



**Irish Fiscal
Advisory Council**

Saving for Ireland's Future: Building a Sustainable Framework to Fund the State Pension

Killian Carroll and Sebastian Barnes

Working paper no. 19
March 2023

Suggested reference:

Carroll, K. and S. Barnes, (2023). "Saving for Ireland's Future: Building a Sustainable Framework to Fund the State Pension". Irish Fiscal Advisory Council Working Paper Series No. 19. Dublin. Available at: www.fiscalcouncil.ie/working-papers/

Saving for Ireland’s Future:

Building a Sustainable Framework to Fund the State Pension

Killian Carroll and Sebastian Barnes¹

Abstract

The funding of the State Pension will come under increasing pressure in the coming decade as the population ages. This requires a long-term approach to managing and funding the pension system. Creating a separate State Pension Fund to support the State Pension could help manage these costs. Governments should be required to put in place credible plans about how to finance this Fund on a very long-term basis, drawing on international best practice.

One approach would be to set Pay Related Social Insurance (PRSI) rates at the constant level required to ensure the State Pension Fund balances over the long run, rather than raising PRSI rates on younger cohorts to finance the pensions of baby boomers. This would require PRSI rates to rise by about 3.5 percentage points over their current level — half the increase required under the Pension Commission proposals. By raising rates in the next couple of years and taxing the baby boomers while they are working, this would avoid larger tax increases in later years. The approach suggested here would lead to the accumulation of a Fund estimated at over 40% of GNI* in the second half of the century that would eventually be rundown to pay of future pensions, introducing a partial element of funding to Ireland’s pension system. Saving “excess” corporation tax receipts in the NPF could help to fund future pensions, thus reducing the burden on future taxpayers.

Keywords: Fiscal Policy, Fiscal Council

JEL Codes. H60, H55, J11, J18

© Irish Fiscal Advisory Council 2023

This report can be downloaded at www.FiscalCouncil.ie

¹ The authors are, respectively, a Research Assistant Economist at the Irish Fiscal Advisory Council and PhD student and University College Dublin; and the Chairperson at the Irish Fiscal Advisory Council and Head of Division at the OECD. Email: admin@fiscalcouncil.ie. The opinions expressed and arguments employed in this paper do not necessarily reflect the official views of the Fiscal Council. We would like to acknowledge the feedback and kind assistance received from members of the Council and Secretariat of the Fiscal Council, and officials at the Department of Social Protection.

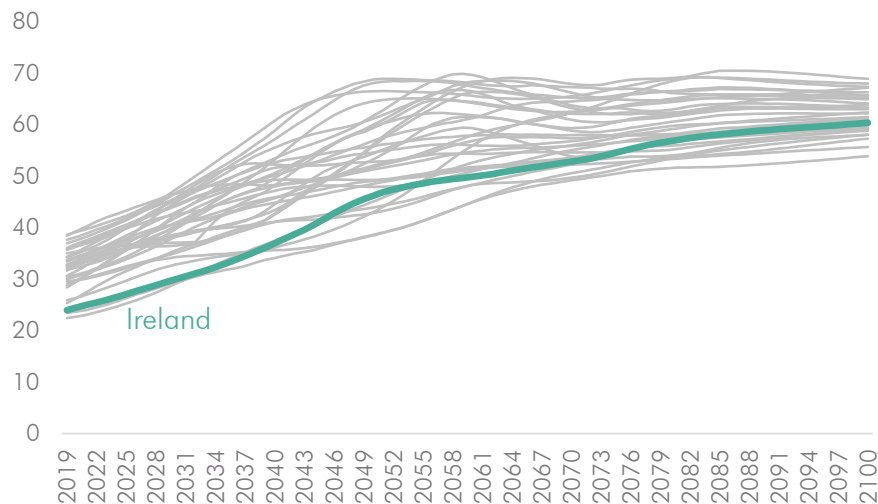
Introduction

The State Pension is an essential building block of Irish society. However, the rapid ageing of Ireland’s population will put pressure on the pension system in the coming years and decades.

Ireland’s old-age dependency ratio is set to more than double by 2050. That is, the proportion of those aged 65 and over as a share of the working age population, those aged 20-64, is set to rise from 25% in 2020 to 46% in 2050 (Figure 1). This ageing of the population will have significant impacts on the public finances, with spending on health, long-term care and pensions all set to rise.

Figure 1: Ireland’s old-age dependency ratio is set to rise rapidly

Old-age dependency ratio (population 65+/population 20-64)



Sources: Eurostat.

Notes: Figure shows the old-age dependency ratio (population 65+/population 20-64) for the EU 27 and EFTA countries in grey.

Funding of the State Pension is currently provided through the Social Insurance Fund (SIF). This is financed on a “pay-as-you-go” basis: current payments out of the fund are paid for by current contributions into the fund. In other words, PRSI contributions are used to meet current pension and other social insurance payments.

This system will come under increasing pressure as the number of pensioners increases relative to the number of people of working age who are contributing to the SIF.

The Pensions Commission Report (2021) sets out a number of options to ensure the sustainability of the pension system, including through raising

PRSI contributions over time, gradually raising the pension age and factoring in future Exchequer funding from general taxation. This was designed to keep the SIF broadly in balance over time.

The Government announced in September that it does not plan on increasing the pension age and expects to meet the majority of future pensions costs through PRSI increases. However, it has not yet set out what these increases would entail pending an actuarial review expected in spring 2023.²

Changing demographics will cause challenges for this pay-as-you-go system. There are major differences between the size of different cohorts in the population: the number of people reaching retirement age 66 in 2050 will be 50% higher than today as Ireland's baby boomers approach retirement age. These dynamics will eventually reverse as these cohorts grow older and a smaller group reaches retirement age. This will inherently put significant strain on the pay-as-you-go pension system and would require much higher PRSI contribution rates in the future if the SIF is to balance from year-to-year.

This paper considers how the funding of the pension system could be better managed to take account of long-term changes in Ireland's demographics, drawing on international experience. A sounder financial framework would allow a more sustainable pension system and offer better policy choices. In the short term, this approach could lead to a significant element of the State pension that is pre-funded and could be drawn down as the population ages. Temporary excess corporation tax receipts could further contribute to strengthening the sustainability of the pension system.

² See here for further details on the pension reforms: <https://www.gov.ie/en/press-release/6b939-minister-humphreys-announces-landmark-reform-of-state-pension-system-in-ireland/>

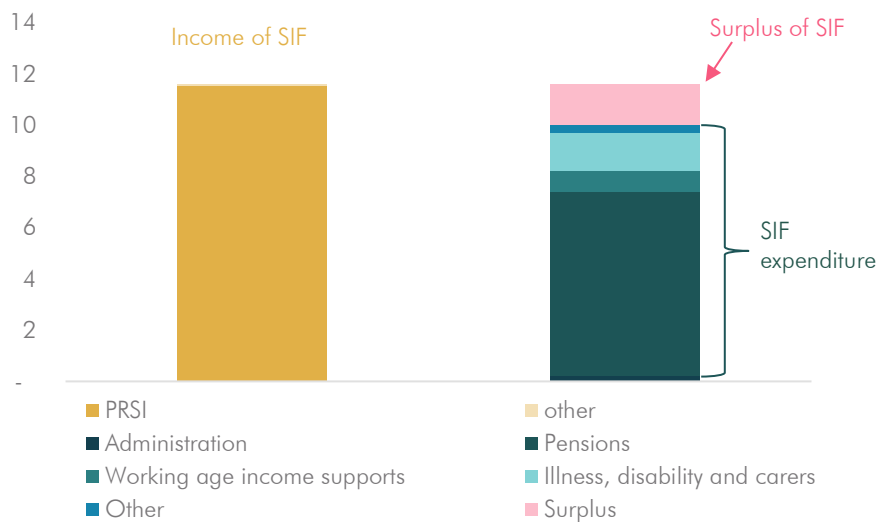
The current design of the Social Insurance Fund and the impact of Ageing

Ireland's old age State Pension is currently financed through the SIF. Currently, the SIF funds not only the State old age pension but also other social insurance benefits and unemployment benefits (Figure 2).

The SIF is financed by PRSI contributions paid by employers, employees, and the self-employed. Short-term cyclical fluctuations are managed by building up or drawing down SIF reserves, and by using Exchequer contributions (when there is a shortfall in the fund).

Figure 2: Income, expenditure and surplus of SIF in 2019

€ billion

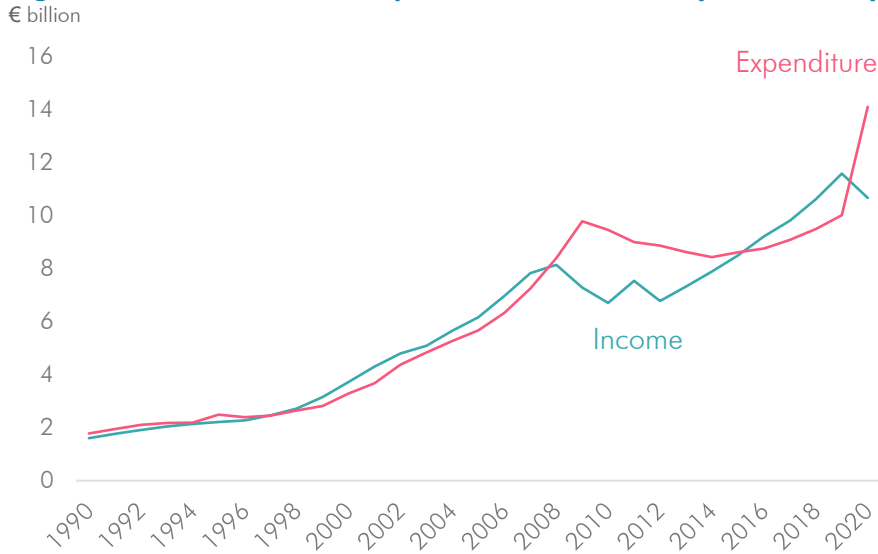


Sources: Financial Statement's of the Social Insurance Fund.

The SIF is separate from the Exchequer, where most day-to-day spending and government investment takes place, but is part of the General Government sector.

The SIF is currently operated so that spending and revenues are broadly balanced at each point in time. While there are cyclical fluctuations that can lead to deficits and surpluses in particular years, the SIF is generally in balance over the medium-term (Figure 3).

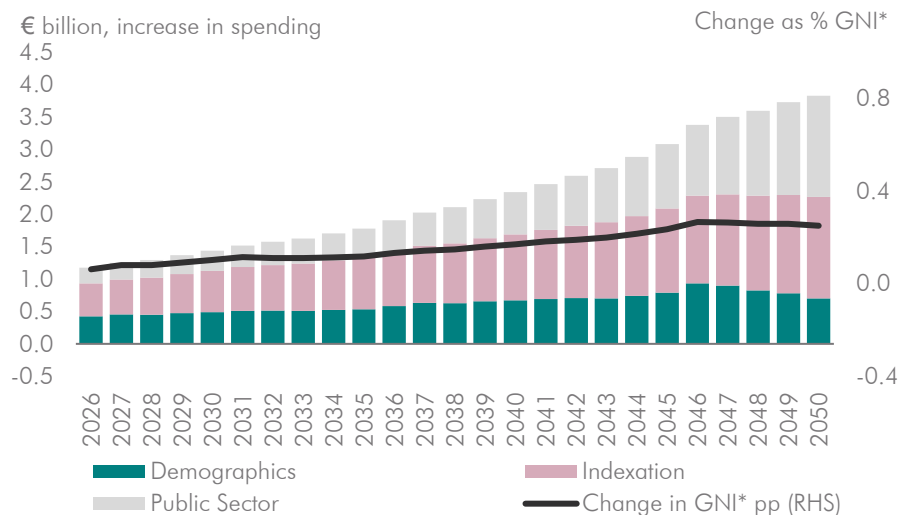
Figure 3: SIF revenue and expenditure influenced by economic cycle



Sources: Pension Commission (2021).

The vast majority of SIF spending relates to pensions. Spending on pensions is expected to rise as the population ages rapidly. Analysis by the Fiscal Council, the Pensions Commission, and the EU Ageing Working Group all point to a large rise in Ireland’s public spending on pensions relative to national income over the coming decades. This is the result of rising life-expectancy at age 65 and, to a greater degree, the increasing number of people reaching age 65 in Ireland as those born during Ireland’s baby boom (those born around 1965-1985) approach retirement age (Figure 4).

Figure 4: Annual spending increases due to public pension set to rise



Sources: Fiscal Council and authors workings.

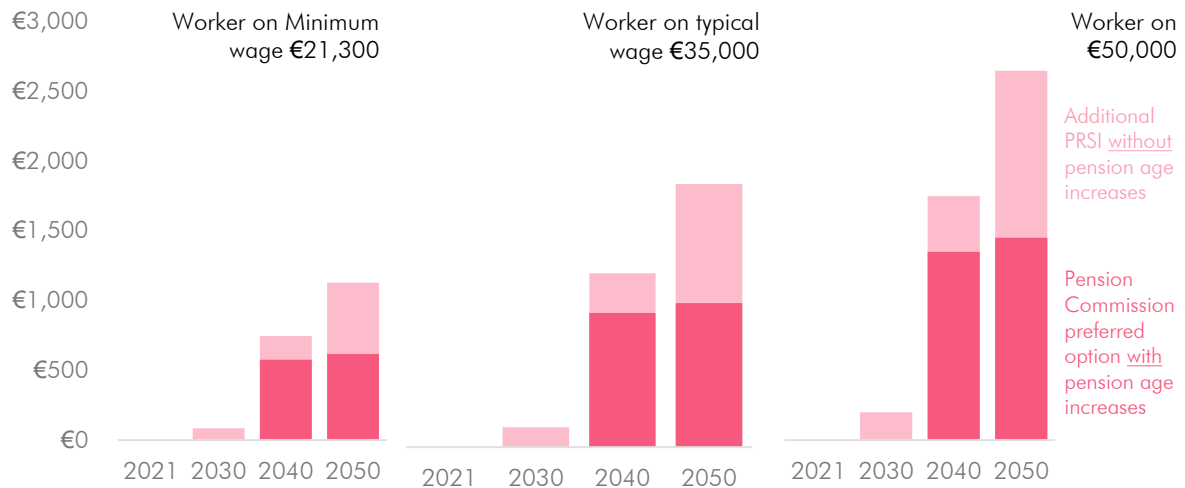
The SIF operates under a “pay-as-you-go” model. This model sees the pensions of existing retirees being paid for by the contributions of current

workers under a principle of social solidarity, where the pensions of current workers will be paid in the future by the following generations.

Under a pay-as-you-go model, tensions will arise when cohorts are of different sizes because workers from small cohorts will need to pay more when they are working to finance the pensions of larger cohorts to receive the equivalent benefits. Analysis by the Fiscal Council has shown, for example, that the Pensions Commission proposals designed to keep the SIF broadly in balance at each point in time would imply tax increases of €1,900 in today's terms on the typical worker (Figure 5).

Figure 5: PRSI increases on workers based on Pension Commission proposals

€ change implied for PRSI in today's terms required



Sources: Pension Commission (2021); and Fiscal Council workings.

Notes: Figures are based on Package 4 and Package 3 of the Pension Commission's (2021) options using PRSI rate increases assumed. Figures relate to the rise in labour costs from increasing employee's and employer's PRSI. There is still an additional "Exchequer Contribution" in both packages, which may have to be made up with further tax increases.

Design and Management of the Social Insurance Fund

The Social Insurance Fund could provide a useful institutional framework for managing long-term variations in pensions spending due to the ageing population and the different size of cohorts in the Irish population.

There could be an argument in the Irish context not to have a social insurance fund at all given that individual benefits and pensions are not closely tied to contributions as they are in many other countries.³

Furthermore, the system is financed on a pay-as-you-go rather than on a funded basis so there is no truly independent “fund” of accumulated assets. Paying for pensions out of general taxation could notably facilitate a better integration between personal income tax and PRSI contributions.

However, there is a case to keep the SIF as a useful institution to manage the long-term costs of pensions. While spending and tax in most areas tend to evolve broadly in line with growth of the economy and therefore track each other, the ageing of the population will lead to predictable increases in pension spending relative to national income. Managing these costs through a separate institution, such as the SIF, could therefore provide a useful tool to ensure that these developments are properly taken into account.

The Pensions Commission (2021) supported this view and argued for the State Pensions to be separated from other aspects of the SIF:

“The Commission recommends the creation of a separate account in the Social Insurance Fund (SIF) for State Pensions. The separate identification, accounting, and reporting of State Pension contributions will provide transparency in relation to how State Pensions are financed, and the Fund’s ability to meet its commitments on an ongoing basis.”

The Commission further noted that:

³ A minimum number of contributions is needed to qualify for the contributory State Pension. However, there is no direct link between the level of earnings/contributions and benefits received unlike in many other countries. The value of the contributory State pension is adjusted for people with a lower contributions history. The maximum means-tested non-contributory pension is only modestly lower than the contributory pension.

“The volatility of working age payments [including unemployment payments] makes it difficult to calculate the level of contributions needed to keep the SIF in balance. Due to the largely predictable nature of State Pension spending, a separate State Pension SIF account would enable a calculation of the level of contributions required to balance State Pension expenditure.”

In recent years, the SIF has been boosted by the decline in unemployment rates. However, with unemployment now at historically low levels, this is unlikely to continue and there are risks that unemployment could rise and erode the capacity of the SIF to fund other areas.

A separate State Pension Fund to fund pensions should be designed to take into the account the predictable long-term variation between the number of people paying PRSI contributions and the number of people claiming pensions.

This new State Pension Fund would replace the existing institutional arrangements. Currently, the State pension is funded out of the Social Insurance Fund, which also includes other social insurance benefits, like unemployment benefits. Under this new approach, the other social insurance benefits could remain funded through the existing Social Insurance Fund.

This design should meet two conditions.

First, there should be mechanisms to ensure that necessary decisions are taken to maintain the sustainability of the State Pension Fund and that long-term plans are in place.

At present, the actuarial reviews of the SIF are undertaken every 5 years. These have indicated that there is a long-term funding gap in line with other analysis. However, there is no obligation for the Government to respond either in the immediate or to set out how it plans to address these issues in the future.

Given that many of the costs lie in the future, it is vital that choices between current and future spending are internalised in decisions taken today. For this reason, there should be a requirement to generate a credible plan for the balancing of a State Pension Fund over a suitably long period into the future.

For example, in the September 2022 announcement not to raise the pension age, the Government indicated that there would be future PRSI increases, but did not provide any assessment of the future path of PRSI rates needed to balance the SIF: this obscured the trade-off between a lower retirement age today and future costs. The Government has indicated that it will publish a 10-year ahead roadmap on social insurance contributions rates in the first half of 2023, but this is clearly far less forward-looking than required to take into account the predictable ageing of the population in the coming decades.

In short, such a system should “close the loop” between the assessment of future funding pressures in the pension system and taking appropriate action. The risk is that assessments of pension challenges continue to be ignored and desirable policies that impose immediate costs are not implemented.

About two-thirds of OECD countries have automatic adjustment mechanisms (AAMs). These involve making automatic adjustments to the pensions system to help balance the social insurance funds over some period of time. They exist for both pay-as-you-go systems and funded pension schemes, which require assets and liabilities to balance to ensure solvency.⁴ In many countries, pension parameters – particularly the pension age – are adjusted automatically to help manage the costs of rising life expectancy. Some systems explicitly attempt to adjust for changes in the structure of the population, although this is rarer.⁵

Second, planning and balancing requirements should be set over a suitably long-term horizon given that demographic developments can play out over very long horizons.

There are very few countries that explicitly make adjustments for a very long-term horizon, although others may set the parameters of their pension system in such a way as to achieve this outcome.

There are two main examples: Canada automatically sets the minimum contribution rate based on a 75-year horizon and Sweden balances the

⁴⁴ See OECD Pensions at a Glance 2021, Chapter 2 for a more detailed review.

⁵ That is, most systems including an adjustment parameter to take into account changes in longevity, but only a few include a parameter that explicitly or implicitly takes into account the fact that some cohorts of retirees are bigger than others. Those systems that do not take into account the second factors may need to make additional adjustments beyond the adjustment mechanism as it may not fully reflect changes in future pensions costs.

ratio of notional assets over liabilities over a long-term horizon.⁶ Even a 15-year horizon such as that used in Luxembourg is likely to be inadequate given the long timescales over which demographic developments play out over.

Moving towards a separate State Pension Fund that would be managed on a long-term basis would have significant implications for how the Irish pension system works: it may lead to the creation of significant pension reserves if demographic variations are smoothed by requiring current generations to contribute more and limiting the increase in PRSI rates for future generations. The system would move from being fully-pay-as-you-go to a partial funding model.

A variant of this approach was attempted in Ireland in the past with the establishment of a National Pension Reserve Fund in 2001. This was used initially to invest privatisation proceeds and then financed by an annual contribution from the Exchequer of 1% of GNP. This was invested in financial assets and its value peaked at 27.5% of GNI* in 2008. However, the proceeds of this fund were largely used to bail out Irish banks during the financial crisis.

The Pension Commission (2021) agreed with the case for a State Pension Fund:

“In principle the Commission recognises the rationale of establishing a new pension reserve fund to pre-fund a portion of future State Pension costs. Such a fund would help meet the need for increased expenditure due to the increasing number of pensioners (topping up the PAYG element). It could also help meet the costs associated with benchmarking the State Pension in years when there are limited finances available.”

However, it noted that:

“However, in practice it is likely that the money in a new pensions reserve fund would be used by the State for reasons other than its intended purpose (for instance, during a major economic downturn)...Therefore, on balance, the Commission felt that its approach to create a separate State Pension SIF account with regular

⁶ See Table 2.6 of OECD (2021).

Exchequer contributions was more appropriate” Pension Commission (2021).

While this risk exists, it can be mitigated by an appropriate institutional framework. This approach has worked well in other countries and it should be remembered that the banking crisis in Ireland was a truly exceptional event. Indeed, the NPRF provided a useful supply of funds at a time when the State was experiencing significant financing needs.

A State Pension Fund could also be used to absorb windfall receipts in a prudent manner and prevent the “Dutch disease” phenomenon from developing and use these to fund future pensions (Fiscal Council, 2022). This avoids the risk that today’s windfalls could be used to finance much higher levels of permanent spending, adding to inflation and reducing competitiveness, and potentially having to unwind abruptly in future should these windfalls dry up. This has been the case in countries such as Norway, with windfall oil receipts being used to fund a pension fund. At present, Ireland is receiving windfall corporation tax receipts (Department of Finance 2022). There is no guarantee these windfalls will last forever, and diverting these revenue receipts into a pension fund could lower the future fiscal burden of an ageing population and prevent a reliance on using these receipts to fund current expenditure which could create sustainability issues once these windfalls are gone.

This approach to managing a long-term State Pension Fund could be operationalised through the means of a steady-state PRSI rate that would be expected to remain the same over the coming decades, rather than rising as the old-age dependency ratio increases. This contribution rate would be set based on long-term projections of expenditure on pensions, with the steady-state PRSI rate set to balance the fund over the long-term. With inevitable uncertainty around long-term projections, these projections could be updated at regular intervals, to ensure the fund remains on track to achieve balance. These revisions would likely only involve minor changes (up or down) to the steady-state PRSI rate.⁷ One

⁷ If the fund performs significantly better than expected, or costs turn out to be lower than expected, the steady-state PRSI rate may be reduced. However, given the volatility of investment returns, the steady-state PRSI rate should only be reduced after a sustained period of overperformance so as to ensure that the overperformance was not an artefact of a cyclical upswing in assets prices.

example of this approach is implemented in Canada with the Canada Pension Plan (See Box A for an overview of the Canada Pension Plan).

Box A: An overview of a partially funded State pension – The Canada Pension Plan

In 1966, Canada introduced the Canadian Pension Plan to fund state retirement benefits for Canadian workers. This pension plan was initially funded on a pay-as-you-go basis by a contribution of 3.6 per cent, split equally between employees and employers. Overtime the contribution rate increased, reaching 6 per cent by 1997.

However, in the mid-90s it became apparent that the pay-as-you-go funding approach would be insufficient to cover retirement benefits of an ageing population. Several reforms were introduced in 1997 to ensure the sustainability of the pension fund: “The changes involved a balanced approach to sustain the Plan while ensuring fairness for future generations and between men and women” (Office of the Chief Actuary, 2007).

Most significantly, the funding approach of the fund was changed to a partially funded model. The pension fund would be funded on a steady-state basis with a contribution rate set to remain constant over the next 75 years:

“Steady-state funding involves a steady-state contribution rate which is the lowest rate sufficient to ensure the long-term financial sustainability of the Plan without recourse to further rate increases”. (Office of the Chief Actuary, 2007).

This was operationalised by setting the steady-state tax rate at the lowest possible rate such that the Asset/Expenditure ratio in year 10 is equal to that in year 60. The reserves built up in the fund would then be invested in a diversified portfolio of securities.

Under the reforms, the periodic actuarial reviews would also now occur every 3 years, instead of the previous 5 years. On each occasion, these reviews would recalculate the steady-state tax rate to balance the Asset/Expenditure ratio over time. The reforms also implemented automatic adjustment procedures, in the case when the current legislated tax rate was insufficient to balance the fund, and the government not willing to increase the rate. These adjustment mechanisms would ensure the fund remained sustainable.

Proposal for an Irish State Pension Fund

A well-designed credible plan for the long-term sustainability of a social pension fund could be implemented using a range of options and share the cost between generations differently. However, it is unlikely that the current system that allocates the cost of pensions in inverse proportion of the size of each cohort is optimal from any social perspective.

As argued above, one approach would be to aim to keep PRSI contributions at a fixed rate over time so that each generation would make equivalent contributions of equivalent benefits.⁸ This is the same basic approach implemented with the Canada Pension Plan (See Box A for more background on the Canada Pension Plan).

This section considers how such a steady-state contribution model could work in the Irish context, drawing on the Canadian experience, while this approach is modelled in the next section.

There would be a requirement for the government to set out economic and demographic projections over 75-100 years that would be used to derive the constant rate of PRSI contributions.

Given that the Irish population is currently younger on average than it will be in future years, this would imply the system would run a substantial surplus in the years ahead as PRSI contributions would exceed pension payments. These funds could be invested and generate a return that would help to support pensions.

This system would remain anchored in the pay-as-you-go principle, but would introduce an element of pre-funding to match expected variation in the dependency ratio between younger and older workers.

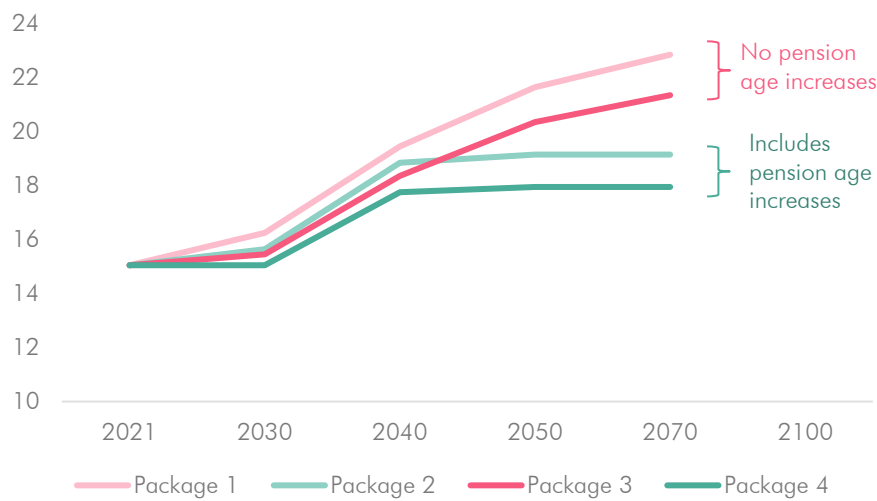
This approach contrasts with the recommendations of the Pensions Commission: to cope with an expected growing annual funding gap for SIF, the Pension Commission proposed adjusting the parameters of the current system so that the SIF would remain broadly balanced at each

⁸ This could be combined with linking the pension age to longevity to maintain a constant ratio of working life to expected retirement and tying the pension to wages, this would come close to each generation facing a similar system, paying the same tax rates for the same benefits for the same a share of their adult life.

point over time.⁹ The difficulty with this approach from the Pension Commission is that it will require very large increases in PRSI rates in later years (together with additional Exchequer funding in some cases), which may be difficult to achieve and hard to justify in terms of intergenerational equity (Figure 6). It is likely—given the demographic projections beyond the horizon that the Pension Commission considered beyond 2070—that PRSI rates would have to increase even further in order to balance the fund over this period.

Figure 6: Required increases in PRSI to balance the SIF under the Pension Commission’s options

Combined employees and employers PRSI rate (%)



Sources: Pension Commission (2021); and authors workings.

Notes: Package 1 mainly consists of PRSI increases. Package 2 consists of PRSI increases and increase in the State pension age. Package 3 consists of PRSI increases and additional Exchequer contributions. Package 4 consists of PRSI increases, Exchequer contributions and increases in the State Pension age. Package 4 was recommended by the Pension Commission.

There are a number of other design choices that could be considered:

- Ireland is currently receiving exceptionally large corporation tax receipts, that are in excess of what can be explained by domestic economic activity. “Excess” corporation tax receipts are estimated by the Department of Finance at approximately €9.5 billion per annum over 2023-2025. These receipts are unreliable given how concentrated they are and given their disconnect with the domestic economy (Fiscal Council, 2022). These receipts should not be used to fund day-to-day spending and saving them would contribute to avoiding economic imbalances.

⁹ In contrast the Canadian model proposed here, that would allow the pension fund to build to up large assets and then run them down.

The Fiscal Council has proposed that these funds be transferred to a National Reserve Fund that could potentially pay for the costs of an ageing population (Fiscal Council, 2022).

- Public sector pensions could also be included as they are large liabilities which are currently not funded. However, this would mix social insurance with pension arrangements for a specific category of worker and so may need to be carefully considered. A separate public sector pension fund could also be warranted.
- The Non-Contributory State Pension is currently financed from general government spending rather than the SIF. This spending may also increase over time with ageing and could be included as part of a large pension fund.

Moving towards a more funded pension scheme would not necessarily remove the case for raising the State pension age to reflect higher life expectancy, which would contribute to managing the overall cost of providing pensions, adapting the labour market to changes in health and society, and reflecting different life expectancies across generations.

However, it would potentially ease the trade-offs as rising longevity could be addressed somewhat independently of wider funding pressures that would be reduced.

These changes would need to take place in the context of the move to auto-enrolment, which is designed to increase saving in privately funded pension schemes by part of the population. This also has implications for the public finances in terms of the favourable tax treatment of some contributions and government contributions to these pension funds.

Modelling a partial funded State pension in Ireland

This section models a State Pension Fund with a steady-state contribution rate based on the Fiscal Council’s Long-term Model (LTM).¹⁰ The original model only ran as far as 2050. To ensure an adequate steady-state PRSI rate, a longer time horizon is necessary.

As a result, the demographic components of the Fiscal Council’s Long-term Model have been extended using the growth rates included in the Eurostat population projections to 2100. In terms of the macroeconomic variables, a simplifying assumption of a constant growth rate from 2050–2100 was used. Table 1 shows a summary of the demographic and macroeconomic assumptions out to 2100.

Table 1: Summary demographic and macroeconomic assumptions

	2025	2030	2040	2050	2070	2100
Demographics						
Population (000s)	5,196	5,411	5,844	6,048	6,324	6,435
Population 20-64 (000s)	3,020	3,131	3,235	3,064	3,120	3,046
Population 65+ (000s)	845	987	1,287	1,608	1,871	2,088
Old age dependency ratio (pop 65+ / pop 20-64)	28.0	31.5	39.8	52.5	60.0	68.6
Economic (% y/y)						
Real GNI*	4.0	2.1	1.3	0.8	0.8	0.8
GNI* deflator	1.9	1.9	1.9	1.9	1.9	1.9
Wages	1.8	3.1	2.9	2.8	2.8	2.8

Sources: Authors workings.

Turning to the State Pensions Fund, and in line with the Pension Commission recommendation that a separate pension fund be established, the income and expenditure of the Social Insurance fund is separated into pension related benefits vs non-pension related benefits.

The Pension Commission recommended that this separate pension fund include the expenditure on the State Contributory Pension, Widow/er’s or Surviving Civil Partner’s contributory Pension, and the Occupational Injuries Benefit Death Benefit scheme.

Initial spending and income data for the SIF in 2023 are taken from the projected spending and income in the *Revised Estimates 2023*.

¹⁰ The methodology behind this model can be found in Fiscal Council (2020b).

The expected income of the SIF for 2023 is then proportioned out into income that would be used to fund the State Pension Fund, and income to fund other social insurance benefits, on the basis of the relative proportions of SIF expenditure on pensions vs the expenditure on other social insurance benefits. From this point onwards, in the absence of policy change, the pension fund PRSI income is assumed to grow in line with wage growth.^{11, 12}

The expenditure of this pension fund is assumed to grow in line with demographics, while the rate of benefits paid out to each pensioner are assumed to grow in line with wages.

As the steady-state PRSI rate will result in large surplus initially given the large number of workers and relatively small number of pensioners, a key question is what happens to the accumulated reserves. These funds would be invested and could generate a return, with the funds drawdown in later years to ease the burden on tax increases.

The funds would ideally be invested in a diversified portfolio of assets. This should help to manage the risk associated with investment returns. Overall, this would help to diversify risks in the economy by reducing the reliance on future the PRSI contributions of Irish workers. The funds should be invested in assets outside of Ireland to further diversify risk. The investment strategy should also consider whether to diversify investments away from sectors in which employment in Ireland is heavily concentrated in. Any structural shortfall in investment returns relative to expectations would be taken into account when re-evaluating the position of the pension system and future PRSI rates.

Figure 7 shows the historical rate of return for public pension reserve funds in several OECD countries. The median rate of return from this OECD sample for 2004-2019 was 6.8%. However, historical rates of return are no guarantee of future returns. OECD (2021) assumes a real rate of return of 3%, with price inflation of 2% in their modelling. In their

¹¹ Conroy (2020) shows that the elasticity of PRSI receipts to wages is close to 1.

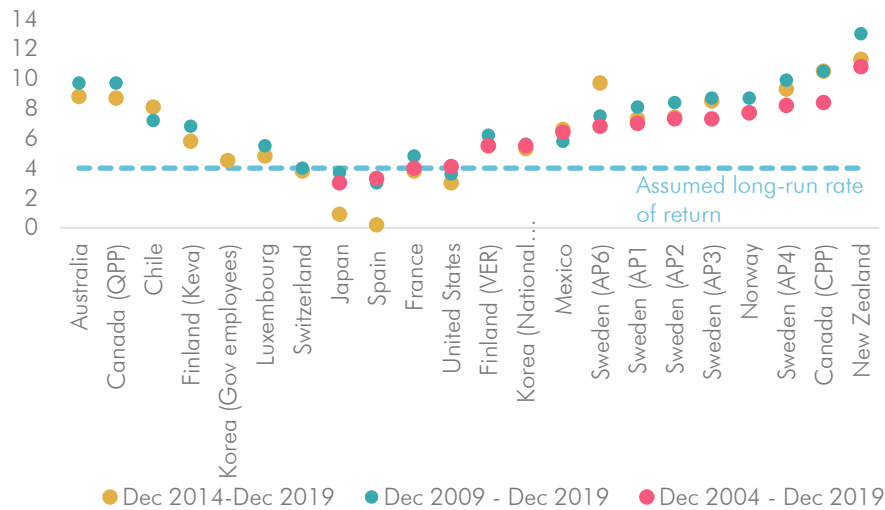
¹² It is implicitly assumed that the remaining (non-pension) social insurance benefits from the SIF would increase in line with wage growth or would be funded by other sources such as Exchequer contributions.

modelling work on the Canada Pension Plan, they assume a 5.7% rate of return.¹³

To take a conservative baseline, here we have assumed a lower 4% (nominal) rate of return.

Figure 7: Historical rates of return for State pension reserve funds

% Average annual yearly rate of return (nominal)



Sources: OECD (2021).

Notes: Data taken from Table 9.4 of OECD (2021).

In the baseline scenario, we do not assume any change to the State pension age, or any Exchequer contribution to the pension fund.

There are several ways to operationalise a pension fund with a steady-state PRSI rate. One approach could be to set the contribution rate to balance the fund at a very long time horizon. This approach would see reserves increase initially, but fall to zero at the end date. At regular intervals, this time horizon would be extended, with a new steady-state rate set to balance the fund at this new end date. This would likely ensure that the reserves never actually fall to zero.

Another approach, which is used by the Canada Pension Plan, is to stabilise the Asset/Expenditure ratio over time.¹⁴ Specifically, under the Canada Pension plan, the steady-state tax rate is set at the lowest possible

¹³ The most recent Actuarial report for the Canada Pension plan assumed a real rate of return of 3.7% per year, with an assumption that prices would increase by 2% per year (Office of the Chief Actuary, 2022). This was down marginally from the 2018 actuarial review, which assumed a real rate of return of 4%.

¹⁴ The Asset-Expenditure ratio is the ratio of Assets in the fund in the current year, year t , divided by the Expenditure of the fund in the next year, year $t+1$.

rate such that the Asset/Expenditure ratio in year 10 is equal to that in year 60. This is designed to make the fund more stable.

Ultimately, how to operationalise the estimation of the steady-state ratio is a technical choice. Here, we take the approach of the Canada Pension Plan and set the steady-state tax rate to stabilise the Asset/Expenditure ratio. This has the benefit of ensuring that the liability on future generations is no higher than it is today.

For modelling simplicity, the rate we vary is the employee's PRSI rate.¹⁵ As it is unlikely that the PRSI rate would be increased to its steady-state level in a single year, we phase in the increases in the PRSI rate in equal instalments from 2023-2027.¹⁶ As we phase in the increase in PRSI, to allow the fund to build up the necessary assets, we set the Asset/Expenditure ratio in year 2038 (year 15) equal to that in year 2088 (year 65).

The expected yields from varying this rate are taken from Department of Social Protection (2021). The modelling also assumes in the baseline increases in the self-employed rate of PRSI (Class S), the lower employer's rate of PRSI and a move to full Total Contributions recommended by the Pensions Commission.¹⁷ This is to allow for a like-for-like comparison with the Pension Commission's proposals, specifically, "Package 1" (Pension Commission, 2021).¹⁸ This package is chosen for comparison purposes as it does not incorporate any change to the State pension age or any Exchequer contribution.¹⁹ These changes imply a rise in the financing available for pension in our modelling and are assumed to ensure a like-for-like with the Pensions Commission recommendations.

¹⁵ In practicality, increases in contributions would likely be split between increases in employee's and employers PRSI rate.

¹⁶ The Government plans to introduce an auto-enrolment scheme for private sector workers who do not already have an occupational pension, starting in 2024. This will already reduce the take home pay for a proportion of private sector workers, and potentially increase labour costs for employers. As a result, adequate consideration should be given as to the timing and manner of the introduction of this steady-state PRSI rate.

¹⁷ The Government have confirmed that the move to a Total Contributions Approach is going ahead.

¹⁸ Package 1 included an increase in the self-employed PRSI rate to 10% by 2030, 13.25% by 2040, 14.35% by 2050, and 14.95% by 2070. Package 1 also included an increase in the lower employers rate of PRSI to 9.4% by 2030, 11.0% by 2040, 12.1% by 2050 and 12.7% by 2070.

¹⁹ The Pension Commission recommend the adoption of Package 4, which included increases in PRSI rates, increases in the State pension age, and exchequer contributions.

Results of the Model

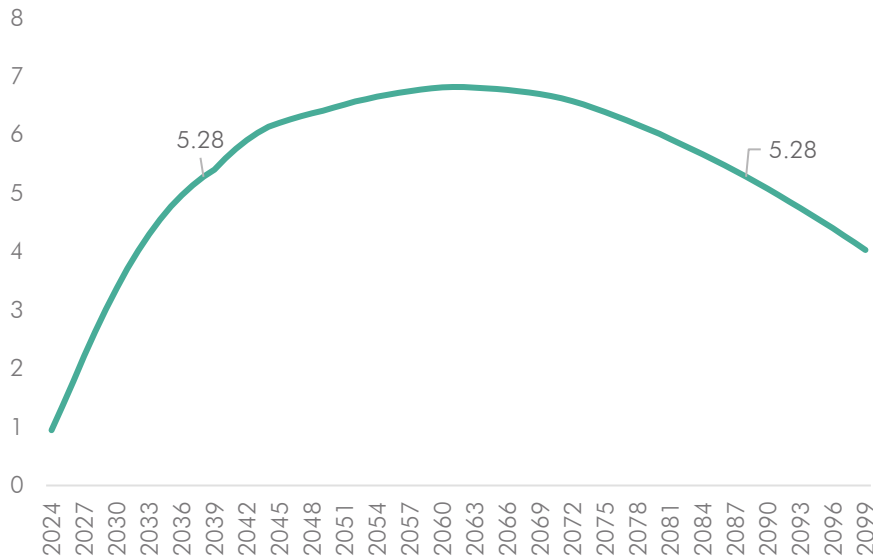
Using these assumptions, we estimate the steady-state tax PRSI rate required to achieve an asset/expenditure ratio that is the same in 2038 and 2088. We compare our results of the combined employee's and higher Employer's PRSI rate (Combined rate for Class A) with that combined rate increases recommended by the Pension Commission in Package 1.

The Pension Commission only made recommendations on increases in the PRSI rate up to 2070. For this reason, it is not possible to compare the required increases in rates beyond this date. However, it is likely, given the old-age dependency ratio is set to continue to rise between 2070 and 2100, that further increases in the combined PRSI rate after 2070 would be required under the reforms consistent with the Pension Commission's proposal.

Figure 8 shows the resulting trajectory of the asset expenditure ratio. The asset/expenditure ratio rises to 5.28 in 2038, and continues to rise until reaching a peak of 6.82 in 2062, before falling again to 5.28 by 2088.

Figure 8: The asset expenditure ratio increases rapidly

Ratio of Assets in year t to expenditure in year $t+1$



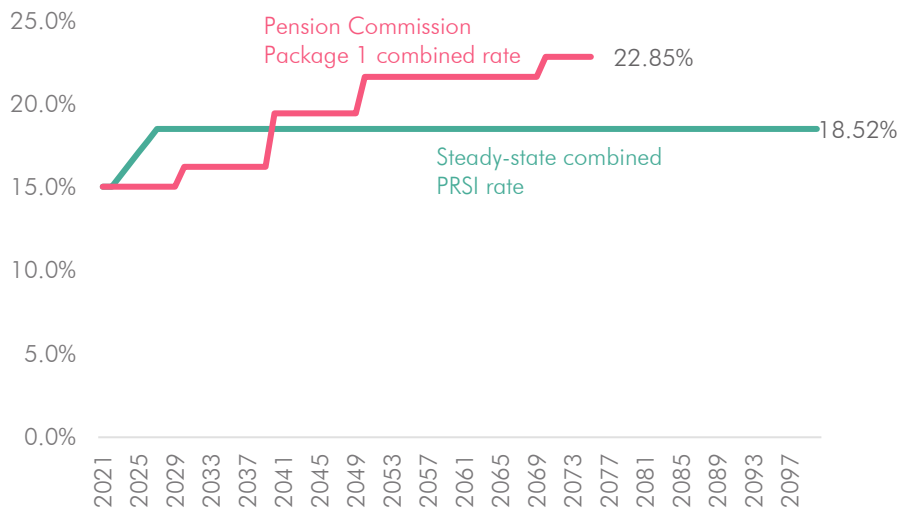
Sources: Authors workings.

Figure 9 shows the path for the combined employee and higher employer's PRSI rate under the Pension Commission's Package 1 and the modelled steady-state tax rate under a partially funded state pension system. Under a partially funded state pension system, the combined rate would have to increase by 3.2 percentage points, to reach 18.5% by 2027, and would remain at those levels in the coming decades. By

contrast, under Package 1, the combined rate would increase by 7.8 percentage points by 2070, with increases likely thereafter as the old-age dependency ratio increases further, and it would already be higher than the steady-state rate by 2040.

Figure 9: Lower tax rates under a partially funded pension plan by 2040

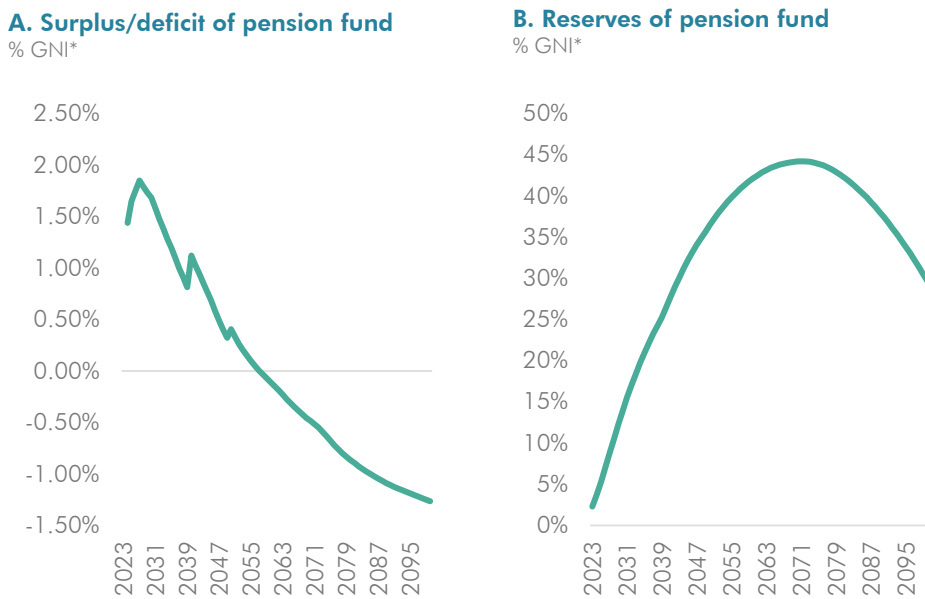
Combined Employee and higher Employer's PRSI rate



Sources: Pension Commission (2021); and Authors workings.

With an initially higher tax rate than required to cover current outgoings, the partially funded model would see large surpluses in the pension fund (Figure 10.A). These surpluses would last well into the 2050s and result in large reserves being built up over time (Figure 10.B). These reserves would ultimately peak at over 44% of GNI* in the second half of the century.

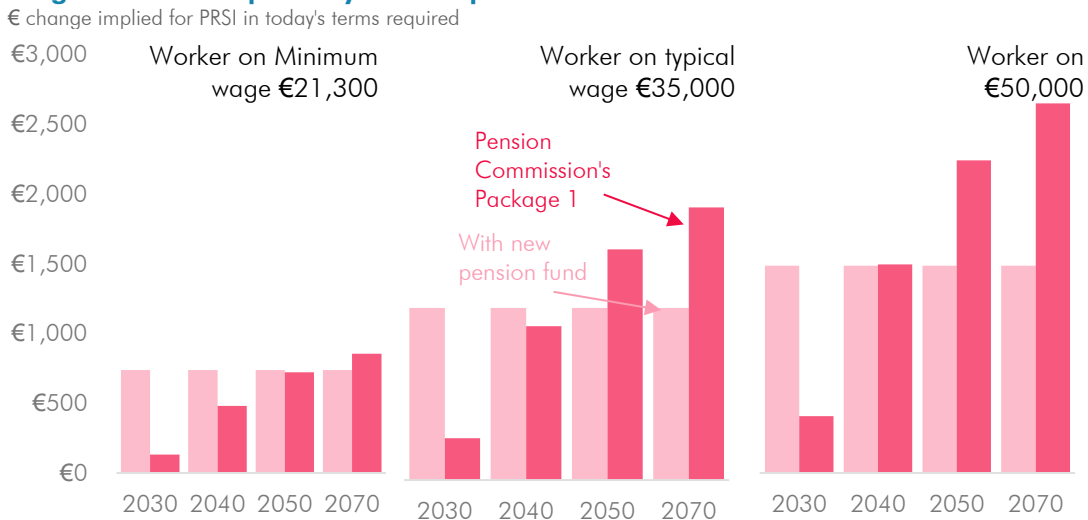
Figure 10: Large reserves build up over time



Sources: Authors workings.

Figure 11 shows the increases in taxes required on the typical worker under the partially funded pension scheme and the Pension Commission’s Package 1. While the partially funded pension scheme would see higher increases in taxes paid before 2040, relative to Package 1, after 2040, the increase is much lower. By 2070, under the partially funded approach, a worker on €35,000 in today’s terms, would see their contributions increase by only three–fifths that of the increase under Package 1. As alluded to earlier, the increase in taxes required beyond 2070 would be much lower still under the partially funded approach.

Figure 11: Taxes on the typical worker would be lower in the long-run under a partially funded pension scheme



Sources: Pension Commission (2021); and Authors workings.

Notes: Figure shows only the required increase in PRSI payments from increasing only the employees’ rate and the higher employer’s rate under the pension fund proposal here, and the Pension Commission’s Package 1.

Scenarios and Sensitivity Analysis

Combining the State Pension Fund approach with increases in the State pension age

One option for helping to ensure the sustainability of the State Pension is to increase the State pension age. This has been shown to result in considerable savings, relative to an unchanged State pension age. For instance, work by the Fiscal Council showed that linking the State pension age to rising life expectancy could save 0.3% of GNI* initially, but savings rise to 1.1 per cent of GNI* by the late 2040, relative to an unchanged State pension age (Fiscal Council, 2020a).

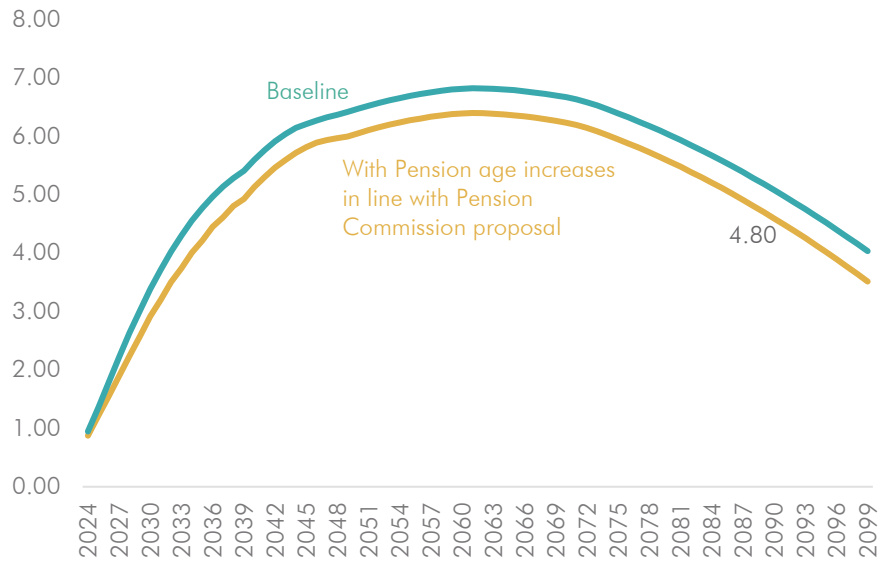
As a result, this section looks at how raising the State pension age would interact with the State Pension Fund and the steady-state PRSI rate.

Two of the packages the Pension Commission put forward included increases to the State pension age, including the package that the Pension Commission recommended (Package 4). The Pension Commission proposed increasing the State pension age incrementally by 3 months each year starting in 2027 and reaching 67 by 2031. From there, the Pension Commission recommended increasing the State Pension age by 3 months every two years, reaching 68 by 3039.

In this scenario, we implement the changes in the State pension age in line with the Pension Commission's proposals, while other assumptions remain the same as the baseline. As in the baseline, we estimate the steady-state PRSI rate that balances the Asset/Expenditure ratio in year 15 (2038) with that in year 65 (2088). Figure 12 shows that the Asset/Expenditure ratio that would result with increases in the State pension age.

Figure 12: Asset/Expenditure ratio balances at a lower rate with State pension age increases

Ratio of Assets in year t to expenditure in year $t+1$



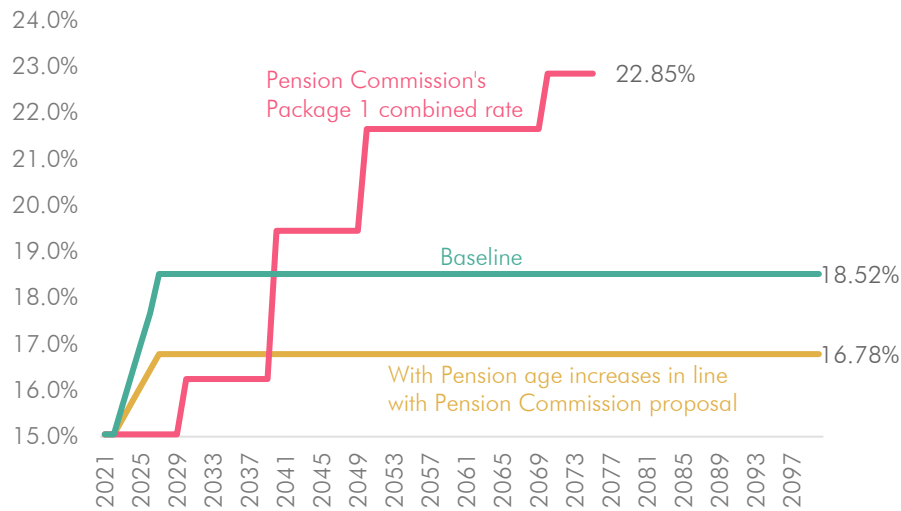
Sources: Authors workings.

Figure 13 shows the combined steady-state PRSI rate that would be required under this scenario. The result of increasing the State pension age in line with the Pension Commission’s proposals is an increase in the steady-state PRSI rate to 16.78%. The required increase in the steady-state PRSI rate (1.73pp) is approximately half that of the baseline scenario.²⁰ This exercise shows that increasing the State pension age in-line with the Pension Commission’s recommendations can substantially reduce the tax burden on workers.

²⁰ Were the steady-state PRSI rate set so as to equal the baseline Asset/Expenditure ratio in 2088 (of 5.28), then the combined steady-state PRSI rate would be equal to 16.94%.

Figure 13: Increasing the State Pension age would half the required increase in the steady-state PRSI rate

Combined Employee and higher Employer's PRSI rate



Sources: Pension Commission (2021); and Authors workings.

Using windfall corporation tax receipts to help partially fund the pension system

Ireland is currently receiving windfall corporation tax receipts. One way to prevent overreliance on these windfall receipts is to divert them to a reserve fund. In this section we illustrate scenarios in which these windfall receipts are diverted into the pension fund and outline the implications this would have on the steady-state tax rate for the pension fund.

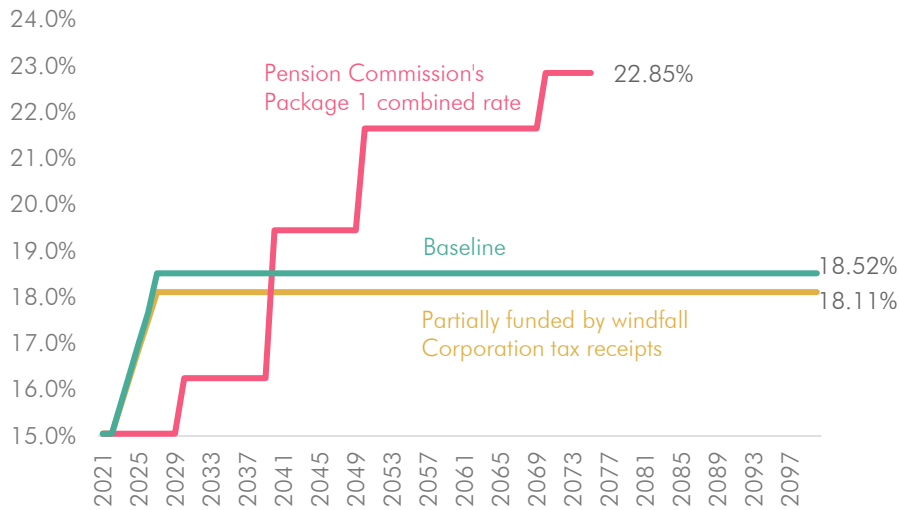
At the time of writing, there is currently €6 billion in the National Reserve Fund, which was funded by windfall corporation tax receipts. In the first scenario, we assume that all this €6 billion gets transferred to the pension fund in 2023, and that €4 billion gets transferred in each of 2024 and 2025, with no contributions thereafter. This does not create a direct link between windfall corporation tax receipts and the additional contributions to the fund, but instead assumes that the government's policy of setting aside €4 billion to in 2023, is repeated in 2024 and 2025. In total, €14 billion of windfall corporation tax receipts would transfer to the State Pension Fund by 2025 under these assumptions. We then estimate the steady-state tax rate to match the Asset/Expenditure ratio in the baseline in the year 2088, which was 5.28.

Based on these assumptions, Figure 14 shows the profile for the combined employee and employers PRSI rates. Using these windfall corporation tax receipts to fund the pension fund results in a lower

combined PRSI rate relative to the baseline. The required increase in PRSI rate under this scenario is 3.06 percentage points under this scenario, relative to a required increase of 3.47 percentage points in the baseline, and an increase of 7.8 percentage points by 2050 under the Pension Commission’s Package 1.

Figure 14: Using windfall corporation tax receipts lowers the required increase in PRSI by almost half a percentage point

Combined Employee and higher Employer’s PRSI rate



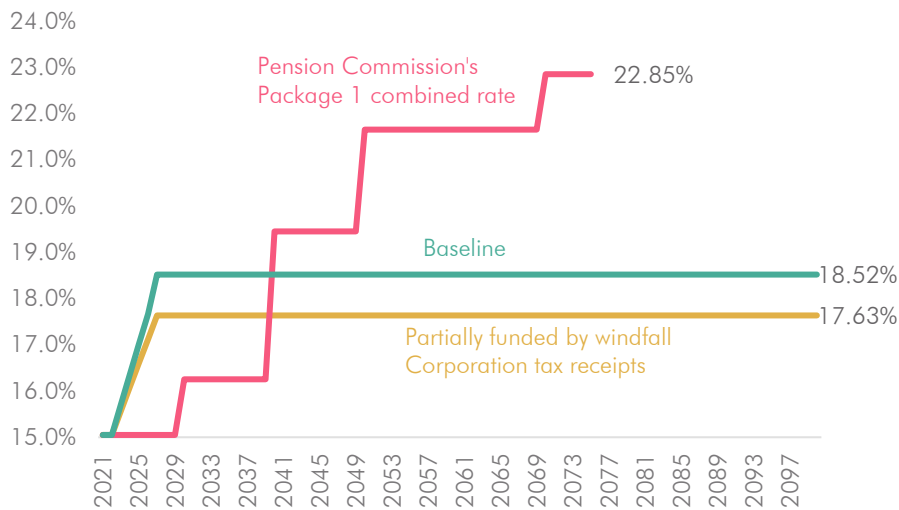
Sources: Pension Commission (2021); and Authors workings.

In an additional scenario, we directly link the estimated windfall corporation tax receipts over the period 2023-2025 to the additional contributions to the pension fund. This amounts to €30.5 billion of windfall corporation tax receipts being transferred to the State Pension Fund rather than €14 billion.²¹ Again, we assume there are no more windfall corporation tax receipts after 2025, and set the asset/expenditure ratio in 2088 equal to that of the baseline.

²¹ The Department of finance estimate a windfall receipts of €10 billion in 2023, €9 billion in 2024, and €9.5 billion in 2025. An additional €2 billion that was transferred to the National Reserve Fund in 2022 is assumed to be transferred to the pension fund in 2023.

Figure 15: Transferring all windfall corporation tax receipts to the pension fund can substantially reduce the required rate increase

Combined Employee and higher Employer’s PRSI rate



Sources: Pension Commission (2021); and Authors workings.

Figure 15 shows the combined employee and employer’s rate that would stabilise the asset/expenditure ratio at 5.28 in 2088, with these windfall corporation tax receipts transferred to the pension fund. The required increase in PRSI rate is almost 0.9 percentage point lower than the baseline under this scenario.

Overall, using excess corporation tax receipts to help build the State Pension Fund could help to lower future contributions. There is significant uncertainty about the value of these funds and so caution would be needed in relying them in initial planning assumptions. While corporation tax receipts could increase significantly above their current levels (including as the result of the rate increases), this cannot be relied upon and it is likely that over time, whether rapidly or gradually, that these receipts will decline as a share of national income. How much could be contributed to the fund in the meantime remains highly uncertain.

This approach would imply that the excess corporation tax receipts are used in a fund that would buy assets, rather than reducing gross debt or increasing other reserves. It would therefore imply a larger government balance sheet with more debt and more assets than would otherwise be the case. However, these assets could offer a higher return than government debt, although could carry more risk, and a well-managed State Pension Fund could help to ensure that PRSI rates are adjusted in a timely and appropriate way unlike if the money were simply used to pay

back overall government debt. In aggregate, the higher level of PRSI rates in early years would strengthen the government's net financial position.

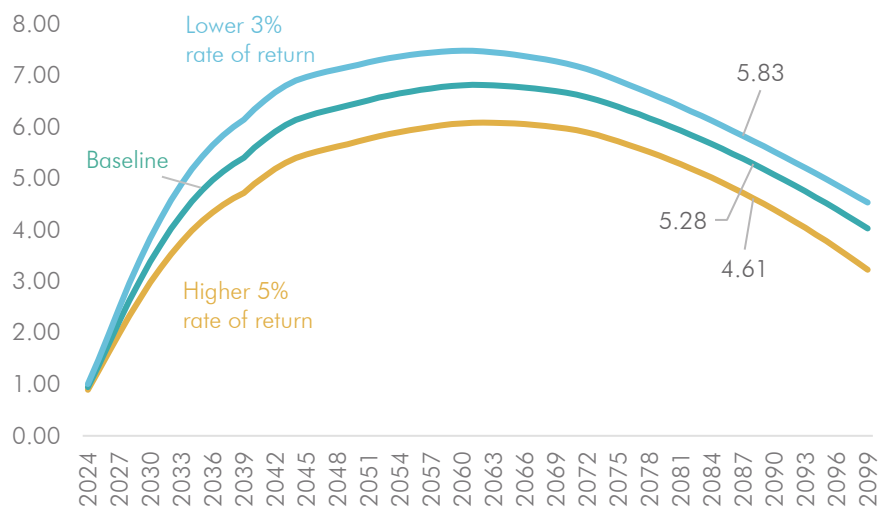
Sensitivity of the steady-state PRSI rate to different rates of return

Any long-term projections of the macroeconomy, demographics, and future pension costs are inevitably surrounded by considerable uncertainty. One of the areas that is particularly uncertain is that of the long-term rate of return. In this section we illustrate a scenarios in which the nominal rate of return is 1pp lower and higher than the baseline assumption of 4%.

In each case, we set the asset/expenditure ratio in the 15th year (2038) equal to that of the 65th year (2088). Figure 15 shows the differing paths for asset/expenditure ratios that would arise with the different rates of returns.

Figure 16: Asset/Expenditure ratios under differing rates of return

Ratio of Assets in year t to expenditure in year $t+1$

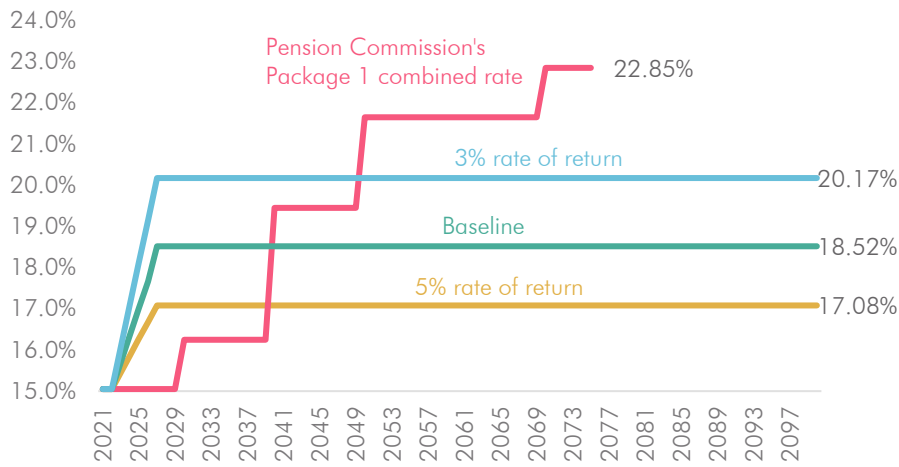


Sources: CSO; Department of Finance; and Authors workings.

This results in the Fund being balanced at differing asset/expenditure ratios, with the asset/expenditure ratio being balanced at a lower ratio (4.61) under the 5% rate of return scenario. This is because the required steady-state PRSI rate is much lower under the 5% rate of return scenario (Figure 17). As this rate is much lower, the build-up of reserves is slower, with the compounding growth not sufficient by year 15, to increase the asset/expenditure ratio above the baseline scenario.

Figure 17: The steady-state PRSI rate is sensitive to the performance of the Fund's investments

Combined Employee and higher Employer's PRSI rate



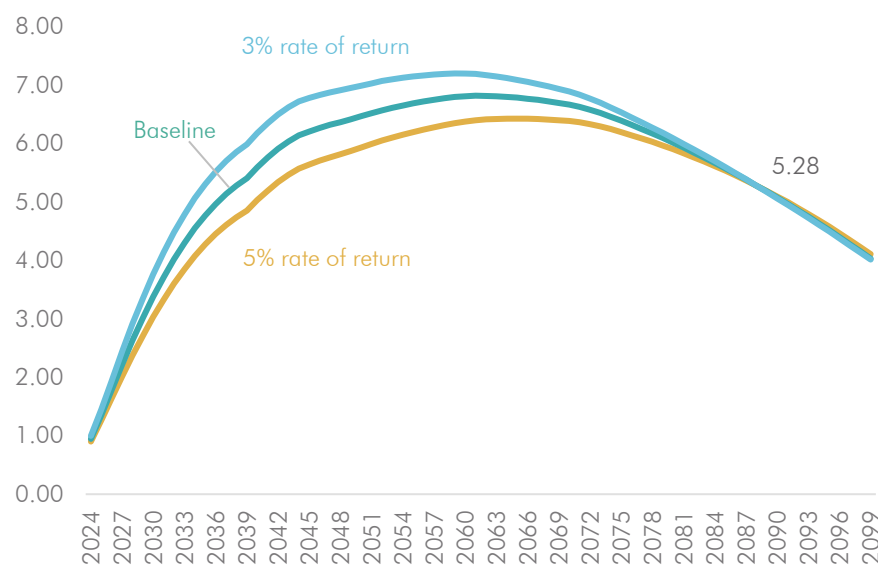
Sources: Pension Commission (2021); and Authors workings.

An alternative way of illustrating the sensitivity to various rates of returns is to set each asset/expenditure ratio in the 65th year equal to that in the baseline. Figure 18 shows the asset/expenditure ratios that would arise under this scenario. In this case, under the 5% rate of return scenario, the asset/expenditure ratio can still remain lower out to 2088 given the larger compounding effect from the higher rate of return.

In this instance, the steady-state rate of PRSI for the 5% rate of return scenario is only marginally higher (0.16pp) than under the previous illustration. The opposite is true for the 3% rate of return scenario.

Figure 18: Asset/Expenditure ratios with differing rates of return

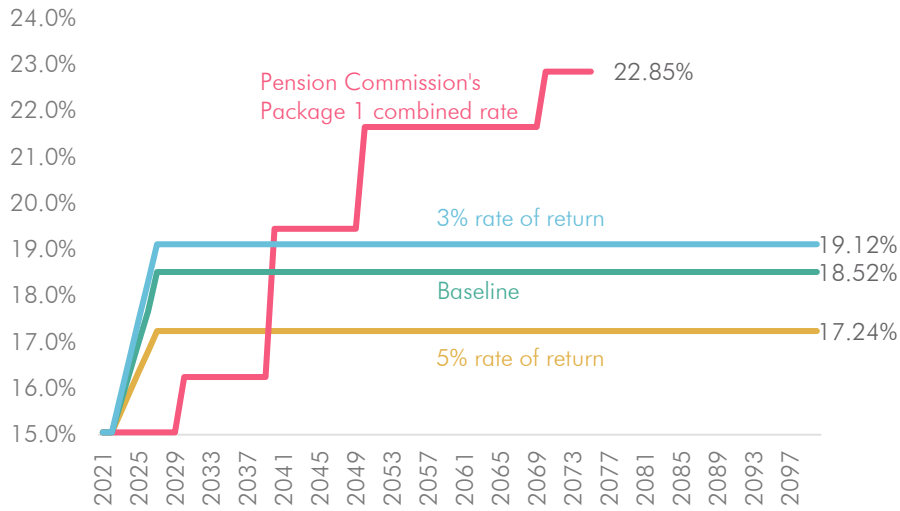
Ratio of Assets in year t to expenditure in year $t+1$



Sources: CSO; Department of Finance; and Authors workings.

Figure 19: Higher rates of return can lower the steady-state PRSI rate

Combined Employee and higher Employer's PRSI rate



Sources: Pension Commission (2021); and Authors workings.

Effect of delayed action on the steady-state PRSI rate

In this scenario we simulate the impact of delayed action on the steady-state PRSI rate. We assume that, instead of increasing the PRSI rate in increments starting in 2023, this now happens in 2033. The new steady-state PRSI rate would be fully phased in by 2037.

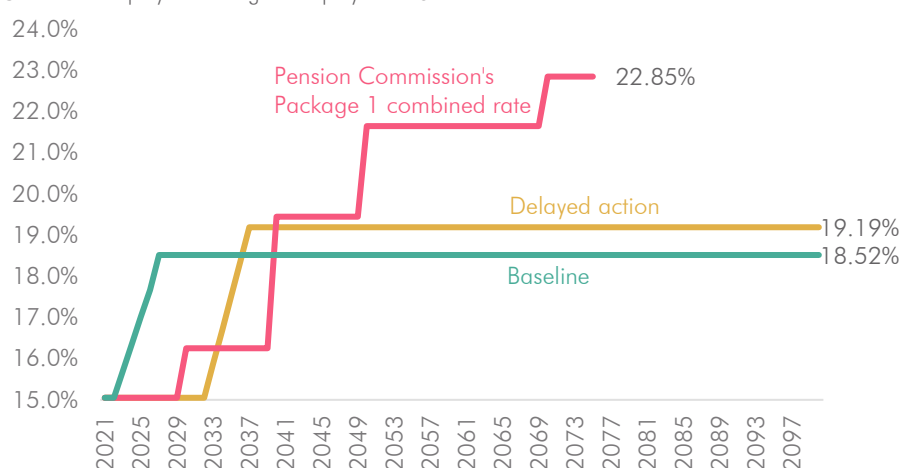
Up to 2033, we assume that the reserves are not invested to generate a return, which is similar to the current set up of the SIF. From there onwards, we use the same assumption as in the baseline, with a 4% nominal rate of return.

The steady-state PRSI rate is set so that the Asset/Expenditure ratio in year 15 (2048 in this case), is equal to the Asset/Expenditure ratio in year 65 (2098 in this case), which is similar to the approach under the baseline scenario.

The result of this delayed action is a steady-state PRSI rate that is higher than the baseline scenario by almost 0.7 percentage points (Figure 20). Under this delayed action, the combined steady-state PRSI rate would rise to 19.2% by 2037. However, by 2040, this rate would still be lower than the combined PRSI rate under the Pension Commission's Package 1.

Figure 20: Delayed action results in a higher steady-state PRSI rate

Combined Employee and higher Employer's PRSI rate

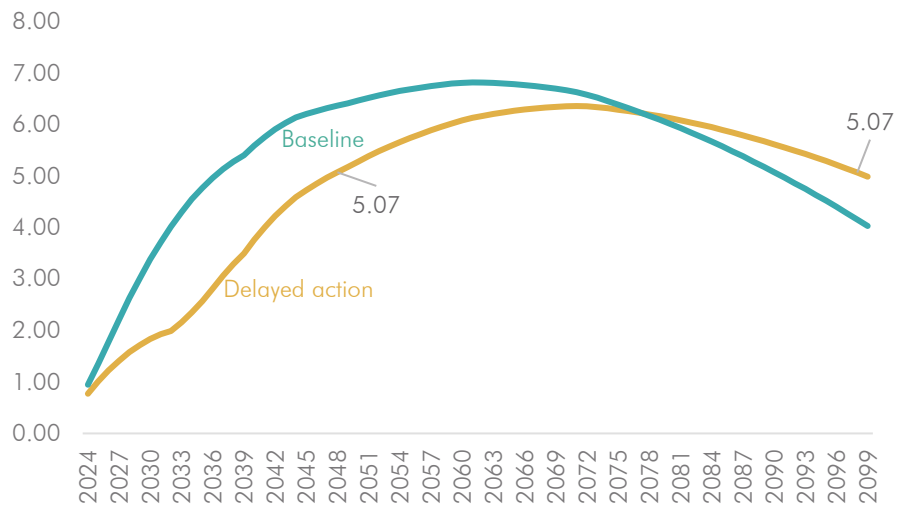


Sources: Pension Commission (2021); and Authors workings.

Figure 21 shows the path for the Asset/Expenditure ratio under delayed action. Given the initially lower PRSI rate, and no investment of reserves up to 2033, the Fund is slow to accumulate assets. Thereafter, with the higher combined PRSI rate and the reserves invested to generate a return, the Fund quickly builds up significant assets.

Figure 21: Asset/Expenditure ratio under delayed action

Ratio of Assets in year t to expenditure in year $t+1$



Sources: CSO; Department of Finance; and Authors workings.

Simulating a re-estimated steady-state rate in 2030

The pension fund would need frequent and periodic actuarial reviews to ensure that the steady-state PRSI rate is sufficient for the pension fund to remain sustainable. Here, we illustrate a scenario in which the steady-state PRSI rate is re-estimated in 2030. It is assumed that, up to 2030, all variables evolve in-line with the baseline and that the steady-state combined PRSI rate reaches 18.52% in 2027 and remains there until 2030. The steady-state rate is then estimated so that the asset/expenditure ratio in year 10 (2040) is equal to that in year 60 (2090). The steady-state rate is then estimated so that the asset/expenditure ratio in year 10 (2040) is equal to that in year 60 (2090).

Figure 22 shows the path for the asset/expenditure ratio under this scenario. In this case, given the asset/expenditure ratio is rising rapidly in the initial years, this results in the asset/expenditure ratio being balanced at a higher ratio (5.72), than under the baseline (5.28).

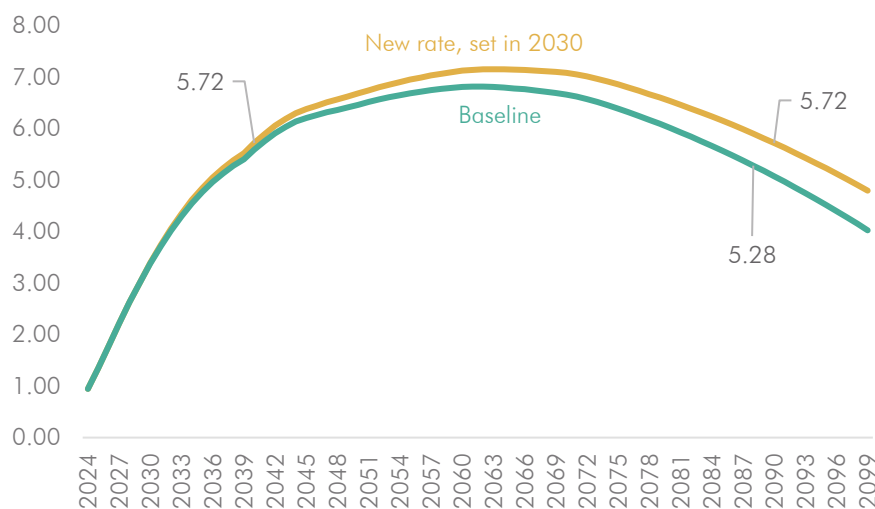
It also implies a higher steady-state PRSI contribution rate, 0.27 percentage points higher than under the baseline (Figure 22).

Alternatively, if the steady-state PRSI rate was recalculated such that the asset/expenditure ratio in 2090 was set equal to 5.28 (the target ratio in the baseline scenario), the steady-state PRSI rate would only increase by 0.07 percentage points.

These illustrations show that recalculating the required steady-state rate periodically may only result in a small change in the steady-state rate.

Figure 22: Asset/Expenditure ratios

Ratio of Assets in year t to expenditure in year $t+1$



Sources: CSO; Department of Finance; and Authors workings.

Figure 23: Re-estimating the rate would result in a marginal increase in the steady-state rate

Combined Employee and higher Employer's PRSI rate



Sources: Pension Commission (2021); and Authors workings.

Conclusion

The State Pension is an essential building block of Irish society. However, the ageing of Ireland's population will put pressure on the pension system. Ireland's old-age dependency ratio—the proportion of those aged 65 and over, as a share of those aged 15-64—is set to more than double from 22% in 2020 to 47% in 2050 (Fiscal Council, 2020a). This ageing of the population will have significant impacts on the public finances, with spending on health, long-term care and pensions all set to rise.

Currently the State pension is provided through the Social Insurance Fund, which is financed on a “pay-as-you-go” basis, with PRSI contributions used to meet current pension and other welfare payments. This system will come under increasing pressure as the number of pensioners increases relative to the number of people of working age.

This paper considers how the funding of Ireland's pension system could be better managed to take into account long-term demographic dynamics, drawing on international experience. A sounder financial framework would allow a more sustainable pension system and offer better policy choices.

We consider how a State Pension Fund can be financed by a steady-state PRSI rate — a rate which would remain stable over time. This would lead, in the short term, to the accumulation of a significant funded element to the State pension, which could be drawn down as the population ages. This would entail increases in the combined employee and employer PRSI rate that, by 2070, would be approximately half that which would be required under the Pension Commission's proposals. Temporary excess corporation tax receipts could further contribute to strengthening the sustainability of the pension system.

References

Conroy, N., 2020. Estimating Ireland's tax elasticities: a policy-adjusted approach. *The Economic and Social Review*, 51 (2, Summer), pp.241-274. Available at: <https://www.esr.ie/article/view/1443>

Department of Finance (2022). De-risking the public finances – Assessing corporation tax receipts. September 2022. Available at: <https://assets.gov.ie/233651/286a71b0-6762-4d43-a101-12b5d63fd335.pdf>

Department of Social Protection (2021), Pay Related Social Insurance Rate Setting Options, Budget 2022 Tax Strategy Group papers, TSG 21/07. Available at: <https://www.gov.ie/en/collection/d6bc7-budget-2022-tax-strategy-group-papers/>

Fiscal Council, (2022). Fiscal Assessment Report May 2022. Dublin: Irish Fiscal Advisory Council. Available at: <https://www.fiscalcouncil.ie/fiscal-assessment-reports/>

Fiscal Council, (2020a). Long-term Sustainability Report: Fiscal challenges and risks 2025-2050. Dublin: Irish Fiscal Advisory Council. Available at: <https://www.fiscalcouncil.ie/long-term-sustainability-reports/>

Fiscal Council, (2020b). Long-term Model: Methodology Report. Dublin: Irish Fiscal Advisory Council. Available at: <https://www.fiscalcouncil.ie/long-term-sustainability-reports/>

OECD (2021), Pensions at a Glance 2021: OECD and G20 Indicators, OECD Publishing, Paris. Available at: <https://doi.org/10.1787/ca401ebd-en>

Office of the Chief Actuary (2007). "Optimal Funding of the Canada Pension Plan, Actuarial Study No. 6", Office of the Chief Actuary, April 2007. Available at: http://www.osfi-bsif.gc.ca/eng/docs/optimal_funding_cpp.pdf

Office of the Chief Actuary (2022). "31st Actuarial Report on the Canada Pension Plan – as at 31st December 2021", Office of the Chief Actuary, November 2022. Available at: <https://www.osfi-bsif.gc.ca/Eng/oca-bac/arra/cpp-rpc/Pages/cpp31.aspx>

Pensions Commission (2021). "Report of the Commission on Pensions", The Commission on Pensions, 2021. Available at: <https://www.gov.ie/en/publication/6cb6d-report-of-the-commission-on-pensions/>