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9th March 2021

A chairde,

Please find enclosed a submission to the Pensions Commission public consultation.

In this submission, drawing primarily on previously published ESRI research, we focus our comments on:

- 1. The financing and sustainability of the state pension
- 2. Retirement and the qualifying age for the State Pension
- 3. Pensions and Income Adequacy in Retirement

If useful, we would of course be happy to discuss any of the points made in this submission, or related topics, with members of the Commission.

Is sinne le meas,

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1. The financing and sustainability of the state pension

Ireland operates a pay-as-you-go public pension system, with those age 66 or older entitled to apply for two main payments. The contributory state pension is paid to those with suffient Pay Related Social Insurance (PRSI) contributions at a rate determined by the number of these contributions. Those who do not have sufficient contributions to qualify for the contributory state pension – or who qualify only for a reduced rate of payment – may be entitled to receive the non-contributory state pension, subject to satisfying a means-test.

Although the contributory state pension – alongide many other benefits – is notionally paid out of the Social Insurance Fund (SIF), in years when the balance of the SIF was not sufficient to finance payments it has been topped up from general taxation and in years when contributions exceeded payments the surplus was saved in an investment fund managed by the Minister for Finance (Meaney, 2015). This represents an exercise in shifting money from one government account to another with no substantive economic effect.

While the condition of the SIF should therefore be given little weight in guiding the Commission's considerations, there are good economic – as opposed to accounting – grounds to be concerned with the sustainability of the state pension. Foremost among these are long-term demographic changes. A shrinking labour force, combined with a growing old age dependency ratio, is expected to reduce tax revenues and raise pension expenditures in both Ireland and other advanced economies.

In a study of 27 European countries, Dolls et al. (2017) found that the share of older workers is projected to rise in nearly all countries, including Ireland, between 2010 and 2030. This development will be accompanied by increasing educational attainment, resulting in significant increases in the share of high-skilled workers in every country. On the one hand, increased spending on (old age) benefits, health care, etc. can be expected in most countries due to population ageing while, on the other hand, increased taxes and social security contributions can be expected from an older and better educated labour force.

Projections based on flexible wage conditions (i.e. assuming that labour demand and supply respond to demographic change) suggest that labour scarcity will lead to strong wage growth and small employment increases. This can be expected to somewhat counteract the worsening fiscal balance, defined as the sum of all personal taxes and social insurance contributions paid less cash benefits received and expenditures related to the population structure. However, overall, the European fiscal balance can be expected to decrease by around 2% compared to its 2010 level. The fiscal outlook is broadly similar across European countries, with Ireland's fiscal balance expected to worsen by around 1%. In the longer run, the Irish Fiscal Advisory Council (2020) estimate that ageing will lead spending on pensions, health and long-term care in Ireland to almost double as a share of national income between 2019 and 2050.

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¹ These include expenditure on health care, old age care, child care and education. The fiscal balance is scaled by total household disposable income by country in 2010.



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As an illustrative exercise, not intended to be prescriptive, Dolls et al. (2017) also investigated the type of pension age reform that would be needed to offset the effect of demographic change on fiscal balances in the absence of any other changes by 2030. A reform that increases the current statutory state pension age by 5 years in each European country, including Ireland, was found to achieve this. The effect comes mainly through increased taxes as there is a strong correlation between the increase in the number of people in work and the fiscal balance, though the reduction in the welfare bill also matters. While there is value in considering the scale of the increase that would be required to address the challenge of pensions sustainability in the absence of other policy reforms, this cannot – as we discuss in the following section – be considered in isolation from the rest of the welfare system.

Other tools are also available to address the rising cost of the state pension. For example, one option open to the government is to increase the rate of PRSI contributions currently levied. If considering this, it is worth noting that there currently exist significant differences in the PRSI treatment of different forms of work, an anomaly highlighted by the OECD (2020) and Roantree et al. (2018) among others. Economic activity carried out via self-employment is subject to substantially less PRSI than that carried out through employment because while the main Class A (employee) and Class S (self-employed) rates of PRSI are the same (4 per cent), employers are required to make PRSI contributions of between 8.6 per cent and 11.05 per cent on behalf of their employees. Differences of such magnitude are difficult to justify on the grounds of access to benefits associated with PRSI contributions, particularly given that recent expansions in eligibility mean that the self-employed now have access to 93% of benefits in value terms including near identical state pension entitlements (OECD, 2020).

Increasing contributions on employment income would primarily affect future state pension recipients. If intergenerational considerations were deemed important, another option could be to extend PRSI to income in retirement. Although this might be perceived as at odds with the 'contributory principle' the Commission's consultation document says underlies the way we finance the state pension, the link between contributions and payments is already so weak that it is not clear such a move would really mark a substantive departure in policy (OECD, 2014). It would also have the advantage of harmonising the income tax and PRSI treatment of employer pension contributions, while eliminating the anamolous situation whereby neither employee nor employer PRSI is ever levied on the overwhelming majority of employer contributions to pensions — notably to defined benefit schemes — unlike employee contributions.² Raising taxation more generally is also an option available to government, as it is to support any permanent expansion of public transfers or spending.

Another approach the government could take to address sustainability concerns is to reduce state pension payments for current or future recipients. The government has already signalled its intention to change the way that contributory state pension entitlements are calculated by moving to a Total Contributions Approach (TCA), whereby the amount of state pension an individual receives will be

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² For a more detailed discussion of the tax treatment of pensions, see the ESRI submission to the Interdepartmental Pensions Reform and Taxation Group (https://assets.gov.ie/96450/b92f50f7-9154-4b0c-bf73-0f39f1b3c290.pdf).



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determined by the total number of contributions they have made before age 66 rather than the average number of contributions per year since entering employment (Government of Ireland, 2018).

The move to a TCA represents a significant change to the contributory state pension. In addition to increasing the entitlements of some recipients, it will reduce the entitlements of others when fully in place and interim transitionary arrangements have been phased out.³ The extent to which this will increase or reduce pension spending relative to the existing system in the long-run depends crucially on the number of contributions that will be required to get a full state pension and the number of credited contributions available for caring (or other) purposes. No decision has been made in relation to these parameters by government, or any analysis published as to the impact different options would have on the aggregate entitlements of future contributory state pension recipients. Nor is it clear how long the interim rules referenced above will continue to apply, something to which clarity should be brought in order to allow those approaching the state pension age to adequately prepare for their retirement.

Whatever the policy mix chosen to address concerns about the sustainability of pension spending, this should be coupled with efforts to address income adequacy gaps in retirement, discussed in detail in Section 3 below. Part of the solution to these is likely to lie in raising rates of private pension coverage, as recommended by the OECD (2014). The Government's Roadmap for Pension Reform (Government of Ireland, 2018) proposed the introduction of (private) pension auto-enrolment by 2022 for this reason, a commitment restated in the Programme for Government though without stipulating a timeframe. Recent ESRI research (Bercholz et al. 2019) found that private pension coverage was least for those on lower incomes, suggesting that such a scheme would have greatest effect on groups who may also be most affected if the rate of state pension falls or if the state pension age increases.

2. Retirement and the qualifying age for the State Pension

A change to the pension age was implemented in Ireland in January 2014, with the qualifying age increasing from 65 to 66 years. The effectiveness of increasing the pension age on mitigating the rising cost of public pensions will largely depend on whether such policies have a significant impact on the actual retirement age of workers. For example, such policies would be effective in boosting public finances if workers continue to work, and hence pay taxes, up until they reach the new (higher) qualifying pension age. However, if actual retirement behaviour does not change, and people continue to retire at the previously defined (lower) pension age, then these policies will have little impact. It could be argued that the public finances would still benefit from the delayed payment of pensions due to the increased qualifying age. However, in practice, this is not the case as retirees can simply switch to another welfare payment which serves as a de facto pension payment, bridging the gap between the time of actual retirement and the higher qualifying age.

Redmond et al. (2017) examined whether the increase in the qualifying pension age in Ireland, from 65 to 66 years, had a causal effect on the retirement rate of 65 year olds. The policy change was based on

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³ These allow for those who reach the pension age after 2012 to receive a contributory state pension based on the higher of the traditional average or new Total Contributions Approach.



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an individual's date of birth, with a cut-off date of 1 January 1949. As a result, a 65-year-old in 2014 who was born in December 1948 and had the required social insurance contributions could still qualify for the state pension at age 65, while a 65-year-old born in January 1949 (one month younger) with the same contributions did not qualify until age 66. Redmond et al. (2017) compare these two groups and find no evidence that the change in the pension qualifying age had a causal effect on the retirement rate of 65 years olds in 2014.

It may take time for societal and employment norms, and employment contracts, to catch up with the policy change to the qualifying pension age. This could help explain why Redmond et al. (2017) detected no effect, as they examine the impact of the policy change immediately after it was implemented. In 2014, even after the policy change, it is likely that employment contracts still specified a retirement age of 65, or even where none was specified, there may still have been an expectation that people will retire at this age. In addition, the age at which an individual's occupational pension begins may have remained at 65. Moreover, there was no real financial incentive to continue working until the age of 66, as the Department of Social Protection recognised at that time that retirees could avail of Jobseeker's Benefit for one year, with no expectation of seeking work.⁴ This made Jobseeker's Benefit a de-facto pension payment until the actual pension kicked in at age 66. Unemployment benefits have been used as *de facto* pension payments following an increase in the pension age in othe countries, including Austria (Staubli and Zweimuller, 2013) and Italy (Ardito, 2017).

Puur et al. (2015) show that increasing the state pension age in Estonia led to increases in the actual retirement age and also the expected retirement age, as it did in the UK for women affected by the increase to the early retirement age from 60 to 65 (Cribb et al., 2016). However, in Ireland, recent policies have worked against increasing the expected retirement age. Firstly, the plan to further increase the state pension age to 67 in 2021 was postponed in 2020. Secondly, a Benefit Payment for 65 Year Olds was introduced in 2021, specifically designed to bridge the one-year gap between those retiring at age 65 and the qualification age for the state pension (age 66). This is a more formal de-facto pension payment arrangement than was previously in place with Jobseeker's Benefit. Therefore, recent policy decisions may have had the effect of reducing the expected age of retirement, rather than raising it.

3. Pensions and Income Adequacy in Retirement

A key area of policy concern is the extent to which those who are retired will have adequate resources to fund their consumption in retirement. While the current rate of income poverty among the older (65+) population is lower than for other population groups at 11.4 per cent – particularly children under 18, at 15.9 per cent (CSO, 2019) – concerns over the adequacy of retirement income in Ireland are widespread (Government of Ireland, 2018; Mulligan et al., 2019). Based on evidence from recent ESRI research, there are a number of dimensions to this debate that we summarise in this section. First, we explore why 11 per cent of the population aged 65+ are classed as income poor, despite the level of the state pension tracking the income poverty threshold very closely over time. Second, we discuss the

⁴ Those aged 62+ on Jobseeker's payments have not been required to engage with activation measures since 2014.



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gender pension gap and discuss the role of state and supplementary pensions in explaining this gap in the Irish context. Third, we broaden the discussion to consider how best to define and measure income adequacy in retirement, and how these definitional and measurement issues raise important issues for policymakers.

Income Poverty in the Older Population

11.4 per cent over the over-65s were classified as 'at risk of poverty' and 8.2 per cent experienced basic deprivation in 2018 (CSO, 2019).⁵ This is despite the fact that the levels of the state pension have been very similar to the income poverty threshold for a number of years, raising the question as to why over 11 per cent of the over-65s are at risk of income poverty.

Using data from the Survey of Income and Living Conditions (SILC) for 2015 and 2016, ESRI analysis of household and personal income sources for the older population (aged 66+) revealed their high dependence on old-age benefits (i.e. pensions), with an average 80 per cent of personal income derived from the contributory state and occupational pensions (Nolan et al., 2019). The research also found that almost 80 per cent of income-poor older individuals lived in single or couple households (with no other household members). Therefore, the hypothesis that the presence of other household members would impact on household equivalised income and thereby push the household below the poverty threshold was rejected. Rather, the much lower level of receipt and mean level of contributory pensions of income-poor older people could be explained by weak previous attachment to the labour market (due to home duties, unemployment, etc.) and periods of emigration, as well as by persons not claiming their full entitlements.

Gender Gap in Pensions

In research funded by the Pensions Council, Nolan et al. (2019) examine the pension income of men and women and the driving factors behind the gender pension gap in Ireland. The average pension income of retired women was found to be 35 per cent lower than that of retired men in Ireland. The key findings, using data from The Irish Longitudinal Study on Ageing (TILDA) for those aged 65 and over, show that the average total weekly pension income reported in 2010 was €280 for women and €433 for men. The total gender pension gap is driven by differences in incomes from private and occupational pensions. More specifically, 55 per cent of retired men receive a private or occupational pension, compared to only 28 per cent of women. For men and women who receive a state pension, there is no difference observed in the amount received, i.e. there is no gender gap in state pensions.

For those in receipt of occupational and private pensions, the research establishes that lower relative years of work experience among women increases the gender pension gap. The study shows a significant difference in the number of years worked by men and women. It was found that 93 per cent of retired men had worked for more than 30 years, compared to 33 per cent of retired women. Three per cent of retired men had never worked, compared to 22 per cent of retired women.

⁵ The "at risk of poverty" threshold is defined as 60 per cent of the median equivalised disposable income



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Taking a broader view, the international literature highlights a number of interrelated factors, which determine the gender gap in pensions. Across the EU, women work on average five years less in fulltime jobs and more years in part-time employment, compared to their male counterparts (European Commission, 2013). Women are more likely to begin their careers in lower paying occupations, with higher levels of flexibility. Redmond and McGuinness (2019) show that women place greater importance than men on jobs that are close to home and offer good security, and these job motives are associated with lower wages. Women are more likely to take time out of the labour market in order to take care of children and/or older relatives sacrificing salary and, in turn, pension payments. Additionally, women are more likely to occupationally downgrade (accept a job with reduced responsibility, status and/or salary) on return to the workplace after care-related career breaks. It is important to also consider that reasons for accepting jobs or making other employment-related decisions may themselves be driven by wider societal and policy factors. For example, where women are more often expected to fulfil the role of primary care givers. Therefore, many of the decisions we observe may not be fully voluntary. As a result, women are less likely than men to be employed, and when they are employed, on average, they earn less, work fewer hours and have shorter careers. By the time of retirement, each of these factors ultimately result in large differences in pension income and a gender pension gap that favours men.

Some improvements are occurring, but progress is slow. Slight decreases in the gender pension gap have been observed internationally in recent years. For example, the gender pension gap declined from 41 per cent in 2009 to 36 per cent in 2017 across Europe. Nevertheless, gender differences in pension coverage and income remain significantly high and persistent across many countries, including Ireland. The difference in career length is expected to narrow, but the effects of the multiple career gaps and career decisions outlined affecting women across numerous dimensions are likely to result in a continued pensions gap. Women also spend more time in retirement, as they live longer, requiring that older women face additional pressures in securing their financial security in older age.

Given the significance of employment history for income prospects at older ages, helping women to stay in quality employment for longer is the most straightforward way to help reduce the pensions gap into the future. In more recent years, female pensioners have higher levels of education than the previous generations. Continuing to encourage female participation in higher education is also important as the study showed that higher levels of education among females reduce the gender pension gap. Higher education is generally associated with stronger labour market attachment, more years in employment, higher earnings and, in turn, higher pension contributions.

Equal opportunities for women and men to obtain pension rights are heavily influenced by both labour market conditions and pension policies that support equal careers and earnings. Overall, a complex mix of factors shape the working lives of women and men, such as personal desires, household decision-making processes, social conditions and public policies. In order to reduce the pension gender gap, policies concerning the provision of an improved care infrastructure in Ireland needs to support access to more affordable quality childcare and long-term care services. Such policies will tend to increase female employment levels, ensure increased continuity in employment and encourage the equal sharing



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of caring rights and responsibilities for men and women. Policymakers need to consider measures to promote supplementary pension savings for women, based either on professional activity (occupational pensions) or on individual pension savings contracts (personal pensions), to provide additional retirement savings.

Income Adequacy in Retirement

While the level of the state pension provides basic protection against pensioner poverty, it is not designed to secure a high level of pension adequacy (Government of Ireland, 2018). However, what is an 'adequate' level of income in retirement? One commonly used measure of retirement income adequacy is the income replacement rate, defined as the ratio of post-retirement income (from pensions, annuitised wealth holdings, etc.) to pre-retirement income. Replacement rate measures of retirement income adequacy have been to the forefront of government policy in Ireland in recent decades. An alternative approach assesses the adequacy of retirement income by determining whether it is sufficient to meet basic needs (i.e. having a high-enough income to be able to purchase necessities such as housing, food and clothing). This is assessed in terms of whether retirement resources are below some benchmark of income poverty, or a 'minimum essential standard of living'. In addition to the benchmark used to assess adequacy, questions arise over what sources of retirement income should be considered? Are we concerned just with pension (state and supplementary) income? Or do we include the annuitized value of assets, and how do we deal with owner-occupied housing wealth? Moving from narrow to broader definitions of what constitutes income in retirement can have substantial implications for the proportion of the population deemed at risk of inadequate income in retirement.

Beirne et al. (2020) used data from The Irish Longitudinal Study on Ageing (TILDA) on the cohort of people born between 1955 and 1960 (and therefore expected to reach the state pension age over the period 2022 – 2027) to assess the adequacy of their projected income in retirement, using a variety of different benchmarks and definitions of retirement income. A number of key implications for policy arise from this analysis. First, assessments of income adequacy in retirement were found to be very sensitive to the benchmark used. Even small changes in the benchmark can result in large changes in the proportion assessed as having inadequate resources in retirement. For example, moving from a poverty-line benchmark of 60 per cent of median household disposable income (the current at-risk-of-poverty threshold) to a 50 per cent of median household disposable income benchmark (the OECD at-risk-of-poverty threshold) results in a sharp fall in those with inadequate levels of income in retirement (from 24.4 per cent to 7.1 per cent using the narrow definition of income). This suggests that policymakers should interpret any particular benchmark of income adequacy with caution, particularly those that relate income in retirement to the amount of pre-retirement income it replaces.

Second, across all benchmarks, broadening the definition of income in retirement to include financial assets, and further still to include half the value of owner-occupied housing wealth, substantially reduces

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⁶ While the more recent Roadmap for Pensions Reform (Government of Ireland, 2018) does not set a formal target of income adequacy, it does cite 50-60 per cent as 'a sufficient proportion ... of an individual's pre-retirement earnings so as to enable the individual concerned to maintain a reasonable standard of living after retirement'.



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the proportions of those who are considered at risk of having inadequate resources in retirement. While the issue of whether individuals should draw on wealth in the form of primary residences to support living standards in retirement is contentious, less so is that individuals should draw on other forms of wealth. These results suggest that private non-pension, non-primary residence savings play an important role in individuals' preparedness for retirement.

Third, across all the benchmarks considered, one group of people stands out as being at particular risk of having an inadequate income in retirement: those who are not married or cohabitating in the years before retirement. Further research on this cohort of the population (who account for approximately 40 per cent of those aged 65+)⁷ is needed in order to identify the risk factors for inadequate retirement income in this group in greater detail.

4. Summary

We conclude by summarising some of the key points made in this submission.

Firstly, while it is clear that policymakers face a major challenge as regards the long-term sustainability of the state pension, numerous options are available to address this. These include increasing PRSI contributions (or taxes more generally) on future or current recipients of the state pension and reducing the entitlements of future or current recipients of the state pension, either directly or through increases to the qualifying age for the state pension beyond those set out in the *Government's Roadmap for Pensions Reform 2018-2023*.

Second, previous increases to the qualifying age for the state pension do not appear to have led to increases in the actual age that people retire in Ireland. However, this is likely because jobseekers payments have acted as de facto pension payments, bridging the gap between retirement (at the old qualifying age of 65 years) and the official age at which a person could qualify for the state pension (66 years). Any decision to further raise the qualifying age for the state pension is therefore also likely to require changes to jobseekers payments to be effective.

Third, although the rate of income poverty among the population age 65+ is lower than for other age groups, research has found that those living alone are particularly vulnerable to having inadequate resources in retirement. For current retirees, this is explained by weak previous attachment to the labour market and periods of emigration, as well as by persons not claiming their full entitlements. This suggests the importance of broader policy initiatives in the areas of labour market and skills, childcare and long-term care that can support individuals to stay in the labour market and thereby accumulate sufficient pension wealth (state and private) to ensure an adequate income in retirement. Such measures would also help to address the gender pension gap, which is primarily driven by differences in incomes from private and occupational rather than state pensions.

⁷ https://www.cso.ie/en/releasesandpublications/ep/p-cp4hf/cp4hf/hhlds/



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References

Ardito, C. (2017). Rising pension age in Italy: employment response and program substation LABORatorio R. Revelli working paper 155

Beirne, K., Nolan, A., Roantree, B. (2020). Income Adequacy in Retirement: Evidence from the Irish Longitudinal Study on Ageing (TILDA). ESRI Research Series Report No. 107. ESRI, Dublin.

Bercholz, M., Bergin, A., Callan, T., Rodriguez, A.G. and Keane, C. (2019). A micro-macro economic analysis of pension auto-enrolment options, ESRI Working Paper, No. 640. ESRI, Dublin

Cribb, J., Emmerson, C., and Tetlow, G. (2016). "Signals matter? Large retirement responses to limited financial incentives," Labour Economics, Elsevier, vol. 42(C), pages 203-212.

CSO. (2019). Survey on Income and Living Conditions (SILC) 2018. Central Statistics Office, Dublin.

Dolls, M., Doorley, K., Paulus, A., Schneider, H., Siegloch, S., and Sommer, E. (2017). Fiscal sustainability and demographic change: a micro-approach for 27 EU countries. International Tax and Public Finance. 24. 1-41. 10.1007/s10797-017-9462-3.

Irish Fiscal Advisory Council (2020). 'Long-term sustainability report'. IFAC, Dublin.

Meaney (2015). 'Vote Management and the Social Insurance Fund'. IGEES Staff Paper. IGEES, Dublin.

Mulligan, E., Wijeratne, D., Maher, M. (2019). Pensions in Ireland: The Perspectives of Irish Citizens. Whitaker Institute, Galway.

Nolan, A., Whelan, A., McGuinness, S. and Maitre, B. (2019). Gender, Pensions and Income in Retirement. ESRI Research Series Report No. 87. ESRI, Dublin.

OECD (2014), 'OECD Reviews of Pensions Systems: Ireland'. OECD, Paris.

OECD, (2020). 'OECD Economic Surveys: Ireland 2020'. OECD, Paris.

Pope, T., and Waters, T. (2016). A survey of the UK tax system. Institute for Fiscal Studies Briefing Note, London.

Puur, A., L. Leppik and M. Klesment (2015). 'Changes in Pension Take-Up and Retirement in the Context of Increasing the Pension Age: The Case of Estonia in the 2000s', Post-Communist Economies, 27 (4): 497-516.

Redmond, P., McGuinness, S. and Kelly, E. (2017). Did increasing the state pension age in Ireland affect the overall retirement rate of 65 year olds?. Quarterly Economic Commentary: Special Articles.

Roantree, B., Bercholz, M., Doorley, K., Keane, C., and Regan M. (2018). 'Budget 2019: tax and welfare changes. QEC Special Article. ESRI, Dublin.

Staubli, S. and J. Zweimuller (2013). 'Does Raising the Early Retirement Age Increase Employment of Older Workers?', Journal of Public Economics, 108: 17-32.

Government of Ireland (2018). A Roadmap for Pensions Reform 2018-2023. Stationery Office, Dublin.