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Optimal pension financing

To fund or not to fund? Is there risk involved in funding?

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Different countries have implemented a variety of social security schemes in order to provide a degree of retirement income security for their citizens. These schemes vary greatly in terms of their administration and regulation, contribution levels, benefit provisions, type and extent of funding, as well as other aspects. As demographic and economic conditions changed, so too is the need to review and change these schemes in order to maintain them for the long term.

The ways in which social security schemes are financed in different countries are continually reviewed for their level of appropriateness given the respective benefits and risks involved and the changing demographic and economic environments. Countries that are contemplating the implementation of a national program where none existed before should carefully look at the experiences of other countries.

There are three basic ways to finance a social security scheme: pay-as-you-go, full, and partial funding. PAYGO financing is more appropriate in an environment of high total wage growth and low real investment returns, while full funding is more appropriate in an environment of low wage growth and high investment returns. Partial funding lies in between and works well in an environment of declining total wage growth and rising investment returns.

It is recognized that to be considered beneficial, any level of prefunding must lead to an increase in national savings and, ultimately, economic output to supply the goods and services consumed by future retirees. As Yves mentioned, *"Design drives costs, it is a very important consideration in exploring optimal financing paths of social security schemes."*

As actuaries, it is important that we understand the demographic and economic context of the schemes in our search for optimal financing paths. As mentioned: *"Most countries are expected to continue to face demographic aging due to increasing longevity and decreasing fertility. There are a few disaccording views regarding continuing increases in longevity."* For example, actuaries that are presenting demographic critical ratios for a developing country during the design proposal stage should anticipate that their life expectancy will rise over time to about the same level of life expectancy in developed countries.

I agree with Yves that it is important when discussing public interest issues that our profession contributes to enhancing the capacity of the population and decision makers to make informed judgements by presenting a range of policy and long term financing options with explanations of the consequences to counterbalance the natural tendency of only focusing on the short term.

To fund or not to fund?

There are different ways to finance a social security scheme. The financing method chosen will depend on the given financing objectives which may include stabilizing and/or minimizing the contribution rate or stabilizing the funding level in accordance with specific funding rules. Preservation of benefits, though important, is not the sole objective considered in maintaining a scheme's long-term financial sustainability.

The contribution rate for a social security scheme will be affected by demographic and economic factors. The expected value of those factors is the basis for decision making and may be subject to change over time. Defined benefit schemes are particularly subject to fluctuating factors. Although the contribution rate is subject to change, a stable rate is generally considered desirable for several reasons.

First, a stable contribution rate reinforces the link between contributions and benefits. A stable rate also distributes costs more equally across generations, especially in the context of an aging population. In addition, modifying the contribution rate to recognize the long-term implications of plan amendments promotes fiscal discipline and governance. Lastly, maintaining a stable contribution rate promotes greater public confidence in the scheme.

It has been demonstrated that under theoretical stabilized conditions, if real total earnings growth is less than real investment returns then some degree of funding helps to reduce or stabilize the costs or the required contribution of the population.

In Canada, economic and demographic conditions are such that some degree of funding is appropriate. Because our working age population is declining, total wage growth is also declining. This means that under our social security scheme (the Canada Pension Plan (CPP)), contributions from the working population are declining and thus will not be sufficient to maintain the cost of providing benefits to an increasing aging population of retired workers. On the other hand, investment returns are expected to remain higher than total wage growth over the projection period. Thus, it makes sense to pre-fund and accrue sufficient assets so that investment earnings can be used to help pay benefits.

Major amendments in 1997 led to a change in financing the CPP from a PAYGO basis to a form of partial funding called steady-state funding. The 1997 reform, and particularly steady-state funding, restored the Plan's financial sustainability for current and future generations. The financial status of the Plan is expected to continue improving over time as the assets, asset/expenditure ratio and funding ratio are all projected to increase. Since 2003 the legislated rate has exceeded the steady-state rate, thus further improving the Plans' financial status and providing room for the Plan to absorb the impact of adverse experience. If the legislated rate continues to exceed the steady-state rate, the Plan's financial status will continue to improve and some of the impact of future adverse experience will be absorbed.

Our steady-state funding of the CPP is a form of optimal financing. Although the financing methodology could always be changed or reworked altogether, the objective of prefunding the Plan should remain paramount. By stabilizing the asset/expenditure and funding ratios over time, the steady-state methodology helps to ensure that the CPP is affordable and sustainable for current and future generations of Canadians. Moreover, steady-state funding of the CPP, which is a form of partial funding, complements the funding approaches of the other components of the Canadian retirement income system, namely the partial funding of the

Québec Pension Plan, the PAYGO financing of the Old Age Security Program, and the full funding of employer-sponsored pension plans, Registered Retirement Savings Plans and other private savings plans.

Collectively, this diversified funding approach of the Canadian retirement income system allows it to adjust better to fluctuations in demographic and economic conditions compared to systems with single funding approaches. This diversification is further enhanced by the mix of public and private pensions, which is an effective way to provide for retirement income needs.

Pay-As-You-Go Funding

Under a PAYGO funding scheme, the contributions of a given year arising from the working generation are used to pay the benefits in the same year to the previous generation who are now retirees. Under such a scheme, there is no fund except possibly for a small reserve to meet the immediate liquidity requirements of benefit payments in any given year. The PAYGO contribution rate is the ratio of total scheme expenditures to the total insured or contributory earnings.

A scheme's expenditures will be determined by the growth in benefits and will tend to increase in the years following the inception of the scheme as more contributors reach retirement age and as retirees become eligible for larger benefits as contributory periods increase in duration. As this occurs, the PAYGO rate will tend to increase. The PAYGO rate will also tend to rise in the face of an aging population. On the other hand, growth in the workforce and higher rates of earnings growth tend to decrease the PAYGO rate.

Over time, as the scheme matures, gradual variations in the rate will occur; however, the PAYGO rate will stabilize if the population age structure stabilizes.

Still it would be more appropriate to finance a scheme on a PAYGO basis in an environment of high wage growth and low investment returns. In such an environment, total growth in earnings provides for a strong contribution base to meet expenditures in a given year, and this in turn reduces or eliminates the need to rely on the accumulation of a fund from relatively small investment gains to meet those expenditures.

As Organisation for Economic Co-operation and Development (OECD) countries have been subject to the aging of their populations, slowing growth in their workforces and volatility in wage growth and interest rates, PAYGO schemes have come under increasing pressure to absorb and manage the impacts.

Here I am worried by an observation of Yves Guérard: *"An analysis of the average experience in 21 countries, some developed, some developing, shows that returns on publicly administered assets have been very low, averaging 1,8 % less than the average returns on bank deposits."* Under these conditions it means that only very few countries would be able to consider any form of funding through real market assets.

Partial and full funding

Under a fully funded scheme, total contributions paid by workers during their working lives are used to pay for their own benefits; in other words, each generation funds its own benefits. For a fully funded scheme, the contribution rate at a given point in time is estimated based on the discounted value of future benefits using the expected returns of the fund.

Employer-sponsored defined benefit plans in Canada are required to be fully funded in order to protect the benefits promised to employees in case of employer insolvency.

In a partially funded scheme, contributions by workers cover a portion of their future benefits. Contributions to the scheme and any investment earnings thereon act to partially fund the scheme. The ratio of assets to liabilities (i.e. the funding ratio) of such schemes is by definition less than one.

Social security schemes that provide earnings-related defined benefits are not generally fully funded since the plan sponsor is the government and, as such, insolvency is not considered to be of any material concern since the government has the discretion to modify the contribution rate and/or the level of benefits. Similarly, social security schemes are financed on an ongoing rather than a termination basis as set out in government legislation in order to reflect the long-term nature of the schemes.

Again it may be appropriate to partially fund a scheme, especially in an environment of declining total wage growth and rising investment returns. With the aging of the population and the volatile nature of wage growth and investment returns over the long term, a partial degree of funding acts to partially immunize the plan from future increases in the contribution rate. Compared to pay-as-you-go or full funding, a certain level of funding, either achieved directly through a single partial funding approach for the scheme or more broadly through a mix of PAYGO and full funding, provides a greater measure of security against volatile contribution rates. Partial funding may be used in response to changing demographics, or toward both stabilizing and minimizing the contribution rate over the long term such that the rate will eventually fall below the PAYGO rate as the scheme matures.

Is there risk involved in funding?

The method of funding a social security scheme involves risks to varying degrees. For instance, political risk may arise from a fund managed by or on behalf of the government if funds are invested in a less than optimal way for the benefit of the public or if funds are not kept separate from revenues accessible by the government. In the case of a mixed system, including individual accounts where workers are given the choice of which funds to invest in, inadequate education of the public, lack of a smart default option, and inadequate regulation and supervision of the investment managers may result in poor investment choices, high transaction costs, and thus lower than expected net returns. In addition, any level of prefunding exposes a scheme to investment risk. However, good plan governance together with accountability and transparency act to mitigate these risks.

Despite the risks involved, there may be social and economic benefits to prefunding a scheme. Prefunding a social security scheme will not stop the tide of population aging; however, it may lead to enhanced benefit security and the alleviation of poverty in old age. More generally, prefunding may enhance growth in and development of the economy through the development of the infrastructure of the country, especially its financial markets. The measure of the benefit of prefunding a scheme is whether advance funding does indeed lead to an increase in national savings. Further, this increase must, in turn, lead to an increase in labour force productivity in order to increase total output or wealth in the economy. The reason for this is that retirees in any given year can only consume the goods and services produced by workers in that year or in the period immediately prior to that year.

As such, a scheme should take into account the impact of its provisions on future economic output, most notably those influencing the labour market, and incorporate means to contribute to its growth.

In Canada, it was determined that the best way to ensure the sustainability of the Plan is to generate higher rates of return than those realized previously. Continuing to invest solely in short-term and low risk fixed income instruments was not considered an option since it would ultimately require a higher contribution rate. Hence, the CPP Investment Board was created to invest in real market assets through a diversified portfolio with the aim of achieving higher returns without undue risk of loss.

As mentioned by Yves Guérard, *"It takes a strong governance structure to avoid mismanagement, misappropriation, leakage and to mitigate moral hazards."* With a relatively clean Corruption Perception Index in Canada, I believe that we have built a financing structure to succeed. However, I worry about the fact that only 48 out of the 180 countries surveyed are reasonably ranked and that the other 132 countries have serious corruption problems.

Canada has fulfilled the objective to ensure the sustainability of its social security scheme so that funds will be available when needed to meet future pension payments but may face other challenges in the future. Canada has ensured the sustainability of the CPP by moving to invest in real market assets with the hope of generating increased investment returns but at a cost of increased volatility, thereby exposing the scheme to investment risk.

Countries that take investment risk must be careful not to increase those investment risks in order to reduce costs artificially. The curative powers of funding might be questionable if policy makers use it as a quick fix to face the demographic emergency. Revising the scheme parameters to make the benefit and indexation rules less generous may well be the right decision to make in certain situations. Finding ways to increase the effective retirement age or devising innovative strategies to encourage people to work longer may soon become some of the future challenges of decision makers, economists and actuaries.

What would happen if the demographic and economic conditions changed or if the investment return is not as high as expected?

Demographic and economic changes over time will affect the PAYGO rate of the Plan, which in turn will cause the steady-state contribution rate to change. This may require a higher legislated contribution rate or a benefit adjustment. I agree with Yves Guérard's conclusion that:

"To enhance sustainability, increasing the retirement age is a better strategy than increasing the funding. It benefits not only the social security program but the whole economy. More funding should be considered as a way to enhance sustainability only when there is no better way to do it."

And it is even better if a country *"Ultimately enjoys a sustainable program and has eliminated its national debt."* Social security schemes are controlled by governments and it is difficult to modify a scheme after inception in order to introduce a change in benefits.

Reporting basis and financing paths

The choice to have a sustainable system through responsible financing is a policy decision independent from the choice of reporting. Accounting and reporting for costs and liabilities using a fully funded actuarial method is clearly a good practice. As Yves Guérard mentioned: *"There are more variations regarding the financing paths but the financing methods do not change the costs of the programs, only allocates different amount of contributions to different years."*

He also mentioned: *"When benefit costs as reported in the financial statements are determined on a fully funded basis, they are independent of the financing path."* This does not mean that the public entities did not make financing decisions; it only means they are separate decisions.

I believe that a social security program sponsored by a sovereign government on a PAYGO basis as a non-funded plan but with accounting and reporting done on a fully funded basis is a good practice and represents good governance, transparent reporting and financial discipline. This is true as long as it remains consistent with other cost reporting practices such as health care and other government programs; otherwise it creates comparison discrepancies and confusion. To properly assess the funded status of any social security program, sovereign governments or public sector entities must include the present value of future expected contributions as assets to counterbalance liabilities in the reporting. Only then will policy makers have a clear understanding of the future financial sustainability of social security programs.

Jean-Claude Ménard