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**For Whom the 'Retirement' Bell Tolls: Inter-  
temporal Comparisons Using the 1994 and 2002  
Canadian General Social Survey**

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**FOR WHOM THE 'RETIREMENT' BELL TOLLS: INTER-  
TEMPORAL COMPARISONS USING THE 1994 AND  
2002 CANADIAN GENERAL SOCIAL SURVEY.\***

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## **Abstract**

Data from the 2002 and 1994 General Social Survey are used to analyze the determinants of retiring due to mandatory retirement and the expected age of retirement in Canada. Changes between 1994 and 2002 are decomposed into a component attributable to shifts in the composition of respondents and the other component to changes in the preferences and constraints of respondents, the latter playing a very important role for both outcomes. Specifically, between 1994 and 2002 we find: (1) a 1.3 percentage point drop in the probability of retiring due to mandatory retirement, with that drop due to preference/constraint changes substantially reducing the probability of retiring due to mandatory retirement but being almost offset by a change in the composition of the workforce that increased the probability of retiring due to mandatory retirement; and (2) a 3.7 year increase in the expected age of retirement, with that increase being almost exclusively attributable to preference and constraint shifts. The implications of these findings for employers, employees and policy makers are discussed.

## EXECUTIVE SUMMARY

This paper addresses the following two sets of questions: First, what are the determinants of the expected age of retirement and the probability of retiring due to mandatory retirement in Canada? Second, how have both outcomes changed over time and what accounts for these changes (if any)? Both sets of questions are addressed using the Canadian General Social Survey (GSS) with comparable questions measured in 1994 and 2002 respectively. An analysis of these two comparable surveys can go some way towards identifying the causes of any inter-temporal change in retirement behavior observed over the course of the 1990s and early 2000s. Specifically, between 1994 and 2002 we find that there has been an increase in the expected age of retirement of about four years, from about 59 years to 63 years for all workers nearing retirement age (i.e., age 45 and over who have not yet retired). As well, over that period, for those who had retired, their probability of having retired due to mandatory retirement decreased by 1.3 percentage points from 12.4 to 11.1 (almost a 12 percent decline).

Our empirical results point to several implications of practical and policy importance. First, the elimination of mandatory retirement will do little to increase the participation of older workers nearing retirement, as only slightly more than 10 percent of workers retire due to mandatory retirement. The decline in mandatory retirement as the primary cause of the retirement decision has been the result of changes in the preferences and constraints that reduce the propensity of a given worker to retire due to mandatory retirement, more than offsetting the compositional changes that have increased the probability of retiring due to mandatory retirement.

For workers nearing retirement (i.e., those aged 45 plus), the expected age of retirement has increased by almost four years in less than a decade, from 59.2 years in 1994 to 62.9 years by 2002. This increase is attributable to changes in preferences and constraints on the part of workers as opposed to changes in the composition of the workforce, meaning that workers nearing retirement today are more likely to expect to work longer than equivalent workers a decade earlier. This substantial increase in the expected age of retirement in less than a decade can give rise to a number of issues, which will have to be dealt with by employers, employees and policy makers.

Though the paper highlights some of the challenges posed by the increased retirement age, our emphasis is on the potential gains that can be realized by better incorporating the older aged and longer-lived workforce into the labor market. In order to take advantage of this growing potential pool of experienced workers, we argue that employers may have to adjust their workplace and human resource practices to the needs and preferences of such workers. This can entail determining these needs and preferences and adjusting workplace practices in such areas as flexible work-time arrangements, lateral and downward transfers, pension incentives, phased retirement, wellness programs and self-paced work environments. These are normal personnel and human resource issues that employers have to deal with on a regular basis; only that they now will apply to a growing baby-boom cohort that is likely to be working longer.

Governments may also have to examine public policies that often unintentionally hinder the continued employment of older workers. This can be the case, for example, with postponed retirement provisions in the Canada/Quebec Pension Plan or the early retirement provisions that require recipients to “substantially cease working” to receive benefits at age 60. Continued employment can also be discouraged by ‘clawbacks’ that exist in various income support programs such as Old Age Security and its Spouse Allowance as well as in the Guaranteed Income Supplement and in many provincial supplements. Furthermore, reducing the disincentives in the delayed retirement of older workers may reduce pressures on public and private pension systems.

Obviously, these private and government practices and policies exist for other reasons, so trade-offs will be involved if they are changed. The results of this paper imply that issues pertaining to retirement will increase in importance to the extent that mandatory retirement becomes less prominent and the expected age of retirement increases.

## **1. INTRODUCTION AND RELATIONSHIP TO POLICY ISSUES**

This paper addresses the following two questions: First, what are the determinants of the expected age of retirement and the probability of retiring due to mandatory retirement in Canada? Second, how have both outcomes changed over time and what accounts for these changes (if any)? Both sets of questions are addressed using cross-sectional General Social Survey (GSS) datasets with comparable questions measured in 1994 and 2002 respectively. An analysis of these two comparable surveys can go some way towards identifying the causes of any inter-temporal change in retirement behavior observed over the course of the 1990s and early 2000s. Specifically, between 1994 and 2002 we find that there has been an increase in the expected age of retirement of about four years, from about 59 years to 63 years for all workers nearing retirement age (i.e., age 45 and over who have not retired). As well, over that period, for those who had retired, their probability of having retired due to mandatory retirement decreased by 1.3 percentage points from 12.4 to 11.1 (almost a 12 percent decline).

These two trends and the research questions outlined above, are important for several reasons. Given that the ageing and longer-lived baby-boom population in Canada is now approaching the time when retirements are common, transitions to retirement and possibly back from retirement could form one of the most important labour market adjustment mechanisms in the coming decades. The trend to early retirement has also halted, and retirement is coming later especially for men (Gomez, Gunderson and Luchak 2002, Lowe 2005, Schirle 2007).

Determining whether this extension of the retirement age has been the result of voluntary or involuntary factors is therefore crucial. Specifically, we need to know whether preferences for a longer career path have changed, or whether the composition of the workforce has shifted such that characteristics associated with longer working lives now make up a greater share of the

workforce. Such questions have implications for a wide range of policy and practical issues of importance.

Impending labour and skill shortages, as well as shortages of mentoring capabilities and institutional knowledge, will depend on the extent to which older workers retire and possibly return to the labour force after retirement. Knowing the characteristics of those who are forced to leave their existing employment (because of policies both public and private) and those who want to work for as long as they can prior to retirement may allow employers to better target their retention and recruiting efforts (Davidson et. al. 1996, Fyock 2005, Taylor et. al. 2005).<sup>1</sup>

To the extent that employers want to shift from inducing early retirement as a form of downsizing (as was prominent in the 1980s and 1990s) towards postponing retirement to deal with labour shortages (as is more common today), employers may want to eliminate the subsidies to early retirement and penalties to delayed retirement that induced early labor market exits in the past (Pesando and Gunderson 1988, Pesando, Gunderson and Hyatt 1992, Pesando, Gunderson and Shum 1992) and may even voluntarily abandon mandatory retirement – changes that are already occurring (Conference Board of Canada 2005). Employers may also prefer to facilitate *partial* rather than *full* retirement; encourage returning from retirement; and generally remove barriers in all these areas (Davidson et. al. 1996, Davidson et. al. 1996, Gunderson 1998, Parker 2005, Shultz 2001, Watson Wyatt 2004).

Knowledge of the expected retirement age and why this is changing over time can also help employers anticipate their pension obligations and other age-related expenditures at the workplace (Ambachstsheer 2004, Fronstin and Salisbury 2005). This is especially the case with

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<sup>1</sup> This takes on even greater relevance given the importance for older workers of such factors as personal satisfaction associated with having the opportunity to “do what one is really good at” (Lowe 2005, p. 22) and having control over various dimensions of working time (Gomez and Gunderson 2005, Shultz 2001).

age-related disability, given the strong positive relationship between age and self-reported disability (Cossette and Duclos, 2002).

Employers will likely be faced with more stringent reasonable accommodation requirements associated with an aging workforce (Butler, Johnson and Baldwin, 1995). Modifications to training procedures to accommodate the training needs of older workers will also take on more importance given the evidence that older workers have greater difficulty in absorbing training (Kubeck et. al. 1996 in a review of 32 studies), although they can retrain effectively if the training is structured for them (Dunn 2005, Kruse 2001, Simpson 2005).

Age discrimination issues will be more prominent, especially where mandatory retirement is banned and employers may be more likely to intensely evaluate and perhaps dismiss some older workers (Gunderson, 2003). The human rights of older workers will take on more prominence given that this was often a neglected issue in the past (Ontario Human Rights Commission 2000). The extent to which individuals are involuntarily compelled to retire because of mandatory retirement will also become crucial in an ageing society (Gomez, Gunderson and Luchak, 2002).

In order to address these and other issues of practical and policy importance we analyze how the determinants of the expected age of retirement and retiring due to mandatory retirement changed inter-temporally between 1994 and 2002. The next section sets out the proposed methodology, followed by a discussion of the data. The empirical results are then discussed followed by a concluding section that ties the results back to the policy issues raised in the introduction.

## **2. METHODOLOGY**

The methodology involves estimating separate regression equations on the retirement outcomes of interest (i.e., expected age of retirement, and retired because of mandatory retirement) for each of 1994 and 2002:

$$(1) \quad Y_{02} = X_{02}\beta_{02} \quad \text{for 2002,}$$

$$(2) \quad Y_{94} = X_{94}\beta_{94} \quad \text{for 1994,}$$

where  $Y$  is the retirement outcome,  $X$  is the vector of independent variables influencing those outcomes,  $\beta$  is the vector of estimated regression coefficients, and the subscript 02 denotes our 2002 observations and 94 denotes 1994 observations. For simplicity of exposition, individual subscripts and the constant and error terms are omitted. We interpret the  $\beta$  coefficients as reflecting preferences and constraints since they indicate how changes in the  $X$  variables affect the dependent variables such as the expected age of retirement.

The independent variables essentially involve a range of factors available in the data set (discussed subsequently) that are likely to influence retirement outcomes: demographic variables (gender, life expectancy, marital status, child status, immigrant status, education); health status; work status (self-employed, unpaid family worker as opposed to a regular paid worker, and part-time as opposed to full-time status); employer provided pension plan; occupation; province; and household income.<sup>2</sup>

We use the Blinder-Oaxaca decomposition technique to decompose the inter-temporal change in the average retirement outcomes between 1994 and 2002 as,

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<sup>2</sup> Household income is measured in real terms. It is coded categorically and the GSS questionnaire keeps the same number of categories but adjusts the relative category levels for inflation.

$$(3) \quad \bar{Y}_{02} - \bar{Y}_{94} = (\bar{X}_{02} - \bar{X}_{94})\beta_{02} + (\beta_{02} - \beta_{94})\bar{X}_{94}.$$

where  $\bar{Y}$  denotes the mean of the retirement outcome dependent variables and  $\bar{X}$  denotes the means of the explanatory variables.

That is, the changes in mean retirement outcomes between 2002 and 1994 are decomposed into two components that have a natural interpretation (and an interpretation that is relevant for practical and policy purposes). This first component is the differences in the average characteristics or composition of the workforces,  $(\bar{X}_{02} - \bar{X}_{94})$ , evaluated according to the more current 2002 preferences,  $\beta_{02}$ . The second component reflects changes in the preferences and constraints between the two years,  $(\beta_{02} - \beta_{94})$ , evaluated with the 1994 characteristics,  $\bar{X}_{94}$ . Both terms are of interest since the first term tells us how much of the change, say, in the preferred age of retirement is due to changes in the composition of the workforce (e.g., its gender composition or becoming more educated) while the second term tells us how much of the change is attributable to changing preferences and constraints, holding constant or netting out the influence of the changing composition of the workforce.

Knowledge of the two components can assist, for example, in predicting future pressures or desires. For instance, incorporating expected future changes in the composition of the workforce (e.g., its gender composition and becoming more educated) would enable simulating the effect of those changes on the preferred age of retirement so as to facilitate better human resource planning on the part of employers. Even if a precise prediction is not merited, it would indicate whether the preferred age of retirement is likely to increase or decrease. A similar prediction could be made by assuming that the preference changes between 1994 and 2002 would continue into the future. In the

case of our binary-coded dependent variable, “retired due to mandatory retirement”, we also use a modification to the Blinder-Oaxaca decomposition procedure as appropriate.<sup>3</sup>

### **3. DATA**

Our empirical estimates are based on the General Social Survey (GSS) for the years 1994 and 2002, the later being the most recent year for which questions on work and retirement are available, and 1994 being the earliest year for which comparable questions are available. The earlier 1989 GSS was the first cycle to have included questions on retirement; however, the questions were not sufficiently comparable to those of the 1994 and 2002 so as to provide consistent inter-temporal comparisons. The common questions between the 1994 and 2002<sup>4</sup> cycle on work and retirement relate to our two key dimensions: retiring due to mandatory retirement, and the expected age of retirement. The 2002 GSS (unlike the 1989 and 1994 files) was not available as a public use micro data file for several years after its official release. The survey over-sampled those aged 45 and above in Canada, and it was felt that this may have compromised anonymity. Since it was a confidential data file, it had to be accessed at a Research Data Centre. Earlier work (Gomez and Gunderson 2005) employed this confidential dataset. Since its public release in January 2007, however, several variables have been recoded and categories collapsed into more general ones to further preserve anonymity. There was also a correction made to the household income variable in the newly released public micro-data. This makes the current analyses using the 2002 dataset more satisfactory than the previous analysis.

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<sup>3</sup> See the procedures developed in Nielson (1998) and Fairlie (1999, 2003) and used in Gomez, Gunderson and Meltz (2002).

<sup>4</sup> Shellenberg and Silver (2004) use the 2002 GSS to analyze the congruence of retirement preferences and experiences.

#### 4. EMPIRICAL RESULTS

As a precursor to the formal decomposition analysis below, we present two tables that describe the separate regressions (upon which the decomposition analysis is ultimately based) for our two variables of interest: the probability of retiring due to mandatory retirement for the subsample of those retired (Table 1); and the expected age of retirement for the pool of workers nearing retirement (Table 2). Our procedure will be to discuss the 1994 and 2002 results when similar and then comment on the major changes that occurred between 1994 and 2002 in both the composition of the workforce (mean values) and in preferences and constraints that affect the propensity to be subject to mandatory retirement or the preferred retirement age (coefficients or marginal effects). Our emphasis will be on those factors that have the largest impact on the outcomes of interest and where the changes over time were greatest.

##### *Retiring Due to Mandatory Retirement*

As indicated in the first row of Table 1, the proportion of retired persons who indicated that they retired due to mandatory retirement declined from 12.3 percent in 1994 to 11.1 percent by 2002. This decline reflects a combination of both changes in the composition of the workforce (i.e., the X variables) as well as changes in the preferences and constraints of the workforce (i.e., the  $\beta$ s or coefficients).

In both 2002 and 1994 the probability of retiring due to mandatory retirement was higher for males than for females. This likely reflects the fact that males tend to predominate the “good jobs” that tend to have pensions along with mandatory retirement (Gomez, Gunderson and Luchak 2002 and references cited therein). The gender difference in the propensity to be subject to mandatory retirement declined slightly from 0.068 in 1994 to 0.052 by 2002. As well, the proportion of older males who had ever retired also declined slightly.

In both 2002 and 1994, the probability of having retired due to mandatory retirement generally increased with the age of the respondent reflecting the obvious fact that mandatory retirement generally comes at an age like 65. The magnitude of the age effect, however, declined slightly over the period,

In 1994, the probability of retiring due to mandatory retirement was significantly lower for persons who were married or common law compared to single persons, but by 2002 this marriage correlation had dissipated.

In both 2002 and 1994, the probability of retiring due to mandatory retirement was higher for immigrants compared to non-immigrants, with the effect being larger for more recent cohorts of immigrants. Since immigrants may not accumulate the labour market experience upon which pension benefits are based, being constrained by mandatory retirement may have a disproportionate effect on them. This is especially the case for recent cohorts who are also having more difficulty assimilating into the labour market (Abdurrahman and Skuterud 2005 and references cited therein). The fact that they are more likely to retire due to mandatory retirement, however, also suggests that they were able to obtain the “good jobs” that are generally associated with mandatory retirement.

In both 1994 and 2002, immigrants had a higher probability of retiring due to mandatory retirement than did native born respondents. In both years, the more recent cohorts of immigrants had a higher probability than did earlier cohorts.

In both 1994 and 2002, there was generally a fairly strong positive relationship between better health status and the probability of retiring due to mandatory retirement. This likely reflects the fact that persons in good health were able to continue working until their mandatory retirement age. The magnitude of this effect was also larger in 2002 than in 1994 suggesting that

as our health status improves, the constraint of mandatory retirement will become more binding unless it dissipates as a policy, which is occurring (Conference Board of Canada 2005). The improvement in our health status is also exhibited by the fact that 29 percent of respondents in 2002 reported they were in excellent health, compared to only 17 percent in 1994.

Larger proportions of the workforce also reported themselves as self-employed (14.1%) or employed part-time (11.5%) in 2002 compared to 1994 (respectively 11.5% and 8.3%). This combined with the lower propensity to retire due to mandatory retirement for such groups should contribute to an overall decline in the probability of retiring due to mandatory retirement.

In 2002, persons in households with higher income were more likely to retire because of mandatory retirement, highlighting the fact that mandatory retirement is generally associated with relatively advantaged workers in “good jobs” and a pension. The fact that this was not the case for family incomes above \$50,000 in 1994 is somewhat of a puzzle.

There is generally no strong provincial pattern in the probability of retiring due to mandatory retirement, after controlling for the effect of other factors that can influence that probability. Interestingly, the only significant effect in 2002 is for the two jurisdictions that banned mandatory retirement – Manitoba in 1982 and Quebec in 1983. The ban appears to have the expected effect of reducing the probability of retiring due to mandatory retirement in Manitoba, but it is associated with an unexpected increase in the probability in Quebec. This higher propensity to retire due to mandatory retirement in Quebec in spite of the ban is also documented in Silver (2004). Reasons for this are not obvious and merit further research. It could reflect a greater use of mandatory retirement provisions as a bone fide occupational requirement (BFORs) at an earlier age in Quebec as a substitute for mandatory retirement, or the greater use of early retirement buyouts (again as a substitute for mandatory retirement) with

respondents interpreting the retirement requirement as mandatory retirement. As well, when mandatory retirement was banned in Quebec, early receipt of Quebec Pension Plan benefits was allowed conditional upon retiring (Vaillancourt 2000). Those who took such early retirement may have interpreted it as mandatory retirement since it was required for the pension receipt.

### Expected Age of Retirement

As indicated in the first row of Table 2, the expected age of retirement increased from 59.15 years in 1994 to 62.88 by 2002. This represents an annual increase of almost one-half year (5.8 months) over the eight-year period.

The patterns that prevailed in 2002 across our independent variables with respect to the expected age of retirement also generally prevailed in 1994. In 1994, however, the gender differences in the expected age of retirement were more pronounced. In 1994, males expected to work 2 years longer than females, but by 2002 the difference had been reduced to a little more than one-half of a year. The convergence of male-female labour market behaviour seems to be occurring in retirement patterns as well.

For our expected age of retirement dependent variable we replace the age variable with the more direct relevant age related measure that should influence the expected age of retirement -- conditional expected life expectancy. Between 1995 and 2002 conditional life expectancy increased by a non-trivial amount for both males and females. For example a male aged 50-54 in 1994 was expected to live on average 26.49 more years whereas that same aged male respondent would expect to live 27.63 years by 2002.<sup>5</sup> The expectation is that conditional life expectancy -- defined here as the number of expected years of life conditional on age and gender -- would be

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<sup>5</sup> Complete tables of conditional life expectancy for males and females can be found for 1995 and 2002 in Statistics Canada (2002; 2006).

positively correlated with expected age of retirement with a coefficient of less than one. That is, every year of increased life expectancy for workers nearing retirement would give rise to additional work in the labour market, but that additional year of life expectancy would be shared between work and retirement. Our empirical results confirm this expectation with additional life expectancy increasing the expected age of retirement by a little less than one-half of a year in 1994, and about one-third of a year by 2002. The fact that the magnitude of the effect was smaller in 2002 suggests that over time, the additional life expectancy is going more into retirement leisure than work.

Persons who are married or live common law plan to retire about a year earlier than do persons who are single and never-married. Persons with two-or-more children in the household plan to retire about one-half year later than persons with no children; this most likely reflects their continued need for resources to raise a family.

Immigrants plan to retire later than do non-immigrants likely reflecting a desire to continue to accrue pension and other retirement entitlements to offset the fact that they may have started to accrue them later. Noticeably, this immigrant effect was much stronger for recent immigrants in 2002 (i.e., 2 years longer in the labour force compared to non-immigrants). This likely reflects the fact that recent cohorts of Canadian immigrants are assimilating much slower into the labour force than were earlier cohorts (Abdurrahman and Skuterud 2005 and references cited therein). As such, recent immigrants have to work longer to accumulate the income and other service related entitlements like pension benefits before they can retire.

In 1994, higher levels of education were generally associated with lower expected ages of retirement for education levels up to university graduates. By 2002, the effect of higher education was not substantial.

Better levels of health are associated with higher expected ages of retirement. This suggests a continuing increase in the expected age of retirement as health improves and life expectancy increases.

By 2002, the self-employed expected to retire almost one year later than those who worked in paid employment prior to retirement. As self-employment increases (it almost doubled from 8.6% of the workforce in 1994 to 15.2% by 2002) the expected age of retirement will also increase.

Workers with employer pension plans expect to retire earlier than do those without such a plan. This reflects their greater ability to afford to retire as well as the likelihood that they are subject to mandatory retirement, since pensions and mandatory retirement are invariably twinned (Pesando and Gunderson 1988). Higher family incomes are strongly associated with earlier expected retirement ages, reflecting the ability to afford to retire; retirement remains a “normal good.”

#### *Decomposition of Changes in Probability of Mandatory Retirement for Retirees*

As outlined previously, the change in the probability of retiring due to mandatory retirement can be decomposed into two component parts: one is attributable to changes in the composition of the workforce (the  $X$  values of Tables 1 and 2) with their different propensities to retire due to mandatory retirement; the other is attributable to changes in their propensity to retire (the  $\beta$  values of Tables 1 and 2) reflecting changing preferences and constraints that influence the extent of mandatory retirement.

As indicated in the first column of Table 3, the probability of retiring due to mandatory retirement declined from 12.4 percent in 1994 (row 1) to 11.1 percent by 2002 (row 2), for a

decline of 1.3 percentage points (row 3). This decline of 1.3 percentage points is the net result of two opposing forces working in the opposite direction: the changing propensity to retire due to mandatory retirement which contributed 6.5 percentage points *towards* the decline (row 4); and the changing characteristics of the workforce which contributed 5.2 percentage points *against* the decline (row 5). In essence, the probability of retiring due to mandatory retirement is declining only slightly because the dramatic declines in the propensity of a given worker to retire due to mandatory retirement is being almost offset by the changing composition of the workforce towards workers who are more likely to retire due to mandatory retirement.

If the composition of the workforce had stayed the same as it was in 1994 so that only the propensity to retire had changed, then the probability of retiring due to mandatory retirement would have dropped even more dramatically, from 12.4 percent to 5.9 percent rather than its actual drop from 12.4 percent to 11.1 percent<sup>6</sup>. In essence, the decrease in the probability of retiring due to mandatory retirement would have been much more dramatic if the composition of the workforce had not changed in the direction of workers who are more likely to retire due to mandatory retirement. The preferences and constraints ( $\beta$ 's) that influence the propensity of a given worker to retire due to mandatory retirement are changing so as to dramatically reduce the probability of retiring due to mandatory retirement. This is only showing up, however, as a small reduction in that probability since it is largely being offset by a changing composition of the workforce ( $X$ 's) towards workers who typically retire due to mandatory retirement policies.

The decline in the propensity of a given worker to retire due to mandatory retirement likely reflects a combination of the dissipation of mandatory retirement provisions (both through

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<sup>6</sup> This calculation is based on adding the (negative) change due to propensities (i.e., - 6.5) to the 1994 probability of 12.4 (i.e.,  $12.4 - 6.5 = 5.9$ ).

legislation and voluntary actions) as well as an increased use of early retirement provisions, before the age of 65 when most mandatory retirement clauses begin.

*Decomposition of Changes in Expected Age of Retirement for Non-Retirees*

As indicated in the second column of Table 3, the expected age of retirement for workers nearing retirement increased from 59.2 in 1994 (row 1) to 62.9 in 2002 (row 2) for an overall increase of 3.7 years (row 3). This is a substantial increase of almost one-half year per year over the eight-year period. This increase in the expected age of retirement is consistent with the decrease in the probability of retiring due to mandatory retirement documented in column 1. This is because the factors that reduce the likelihood of retiring due to mandatory retirement are likely to increase the expected age of retirement.

Once again, the increase in the expected age of retirement is the net effect of two opposing forces. As indicated in row 4 of column 2, the change in the propensity of a given worker to want to retire gives rise to a 4.5 year *increase* in the expected age of retirement. This is substantially larger than the 0.8 year *reduction* (row 5) in the expected age of retirement as reflected by the changing composition of the workforce towards workers who typically expect to retire earlier. The expected age of retirement is rising because preferences and constraints are substantially increasing the propensity of having a later expected age of retirement, and are only being slightly dampened by the changing composition of the workforce; a change which is moving towards those who tend to have earlier expected ages of retirement. As with the probability of retiring due to mandatory retirement, the changing preferences and constraints are important for influencing the expected age of retirement. In the case of the expected age of retirement, the changing nature of the workforce only slightly dampens the effect of preferences

and constraints slightly, while in the case of the probability of retiring due to mandatory retirement they almost entirely offset the strong effect of changing preferences and constraints.

If the composition of the workforce had stayed as it was in 1994 so that only the propensity to expect to retire had changed, then the expected age of retirement would have increased to 63.5 years<sup>7</sup> rather than its actual increase to 62.9 years. Alternatively stated, had the changing characteristics of the workforce not acted to retard the propensity increase by 0.8 years, the expected age of retirement would have actually increased by 4.5 years (instead of 3.7 years) from 1994 to 2002.

The increase in the propensity of a given worker to expect to retire later can reflect a variety of factors, including: (1) the dissipation of mandatory retirement; (2) the possible dissipation of private and public pensions that could accompany any reduction in mandatory retirement provisions; (3) uncertainty over receipt of private pensions given the shift from defined-benefit to defined-contribution plans and even the uncertainty associated with the financial viability of defined-benefit plans; (4) the dissipation of early retirement buyouts that were common in the 1970s and 1980s to facilitate downsizing; (5) improved health; (6) a desire to amortize the cost of longer periods of education over a longer working life; (7) the shift from arduous blue-collar work to less physically demanding and potentially more interesting work in the knowledge economy; (8) more job opportunities because of impending labour shortages; (9) more opportunities to continue working through the flexibility of non-standard jobs; and (10) and men postponing retirement as their spouses increasingly participate in the labour market.

The relative importance of each of these different factors merits closer attention and further research so as to predict future changes and the impact of different policy initiatives on

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<sup>7</sup> This calculation is based on adding the change due to propensities (i.e., 3.79) to the 1994 expected age of 59.2 (i.e.,  $59.15 + 3.79 = 62.94$ ).

older worker labour force participation. What is clear, however, is that the preferences/constraints affecting workers are changing so as to increase their expectation of working longer.

## **5. CONCLUDING OBSERVATIONS AND LINK TO POLICY ISSUES**

Our empirical results point to several implications of practical and policy importance. For example, the elimination of mandatory retirement will do little to increase the labour force participation of older workers near retirement in Canada, as only slightly more than 10 percent of workers retire due to mandatory retirement. Furthermore, this figure is trending downward, from 12.4 percent in 1994 to 11.1 percent by 2002. The decline in mandatory retirement as the primary cause of the retirement decision has been the result of changes in the preferences and constraints that reduce the propensity of a given worker to retire due to mandatory retirement, more than offsetting the compositional changes that have increased the probability of retiring due to mandatory retirement.

For workers nearing retirement (i.e., those aged 45 plus), the expected age of retirement has increased by almost four years in less than a decade, from 59.2 years in 1994 to 62.9 years by 2002. This increase is attributable to changes in preferences and constraints on the part of workers as opposed to changes in the composition of the workforce, meaning that workers nearing retirement today are more likely to expect to work longer than equivalent workers a decade earlier. Whether this ‘trend’ is in fact secular remains to be seen as the base year in question (i.e., 1994) coincided with a time when Canada was still mired in an economic slowdown with high unemployment and hence lower labour force participation. Expectations about the duration of working life may have therefore been affected.

Nevertheless, regardless of the exact set of cause(s), this substantial increase in the expected age of retirement can give rise to a number of issues, raised in the introduction, which will have to be dealt with by employers, employees and policy makers.

Delayed retirement can reduce the employment and promotion opportunities for youths in specific employment environments. For employers, it can reduce the churning that can facilitate employment renewal, and it can complicate succession planning if there is greater uncertainty around who is retiring and when. Delayed retirement can have implications for disability and health and medical costs given the substantially higher rates of disability and health problems of older workers as documented in the introduction. It can increase pressures for duties of reasonable accommodation that are required by law, as such issues will be increasingly contested in the courts. The same applies to issues related to age discrimination. There will inevitably be needs to dismiss some older workers given the uncertainty over when they will retire; this in turn will require more performance reviews and assessments to protect against unjust dismissal claims. Employers will have to pay more attention to the retraining needs of older workers given that they are different from those of younger workers.

These are normal personnel and human resource issues that employers have to deal with on a regular basis; only that they now will apply to a growing cohort that is likely to be working longer. Importantly, delayed retirement on the part of the growing cohort of older workers can provide a substantial pool of experienced workers for purposes of filling labour and skill shortages that are increasingly of concern, as well as for mentoring younger workers and preserving institutional knowledge. Furthermore, delayed retirement of older workers may reduce pressures on public and private pension systems.

In order to take advantage of this growing potential pool of experienced workers, employers may have to adjust their workplace and human resource practices to the needs and preferences of such workers. This can entail determining these needs and preferences and adjusting workplace practices in such areas as flexible worktime arrangements, lateral and downward transfers, pension incentives, phased retirement, wellness programs and self-paced work environments.

Governments may also have to examine public policies that often unintentionally hinder the continued employment of older workers. This can be the case, for example, with postponed retirement provisions in the Canada/Quebec Pension Plan or the early retirement provisions that require recipients to “substantially cease working” to receive benefits at age 60. Continued employment can also be discouraged by clawbacks that exist in various income support programs such as Old Age Security and its Spouse Allowance as well as in the Guaranteed Income Supplement and in many provincial supplements.

Obviously, these private and government practices and policies exist for other reasons, so trade-offs will be involved if they are changed. The results of this paper imply that such issues will increase in importance to the extent that mandatory retirement becomes less prominent and the age of retirement increases.

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**TABLE 1– PROBIT ESTIMATES OF THE PROBABILITY OF RETIRING DUE TO MANDATORY RETIREMENT, 1994 & 2002 GSS (on sub-sample of ever-retired).**

Variable	1994 GSS			2002GSS		
	Mean	Marginal Effect	P-value	Mean	Marginal Effect	P-value
Mean dependent variable	0.124	.		0.111		
(Female)						
Male	0.534	0.068***	0.000	0.464	0.052***	0.000
(Age 45-54)						
Age 55-59	0.085	0.060	0.419	0.095	0.050**	0.015
Age 60-64	0.179	0.082	0.253	0.138	0.031	0.111
Age 65-69	0.250	0.118*	0.103	0.203	0.080***	0.000
Age 70 and over	0.464	0.173***	0.007	0.505	0.105***	0.000
(Single, never married)						
Married or common law	0.528	-0.050**	0.021	0.543	0.017	0.309
Widow, separated, divorced	0.374	-0.016	0.440	0.384	-0.002	0.810
(No children in household)						
One child	0.081	0.019	0.428	0.074	-0.002	0.870
Two or more children	0.014	-0.050	0.385	0.020	-0.034*	0.082
(Non-immigrant)						
Early immigrant	0.163	0.035**	0.050	0.168	0.022***	0.003
Recent immigrant	0.014	0.062**	0.327	0.015	0.081*	0.054
(Less than high school)						
High school graduate	0.129	-0.019	0.312	0.144	0.015	0.122
Some post secondary	0.066	0.046*	0.093	0.027	-0.009	0.566
Community college/voc. Ed	0.200	0.013	0.445	0.060	0.009	0.485
University graduate	0.119	-0.024	0.279	0.073	0.012	0.336
(Health poor)						
Health fair	0.173	0.062**	0.043	0.100	0.049***	0.003
Health good	0.271	0.035	0.195	0.246	0.097***	0.000
Health very good	0.260	0.063**	0.029	0.248	0.103***	0.000
Health excellent	0.172	0.053*	0.089	0.293	0.092***	0.000
Health unknown	0.026	0.043	0.650	0.005	0.062	0.133
(Paid work pre retirement)						
Self-employed pre retire	0.115	-0.099***	0.000	0.141	-0.103***	0.000
(Full-time pre retirement)						
Part-time pre retirement	0.083	-0.047**	0.038	0.115	-0.019**	0.028
(Clerical occupation)						
Managerial	0.104	-0.003	0.898	0.086	-0.026**	0.015
Professional	0.098	0.005	0.846	0.142	0.012	0.203
Technical	0.009	-0.037	0.546	0.040	0.028*	0.052
Sales and service	0.051	0.085	0.785	0.244	-0.011	0.167
Trades/ operators	0.085	0.004	0.871	0.128	-0.012	0.212
Primary occupations	0.038	-0.077*	0.059	0.050	-0.015	0.371
Processing & mfg.	0.196	-.0178	0.402	0.072	-0.006	0.545

... Table 1 Continued) Variable	1994 GSS			2002 GSS		
	Mean	Marginal Effect	P-value	Mean	Marginal Effect	P-value
(Household income<\$15,000						
\$15,000-29,999	0.261	0.065***	0.004	0.251	0.051***	0.000
\$30,000-49,999	0.141	0.086***	0.004	0.187	0.054***	0.000
\$50,000-79,999	0.055	-0.006	0.853	0.114	0.076***	0.000
\$80,000+	0.020	0.006	0.909	0.060	0.062***	0.002
Income unknown	0.219	0.036	0.036	0.265	0.049***	0.000
[Ontario]						
Nfld/Labrador	0.052	-0.006	0.834	0.040	0.000	0.981
Prince Edward Island	0.036	-0.045*	0.126	0.027	-0.011	0.494
Nova Scotia	0.082	0.017	0.485	0.061	0.008	0.484
New Brunswick	0.059	-0.031	0.232	0.056	0.003	0.794
Quebec	0.153	0.015	0.467	0.175	0.031***	0.000
Manitoba	0.072	-0.011	0.646	0.056	-0.031***	0.010
Saskatchewan	0.081	-0.030	0.188	0.052	0.004	0.758
Alberta	0.101	-0.026	0.220	0.074	-0.002	0.851
British Columbia	0.128	-0.045**	0.015	0.134	-0.012	0.130
Sample size		2,163			10,057	
Pseudo R-squared		0.121			0.113	

Significance is denoted by \*\*\*at the 0.01 level, \*\* at the 0.05 level and \* at the 0.10 level.

Notes:

(1) The age category used as the excluded reference group is 45-54 due to the small numbers in GSS 1994 in the separate 45-49 and 50-54 categories for the sub-sample of retirees. For the subsample of not retired used for the subsequent expected age of retirement dependent variable, sufficient observations exist for the separate categories to be used.

(2) A variable for the existence of a pre-retirement employer pension plan is available for the subsample of not retired used in the subsequent analysis of the expected age of retirement, but it is not available for the subsample of ever retired used here for the analysis of the probability of retiring due to mandatory retirement.

(3) Early immigrant in GSS 1994 refers to immigrant landed before 1980. Recent immigrant in GSS 1994 refers to immigrant landed after 1980. Early immigrant in GSS 2002 refers to immigrant landed before 1990. Recent immigrant in GSS 2002 refers to immigrant landed after 1990.

**TABLE 2 – OLS ESTIMATES OF EXPECTED AGE OF RETIREMENT, 1994 & 2002 GSS**  
**(On sub-sample of not retired)**

Variable	GSS 1994			GSS 2002		
	Means	Coefficient	P-values	Means	Coefficient	P-values
Mean dependent variable		59.15			62.88	
(Female)						
Male	0.526	2.017***	0.000	0.509	0.579***	0.000
Conditional life expectancy	31.16	0.464***	0.000	29.22	0.320***	0.000
(Single, never married)						
Married or common law	0.614	-0.799***	0.001	0.705	-1.331***	0.003
Widow, separated, divorced	0.118	0.613**	0.052	0.204	0.154	0.537
(No children in household)						
One child	0.176	0.326	0.141	0.194	0.304*	0.060
Two or more children	0.263	0.488**	0.027	0.199	0.789***	0.000
(Non-immigrant)						
Early immigrant	0.089	0.541**	0.033	0.157	0.410**	0.014
Recent immigrant	0.048	0.540	0.173	0.015	2.058***	0.000
(Less than high school)						
High school graduate	0.185	-0.762***	0.005	0.226	-0.177	0.401
Some post secondary	0.131	-0.896***	0.002	0.049	-0.112	0.635
Comm. College/voc. Ed	0.266	-0.855***	0.000	0.112	-0.461*	0.066
University graduate	0.207	-0.118	0.677	0.150	-0.052	0.906
(Health poor)						
Health fair	0.067	0.704	0.248	0.050	1.608**	0.050
Health good	0.236	1.475***	0.008	0.200	1.259	0.113
Health very good	0.365	1.502***	0.007	0.400	1.475*	0.062
Health excellent	0.304	1.185**	0.033	0.340	1.655**	0.036
Health unknown	0.008	1.630	0.683	0.002	1.333	0.254
(Paid work pre retirement)						
Self-employed pre retirement	0.086	0.345	0.323	0.152	0.894***	0.000
Self-employed unknown	0.009	1.469	0.451	0.035	0.378	0.643
(Full-time pre retirement)						
Part-time pre retirement	0.277	0.103	0.606	0.223	0.086	0.572
Part-time status unknown	0.275	0.787***	0.001	0.141	0.503	0.589
(Clerical occupation)						
Managerial	0.130	0.013	0.966	0.103	0.027	0.916
Professional	0.155	0.116	0.698	0.186	-0.242	0.236
Technical	0.020	-0.966*	0.100	0.056	-0.581**	0.035
Sales and service	0.074	0.275	0.410	0.193	0.065	0.740
Trades/ operators	0.075	-0.309	0.359	0.143	-0.096	0.682
Primary occupations	0.023	0.212	0.733	0.040	0.859**	0.013
Processing & mfg.	0.186	0.134	0.641	0.064	0.130	0.637
Occupation unknown	0.158	-0.025	0.936	0.040	0.772	0.306
(No employer pension)						
Employer pension plan	0.443	-0.919***	0.000	0.571	-1.649***	0.000
Emp. pension unknown	0.010	0.922	0.332	0.025	-0.083	0.835

... Table 2 Continued) Variable	GSS 1994			GSS 2002		
	Means	Coefficient	P-values	Means	Coefficient	P-values
(Household income<\$15,000)						
\$15,000-29,999	0.115	-0.041	0.936	0.094	-0.280	0.498
\$30,000-49,999	0.218	-0.812*	0.094	0.196	-0.734*	0.073
\$50,000-79,999	0.217	-1.678***	0.001	0.270	-2.140***	0.000
\$80,000+	0.110	-2.179***	0.000	0.287	-2.746***	0.000
Income unknown	0.207	-0.608	0.250	0.130	-1.777***	0.000
[Ontario]						
Newfoundland/Labrador	0.045	-2.243***	0.000	0.048	-1.860***	0.000
Prince Edward Island	0.024	-0.944*	0.078	0.021	-0.267	0.552
Nova Scotia	0.070	-1.298***	0.000	0.053	-0.956***	0.001
New Brunswick	0.051	-0.914**	0.018	0.052	-1.281***	0.000
Quebec	0.197	-1.891***	0.000	0.223	-1.266***	0.000
Manitoba	0.072	-0.714**	0.020	0.057	-0.437*	0.098
Saskatchewan	0.059	-0.660*	0.066	0.055	-0.277	0.342
Alberta	0.124	-0.684**	0.013	0.088	0.029*	0.904
British Columbia	0.113	-0.654**	0.030	0.121	0.544***	0.008
Constant		76.104***	0.000		75.014***	0.000
Sample size		4,855			5,157	
R-squared		.198			.278	

Significance is denoted by \*\*\*at the 0.01 level, \*\* at the 0.05 level and \* at the 0.10 level.

Notes:

- (1) Omits workers who responded “no intention to retire”.
- (2) Early immigrant in GSS 1994 refers to immigrant landed before 1980. Recent immigrant in GSS 1994 refers to immigrant landed after 1980. Early immigrant in GSS 2002 refers to immigrant landed before 1990. Recent immigrant in GSS 2002 refers to immigrant landed after 1990.
- (3) Unknown category added to variables where substantial respondents in regression (10 or more) resided in “not specified” or “do not know” response categories.
- (4) Life expectancy is the number of years of expected life conditioned on age and gender in 1994 and 2002 respectively. Although life expectancy in Canada increased on average 1.54 years between 1995 and 2002, our sub-sample in 1994 contained a greater proportion of younger respondents aged 45-49, who in turn had overall greater life expectancy. If one notes the mean of our 1994 sub-sample is 31.16 whereas our 2002 sub-sample is 29.22

**Table 3: Decomposing the Change in Probability of Retiring Due to Mandatory Retirement and Expected Age of Retirement, Between 1994 and 2002.**

Retirement Outcome	Probability Retiring due to Mandatory Retirement	Expected Age of Retirement
	(1)	(2)
1. Average probability of retiring due to mandatory retirement and expected age of retirement in 1994 ( $\bar{Y}_{94}$ )	12.4	59.2
2. Average probability of retiring due to mandatory retirement and expected age of retirement in 2002 ( $\bar{Y}_{02}$ )	11.1	62.9
3. Change in probability or expected age between 2002-1994 ( $\bar{Y}_{02} - \bar{Y}_{94}$ )	-1.3	3.7
4. Change due to propensities $(\beta_{02} - \beta_{94})\bar{X}_{94}$	-6.5	4.5
5. Change due to characteristics $(\bar{X}_{02} - \bar{X}_{94})\beta_{02}$	5.2	-0.8