men	64
women	63
Forestry, mining, oil and gas	
men	57
women	58
Manufacturing	
Primary Products	
men	60
women	53
Secondary Products	
men	53
women	45
Capital-Intensive Tertiary	
men	43
women	46
Labour Intensive Tertiary	
men	47
women	52
Construction	
men	50
women	55
Transportation, Warehousing, Wholesaling	
men	51
women	47
Communication & Other Utilities	
men	58
women	54
Retail Trade, Consumer Services	
men	43
women	38
Finance, Insurance	
men	50
women	48
Real Estate, Rental Leasing	
men	47
women	45
Business Services	
men	50
women	46
Information, Culture	
men	50
women	49

Source*: MacKenzie and Dryburgh (2003)

Table 7
Median Retirement Age, by Selected Industry, 1987 to 2002

	1987-1990	1991-1995	1996-2000	2001	2002
Education	61.1	61.2	57.5	56.4	57.3
Health and social services	63.8	62.6	61.0	61.8	63.3
Agriculture	65.6	66.2	68.2	69.6	65.6
Forestry, fishing, mines & oil and gas extraction	62.0	61.7	62.0	60.8	60.0
Manufacturing	63.2	62.0	61.9	61.4	60.8
Construction	64.4	63.8	63.8	64.9	61.9
Public utilities	59.6	59.3	57.4	57.8	56.2
Retail and wholesale trade	64.3	63.9	62.5	63.0	62.1
Transportation and storage	61.4	61.3	61.6	60.1	64.0
Finance, insurance and real estate	63.9	62.1	60.6	60.0	60.0
Professional services	65.2	64.9	64.6	65.3	65.3
Business services	64.6	65.4	64.2	62.0	63.9
Information, culture and leisure	62.4	60.1	61.0	58.8	61.1
Restaurant and accommodation	62.9	64.3	63.3	61.0	63.3
Other services	65.2	64.9	63.7	61.2	63.6
Public administration	61.3	59.8	58.2	57.0	59.7

Source: Labour Force Survey, Statistics Canada.

Forestry, mining, and oil and gas, also possess an aging workforce with 57 percent of men and 58 percent of women employed in these industries being over 40 years of age. The utilities sector is also vulnerable to challenges related to population aging as it has a large number of older workers combined with the low median retirement age of 56.2 in 2002. In contrast, due to the large number of young employees taking part-time jobs in these sectors, retail, trade and consumer services were found to have the youngest workforces.

Overall, it was found that managerial occupations are the most vulnerable to baby-boomer retirement due to the high level of education and experience, and time required to obtain these positions; several other industries are poised to experience substantial losses in professional occupations, technical/trades and clerical/ administrative occupations.

In the next phase of work, the project will examine the demand side implications of population aging. Specifically it will explore:

- whether demand for goods and services in an older society will shift in a way that will change the type or amount of labour demanded;
- how population aging will affect productivity and real wages (and correspondingly, wealth and savings) in the future; and
- the effects of later retirement on various sectors of the economy and the distributional consequences that will result.

6. To what extent would the choice to work later in life in exchange for more flexibility in time allocation over the life course result in greater health and well-being? To what degree are market forces likely to lead to an improvement or deterioration of life-course flexibility?

A number of recent studies have shown important time crunches during people's working years that have negative social and economic consequences.

These pressures arise from several sources:

- the effects of a concentration of work in the middle years of life due to longer schooling, earlier retirement and some polarization of average hours worked in the labour market with many groups experiencing longer hours;
- the increase in women's participation in the labour market resulting in less time devoted to family and household responsibilities; and
- a related change in social norms so a modern "normal" household should include two equal earners and caregivers.

These pressures, when combined, may result in a postponement of family formation and in a reduction of the fertility rate.

There is growing evidence to support the view that there exists an increasing time crunch and its associated negative consequences.

- A recent study (Duxbury and Higgins, 2003) for Health Canada, based on a study of 100 large employers (with 500 employees or more) showed that high role overload[14] reported by Canadians has increased from 47 percent in 1991 to 58 percent in 2002. High role overload has been found to be particularly important for women, with 70 percent of those reporting high role overload being women with dependent care (of children or of frail elderly) responsibilities.
- Fifty-seven percent of women and 54 percent of men with dependent care (of children or of frail elderly) responsibilities indicate a negative incidence of their work impacting on the time spent with their children.
- The potential health consequences of time pressures and stress were explored by Statistics Canada where a sample of individuals from the 1994-95 National Population Health Survey were followed for six years, to 2000-01. The basic finding is that adults who suffered high stress in 1994-95 had higher odds of developing a number of chronic conditions by 2000-01. Of the various stressors examined, chronic strains (continuing problems with crowded schedules, finances, and relationships) appeared to be the most common and potent. In this survey, some 44 percent of Canadians reported they were trying to do too many things at once.

Other data sources put things in quite a different perspective. The 1998 General Social Survey, while a little dated, shows general satisfaction with work-life balances. It is a particularly useful data source, because it is representative of the entire population.

Basically, about three fourths of men and women surveyed were satisfied with the balance they had achieved between work and family. Time crunches were similarly felt by only about a quarter of the population, somewhat more among women. Overall, life satisfaction was much higher. A key finding is that satisfaction is closely related to how much people liked their jobs, as shown in Table 8. This is true for both sexes, but especially so for women.

Table 8
Satisfaction, by Gender, and Attitude Toward Job

	Not Satisfied with Work-Family Balance	Feeling Time-Crunched	Not Satisfied with Life Overall
Employed women			
Who enjoyed work	22	23	5
Who disliked work	53	41	31
Employed men			
Who enjoyed work	20	18	5
Who disliked work	44	31	14

Source:
1998 GSS, taken from table in Fast et al. (2001).

Good data on trends in time crunches are not available but, in a 2002 Statistics Canada paper, Rowe, Nguyen, and Wolfson used sophisticated techniques to tease conclusions out of available sources, such as the Labour Force Survey. They reviewed 20-year trends (ending in 1995) on average workloads and on the stability over time of individual patterns of work. They found only limited support for the existence of trends, such as increasingly heavy workloads or more unstable work patterns that could indicate a growth in the individual experience of a time crunch.

Modelling the Effects of More Flexible Uses of Time with Working Longer

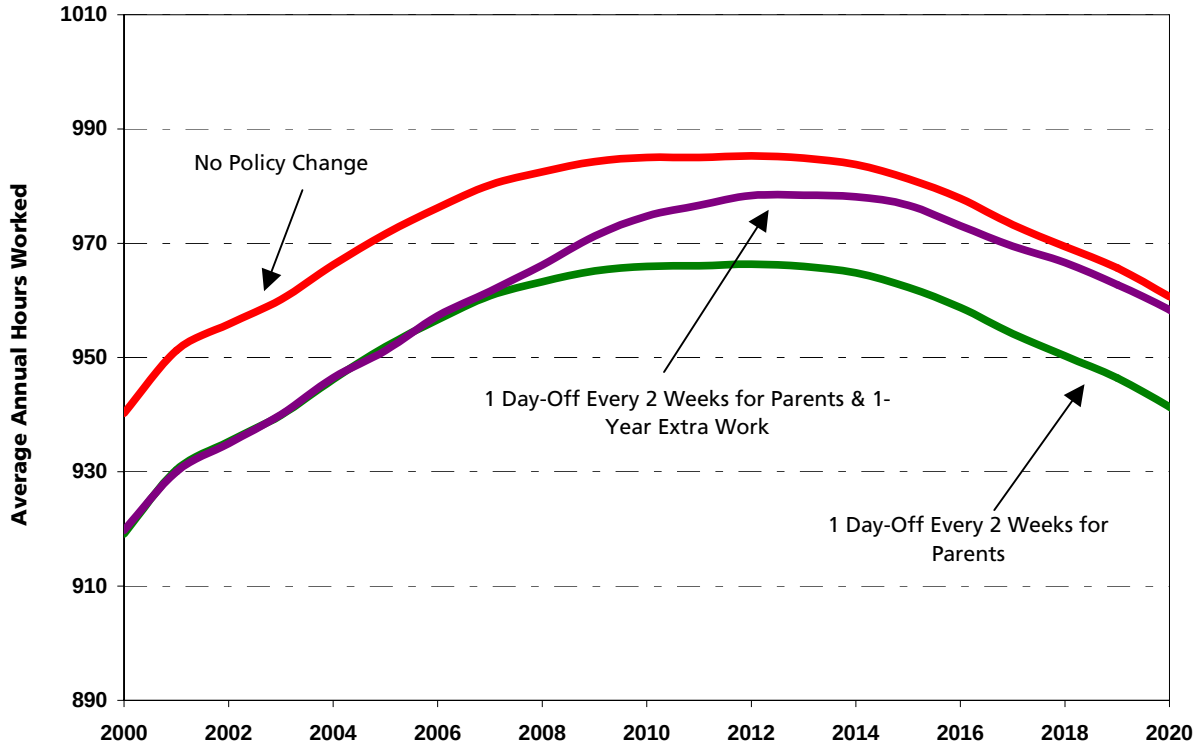
In the first phase of the project, we concentrated on modelling the effects of different time allocations, using scenarios that would combine time off for learning or caregiving with later retirement. These were hypothetical scenarios only, more to test our modelling capacity than to act as serious policy suggestions. The next section shows an illustration in the area of caregiving.

- As an example of more flexible work arrangements, Figure 11 demonstrates the effects on average annual hours worked per capita of providing one day off every second week (about a 10 percent reduction in work effort) to parents of young children (less than 12). It also illustrates what would happen if the entire workforce were to work one more year on

average to "pay" for the additional parental leave. As is shown in Figure 11, there is only a minimal direct impact on labour supply, if the whole workforce were to work one more year on average.

- While the economic impact may be small, the social consequences could be important. Such a change would entail a certain degree of redistribution from one generation to another and from households without children to families with children, which could be seen as either a negative or positive consequence.

Figure 11
One Day Off Every Two Weeks for Parents with Children Under 12: Impact on Total Hours of Work Divide by Total Population



Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population. Aging and Life-Course Flexibility.

- There could also be some positive indirect economic effects. Such a change could significantly reduce the stress of balancing work and family responsibilities, reducing absenteeism at work and, in the end, result in productivity improvements in the workplace.

Another illustration relating to lifelong learning is found in the next section.

Next Phase of the Project

In the next phase of the work, we plan to do the following.

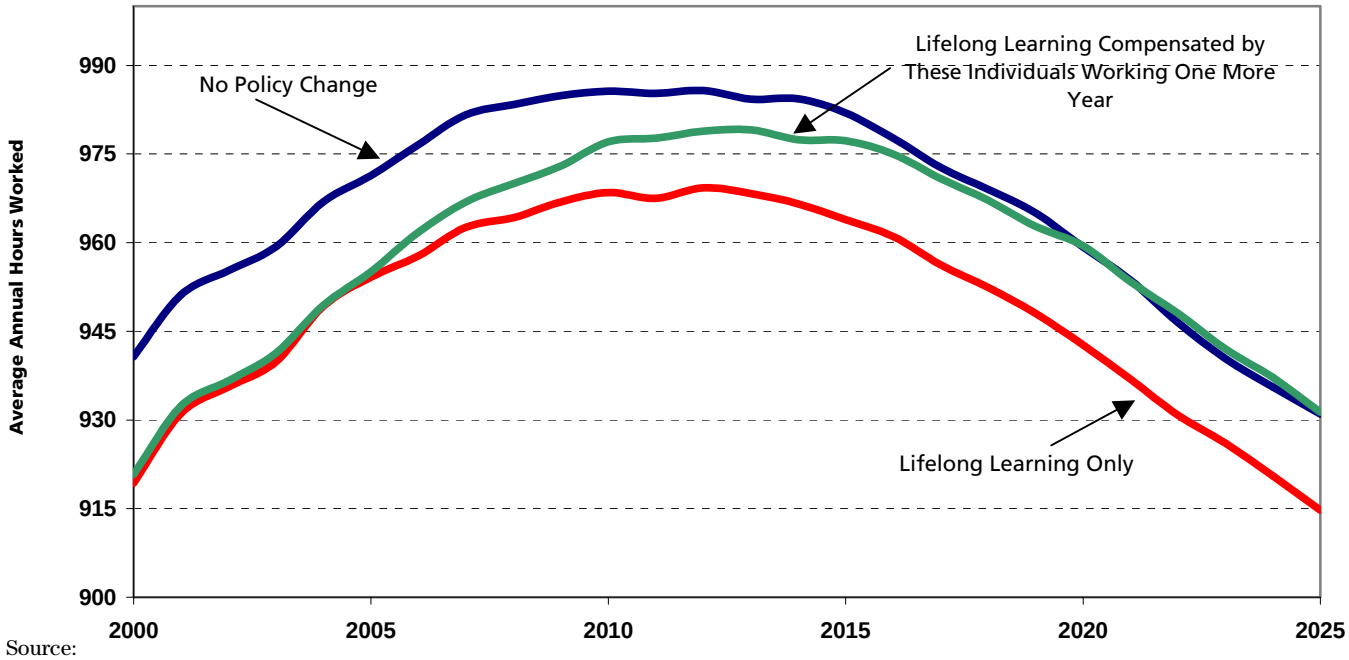
1. Attempt to reconcile the seemingly conflicting data on time crunches and their effect, with a particular emphasis on distributional questions, likely concentrating on the seemingly large disparities in the time allocation choices of people at the low and high end of the educational/socio-economic scale.
2. Better exploit existing data. The 1998 General Social Survey contains a wealth of data on time use and life satisfaction questions including data on retirees as well as employees. However, it has barely been exploited.
3. Examine the extent to which working-life flexibility is likely to increase or decrease as a result of market pressures and pressures on policy-makers, particularly after 2011 when the ratio of producers to consumers begins to fall.
    - The most obvious effect would seem to be in the direction of reduced flexibility – of keeping people at work and not on taking time off work for other purposes. At a time when demography is shrinking the supply of labour, there could be large pressures against policies that increase leave, or shorten working hours.
    - On the other hand, the same labour market pressures could lead employers to increase job quality, including more flexible arrangements for work-life balance, to attract and retain more workers.
4. Begin to model the effects of a set of more carefully conceived policy directions taken in combination. One approach being considered is to model the impact of innovative policies adopted in other countries in a Canadian context.

7. To what extent would more time devoted to lifelong learning increase productivity or lead to working longer, and at what phase of life?

As noted above, most macro modelling has shown how increased human capital can contribute to offsetting permanently the negative economic effects of population aging, rather than simply delaying those effects. Formal learning, particularly later in life, may be a relatively small part of human capital development, but it is of special interest in a project that also deals with other dimensions of life-course flexibility.

To date, the work has involved mechanical modelling. The scenario shown in Figure 12, *which is illustrative only*, demonstrates the effects on annual average hours worked per capita if one year of leave is provided to all employed individuals between the ages of 25 and 50, to pursue learning activities. The premise behind this scenario is that individuals will compensate for their own educational leave by working one year longer.

Figure 12
Education Leave to Pursue Lifelong Learning: One Year Leave for Individuals Between Age 25 and 50: Average Hours of Work per Person: 2000-2025*



Source:
LifePaths (Statistics Canada), using assumptions developed by the Interdepartmental Working Group on Population Aging and Life-Course Flexibility.

Providing the opportunity to participate in lifelong learning activities would increase productivity and help workers maintain up-to-date skills, permitting easier transitions to employment after a termination.

In the second phase of the work, the project will conduct a literature review of the social and private returns to learning (both formal and informal), particularly later in life, as well as the optimal time to undertake adult learning activities. Recognizing that evidence in this domain is rather limited and that participation in learning activities should increase earnings (as a proxy for an increase in labour productivity); we are considering modelling various assumptions to determine the effect of learning on hours of work and earnings. From these estimates, we also intend to examine the macroeconomic impacts of lifelong learning.

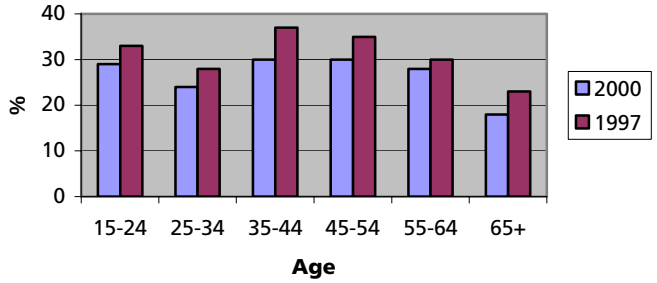
8. To what extent would more flexibility for devoting time to caring/volunteering over the life course result in better individual and collective outcomes and what are the resulting distributional consequences?

Having more flexibility and real choice in the time devoted to work, learning, volunteering, and caregiving, is by itself, a good. For an individual this should result in improved well-being. However, at the societal level, this will not necessarily result in better collective outcomes. For instance, there could be important impacts on public expenditures if the time spent by individuals on caregiving for elderly relatives was shifted to the health care system.[15] Similarly, what would be the impact on the health care system and the associated distributional consequences if increased life-course flexibility meant there would be more time available for caregiving activities?

In the next phase of the project, with time use and other data, we will explore how later retirement and greater life-course flexibility is likely to affect the mix of family and collective supports, and what the expected distributional consequences of this will be.

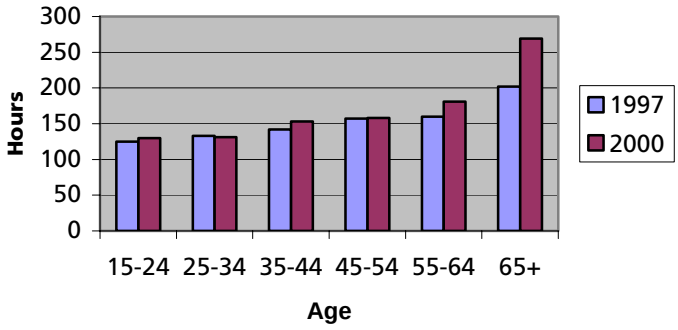
At minimum, we will be able to correct some weak assumptions. A common claim, for example, is that later retirement may discourage important formal volunteering activities by older people. Yet, the data show that, in terms of formal volunteering, it is the 35 to 54 year old age group (i.e., those in there prime working years) that is the most likely to engage in volunteering activities. In fact, it is parents with young children (six years and older) who are most likely to volunteer. At the other end of the spectrum, those who are 65 and older are less likely to give time for volunteering. However, volunteers in this latter age group are spending, on average, the most time in volunteering activities.

Figure 13
Participation Rate in Formal Volunteering



Source:
Statistics Canada (2002).

Figure 14
Average Hours in Formal Volunteering by Volunteers



Source:
Statistics Canada (2002).

In the next phase, we plan to go beyond formal volunteering to explore the effects of later retirement, the increased participation of women in the labour market and other changes in life-course patterns on family and community caregiving and on time devoted to unpaid activities, such as supporting early childhood development.

9. What are the implications of this analysis for fiscal policy?

There are two sets of fiscal issues:

- fiscal sustainability, in the sense of expenditures matching revenues; and
- crowding out in the sense that age-related expenditures could drive out other forms of social spending, including those that may be needed to address problems of higher priority.

Compared with many other countries, Canada is in relatively good shape in terms of fiscal sustainability. A recent International Monetary Fund study (2002) concludes that the Canadian government sector is "relatively well placed to withstand demographic pressures, especially compared to many other industrialized countries." However, this study assumes that Canadian governments will maintain prudent fiscal management. Prudent and sound fiscal management is therefore key to success in meeting challenges presented by an aging population.

Prudence, for purposes of this study, means the highest priority should go to policies (or packages of policies) that will demonstrably increase working time.

On the pension side, public expenditures are low compared with most countries and the recent reforms of the Canda/Quebec Pension Plan (CPP/QPP) have resulted in projected expenditures that are in line with expected revenues. Nevertheless, public pension costs will grow sharply, doubling as a percent of GDP in the coming decades according to an OECD estimate of several years ago. The major uncertainties are with respect to the health care costs associated with an aging population, with some forecasts calling for very large increases that would be hard to sustain without major increases in revenues or reductions in other forms of expenditure.

However, it probably is public pension expenditures that should be the centre of attention. Health care and pension expenditures are central to policy for very different reasons. Health is a good, and the central question for policy is the effectiveness of health care expenditures in reaching a healthy state. In the case of pensions, increased pension spending buys ever-increasing periods of time spent mainly in passive activities that are often unwanted (compared with the alternative of time spent in good jobs) and that may be unhealthy. The earlier discussion suggests that it is at least a credible possibility that the projected growth of public spending on pensions might be better spent elsewhere. Certainly, unless there are reductions in age-related expenditures, there are almost certain to be strong pressures to reduce other forms of spending.

In the next phase of the work, the project will make fiscal calculations based on the common assumptions that have been modelled and will undertake a more systematic examination of age-related public spending pressures.

10. What principles and priorities should guide overall policy development in these areas and what are the most promising areas for federal policy development?

The heart of the project is the hypothesis that working longer, if it were not forced on people, could have major economic and social gains, especially if it was associated with more individual choice in allocating time over life. Three different kinds of policy response could follow from this analysis:

- incremental changes to existing policies that would increase effective retirement ages and increase individual choice in time allocation over life;
- the development of tools that will allow analysis of policy initiatives in terms of the life course and population aging perspectives (These tools would allow analysis of how various policy directions could, when taken in combination, increase life-course flexibility and the duration of work, and allow for the examination of the combined social and economic impacts, including intergenerational transfers and other distributional effects.); and
- the possible development of new policy tools that operate at the level of individuals to both increase life-course flexibility *and* result in more work being undertaken in total.

The first two initiatives are closely related. For example, one incremental change might increase incentives for a delayed retirement for people approaching retirement in the future. (Americans, for example, are gradually raising the age of entitlements to public pensions with many years advanced notice. Quebec is considering changes to the QPP, which will make it advantageous to remain employed by strengthening the relationship between contributions and benefits.) At the same time, one might use some of the resulting savings to enrich quite separate policies that support, for example, more parental leave. The proposed new analytical tools would allow us to examine the combined social and economic effects, for example, on effective retirement ages, winners and losers among generations, or population groups, or the opportunities for win-win outcomes.

The potential new policy instruments would be mainly those that would involve a "tight linkage" between life-course flexibility and working longer. Trade-offs between the two would take place at the level of individuals. Lifetime accounts are an example. For example, there might be tax or other public support for personal accounts that could be drawn down to pay for adult learning, a new house, or for retirement. Individuals would have greater choice, but they would have to make trade-offs. For example, if the funds were used to finance learning in mid-career, there would be less available to support early retirement. There are already policies of this sort, such as Registered Retirement Savings Plans (RRSPs). However, there are also many newer proposals that could result in a

major increase in the role played by lifetime accounts.[16] Work to date on specific policies has primarily taken the form of a review of asset-based approaches to poverty and exclusion, including individual asset-based accounts. That work has been undertaken by the related PRI project on New Approaches to Poverty and Exclusion.

The next phase of the work includes the following elements.

- The work on asset-based approaches will continue and will be extended to a review of the potential role of lifetime accounting approaches more generally.
- A plan will be proposed for the development of needed analytical tools and modelling of new data.
- Policy levers will be identified that are most suitable for use by the Government of Canada, and areas where incremental changes might represent potential sources of win-win solutions.

Notes

[1] Real choice can only occur if those individuals who wish to work longer have the chance to do so. The research is focused on the correct mechanisms to ensure this, such as reducing the barriers institutional or otherwise to working later and correcting market failures which distort the retirement decision, in addition to providing the appropriate incentives (such as increased life-course flexibility) to make later retirement a viable option.

[2] We did not start the project with a fully articulated research plan covering all these areas; the list has benefited a good deal from hindsight gained over the past year.

[3] Statistics Canada's LifePaths microsimulation model traces a large number of (synthetic) individuals over the course of their lives. The data are based on many detailed equations, reproducing individual behaviour drawn from a variety of sources: census, surveys, and administrative records. This tool represents a reliable way of using a very wide range of data sources from a longitudinal life-course perspective. A chief benefit is that it allows for much more nuanced projections of a wide range of social and some economic variables. The project uses LifePaths in association with macroeconomic models that do a better job on other projections, ensuring common assumptions are used in each.

[4] It may be, however, that the additional years of leisure that are "traded off" by this relative fall in material well-being may increase overall well-being. That possibility is explored later, with the conclusion being that there seem to be better ways of spending a nation's economic resources than supporting ever-growing periods of leisure, which is mainly devoted to passive activities in the last third of life.

[5] In this paper the authors assumed a closed economy framework. However, in a following paper, Fougère and Mérette (2000b) repeated the exercise for the case of small open economies and found that the conclusion reached in the previous paper did not change, although the positive growth effect is now conditional on population aging occurring in the rest of the world.

[6] This assumption represents the current consensus among participating departments.

[7] Preliminary work shows that, if left unconstrained, LifePaths would even have women working later than men in the forecast period. However, great care needs to be exercised in using LifePaths to project participation rates, since it models only the supply side and does not take labour demand into account.

[8] To capture the full range of transitions to retirement, the modelling assumes that in 2007 labour force transition probabilities for individuals age 55 and over were maintained at their current rate for three years (i.e., individuals between age 55 and 58 are left with their age 55 probabilities), and resumed their normal course after (i.e., individuals at age 59 behave as if they were 56, at 60 they behave as if they were 57, etc.) until they withdraw completely from the labour force. This assumption was maintained for individuals turning age 55 after 2007.

[9] One extra year is too short to be meaningful. Average retirement ages normally fluctuate by a year or so over quite a short period of time. Five years sounds long but, taking a 30-year sweep of history, it is certainly not impossible. It must be remembered that today's very long periods of life spent in retirement is a recent historic trend and could well be reversed quite rapidly. Nevertheless, it would be difficult to imagine how federal policy levers, taken in isolation, could have the effect of extending retirement by five years.

[10] Based on a 2001 survey of both employers and employees, Statistics Canada reported that four percent of full-time permanent employees in the private sector thought they had a private retirement plan but didn't, with much confusion between the kind of plan (RRP or group RRSP), let alone about the actual features of those plans. Knowledge of the features of their own pensions – public and private – is low among workers in most OECD countries.

[11] This analysis and data is drawn from Statistics Canada, 2002 General Social Survey, G. Schellenberg (forthcoming)

[12] In all simulations, LifePaths assumes average life expectancies by cohort and fixed relative risks of mortality, by age, sex, and institutional status. Currently, no distinction in life expectancy is made between different socio-economic groups, although, Statistics Canada (2002) found that substantial differences in life expectancy at birth could exist between individuals living in the poorest and richest urban neighbourhoods. For residents of the poorest neighbourhoods, life expectancy for a male in 1996 was 73.1 years whereas for a male born in the richest neighbourhoods life expectancy was 78.1 years. However, as discussed in the recent report by the Office of the Chief Actuary (2003), life expectancy of those who are active in the labour market (as measured by their CPP contributions) displays a similar pattern to those depicted by LifePaths. At age 60, the average life expectancy of a male is 20.1 years. Someone with high CPP contributions (which could be indicative of higher educational attainment) may expect to live 20.6 years, while someone with relatively low CPP contributions (those with contributions between 25 and 50 percent of maximum) would live about 18.9 years.

[13] In all these educational attainment charts, people with completed secondary schooling, community college diplomas, or some post-secondary schooling were somewhere between the extremes of either not graduating from high school or obtaining a university degree. A comparable chart for women would be completely dominated by the rising female participation rates discussed earlier.

[14] Role overload is defined as what occurs when an individual is confronted with excessive demands to carry out the set of obligations associated with her/his particular position or status.

[15] For example, using results from the 1996 GSS Survey, Fast et al. (1998) estimated that the average cost of informal caregiving to the elderly was approximately $107 to $117 million per week for the Canadian population as a whole. This estimate does not include other costs, such as out-of-pocket expenditures, foregone employment opportunities, unpaid labour, and negative impacts on emotional, physical, and social well-being.

[16] It is sometimes argued that individual accounts would weaken the social fabric by making it more difficult to redistribute resources across population groups. But the amount of redistribution is simply a matter of design. Individual accounts can easily be designed to produce at least as much redistribution as today's point-in-time policies. Of greater concern is the claim that people often cannot make real life-choice trade-offs, because needed information about the future does not, and cannot, exist. It is certainly true that present levels of literacy, about financial and life-course planning are very low. Introduction of lifetime accounts would certainly have to go hand in hand with the growth of this kind of literacy – a desirable end in its own right.

References

Bowlby, Geoff. 2004. "The Labour Market in 2003." *Perspectives on Labour and Income*, 5, no. 1. Ottawa: Statistics Canada. Cat. No. 75-001-XIE.

Canada, HRSD (Human Resources and Skills Development). 2004. *Population Aging in Canada: A Risk Analysis.* Presentation made at the February Federal/Provincial/Territorial Canadian Occupational Projection System.

Canada, Statistics Canada. 2002. *Caring Canadians involved Canadians: Highlights from the National survey of giving, volunteering and participating.* Ottawa: Statistics Canada.

———. 2004. "Stress, Health and the Benefit of Social Support." *Health Reports*, 15, no. 1. Ottawa: Statistics Canada.

Denton, Frank T. and Byron G. Spencer. 2003. "Population Change and Economic Growth: The Long Term Outlook." Hamilton: McMaster University.

Duxbury, Linda and Chris Higgins. 2003. " Work-Life Conflict in Canada in the New Millennium: A Status Report". Ottawa: Health Canada

Fast, Janet, Jane Kolodinsky, and Gong-Soog Hong. 1998. "The Hidden Costs of Informal Care-giving: An International Comparison." *Consumer Interests Annual*, 44: 206.

Fast, Janet, Judith Frederick, Nancy Zukewich, and Sandra Franke. 2001. "The Time of Our Lives…" *Canadian Social Trends*, 63: 20.

Fougère, Maxime and Marcel Mérette. 2000a. "Population Aging, Intergenerational Equity and Growth: An Analysis with an Endogenous Growth Overlapping Generations Model." In *Using Dynamic General Equilibrium Models for Policy Analysis*, ed. G. Harrison, Svend E. Hougaard Jensen, Lars Haagen Pedersen, and Thomas Rutherford. Amsterdam: North Holland.

———. 2000b. "Croissance endogène et vieillissement démographique: le cas d'une petite économie ouverte." Working Paper No. 2000-03. Ottawa: Department of Finance.

Fougère, Maxime, Simon Harvey, and Marcel Mérette. 2004. "Ageing and the Economic Impact of Raising the Effective Retirement Age in Canada." Ottawa: Human Resources and Skills Development.

Fougère, Maxime, Simon Harvey, François Poitras, and Marcel Mérette. 2003. "Ageing Population and Immigration in Canada: An Analysis with a Regional CGE Overlapping." Ottawa: Human Resource Development Canada. Paper presented at the 4th International Research Conference on Social Security, Antwerp, May 2003.

IMF (International Monetary Fund). 2002. "2003 Article IV Consultation with Canada." News Release <www.imf.org/external/np/ms/2002/111502.htm>.

MacKenzie, Andrew and Heather Dryburgh. 2003. "The Retirement Wave." *Perspect ives on Labour and Income*, 4, no. 2. Ottawa: Statistics Canada. Cat. No. 75-001-XIE.

Mérette, Marcel. 2002. "The Bright Side: A Positive View on the Economics of Aging." *Choices IRPP*, 8, no. 1: 1-24.

Morissette, René and Xuelin Zhang. 2004. "Retirement Plan Awareness." *Perspectives on Labour and Income*, 5, no. 1. Ottawa: Statistics Canada. Cat. No. 75-001-XIE.

OCA (Office of the Chief Actuary). 2003. "Canada Pension Plan Mortality Study." *Actuarial Study No. 3.* Ottawa: Office of the Superintendent of Financial Institutions.

OECD (Organization for Economic Cooperation and Development). 2001. "Ageing and Income: Financial Resources and Retirement in Nine OECD Countries." Paris.

Rowe, Geoff, Huan Nguyen, and Michael Wolfson. 2002. "Is the Time Crunch Real?" Ottawa: Statistics Canada. Paper Presented at the International Time Use Conference on Time Pressure, Work-Family Interface, and Parent-Child Relationships.

Schellenberg, G. 2004. 2002 General Social Survey (Forthcoming). Ottawa: Statistics Canada

Wilkins R., J.-M. Berthelot, and E. Ng. 2002. "Trends in Mortality by Neighborhood Income in Urban Canada from 1971 to 1996." *Health Reports Supplement*, 13: 1-28. Ottawa: Statistics Canada. Cat. No. 82-003-XPE.