Rethinking Longevity Risk: A Framework to Address the Tail End

*June 2017—Employee Benefit Research Institute*

Longevity risk in retirement has always been a serious concern, in that it is part of the ensemble of risks in planning for retirement readiness. In turn, retirement readiness is closely linked to the three critical aspects of retirement: funding, investment returns, and withdrawal of one’s retirement assets.

Before longevity became a household concern, the existing framework for thinking about retirement readiness assumed that all retirement needs would be taken care of via a wealth maximization approach.

Once longevity risk rose to prominence due to the steady and significant improvement of human lifespan, it became obvious that this longer lifespan and the associated resource needs had to be addressed explicitly in one’s retirement readiness thinking.

Traditional retirement thinking does not adequately consider the need for providing for the tail end of a lifespan in the form of a stable stream of retirement income.

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How Much Long-Term Care Do Adult Children Provide?

*June 2017—Center for Retirement Research at Boston College*

As people age and their health deteriorates, they begin to need more help with daily activities. While many formal long-term care services are available, cost concerns and personal preferences lead many to rely on informal care from adult children.

At any given point, 6% of adult children are caregivers. 17% will take on this role at some point in life.

Those who do provide care devote an average of 77 hours per month, which can take a toll on both the finances and health of the caregiver.

The caregiving burden on adult children will likely become a bigger concern as baby boomers age into their 80s.

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Modelling Mortality for Pension Schemes

*June 2017—ASTIN Bulletin*

For many pension schemes, a shortage of data limits their ability to use sophisticated stochastic mortality models to assess and manage their exposure to longevity risk. In this study, we develop a mortality model designed for such pension schemes, which compares the evolution of mortality rates in a sub-population with that observed in a larger reference population. We apply this approach to data from the CMI Self-Administered Pension Scheme study, using UK population data as a reference. We then use the approach to investigate the potential differences in the evolution of mortality rates between these two populations and find that, in many practical situations, basis risk is much less of a problem than is commonly believed.

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The purpose of this paper is to shed light on some of the flaws in the forecasting approach undertaken by the pension industry. Specifically, it considers the treatment of inflation and shows that the current modeling framework is too simplistic. I identify the flaws of the existing regulatory framework and provide an alternative full model framework constructed around the three-factor diffusion model recently proposed by the Danish Society of Actuaries.

A simulation study will compare the deterministic inflation scheme applied in the industry to a stochastic scheme, and show that the real value of the pensioner’s investment portfolio at retirement is highly dependent upon the inflation scheme. As the deterministic scheme does not take state variable correlations into account, it overestimates the expected portfolio value in real terms compared to the stochastic scheme. Moreover, the deterministic scheme gives rise to a more heavy-tailed distribution, implying a misestimation of downside risk and upside potential.

Finally, a realistic case study will be presented, which will demonstrate that the pensioner’s expected retirement payout is heavily affected.

Greener Pastures: Resetting the Age of Eligibility for Social Security-Based Actuarial Science

We know that because of low fertility rates, rising life expectancies and the aging of the baby boom, Canada's Old Age Dependency Ratio is rising. This will strain the sustainability of our Social Security systems and healthcare. Other countries with aging populations are raising the Age of Eligibility (AOE) for social security benefits. These include Finland, Sweden, Norway, Poland and the UK. In 2012, then Prime Minister, Steven Harper announced plans to increase the AOE for Old Age Security (OAS) and Guaranteed Income Supplement (GIS) from 65 to 67 between 2023 and 2029. Trudeau reversed this legislation (leaving the AOE at 65) in the 2016 Budget.

This paper was inspired by work done in the UK for the Institute and Faculty of Actuaries State Pension Age Working Party. Our study applies their methodology onto the Canadian context. The results could be used in any country in the world, however. The UK proposal is based on actuarial and demographic logic that would see a rise in the AOE to guarantee a constant proportion of one’s adult life is spent in retirement. Thus, as life expectancy rises, there is an upward shift in the AOE for Social Security. For Canadian demographics, that constant proportion is 34%. Any lower value would result in an immediate need for a shift in the AOE, which we rejected. Using 34% triggers the first change in the AOE in 2025, which provides enough notice.

The new AOE of 66 (to be phased in at the beginning of 2023 and achieved by 2025) would then be constant until 2048, when the AOE should shift to age 67 over two years. These shifts soften the rate of increase in the Old Age Dependency Ratio and bring lower OAS/GIS costs and lower required contribution rates for the CPP (both in tier 1 and the new tier 2). This, in turn, results in equity in financing retirement across generations and a higher probability of sustainability of these systems.

There will also be an increase in the credibility of these systems in the public’s eye and an easing of public anxiety. One issue remains: shifting the AOE upwards is regressive, since wealthier Canadians live longer. We argue that this can be mitigated by changing the claw back formulae now used in the OAS and GIS.

The Commentary concludes by proposing that the formula should become an Automatic Balancing Mechanism—beyond any political interference.
Does Public Health Insurance Affect How Much People Work?

*June 2017—Center for Retirement Research at Boston College*

Workers with employer health insurance may be reluctant to leave their job, a situation known as “job lock.” This study assesses whether public health insurance—specifically, the *Medicare Part D* drug benefit introduced in 2006—allows people to leave a job.

The analysis focuses on a small segment of workers whose employers offer a retiree health plan, but only up to age 65, meaning that prior to *Part D*, retiring meant losing drug coverage at age 65.

The results show that *Part D* did lead to a significant decline in full-time work for this age group, with most switching to part-time jobs and a few retiring.

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Twenty Million Sleep-Walking to a Disappointing Retirement

*June 2017—Milliman (UK)*

There are approximately 40 million working-age adults in the UK, and half (54%) state they are confident that they will enjoy the income in retirement to which they aspire. This is despite two-thirds (68%) having given no thought as to how many years of retirement they may need to fund, and less than half (42%) saying that they understand enough about pensions to make decisions about retirement. The employer pension is consistently seen as the safest way to save for retirement. This attraction will have been boosted by automatic enrolment which has brought 8 million people into pensions since it was introduced in 2012. Evidence suggests that most new savers are saving at minimum levels—currently 1% of employee salary, matched by 1% from the employer. At minimum levels, few will enjoy the retirement income to which they aspire.

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Importance of Individual Account Retirement Plans and Home Equity in Family Total Wealth

*June 2017—Employee Benefit Research Institute*

This *EBRI Notes* examines the level of assets held by families with a working family head ages 25–64 in individual account (IA) retirement plans (employment-based defined contribution (DC) plans and individual retirement accounts (IRAs)) relative to all their financial assets. Furthermore, this study also shows the importance of home equity held by families. Data from the 2013 Survey of Consumer Finances (SCF), the Federal Reserve Board’s triennial survey of wealth, are used to show the level of these types of assets held by American families. SCF is considered the best source of data on Americans’ wealth, and it includes the full range of assets and debts held by American families.

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Extending the Tail End of Working Lives: How Policies Shape Labour Market Participation and Retirement for Older Workers

*June 2017—Finnish Centre for Pensions*

For the past two decades, public pension systems have been geared towards extending working lives and postponing retirement, thus activating older workers in most of the advanced welfare states. When materialized, those outcomes contribute to the sustainability of pension schemes and concurrently, to adequate old age incomes in the face of demographic ageing.

In this paper, a comparative time-series cross-section analysis is used to assess the effects of macro-level institutional pull, push, and retention factors on effective retirement age, cohort-adjusted labour market exit rates, and employment ratio of older workers in 15 OECD countries from 1992 to 2010.

The results show that policies matter: pension system parameters setting incentives for working longer are significant determinants of retirement age and labour market participation among the elderly. However, the effects of push and pull factors are in part different for women and men.

Most notably, however, is that the overall orientation of social policies throughout the course of a lifetime matters: a greater weight of social investment in human capital and public services clearly supports the extended duration of a working life, even during its tail end.

This analysis provides evidence for the importance of institutional social policy design over the course of an entire lifetime, to extend working lives and postpone retirements.

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**UPCOMING EVENTS**

**ASTIN/AFIR Colloquium**

*20–24 August 2017, Panama City, Panama*

The 2017 ASTIN/AFIR-ERM Colloquium will be held in the beautiful coastal city of Panamá, in the heart of the Americas. The event will feature findings from leading researchers and practitioners in the form of concurrent presentations, plenary and panel sessions, and educational workshops.

[See the program or register now](#)

**IAA Life Colloquium**

*23–24 October 2017, Barcelona, Spain*

The seemingly unstoppable growth in human life expectancy, coupled with the current state of health and social services, has led to a remarkable rise in longevity across the globe.

While increased longevity may be heralded as progress for mankind, it nevertheless poses a major challenge for private and public pension schemes and will have an impact on the life insurance industry, thereby affecting the actuarial profession itself.

[See the program or register now](#)
Like no other metropolis in Europe, Germany’s capital symbolizes the breakdown of old structures and the beginning of a new era of understanding and cooperation. May the unique atmosphere of a city that has re-invented itself in recent decades inspire you to be an integral part of a vibrant International Congress of Actuaries in 2018.

Come and join colleagues working together, at an event without cultural or geographical barriers.

See the list of pension-related topics, or find out more about the ICA 2018