

ABOUT RETIREMENT ...

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Projections of future earning capacity provided by economists usually extend to age 65, which is considered the normal retirement age in Canada. Projections may account for retirement earlier or later than age 65, in a few special cases. Examples of such special cases are persons who work in occupations where earlier retirement is mandatory (police officers and firefighters, for example), and persons who likely will not be able to afford retirement at a normal retirement age (such as recent immigrants who have not made significant Canada Pension Plan contributions).

Readers of economists' expert opinion reports often infer that, because calculations are terminated at age 65, retirement as of that age is assumed. Presumably because of this inference, a popular point raised on cross-examination is that the median retirement age in Canada, between 1996 and 2000, was estimated at less than 65 years (61.8 years for men, and 60.1 years for women). This simple statement, which draws on information published in a Statistics Canada article entitled "Fact-sheet on retirement"¹, directly and indirectly touches on a number of issues which will be briefly discussed in this article. They are:

1. Results reported in the "Fact-sheet on retirement" are median rather than mean retirement ages. Does this matter?
2. Are estimates of median or mean average retirement ages in Canada good predictors of individual behaviour?
3. Why terminate the calculations at age 65?
4. How does a model of earning capacity of the kind usually produced in personal injury cases need to be modified to accommodate assumptions regarding a specific retirement age?

1. Median *versus* Mean

Both the median and the mean are considered so-called "measures of central tendency". To determine which is the better or more appropriate measure, the median or the mean, it may be useful to recall how each is calculated.

The median is obtained simply by ordering responses from lowest to highest with the median being the response in the middle. No calculations are required, and all but one observation (two observations, in the case of even-numbered samples) essentially are discarded. The mean, on the

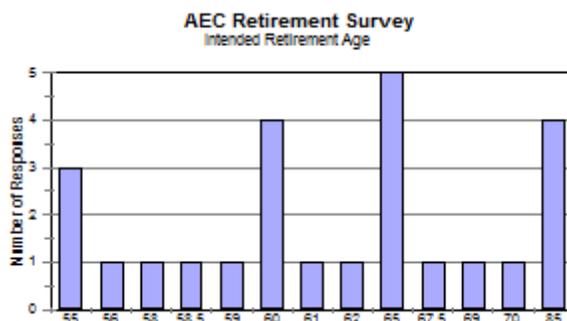
¹ In: Perspectives, Summer, 2002, pp. 45 ff. Statistics Canada, Catalogue no. 75-001-XPE.

other hand, is calculated by taking the sum of observed values, and then dividing by the number of responses. Not a single observation is discarded.

The single most important difference between these two approaches is that the calculation of a mean average is in fact a probability calculation, albeit a simple one in which every response is given an equal chance of occurring. In contrast, finding the median literally means just that – finding it, and ignoring the rest of the responses. We will illustrate the difference between these calculations by way of an example.

Some of you may recall participating in Associated Economic Consultants Ltd.'s "Totally Anonymous and Utterly Simplistic Retirement Survey", which we conducted at the October 29, 2004 "Winning at Trial II" conference hosted by the Trial Lawyers Association of B.C. 26 individuals responded to this survey, which asked only the respondent's current age and his or her intended retirement age. The lowest intended retirement age given was 55, and the highest was "never" (this and two other responses were "top-coded" at age 85). A chart of the answers we received is shown in Figure 1.

Figure 1



When responses are ordered from lowest to highest (as in Figure 1), the 13th and 14th responses are 62 and 65, with a midpoint of 63.5. The sum of all responses divided by 26 yields a result of 65.2. So, our mini-survey suggests a median intended retirement age of 63.5, and a mean intended retirement age of 65.2 – a difference of 1.7 years. (The mode, a third measure of central tendency, in this sample is 65. It is the response that is given most often.)

So which measure is more appropriate, the median or the mean average? Where responses are uniformly distributed (no extremely high or extremely low values, no concentration of high answers or low answers), the median and mean average will be similar or even the same. Where responses are not uniformly distributed, for example, if there are a few extremely high or extremely low values, or if there are concentrations of high or low answers, then the measures can

diverge considerably. This will be true regardless of how small or large the sample might be. (A common example of an uneven distribution is the earnings of real estate agents. Another example is the distribution of responses we received to our intended retirement age survey, see Figure 1.)

If a projection of intended retirement age were based on the median, then the small but nonetheless existing probabilities of very late or very early intended retirement ages are simply ruled out. The mean average is the only measure of central tendency which considers all possible outcomes. Presumably, this makes the mean average consistent with a “balance of probabilities” approach.

2. Are estimates of average retirement ages in Canada good predictors of individual behaviour?

(a) The Past *versus* the Future

An average retirement age can be calculated only for those who already have retired, which means that much of the statistical information available today on this issue is a reflection of what people have done in the past. What people have done in the past, however, depended on the conditions and incentives which existed at the time their decisions were made. In a 2001 article on early retirement trends², Kieran notes that higher early retirement rates observed in the 1990's may have been driven largely by government and corporate downsizing, and therefore may not be seen again in future years. A past event which also likely had a profound effect on people's retirement decision in recent years is the major decline in the stock market, which erased a substantial amount of savings that potentially could have financed retirement.

Perhaps it is this realization which has prompted more recent surveys and studies to focus on the retirement plans of those who have not yet retired, rather than examining retirement decisions that have been made in the past. People's plans for retirement constituted one core issue that was addressed in the 2002 General Social Survey (“2002 GSS”). According to results from that survey, “about 12% of Canadians aged 45 to 59 did not know when they plan to retire, while an additional 18% [almost one in five, in this age group] said that they did not intend to ever retire” (The Daily, September 2, 2003, Statistics Canada Cat. No. 11-001-XIE, p. 2). Interestingly (and in line with the 2002 GSS results), four of the individuals who responded to our survey (about 15% of our sample) indicated that they intended to retire at ages which, for all intents and purposes, fall into the “never” time frame.

² “Early retirement trends”. In: Perspectives, Statistics Canada, Catalogue no. 75-001-XPE. Winter, 2001, pp. 7 ff.

Given that there is a fair amount of difference between the concepts of observed, past retirement ages and current intended retirement ages, we feel that the usefulness of statistics on the average retirement age of those who already have retired is limited when it comes to projecting future retirement ages.

(b) The Average *versus* the Individual

As a rule, the less information is available for a particular individual, the broader the statistical reference group whose average retirement age (or intended retirement age, or any other variable) is to be considered. Conversely, the more information is available the more specific the reference group. Suppose, for example, we knew only that Person A is a person who resides in Canada. Were we to try and project when Person A might retire, then all that can be done is to obtain information pertaining to Canadian residents. If we knew also that Person A is a male and resides in British Columbia, then we could provide information for male B.C. residents. If we were told that Person A has a bachelor's degree, we can define an even more specific reference group. If Person A is a longstanding government employee who will receive a Superannuation pension, then we could probably provide a fairly reliable estimate of when the person is likely to retire. The bottom line is that the more information is available about the individual, the more specific the statistical reference group.

We can think of no reason why specific, individual information should be ignored. That is to say, why provide information pertaining to the average Canadian resident, when the person whose retirement decision is to be projected is a male B.C. resident with a bachelor's degree? The question then becomes, is there a limit to this process of defining more and more specific reference groups? The answer is, of course, that there is a limit since more specific reference groups also will be smaller reference groups. Building on the above example, there are more Canadian residents than there are male B.C. residents; B.C. males with a bachelor's degree are a small subgroup of all B.C. males; and the number of B.C. males with a bachelor's degree who are government employees and who will receive a Superannuation pension is even smaller. Statistical information simply will not be available at some point.

Statistical information is not, however, the only reason why one may wish to look at the individual's characteristics. Many experts may have something to say about the incentives that go hand in hand with certain characteristics. Consider, for example, a high-income earner who contemplates retirement. Giving up high earnings usually brings with it a substantial decline in the person's standard of living, if there are no savings or pensions to replace at least a good portion of those earnings. In such a case, there would be an incentive to remain in the labour force. If, on the other hand, enough wealth has been accumulated so that retirement income will be high, then the incentive to remain in the work force is reduced. In the extreme, a large windfall gain (such as an inheritance or winning the lottery) may even prompt retirement.

Concern about income probably is the single most important consideration when it comes to deciding on when to retire (most of those who participated in our survey commented on this issue)³. Information about an individual's economic circumstances therefore can go a long way towards answering the question of whether a particular person is likely to retire early, or more likely to retire later. Relevant information could include, for example, the level of the person's private retirement savings, whether he or she is the primary income earner in the household, earnings and age of a spouse or partner, or whether there are specific expenses that are anticipated in the future (such as financing a child's education and having a dependent with special needs). Non-financial considerations also can be of importance. Examples are: being a workaholic, or simply preferring work over leisure; the existence of a mandatory retirement age in the person's chosen occupation; the desire to coordinate one's own retirement plans with those of a spouse; the needs of other family members, such as elderly relatives requiring care; and health status. The most important piece of information, however, may be a person's stated intention to work to a particular age. Statistical averages then may need to be looked at only to the extent that a person may be prevented from participating in the work force against his or her wish.

3. Why terminate the calculations at age 65?

Strictly speaking, a projection of earning capacity should not terminate until the end of a person's probabilistic life expectancy period (roughly between 80 and 110 years of age, depending on the person's age at the time the projection is done), so long as labour market risks and choices⁴ are accounted for over the entire projection period.

In most of models of earning capacity, however, future wage projections are terminated at age 65. There are several reasons why such an approach is sensible in most cases. First, in the majority

³ Basic retirement finances are as follows. Currently, a full CPP pension of \$828.75 per month and a full OAS pension of \$471.76 sum to about \$1,300 per month, or \$15,600 per year. A person who receives a full CPP pension (not a likely outcome, for many people) plus a full OAS pension and no other income still would be eligible for a federal monthly income subsidy, the Guaranteed Income Supplement or "GIS". The amount of the subsidy for a person who receives both a 100% CPP and a 100% OAS pension is estimated at about \$147, or \$1,764 per year, for total retirement income of about \$17,364. A person who has no income other than an OAS pension is eligible for a GIS in the monthly amount of \$560.69, or \$6,728 per year, for total annual retirement income of about \$12,389. Obviously, the expectation is that people will accumulate at least some savings to supplement their retirement incomes from CPP and other government sources.

⁴ Labour market contingencies include the following: the probability that a person may not be able to participate in the work force; the probability that a person may choose not to participate in the work force; the probability of unemployment; the probability of not being able to find full-time work or of being restricted to part-time work; and the probability of choosing to work on a part-time basis rather than on a full-time basis.

of cases the person's 65th birthday is sufficiently far in the future so that, in present value terms, earnings after age 65 will not greatly affect overall earning capacity estimates. Even for a person who is middle-aged at the time the projection is done, the impact of including earnings beyond age 65 may be quite low.

Second, 65 is considered a "normal" retirement age because at this point in time a person can retire without incurring early retirement financial penalties. Canada Pension Plan ("CPP") and Old Age Security ("OAS") retirement pensions are paid from age 65 without bonus or penalty.

There are, of course, exceptions to the normal retirement age. For example, retirement at age 60 is mandatory for non-commissioned police officers and firefighters, but only with regard to doing police work or firefighting. (A person who entered one of these two specific occupations by age 30 and worked full-time during his or her working life would be able to claim an unreduced Municipal Superannuation pension by age 60.) More generally, calculations sometimes are terminated at the individual's earliest "no penalty" retirement age.

Another reason for not extending projections of earnings models beyond age 65 is that statistical information on the earnings and labour market contingencies experienced by those over age 65 is not very detailed. The Labour Force Survey records the labour market characteristics of persons 65 and over only in the first of six monthly interviews, and does not update this information in the subsequent interviews. As a result, decisions made by persons over 65 to re-enter the labour market are not accounted for⁵. Also, if retirement (which is considered a voluntary act) is precipitated by an unfavourable event such as a lay-off period or a spell of unemployment, then labour market risks are becoming intertwined with, and obscured by, the choice in favour of retirement. Finally, depending on how labour market information is elicited from survey participants and depending on how answers are transformed or "coded" into data that then can be analyzed, important information may be missed. For example, some may consider themselves predominantly retired and so may indicate that they are retired, despite the fact that they continue to do part-time work for wages. (CPP and OAS pension entitlements and pension payments are not compromised if a person continues to work after age 65.)

4. How does a model of earning capacity of the kind usually produced in personal injury cases need to be modified to accommodate assumptions regarding a specific retirement age?

This can be an important issue. It is often pointed out that retirement earlier than at age 65 should be considered a real possibility, based on the notion that the average retirement age in Canada

⁵ This problem does not apply in the context of Census data.

appears to be below this age. It then seems to be taken for granted that the net present value of future earnings, as it appears in the “to age 65” projection naturally must fall, given that a few years are removed.

What is almost always overlooked is the fact that, if retirement at a particular age is assumed, then implicitly it is also assumed that the person will participate in the work force to that particular age – which means that labour force participation rates then should not be based on statistical averages. Rather, participation rates should be set to 100% and full-time full-year earnings should be reduced only to account for the probability of unemployment and for part-time work factors. Alternatively, participation rates should be reduced from 100% so that they will account only for the (low) risk of non-participation since a choice in favour of participation to a particular age is being assumed. Relative to the average, “to age 65” model, a “retirement certain” assumption translates into a significant increase in participation probabilities in the projection’s early and middle years. Because these early years carry more weight in present value terms than later years, so long as the projection covers a sufficient number of years the overall net present value of future earnings will rise.

What also is often overlooked is the fact that average labour force participation rates already reflect the probability of retirement at any age included in the earnings projection. Most likely it is for this reason that participation rates drop off significantly among those over the age of 55. For example, the labour force participation rate for B.C. males aged 50-54 is estimated at about 87%, but drops to 77% and then to 53% in the next two five-year age groups. (Interestingly, it remains as high as approximately 23% in the 65-69 age group.) If later years are taken out of the calculations without increasing participation probabilities in earlier years, then a double penalty is in effect applied⁶.

A final point to be made on the issue of earnings projections in conjunction with an assumed specific retirement age is a very simple one: there is usually a reason why the assumption is made in the first place. If there is enough information to come to some conclusion as to the person’s retirement age, then usually there is enough information to come to some conclusion as to earnings. Statistical information may provide a useful perspective of the individual’s work and earnings history, but likely will be a less useful basis for projecting future earnings.

⁶ The notion of an average age at retirement is really the same as the concept of work life expectancy. Work life expectancies are calculated by adding together the year-to-year probabilities of labour force participation over a person’s potential working life. A person’s potential working life extends from age 15 onward to the end of the individual’s probabilistic life expectancy period. Since labour force non-participation can occur because the person chooses to retire, shortening the time horizon to age 65 or lower is the same as retiring the person a second time - once by considering the non-participation probability, and once by removing later years. The effect of shortening the time horizon will be comparatively small in years after age 65 because the probability of continued participation is low. The effect will become progressively larger as earlier and earlier years, with increasing probabilities of participation, are removed from the calculations.