



**An Roinn Airgeadais**  
Department of Finance

# **Population Ageing and the Public Finances in Ireland**

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Prepared by Economics Division  
Department of Finance  
[www.gov.ie/finance](http://www.gov.ie/finance)

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## Executive Summary

Tail risks to the public finances – such as a global pandemic – are inherently difficult to assess and to predict, both in terms of timing and impact. Other risks to the public finances, however, are much more visible, much more certain and much more quantifiable, at least within reasonable margins. In this latter sub-set of fiscal risks, suitable fiscal planning can help to mitigate the costs and limit the fallout from these developments.

Chief amongst the identifiable risks is the impact that an ageing population will have on the public finances in Ireland. Here, the scientific evidence is clear and unambiguous: people are living longer, while fewer babies are being born in Ireland; in short, Ireland's population is ageing. This natural process is set to accelerate over the medium- and longer-term. Cross-country populations projections show that Ireland will have one of the most rapidly ageing populations in the EU over the coming decades.

While Ireland's demographic structure is relatively favourable at present, shifting demographics in the coming decades will result in a slower pace of economic expansion and increased age-related public expenditure. Slower revenue growth (as a result of more modest economic expansion) and rising expenditure (as a result of age-related fiscal costs) will put significant pressure on the public finances.

The old-age dependency ratio in Ireland – a proxy for the number of retirees as a fraction of the number of workers – is set to near-double over the next 30 years, from 24 per cent at present to 47 per cent by the middle of this century (53 per cent by 2070). To put it another way: there are currently around 4 persons of working age to support each person aged 65 and over; by 2050, the equivalent figure will be just over 2.

Such shifts in the demographic structure of the population will involve increased outlays in demographically-sensitive components of public expenditure, such as pensions and healthcare. Analysis set out in this document shows that age-related expenditure is set to increase by 8 percentage points of GNI\* by the mid-point of the century. In other words, this means by 2050 the annual cost of age-related expenditure is set to be €17 billion higher, in today's terms, than in 2019.

Revenue increases will not be sufficient to fund all of these additional expenditure pressures. This is because growth in the productive capacity of the Irish economy is expected to slow significantly, as demographic trends weigh on additional labour supply. As public revenue evolves in line with economic growth, slower revenue growth will make it more difficult for the public finances to absorb the increase in age-related spending.

Simulations show that, in a hypothetical scenario in which there were no further policy responses, the fiscal costs associated with population ageing would add around 20 percentage points to the debt-to-GNI\* ratio by 2050. Beyond 2050, the fiscal position is expected to deteriorate significantly, with the debt-to-GNI\* ratio reaching 180 per cent by 2070. A no-policy change approach is, accordingly, unsustainable.

Structural reforms must be a key part of the policy response. Reforms such as linking the State Pension Age to life expectancy could significantly reduce the cost burden.

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<sup>1</sup> The data and analysis set out in this document are compiled by Department of Finance staff. Every effort is made to ensure accuracy and completeness. When errors are discovered, corrections and revisions are incorporated into the digital edition available on the Department's website. Any substantive change is detailed in the online version. Figures based on data up to early-July 2021.

# Chapter 1

## Introduction

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A projected shift in the demographic composition of the Irish population in the coming decades will pose significant challenges for the public finances. Under standard assumptions, the old-age dependency ratio – the number of retirees expressed as a fraction of the number of people of working age – is set to double between now and the mid-part of the century. This means that while there are currently around four persons of working age for each person aged 65 and over in Ireland, by 2050 the equivalent figure will be around two. Population ageing will involve increased outlays in demographically-sensitive areas of public expenditure, such as healthcare, pensions and long-term care. It will also involve a moderation in the pace of economic growth, as a key source of growth, namely labour supply, becomes less prominent.

Sound public finances are a pre-requisite for sustainable improvements in living standards. A key strategic goal of the Department of Finance is, therefore, the achievement of a “*sustainable macroeconomic environment and sound public finances*.” In this context, it is important to understand, assess, and report on, the impact that shifting demographic trends will have on the Irish public finances.

The purpose of this report is to highlight the likely economic and budgetary impacts of demographic change in Ireland. The analysis set out in the document attempts *inter alia* to quantify the likely budgetary costs of population ageing in order to inform the appropriate policy response. It builds on work undertaken by the Department of Finance in conjunction with other Finance Ministries in the European Union, together with the European Commission, through the EU Ageing Working Group (AWG)<sup>2</sup> to update long-term age-related expenditure projections for inclusion in the *2021 Ageing Report*, published in May 2021.<sup>3</sup>

The projections contained in this paper are underpinned by long-term demographic projections produced by *Eurostat* and macroeconomic projections produced by the European Commission. The demographic projections, which were published in early 2020, do not take account of the impact of the pandemic on demographic indicators, while the macroeconomic projections assume a V-shaped recovery entailing a sharp decline in output in 2020 followed by a return to strong economic growth in 2021, with no long-term structural impact. In these circumstances, risks to the projections presented herein are, if anything, to the downside.

In November 2020, the Government established the *Commission on Pensions* to examine the sustainability and eligibility issues with the State Pension and the Social Insurance Fund. The analysis and projections outlined in this report formed the basis of the Department of Finance’s submission to the Commission on Pensions.<sup>4</sup>

This report is structured as follows. Chapter 2 briefly describes the changes in the demographic structures of many advanced economies over the last number of decades. The rest of the report focuses on population ageing in an Irish context, beginning with Chapter 3 which highlights the expected

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<sup>2</sup> Officials from the Department of Finance are members of the Ageing Working Group (AWG), a sub-group of the Economic Policy Committee (EPC), contributing to the triennial EPC Ageing Report, a set of long-term budgetary projections underpinned by population projections provided by Eurostat.

<sup>3</sup> [https://ec.europa.eu/info/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070\\_en](https://ec.europa.eu/info/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070_en)

<sup>4</sup> The Department’s submission to the Commission on Pensions is available here:

<https://www.gov.ie/en/publication/c199e-department-of-finance-submission-to-the-commission-on-pensions/>

demographic shift in the composition of the Irish population over the coming decades. Chapter 4 details the projected impact on the productive capacity of Irish economy of such a change in the demographic structure. In Chapter 5, the budgetary cost of an ageing population is outlined, with particular attention paid to the development of future pension expenditure. Chapter 6 presents, for illustrative purposes, the potential impact of demographic change on key fiscal metrics, on a hypothetical no-policy change basis. Chapter 7 provides an overview of some of the alternative scenarios included in the Department's analysis. Chapter 8 concludes.

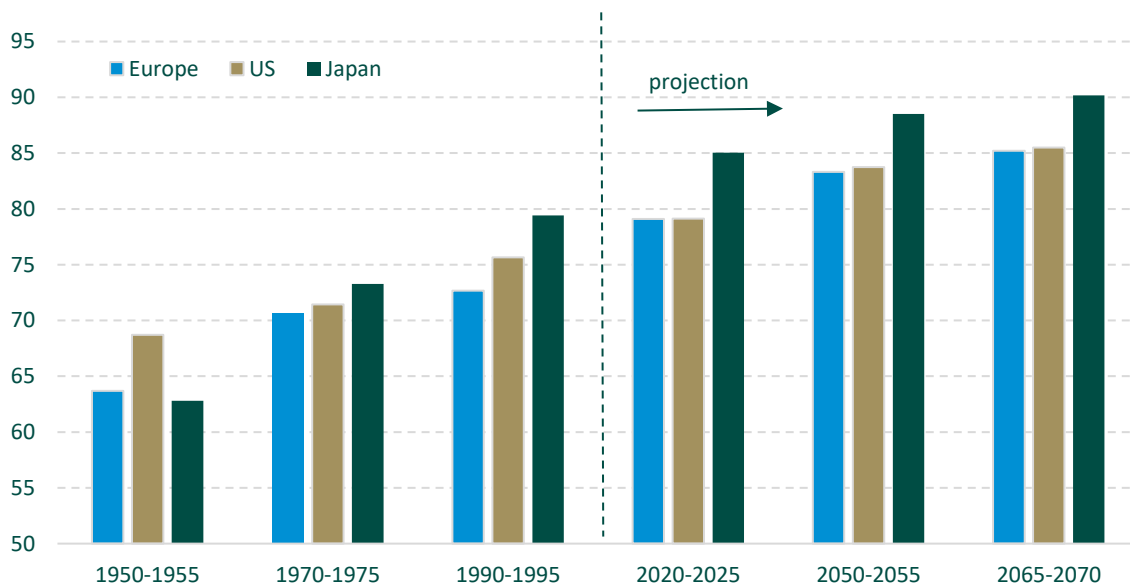
## Chapter 2 Demographic trends in advanced economies

As outlined in the previous iteration of this report published three years ago, an ageing population is now a notable feature of most advanced economies.<sup>5</sup> People are living longer, while fertility rates – defined as the number of children born per woman of childbearing age – are falling. This section documents these trends in three jurisdictions, namely Europe, the US and Japan.

### 2.1 Life expectancy

Life expectancy has increased significantly in the last 70 years in the developed world (Figure 1), as a result of a range of factors including reductions in infant mortality, improvements in living standards, better education levels and medical advances. Such trends in life expectancy are expected to continue in the coming decades.<sup>6</sup> In the early 1950s, life expectancy in Europe for males was 61 years and 66 years for females. By 2070, Europeans will be expected to live more than 20 years longer than they would have in 1950. Likewise, in the US, by 2070 males will be expected to live 18 years longer than they would have done in the early 1950s, while females are expected to live 15 years longer. In Japan, the gains in life expectancy are even more note-worthy, with males expected to live for an extra 26 years and females for an additional 29 years by 2070 compared to the mid-point of the last century.<sup>7</sup>

**Figure 1: life expectancy at birth in selected advanced economies – both sexes, years**



Source: 2019 United Nations World Population Prospects (medium fertility scenario).

### 2.2 Fertility rates

While people have been living longer, there has also been a consistent reduction in the number of children born per mother in the developed world. As highlighted by the OECD, over the last 50 years,

<sup>5</sup> <https://assets.gov.ie/4147/101218131007-cdad7ec478c4467290c52008da8f536d.pdf>

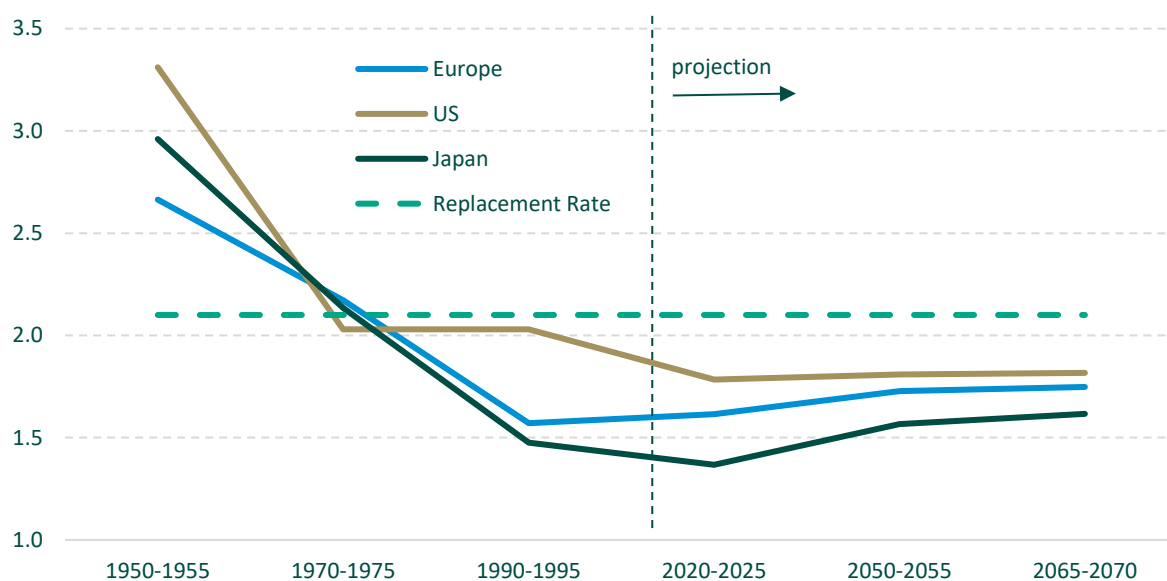
<sup>6</sup> *OECD Pensions at a Glance 2017*. [https://www.oecd-ilibrary.org/docserver/pension\\_glance-2017-21-en.pdf?expires=1624962692&id=id&accname=guest&checksum=3452A396E99D12A9F066DFDD4E0AFB3D](https://www.oecd-ilibrary.org/docserver/pension_glance-2017-21-en.pdf?expires=1624962692&id=id&accname=guest&checksum=3452A396E99D12A9F066DFDD4E0AFB3D)

<sup>7</sup> Life expectancy at birth- the average number of years that a new-born could be expected to live, if he or she was subject to the age-specific mortality rates of a given period.



there has been a steady downward convergence in fertility rates across OECD countries. In fact, the total fertility rate<sup>8</sup> is estimated to be below the estimated replacement level (the latter defined as the number of children needed to keep the total population constant) of about 2.1 in 34 out of 36 OECD countries. The exceptions to this are Israel with a total fertility rate of 3.04 and Mexico at 2.14.<sup>9</sup> In the early 1950s, approximately 2.7 children were born per mother in Europe. The United Nations (UN) estimates this figure has fallen to 1.6 in 2019. The fall in the fertility rate from the mid-point of the last century has been even sharper in the US and Japan, with estimated fertility rates in 2019 of 1.8 and 1.4 respectively. While difficult to predict, as evidenced by the need to include a range of fertility scenarios in most demographic projection exercises, the central or medium-term scenario in most long-term population projection exercises does not envisage any significant return to the rates seen in the past.

**Figure 2: total fertility rate in selected advanced economies**



Source: 2019 United Nations World Population Prospects (medium fertility scenario).

### 2.3 Old-age dependency ratios

Together, the trends described above are having profound effects on the population structures of most advanced economies and will continue to do so over the coming decades. Indeed, viewing changes in the demographic profile of Europe, the US and Japan through the evolution of their respective old-age dependency ratios (hereafter referred to as the 'OADR'), we can see a tipping point has already been reached. The OADR presents the population aged 65 and over as a share of the population aged 20-64. This commonly used metric provides an indicator of retirees in a population relative to the working age population.

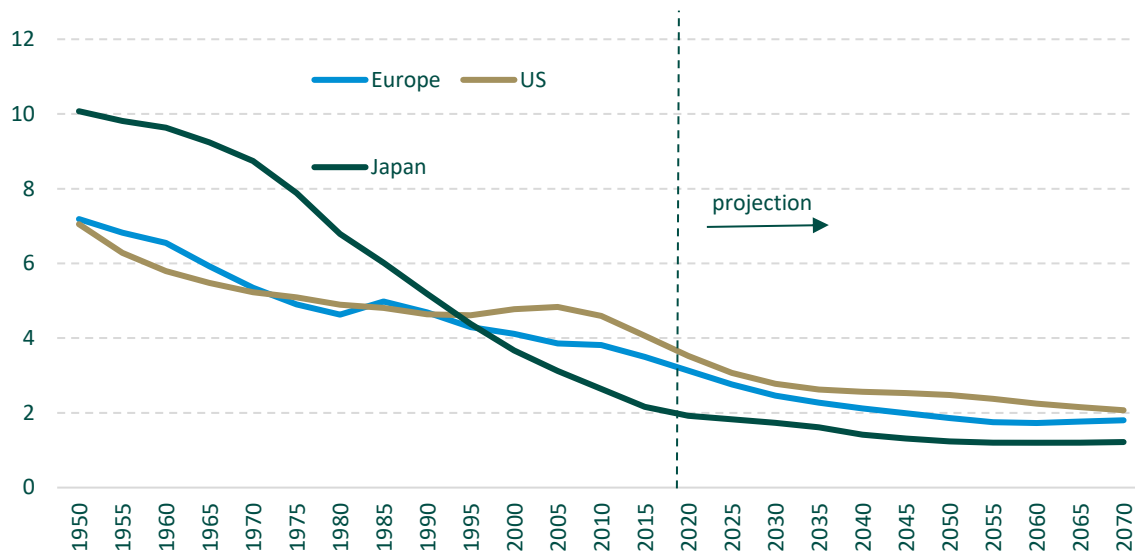
In 1950, the OADR in Europe stood at just below 14 per cent. The ratio has risen steadily since, more than doubling to 31 per cent by 2019. This ratio is expected to continue to rise over the coming decades, reaching 57 per cent by 2070. In other words, Europe will move from having 7 people of working age for every retiree in the post-war years to less than 2 people of working age for every retiree over the next half-century.

<sup>8</sup> The OECD defines the total fertility rate as the total number of children that would be born to each woman if she were to live to the end of her childbearing years and give birth to children in alignment with the prevailing age-specific fertility rates.

<sup>9</sup> *OECD Pensions at a Glance 2019*. <https://www.oecd-ilibrary.org/sites/b11cb6e7-en/index.html?itemId=/content/component/b11cb6e7-en>

A similar trend is expected in the US, with the OADR expected to increase sharply over the coming decades. While the OADR in the US in 1950 was just 14 per cent, by 2070 the OADR is expected to be 48 per cent meaning the US, like Europe, is projected to have just two people of working age for every retiree by then. Most strikingly, in Japan, a country that had 10 people of working age for very retiree in 1950, the equivalent ratio is projected to be just over one person of working age for every retiree by 2070.

**Figure 3: number of people of working age to old-age populations in advanced economies**



Source: 2019 United Nations World Population Prospects (medium fertility scenario).

## 2.4 Summary

A demographic tipping point in the developed world has now been reached as those born during the post-war surge in the birth rate in many advanced countries now reach retirement age.<sup>10</sup> As highlighted by the UN, globally, the population aged 65 and over is now growing faster than any other age group.<sup>11</sup> This will have significant implications for societies with increased pressure on the provision of demographically sensitive services.

<sup>10</sup> Those born during this post-war surge in the birth rate are sometimes referred to as the ‘baby boomers’ generation.

<sup>11</sup> <https://www.un.org/en/global-issues/ageing>

## Chapter 3 Demographic trends in Ireland

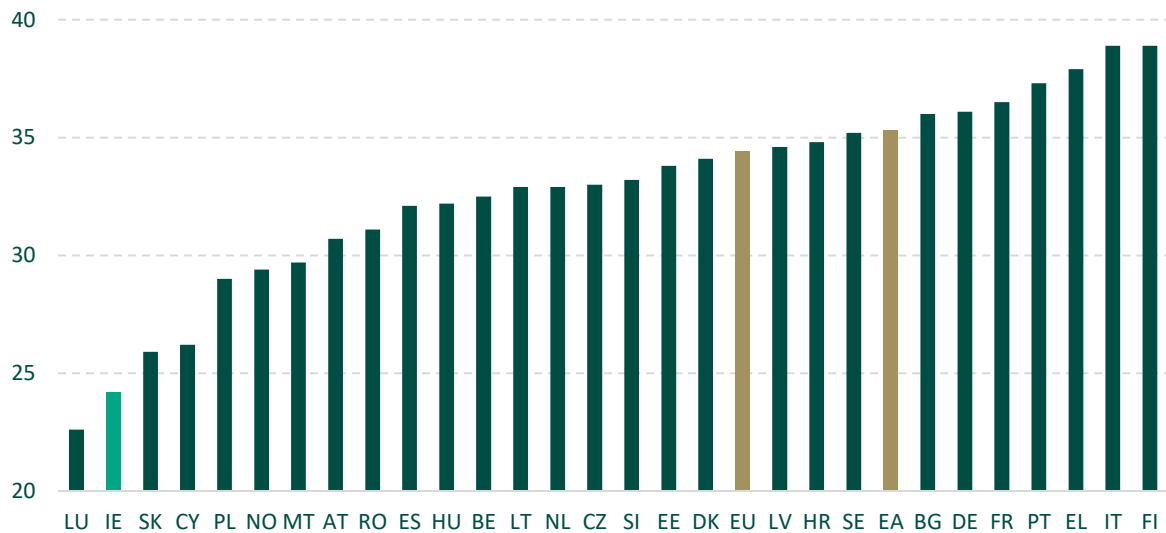
While the previous section highlights the demographic trends in the developed world at a high level, the remainder of the report focuses specifically on population ageing in an Irish context and the related impact on the public finances in Ireland. This begins by investigating the evolution of some of the key demographic variables in Ireland and their projected future paths.

### 3.1 Current demographic structure in Ireland

Ireland’s current age structure compares favourably to other EU countries. Ireland currently has the highest share of population aged under 20 years old (27.1 per cent), the joint lowest median age (37.7 years) and the lowest share of the population aged 65 or above in the EU (14.1 per cent). However, the composition of Ireland’s population is set to change significantly over the coming decades with a notable increase in the OADR.

The Irish population aged 20 and over amounted to approximately 3.6 million in 2019.<sup>12</sup> The population aged 20-64, a proxy for the working age cohort, stands at approximately 2.9 million<sup>13</sup> at present while those aged 65 and over in the Irish population amount to just over 700,000. This implies an OADR of 24 per cent, i.e. there are around 4 people of working age for each retiree. As evident from Figure 4, Ireland’s OADR is currently amongst the lowest in the EU at present. At the other end of the spectrum, Finland and Italy’s OADRs of 39 per cent mean that there are currently only 2 and a half people of working age to ‘support’ each retiree in those countries. The EU average is 34 per cent.

**Figure 4: EU member states old age dependency ratios in 2019, per cent**



Source: Eurostat.

<sup>12</sup> Eurostat.

<sup>13</sup> While the State Pension Age in Ireland is 66 years of age, and recipients can work beyond that age, the use of the 20-64 is viewed as a good proxy of the working age population and is useful particularly in the context of international comparisons.

## 3.2 Evolution of main demographic variables in Ireland

While at present the demographic picture looks positive from an Irish point of view for the reasons outlined above, a significant shift in the demographic structure of the Irish population is expected over the coming decades. As discussed in section 1, the European Council, through its Economic Policy Committee (EPC), undertakes an exercise every three years to produce long-term age-related expenditure projections based on updated demographic projections from Eurostat. These expenditure projections are subsequently published in tri-annual *Ageing Reports*. The projections from the 2021 Ageing Report, as outlined in this report, are underpinned by Eurostat's latest long-term demographic projections, known as *EUROPOP2019*. This section will provide an overview of the projected evolution of the key demographic variables in an Irish context from this projection exercise. Table 1 below highlights the evolution of a number of these key demographic variables.

**Table 1: evolution of the main demographic variables in Ireland**

	unit	2019	2030	2040	2050	2060	2070	peak
Total population	000	4,936	5,526	5,922	6,225	6,405	6,500	2070
Population growth rate	% p.a.	1.4	0.8	0.6	0.4	0.2	0.1	2019
Population 20-64 growth rate	% p.a.	1.4	0.8	0.0	0.0	0.2	-0.1	2019
Share of working age pop	%	58.8	58.6	56.6	53.3	52.6	51.9	2019
Old age dependency ratio	%	24.2	30.3	37.4	46.5	50.0	53.0	2070
Males - life expectancy	Years	81.1	82.1	83.4	84.6	85.7	86.8	2070
Females - life expectancy	Years	84.8	85.8	87.1	88.3	89.4	90.4	2070
Net migration	000	32.7	19.3	16.1	14.4	12.1	10.5	2020

p.a. = per annum.

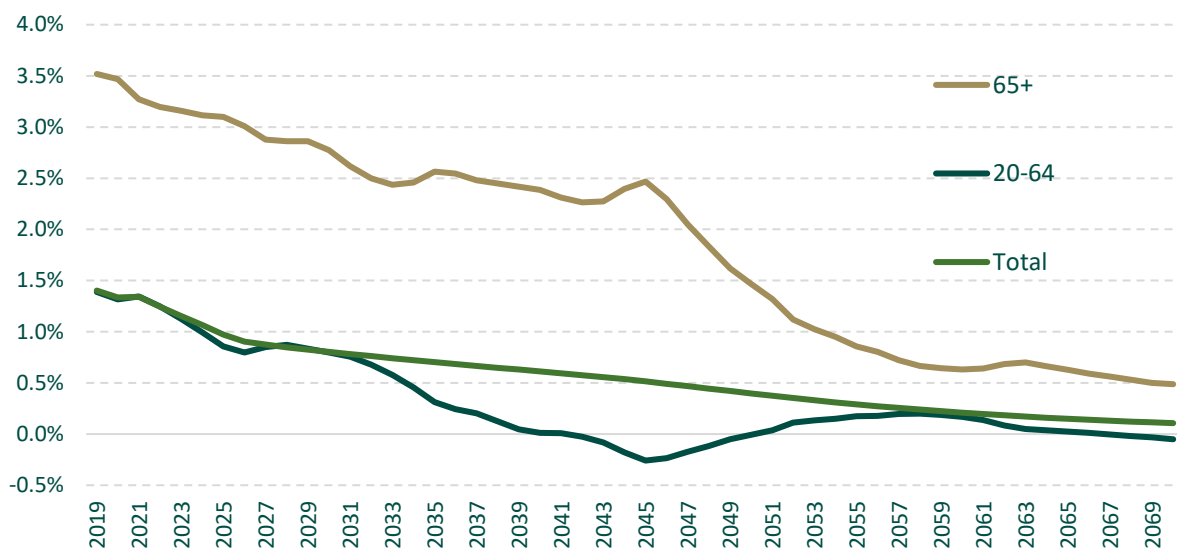
Life expectancy refers to 'at birth',

Based on Ageing Report framework. Source: 2021 Ageing Report and European Commission.

The Irish population is projected to grow by 1.0 per cent on average each year until 2030, with assumed positive contributions from 'natural' factors (births are assumed to exceed deaths) and from net inward migration, before growing at 0.6 per cent on average per annum until the mid-point of the century, reaching 6.2 million.

Thereafter, the pace of annual population growth is expected to more than halve to 0.2 per cent, with the population reaching 6.5 million in 2070. Critically, however, as evident from Figure 5, the population aged 65 and over is set to grow significantly faster than the population aged 20 to 64, i.e. the working age population, over this period.

**Figure 5: annual population growth in Ireland by age cohort, y-o-y growth**



Source: Eurostat.

The projection for the population at a point in time is determined by the evolution of three variables:

- the number of births;
- the number of deaths;
- migration flows.

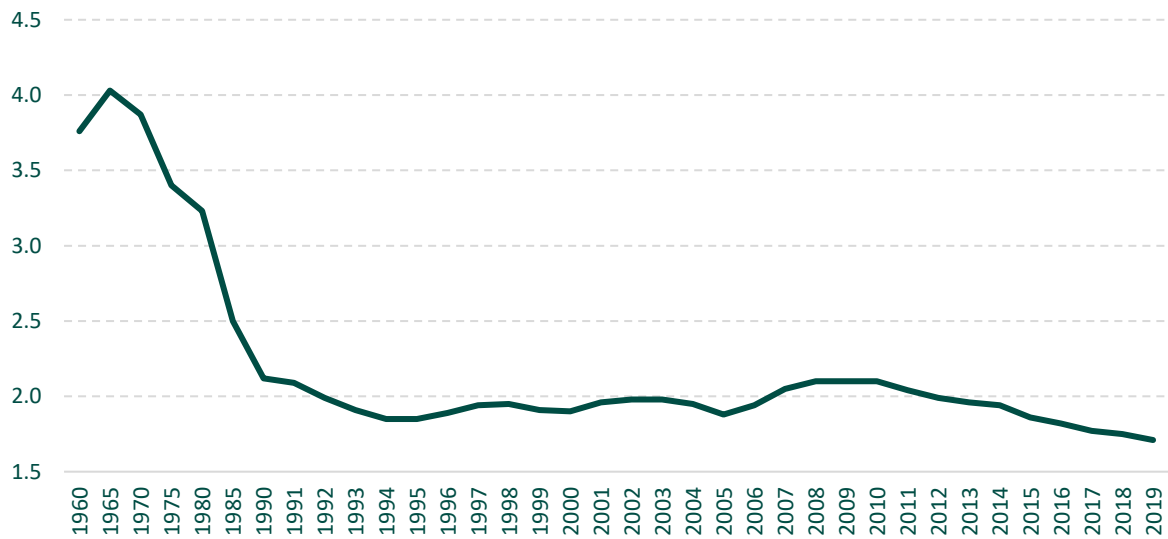
The evolution of these variables are discussed below.

### 3.2.1 Natural increase (births minus deaths) and life expectancy

Eurostat projections suggest fertility rates in Ireland, which have historically been comparatively high in a European context, are expected to remain well below levels seen in the early and mid-part of the last century.

The fertility rate in Ireland is projected to average 1.8 between 2019 and 2070. This is below the 'replacement level' of 2.1, i.e. the fertility rate needed to ensure a broadly stable population, assuming no change in mortality rates and no net migration. This rate is also considerably below the average fertility rate of 3.3 recorded in Ireland over the 1960-1990 period, as evident in Figure 6 below. The fertility rate fell dramatically between 1965 and 1994, from 4.0 to 1.9. There was some pick-up in the rate between 2007 and 2011, when the rate peaked at 2.1, however the rate has been falling again since, albeit at a relatively slow pace.

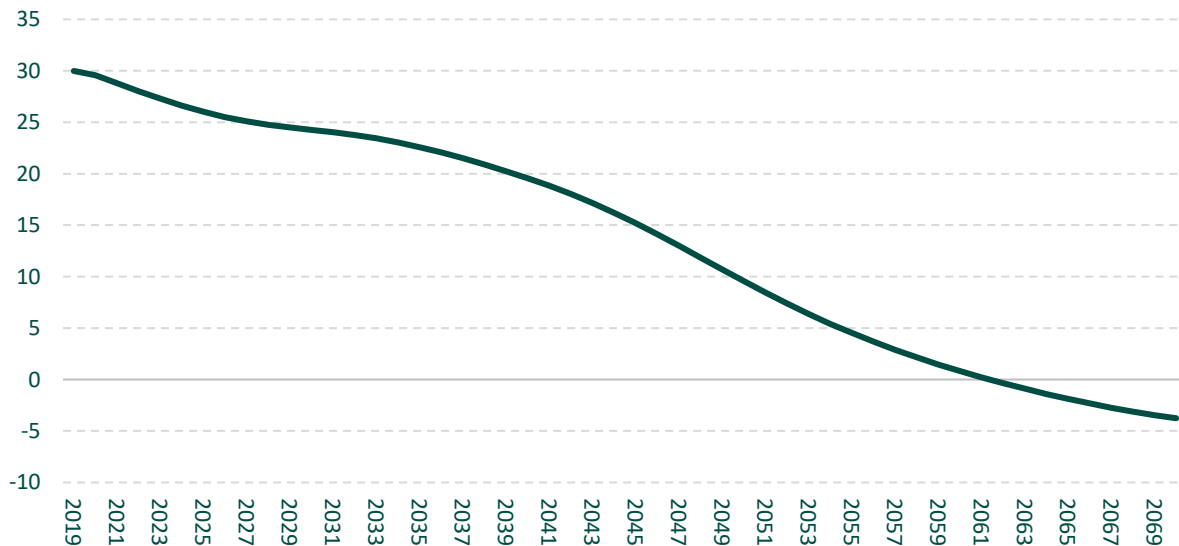
**Figure 6: total fertility rate in Ireland, number**



Source: Central Statistics Office and Eurostat.

Reflecting the recent reduction in fertility rates in Ireland, the natural increase in the population, i.e. births versus deaths, is expected to decelerate – eventually turning negative in 2062 (Figure 7). A high-level analysis of recent trends in the natural increase in Ireland is presented in Box 1.

**Figure 7: natural increase in Ireland, thousands**



Source: Eurostat.

### Box 1: natural increase in population in Ireland 1960-2020

Recent data published by the CSO show the natural increase in the Irish population, i.e. the difference between births and deaths, fell to its lowest level since 2000 last year.<sup>14</sup> The natural increase of just below 24,200 in 2020 was approximately half the level it was in 2008.

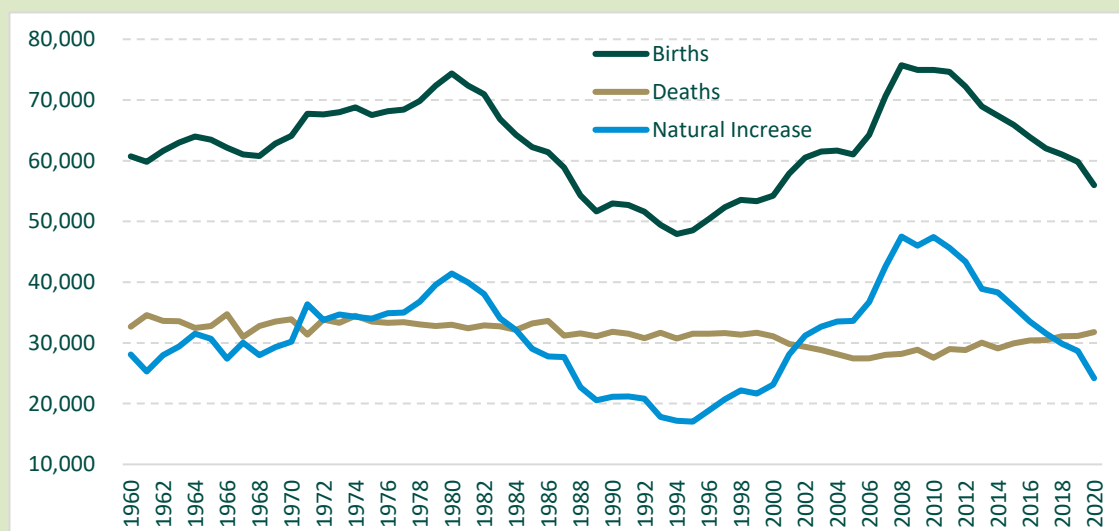
The natural increase has been on a downward trajectory over the last decade. As can be seen from the figure below, the recent decline in the natural increase has been driven nearly exclusively by a fall in the annual number of births in the country. In fact, the number of deaths per year has remained reasonably static over the last 60 years (even with a large increase in the population size over the same time).

This decline in the natural increase followed a sharp increase in the number of births in Ireland in the early to mid-2000s. Indeed, between 2000 and 2008, births increased by an average of 4 per cent each year. The primary driver of this increase had its origins in the 1970s and 1980s, a period with very high birth rates. Women born in this period reached the main child-bearing age groups between 2000 and 2010, resulting in an increase in children born in this period. This period also coincided with EU enlargement in 2004 and significant net inward migration in Ireland. For example, in 2008 about 9 per cent of the total births in Ireland that year were to mothers from one of the accession states.<sup>15</sup>

Since 2009, the number of births recorded in Ireland has been falling by an average of 2.5 per cent per year. The decline was particularly notable last year, with the level of births falling by nearly 4,000 (-6.4 per cent) from the levels seen in 2019.

Strikingly, as explained above, the natural increase is projected by Eurostat to turn negative over the next 50 years.

#### Natural increase in Ireland 1960- 2020



Source: Central Statistics Office

Turning to life expectancy in Ireland, as is the case in most advanced economies, this is expected to continue rising. Male life expectancy is expected to increase by 5.7 years from 2019 to 86.8 by 2070, while female life expectancy is expected to increase by a similar degree, 5.6 years, to 90.4 by the same point (Figure 8).

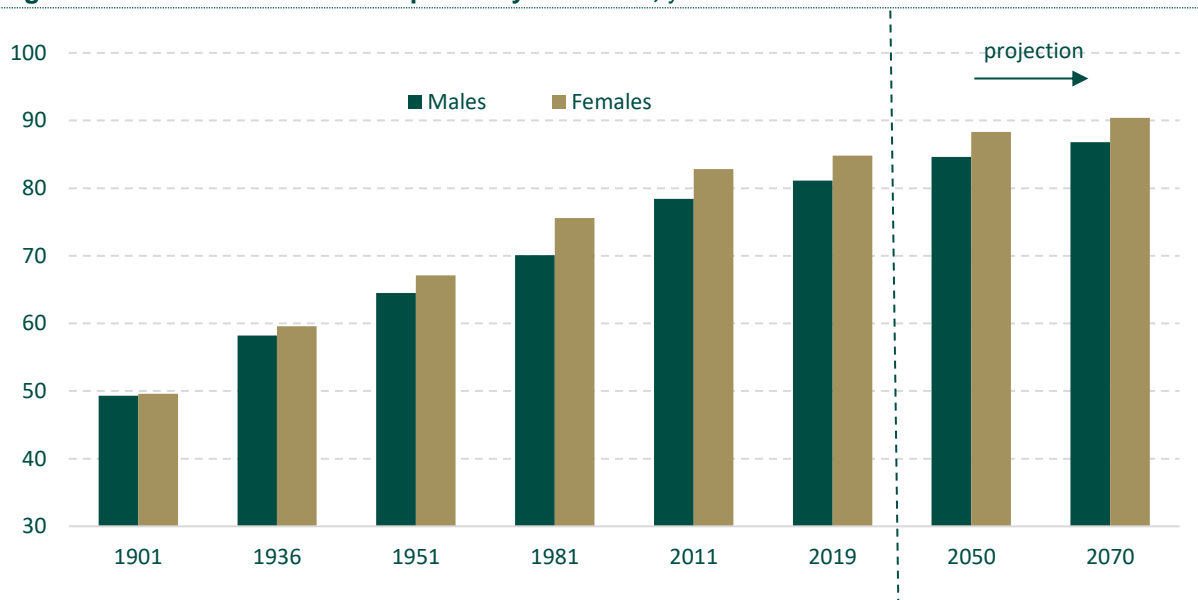
As outlined already, Ireland currently has a comparatively favourable demographic picture. Despite this, one driver of the impending shift in the population structure can already be seen when the life expectancy of those who have recently reached retirement and those born today is compared. Males

<sup>14</sup> CSO Vital Statistics Quarter 4 2020.

<sup>15</sup> CSO Vital Statistics Annual Report 2008.

born today are expected to live 17 years longer than those born in 1951, the cohort that reached the State Pension Age (SPA) in 2017, while females are expected to live 18 years longer. The long-term projections suggest this trend will continue and by 2070 life expectancy for males in Ireland will be 22 years greater than it would have been in 1951, while females born in 2070 will be expected to live 23 years longer than those born in 1951.<sup>16</sup>

**Figure 8: male and female life expectancy in Ireland, years at birth**



Source: Central Statistics Office and Eurostat.

### 3.2.2 Migration

Migration is an additional important channel for changes in the population, playing a particularly big role in historic changes to the population in Ireland. Ireland has seen several strong waves of migration flows prompted by periods of economic stagnation, relatively poor living standards and a lack of employment opportunities. For instance, between 1951 and 1971, net outward migration averaged approximately 28,000 people per annum – the equivalent of a net loss to emigration of 1.0 per cent of the total population each year. While the 1970s saw some net inward migration, significant net outward migration resumed in the late-1980's, with average net outflows of more than 30,000 people per annum between 1985 and 1989.

The 1990s brought significant change in economic conditions in Ireland, with substantial net inflows of people from the second half of the decade. Changed economic conditions and, in particular, a material improvement in living standards in Ireland from the second half of the 1990s resulted in substantial net inflows. Over the 1996-2008 period, average net inward migration amounted to 40,000 people per annum, the equivalent of 1.0 per cent of the population each year. Inward migration peaked in 2007, with net inflows of 105,000 people, or 2.4 per cent of the population. The credit-fuelled bubble experienced in the noughties, which raised the output of labour-intensive sectors such as construction and retail, acted as a strong pull factor, attracting large inflows of workers. At the same time, the pool of potential workers greatly increased as Ireland allowed full labour market access to the citizens of the 10 new Member States that joined the EU in May 2004

<sup>16</sup> When comparing the Eurostat life expectancy assumptions to historic life expectancy series from the CSO's Vital Statistics Life Tables (VSA30).



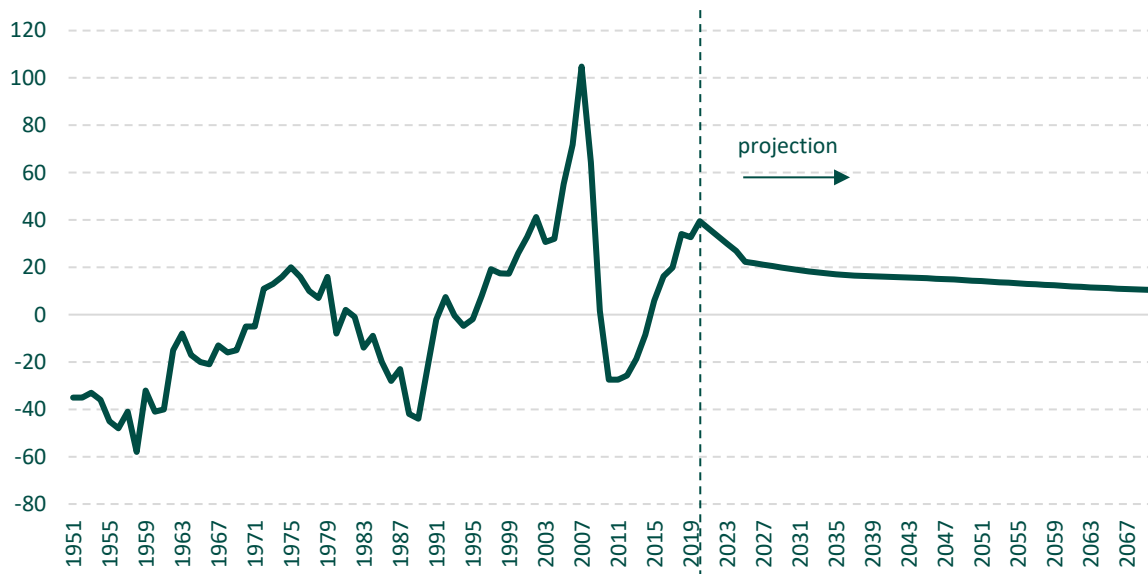
The eventual bursting of the credit bubble in the latter part of the decade saw a significant shift in migratory patterns in Ireland with large net outflows experienced between 2010 and 2014. The stabilisation of the economy and recovery in the labour market resulted in the return of net inward migration. The strong performance of the Irish economy and, in particular, the Irish labour market, with more people at work than ever before, was reflected in the substantial inward flows seen in the last number of years, prior to the Covid-19 pandemic. Indeed, net inward migration of more than 30,000 people per annum was recorded in both 2018 and 2019.

As evidenced by the trends discussed above, the migration picture in Ireland is heavily linked to the economic cycle, and as such, future volumes of migration can be difficult to predict. The Covid-19 pandemic adds an additional complexity to this exercise as it remains to be seen whether the pandemic will fundamentally change people’s behaviours when it comes to migration, or working patterns.

Such complexities mean projections of future migration flows over a long horizon are subject to wide confidence bounds. However, given the attractiveness of Ireland as a destination, it is not unreasonable to assume that inward migration will continue to be positive over the long-term, particularly once the recovery from the pandemic has taken hold. Ireland is a high-income country and, as such, is likely to remain a destination country for migrants.

Between 2019 and the mid-point of the century, these projections assume net migration to average approximately +20,000 per annum, broadly in line with the CSO’s M2 migration scenario.<sup>17</sup> From 2050-2070, net migration is projected to average +12,000 per year.

**Figure 9: net migration in Ireland 1951-2070, thousands**



Estimates of net migration 1951-2018 based on annual population estimates from the Central Statistics Office. Net migration from 2019 onwards based on Eurostat’s EUROPOP2019 projections. Source: Central Statistics Office and Eurostat.

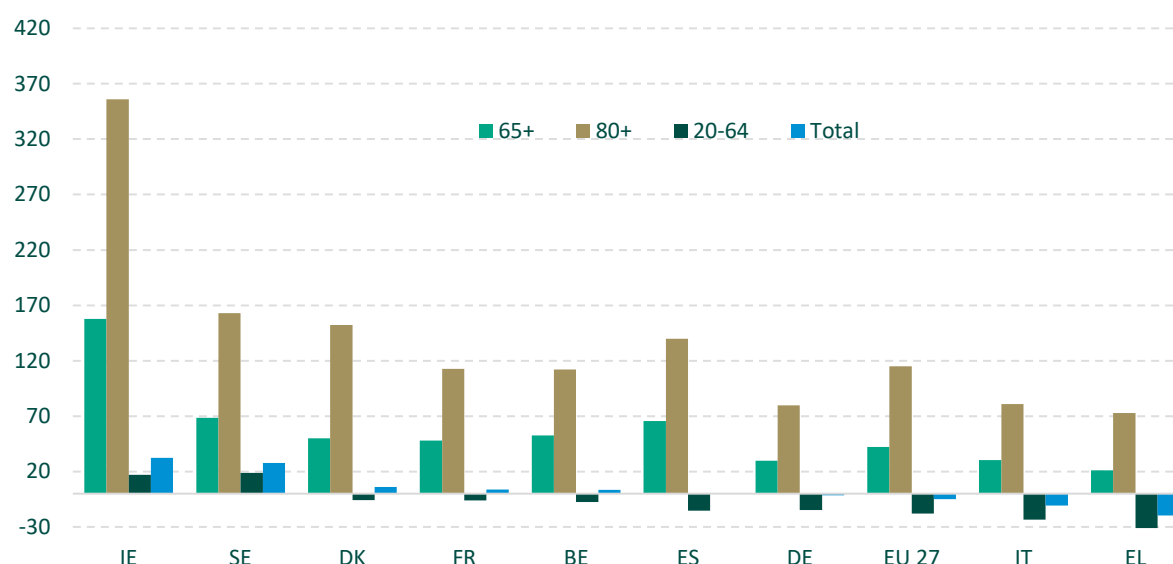
<sup>17</sup> Migration assumption from the CSO’s Population and Labour Force Projections 2017-2051. The CSO used three migration assumptions to underpin their long-term pension projections. The M2 migration scenario represents the midpoint scenario with net inward migration of 20,000 per annum assumed (M1 assumed net migration of +30,000 and M3 assumed +10,000 per annum. As highlighted by the CSO, annual average net inward migration for the 20 year period from 1997 - 2016 was 21,400. Therefore, the M2 scenario reflects both current and 20-year average net inward migration trends. More details available at: <https://www.cso.ie/en/releasesandpublications/ep/p-plfp/populationandlabourforceprojections2017-2051/>

It is important to note that, given the timing of their production and publication in the first quarter of 2020, Eurostat’s EUROPOP2019 baseline population projections do not make any assumptions regarding the impact of the Covid-19 pandemic. At the time of the publication of this Report, many pandemic-related travel restrictions remain in place. As such, it is difficult to anticipate the impact the pandemic may have on migration over the coming years and indeed, over the long-term.

### 3.3 Projected population picture in 2070

While the demographic projections expect a large rise in the Irish population out to 2070, the composition of the population will be very different by this point. As explained above (and shown in Figure 5), the population aged 65 and over, the proxy for the retired population, is expected to grow significantly faster than the working age population. This will have a substantial impact on the age-profile of the population. As evident in Figure 10 below, the size of the population in Ireland aged 65 and over, and 80 and over will increase dramatically between 2019 and 2070. The change in the composition of the population will be much more dramatic than most other EU member states.

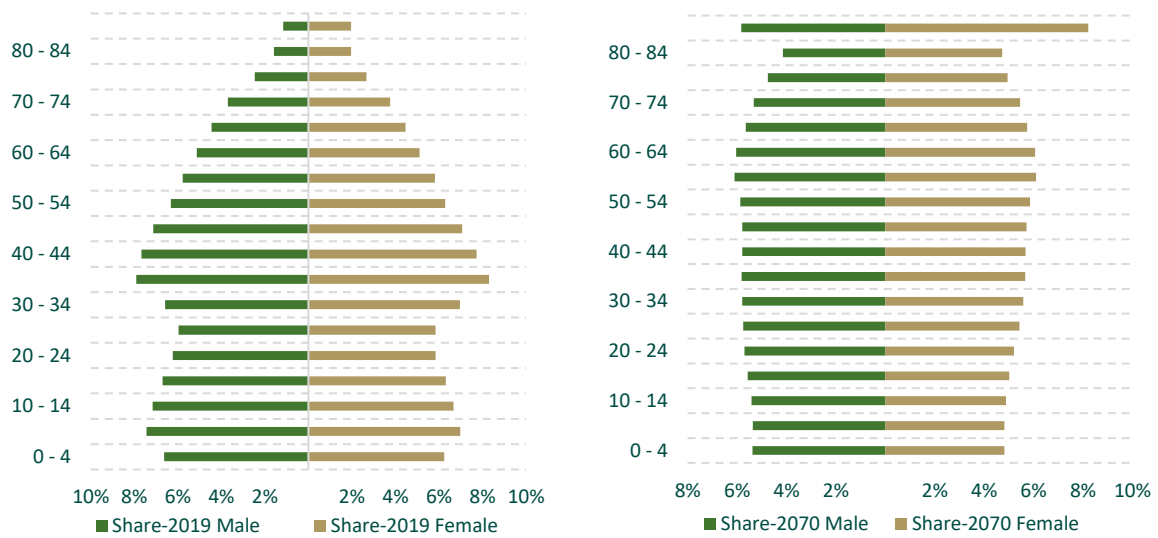
**Figure 10: projected population change by age group 2019- 2070, percentage point change**



Source: Eurostat.

The projected shift in the composition of the Irish population is clearly visible in Figure 11 below. This figure shows the so-called ‘population pyramid’ – the share of the population accounted for by each five-year age cohort in 2019 and in 2070. Indeed, the share of those aged 85 and over is expected to be roughly 4 times higher than was the case in 2019. While the share of the Irish population in the 85 and over bracket was the smallest of all the cohorts in the pyramid in 2019, by the end of the projection period, it is projected to become one of the largest.

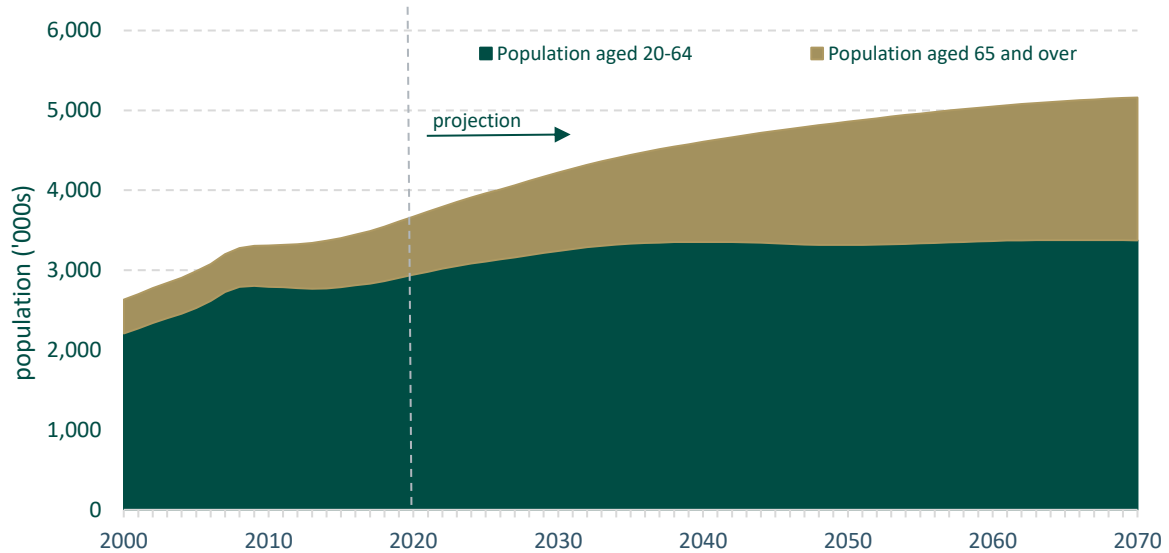
**Figure 11: population pyramids in Ireland, 2019 and 2070**



Source: Eurostat.

In addition, the share of the working age population (WAP), defined here as those aged 20-64 relative to the total population, is set to decline consistently over the projection period, from 58.8 per cent in 2019 to 51.9 per cent in 2070.

**Figure 12: population aged 20 and over in Ireland by age group**



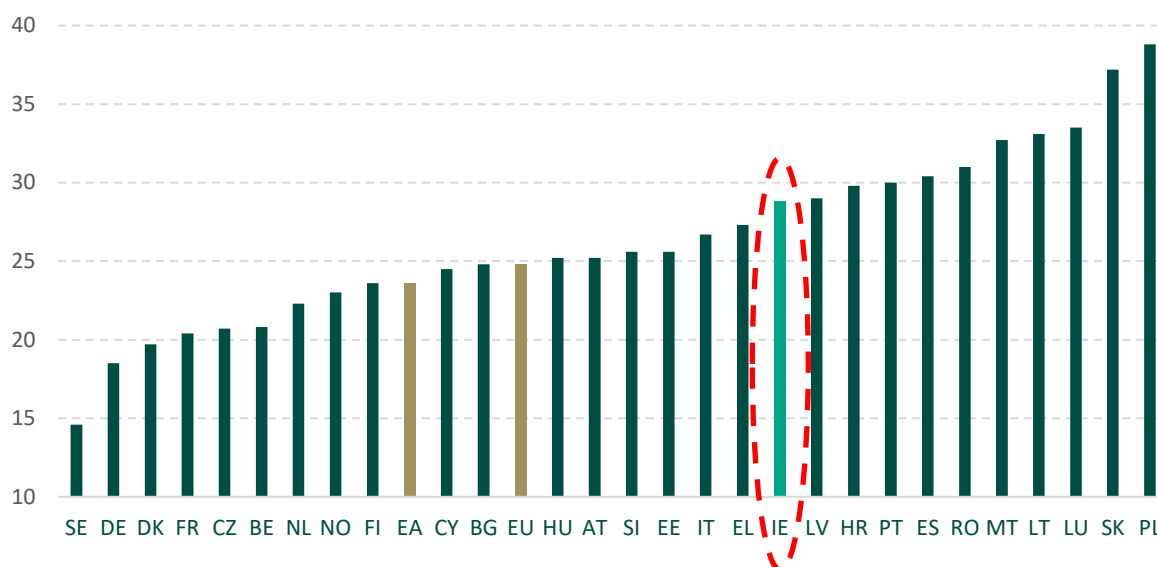
\* 2000-2013 population data from the CSO. Population estimates from 2014 onwards are based on Eurostat estimates/projections. Source: CSO Population and Migration estimates, Eurostat EUROPOP 2019 and Eurostat demography and migration database

Reflecting these changes, the OADR in Ireland, is set to more than double from 24.2 per cent in 2019 to 53.0 per cent in 2070.<sup>18</sup> These developments will make Ireland one of the most rapidly ageing EU

<sup>18</sup> The OADR is defined here as the population aged 65 and above divided by the population aged 20-64. This definition allows international comparison. The State Pension Age in Ireland is 66 years of age. If the OADR is reclassified as the ratio of the population aged 66 and above divided by the population aged 20-65, the OADR would be projected to more than double from 22 per cent in 2019 to 50 per cent in 2070.

Member States, as evident in Figure 13, which shows Ireland is set to have one of the biggest increases in its OADR in Europe.

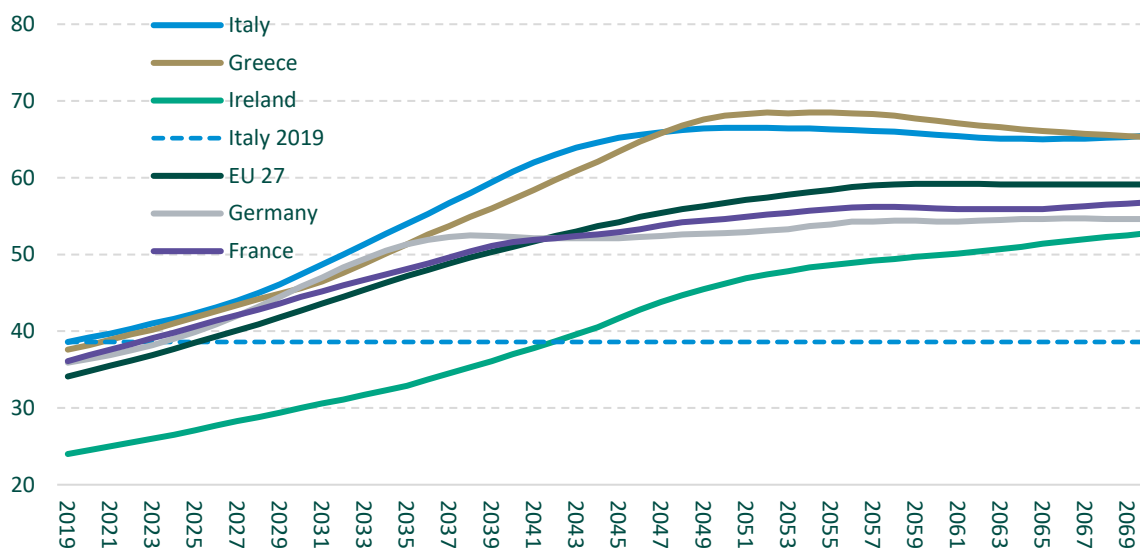
**Figure 13: change in the old-age dependency ratio 2019-2070, percentage point change**



Source: Eurostat.

Such changes will see Ireland converge towards EU norms in terms of demographic structure by 2070. Strikingly, the OADR in Ireland is set to overtake the current equivalent figure in Italy, a country viewed as already battling the adverse effects of an aged population, over the next 20 years.

**Figure 14: old-age dependency ratio - comparison with other EU Member States, per cent**



Source: Eurostat.

### **3.4 Summary**

Ireland currently has a favourable demographic profile. In fact, it currently has the joint lowest median age in the EU. This profile is set to change dramatically in the coming decades however, with Ireland projected to be one of the fastest ageing populations in Europe. This is highlighted by the fact that in just 30 years, the ratio of workers for each retiree in Ireland is expected to fall from 4-to-1, to just 2-to-1.

## Chapter 4

# Evolution of potential growth

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Long-term economic forecasts rely on the assumption that output moves in line with the growth rate of labour input (labour supply) together with an assumption for how productive each unit of labour is (labour productivity). In other words, the economy is assumed to move in line with its growth potential – that is, over the long-run, capital and labour are assumed to be deployed at their maximum sustainable levels. Of course, actual demand from year-to-year will fluctuate around this level in line with the business cycle but, on average, the trend growth rate of the economy is determined by the quantity of available inputs and the economy's ability to combine these inputs in order to produce outputs.

While labour productivity across the EU is assumed to converge, the growth rate of labour supply in Ireland is expected to slow significantly by the mid-point of the century, as a result of the ageing of the Irish population. As a result, GDP growth over the next half century is projected to slow relative to current growth rates.

### 4.1 Main components of potential growth

The baseline outlook envisages a Covid-related fall in GDP growth from 5.5 per cent in 2019 to -8.0 per cent in 2020 before recovering in 2021 (6.0 per cent). The long-term macroeconomic projections underpinning the projections in this report are based on the European Commission's Spring 2020 forecasts, published in May 2020. As such, they do not include the revised estimates of growth in 2020 subsequently published by the Central Statistics Office.

Given the scope of the exercise and the focus on the long-term structural elements of the Irish economy, revisions of the short-term growth forecasts since May 2020 do not alter the long-term picture. Considering this, growth is expected to slow to an average of 2.5 per cent from 2022 to 2030, stabilising thereafter at an average of 1.6 per cent per annum over the rest of the projection period to 2070.<sup>19</sup>

#### 4.1.1 Labour input (supply)

Labour input is a function of both the size of the workforce and the number of hours worked by each worker. Workforce projections are based on demographic projections, which, as outlined in the previous section, envisage a substantial slowdown in the growth of the working age population. The number of hours worked by each worker is projected to decline modestly over the next decade or so, and to flat-line thereafter. As a result, the contribution of labour input, i.e. total hours worked, to potential GDP is projected to decline significantly over the next half century.

#### 4.1.2 Labour productivity

With a projected slowdown in labour input, the sources of growth are expected to change dramatically over the projection horizon. In particular, growth will be driven mainly by gains in labour productivity. Indeed, labour productivity growth is expected to account for over 4/5ths of projected GDP growth over this timeframe, averaging around 1.6 per cent per annum.

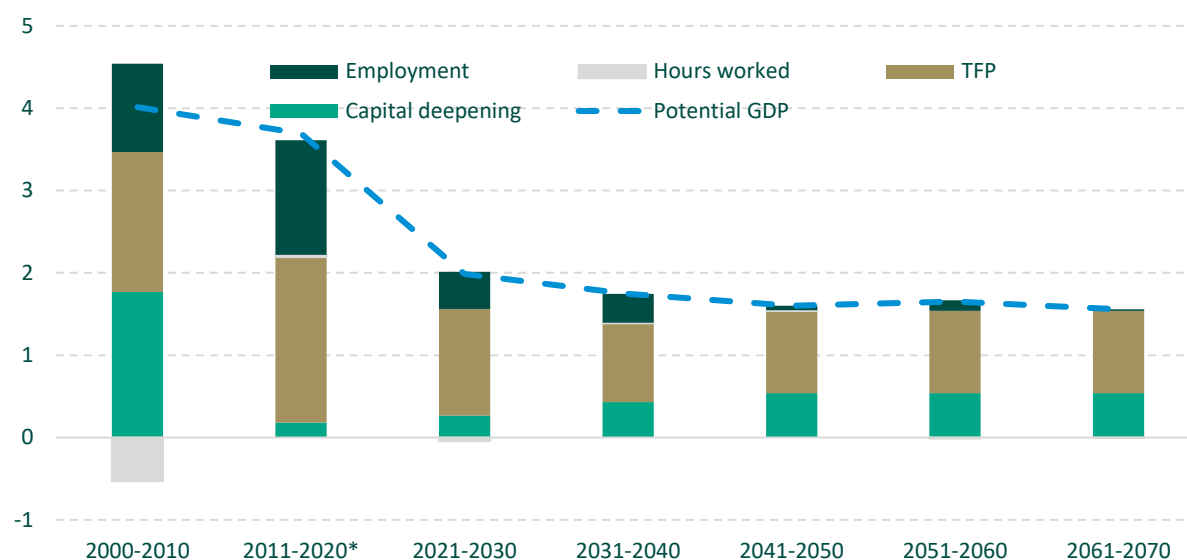
The projections for labour productivity are based on technical assumptions regarding developments for total factor productivity (TFP) and capital deepening. TFP growth, i.e. the efficiency with which capital and labour are combined to produce output, is assumed to converge to 1.0 per cent in the long-run.

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<sup>19</sup>Expenditure and fiscal ratios in this report are primarily reported as a share of GNI\*. GNI\*, in turn, is assumed to grow in line with GDP projections.

Capital deepening, i.e. the amount of capital per worker, is assumed to converge to a steady-state value of 0.5 per cent in the long-run.

**Figure 15: evolution of potential GDP 2000-2070, average annual growth rate**



\* due to statistical distortions, 2015 is not included. Source: Department of Finance and Ageing Report 2021.

Table 2 below sets out the projected evolution of the main macroeconomic variables.

**Table 2: Evolution of GDP, growth rate per cent per annum**

	2019	2030	2040	2050	2060	2070	peak
Actual GDP	5.5	1.4	1.7	1.6	1.7	1.5	2021
1. Potential real GDP (1=2+3)	5.6	1.4	1.7	1.6	1.7	1.5	2019
2. Labour input (2= 2a+2b)	2.1	0.3	0.2	0.1	0.1	-0.1	2019
: Employment (2a)	2.1	0.3	0.1	0.1	0.1	-0.1	2019
: Hours worked per employee (2b)	0.1	0.0	0.0	0.0	0.0	0.0	2019
3. Labour productivity (3= 3a+3b)	3.4	1.2	1.5	1.5	1.5	1.5	2020
: Total Factor Productivity (TFP) (3a)	1.6	0.9	1.0	1.0	1.0	1.0	2024
: Capital deepening (3b)	1.8	0.3	0.5	0.5	0.5	0.5	2019
GDP per capita	4.1	0.6	1.1	1.2	1.4	1.4	2019

Source: Ageing Report 2021.

## 4.2 Summary

GDP growth over the next half century will, in all likelihood, slow relative to current growth rates, as labour supply increases more modestly as a result of population ageing. As such, any increases in output growth over the long-term will be reliant on significant productivity gains. Considering government revenues are closely linked to growth, a slowdown in output growth is likely to have an impact on government revenues too. As the population ages, placing considerable upward pressure on demographically sensitive expenditure, a slowdown in output- and by extension, government revenues -will make it more difficult to meet these increased expenditure demands.

## Chapter 5 Age-related expenditure projections

This section outlines the projected long-term expenditure projections related to the demographic changes discussed in the previous section. Under the Ageing Report framework, total age-related spending is made up of pension, health care, long-term care and education expenditure.<sup>20</sup> The below table details the main drivers of age-related expenditure, providing a quick synopsis on how the projections were compiled. The base year for these projections is 2019.

**Table 3: Components of age-related expenditure**

Component	Volume	Price	Δ 2019-2070 (p.p. GNI*)
Pension	Number of Pensioners = population projections * pension coverage rate	Base year: Pension rates in 2019.	+4.9
Health Care	Number of Recipients = population projections * health status profiles	Base year: Average health expenditure per recipient in 2019. Projections: indexed to GDP per capita.	+2.3
Long-Term Care	Number of Recipients = population projections * size of incapacitated population * health status profiles	Base year: Average long-term expenditure per recipient in 2019. Projections: indexed to GDP per capita.	+3.1
Education	Number of Students = population projections * enrolment rate	Base year: Average expenditure per student in 2019. Projections: Indexed to GDP per capita	-0.2

Source: Ageing Report 2021 and Department of Finance calculations.

### 5.1 Age-related expenditure projections

Table 4 sets out the projected increase in age-related expenditure over the period 2019-2070. As outlined in section 1, the demographic assumptions underpinning these expenditure projections do not take into account any impact from the Covid-19 pandemic, while the macroeconomic projections assume a V-shaped recovery with a fall in GDP of 8.0 per cent in 2020 and GDP growth of 6.0 per cent in 2021.

As outlined in Section 4, Ireland currently has a favourable demographic structure. Despite this, age-related expenditure still amounted to 21 per of GNI\* in 2019. Furthermore, this cost is expected to increase by an average of nearly 0.3 percentage points of GNI\* or €650 million each year in the short-term. As a result, by 2030, age-related expenditure is expected to cost an additional 3.4 percentage points of GNI\* a year compared to 2019, the equivalent of an extra €7 billion a year, in today's terms.<sup>21</sup>

<sup>20</sup> As part of the Ageing Report framework, individual member states are responsible for the provision of the pension expenditure projections while the European Commission provide the health, long-term care and education expenditure projections with input from member states.

<sup>21</sup> Based on estimates of GNI\* in the CSO's 2019 National Income and Expenditure publication.



Over the long-term, as the population ages significantly, annual age-related expenditure is projected to increase to 31.5 per cent of GNI\* by 2070, an increase of 6.2 percentage points of GDP, or 10.1 percentage points of GNI\* compared to annual expenditure in 2019.

**Table 4: annual age-related expenditure projections 2019-2070, per cent of GNI\*<sup>22</sup>**

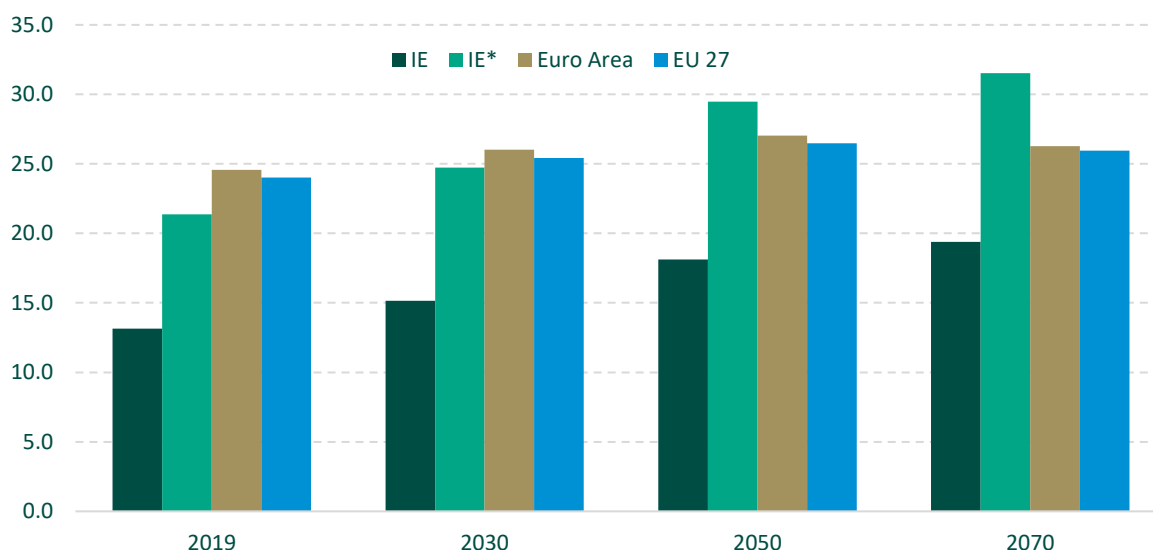
	2019	2030	2040	2050	2060	2070	Δ2019-2070
Pension	7.4	9.6	11.2	12.1	12.2	12.3	+4.9
Health care	6.6	7.2	7.8	8.3	8.7	8.9	+2.3
Long-term care	2.0	2.7	3.2	3.9	4.5	5.1	+3.1
Education	5.3	5.3	5.0	5.2	5.2	5.1	-0.2
Total age-related	21.4	24.7	27.2	29.5	30.6	31.5	+10.1

Based on Ageing Report framework.

Source: 2021 Ageing Report, European Commission and Department of Finance.

Pension-related expenditure, which amounted to approximately 7 per cent of GNI\* in 2019, the largest single component of expenditure, is projected to increase by 4.9 percentage points. As a result, this component of public expenditure is projected to account for around one-third of all age-related expenditure by 2070 (this is discussed in more detail in section 5.2). Expenditure on healthcare and long-term care is projected to increase by 2.3 and 3.1 percentage points of GNI\*, respectively, under the baseline scenario. Operating in the other direction, the projected expenditure on education is expected to decrease by 0.2 percentage points over the projection period, to 5.1 per cent of GNI\*. Overall, projected age-related expenditure in Ireland, as proportion of GNI\*, is set to overtake the EU and euro area average over the next 20 years (Figure 16).

**Figure 16: projected change in age-related expenditure, percentage points of GDP unless stated**

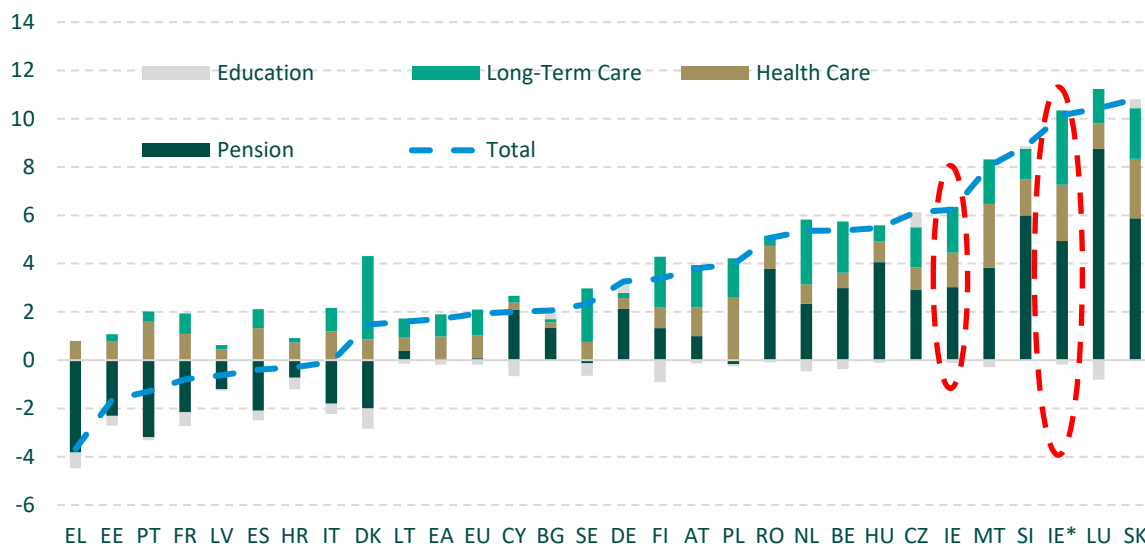


Source: IE\* refers to Irish age-related projections scaled by GNI\*. European Commission and Department of Finance calculations.

<sup>22</sup> Statistical distortions to GDP, that overstate the size of the Irish economy, mean expenditure projections scaled by GDP can paint an overly benign picture. GNI\* is also used as a denominator in an attempt to better capture the repayment capacity of the economy.

In addition, as evident in Figure 17 below, Ireland is projected to have one of the largest increases in annual age-related expenditure in the EU over the coming decades, behind only Luxembourg and Slovakia, when the Irish projections are scaled by GNI\*.

**Figure 17: projected change in age-related expenditure, percentage points of GDP unless stated**



Source: IE\* refers to Irish age-related projections scaled by GNI\*. European Commission and Department of Finance calculations.

## 5.2 Pension expenditure projections

This section focuses on the pension expenditure component of the total age-related projections, the biggest component of age-related expenditure as defined by the Ageing Report framework. These projections, compiled by the Department of Finance, have been endorsed by the European Commission and members of the AWG following an extensive peer review process. In line with the *Social Welfare Act 2020*,<sup>23</sup> enacted in December 2020, the no-policy framework under which these projections were produced, the baseline assumes the State Pension Age (SPA) stays constant at 66 years of age throughout the entire period.

The Irish pension system is a multi-pillar system. The first pillar relates to the State Pension, or Social Welfare pension, hereafter referred to as the '*Social Welfare pension*', a pay-as-you-go pension system administered by the Department of Employment Affairs and Social Protection (DEASP), funded through social insurance contributions and tax revenue. The second pillar consists of occupational pensions including the public service occupational pension scheme and private sector occupational schemes. The third pillar is made up of privately funded personal or voluntary pensions.

The projections presented below relate to public pensions, i.e. first pillar Social Welfare pensions and the public service component of the second pillar. The projections do not cover the private occupational pension component of the second pillar or the third pillar.<sup>24</sup>

<sup>23</sup> Social Welfare Bill 2020 repealed the previous legislated plans to increase the State Pension Age to 67 in 2021 and 68 in 2028.

<sup>24</sup> In line with the AWG framework. A full breakdown of the schemes included in the projections is provided Annex 2.

Table 5 below presents the main results of the pension projections exercise for Ireland. These projections are underpinned by a range of demographic, labour force and macroeconomic assumptions, as described in Sections 3 and 4.

Total pension expenditure (social welfare and public sector occupational pensions) is projected to increase from 7.4 per cent of GNI\* in 2019 to 12.3 per cent in 2070. The profiles of these two components of total pension expenditure differ significantly. Social welfare pension spending increases relatively consistently over the projection period. Expenditure is projected to increase by 2.8 percentage points of GNI\* between 2019 and 2040, before increasing by 2.6 percentage points to 11.3 per cent of GDP in the 30 years following that.

In contrast, public sector occupational pension expenditure is expected to increase by 1.0 percentage points of GNI\* by 2040 before falling by 1.6 percentage points after that. This fall can be attributed to several factors. These include the shift towards ‘integrated’ pensions over the forecast horizon. As a result, there is a substantial reallocation of expenditure from public sector occupational pension expenditure to social security pensions over the projection period. The fall is also driven by the introduction of the Single Public Service Pension Scheme for new public service entrants in 2013 (including indexation by CPI). Therefore, the rise in overall pension expenditure as a share of GDP is entirely driven by Social Welfare pension expenditure.

**Table 5: projected annual pension expenditure, as per cent of GDP**

	2019	2030	2040	2050	2060	2070
Social Welfare Pension	5.8	7.2	8.5	9.9	10.7	11.3
Public Sector Pension	1.6	2.4	2.7	2.3	1.5	1.1
Total Pension	7.4	9.6	11.2	12.1	12.2	12.3

Rounding may affect totals. Source: Department of Finance.

### 5.3 Summary

The anticipated *greying* of the Irish population is expected to put significant upward pressure on age-related expenditure over the coming decades. Indeed, in line with having one of the most rapidly aging populations in Europe, Ireland is set to have one of the largest increases in annual age-related expenditure, behind only Luxembourg and Slovakia. Digging into the detail, pensions are projected to be the largest component of this expenditure, followed by health care.

## Chapter 6

### Impact of ageing on key fiscal indicators

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The previous chapter sets out the projected cost of ageing in the context of national income. While the use of GNI\* to scale the expenditure projections presents a better indication of the repayment capacity of the Irish economy than simply scaling the ratios by GDP, additional analysis is still needed to examine the sustainability of the public finances in relation to the expected shift in the demographic structure of the population over the coming decades.

For illustrative purposes, the analysis in this section highlights the potential impact of population ageing on the budget balance and public debt in the event that budgetary policy did not adjust to the challenges posed by population ageing.

#### 6.1 Impact on the general government balance and debt-to-income ratio

In this no-policy-change scenario, non-age related expenditure as a share of GNI\* is assumed to remain unchanged over the forecast horizon while total revenue is assumed to move in line with nominal GDP/GNI\*.<sup>25</sup> In this simplified scenario, deficit and debt dynamics are driven solely by the age-related expenditure projections.

The starting point for this exercise is outturn fiscal data from 2019. While the macroeconomic projections underpinning this analysis envisage a sharp decline in output in 2020, they do not capture the significant increase in expenditure related to the support measures implemented by the Irish Government during the Covid-19 pandemic. As such, the deficit in this exercise in the short-term may be understated.

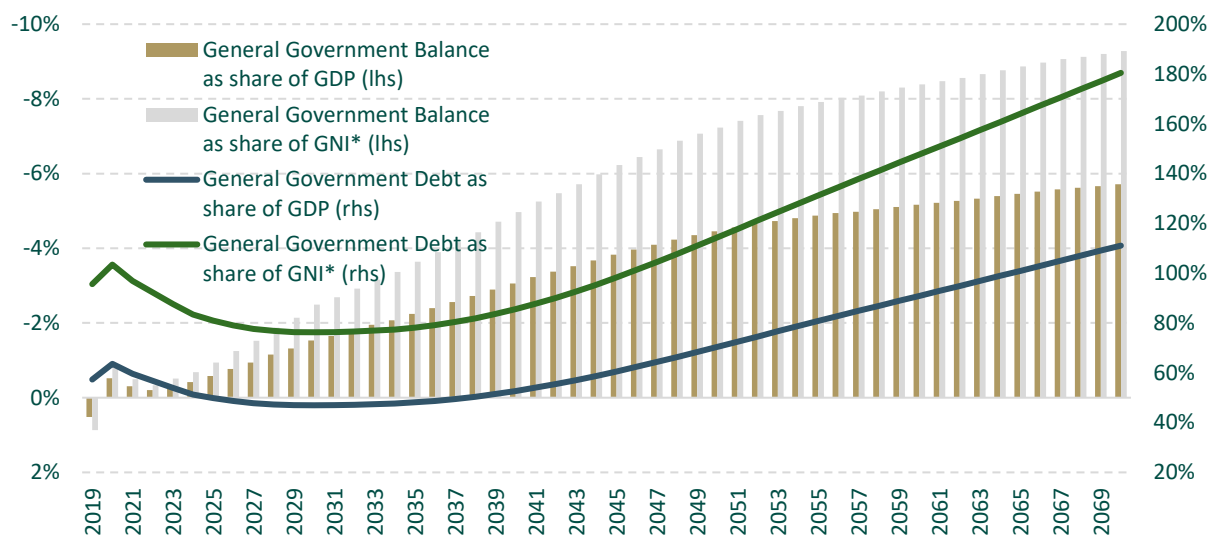
Despite this significantly more positive starting point, age-related increases in public expenditure and a slower pace of revenue growth lead to the emergence of a significant deficit by the end of the next decade, reaching just below 3 per cent of GDP (-4.7 per cent of GNI\*). The deficit is projected to continue to increase sharply thereafter, reaching just below 6 per cent of GDP (-9.3 per cent of GNI\*) by 2070, without policy intervention. As a result of these developments, the debt-to-income ratio is projected to increase by 54 percentage points of GDP, or 85 percentage points of GNI\* to reach 111 per cent of GDP, 180 per cent of GNI\*, by 2070.

It is important to note that the simulations do not take into account second round effects or non-linearities. For instance, continuing to run deficits of this magnitude would, almost certainly, result in a significant risk premium, with adverse implications for sovereign borrowing costs and the interest bill. Increases in interest rates with such elevated levels of debt would put significant pressure on the public finances.

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<sup>25</sup> Potential GDP/GNI\* growth is assumed to in parallel over the projection period.

**Figure 18: evolution of key fiscal ratios on a no-policy change basis, per cent ^**



^ does not capture impact of Covid-19 pandemic and related support measures. Source: Department of Finance.

This is of course a highly stylised scenario, however, it illustrates the impact of population ageing on the public finances and the need for policy intervention to ensure the sustainability of the public finances.

## 6.2 Summary

It is clear that, ceteris paribus, population ageing will have a significant impact on the public finances. The shift in the demographic structure of the Irish population will impact the Government's fiscal position through two distinct channels. Firstly, through the upward pressure on demographically-sensitive expenditure and secondly, through the anticipated moderation in revenue growth. Without policy intervention, such trends will see a large deficit and an unsustainable debt ratio immerge.

## Chapter 7

# Sensitivity scenarios

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In order to test the robustness of the pension projection results to a range of assumptions, a sensitivity analysis was carried out in line with the harmonised range of shocks agreed by the AWG.<sup>26</sup> The sensitivity scenarios are applied to the Social Welfare pension expenditure projections. These sensitivity scenarios can be categorised under the following headings: *demographic/labour market scenarios*, *macroeconomic scenarios*, and *policy scenarios*.

While the demographic/labour market scenarios are similar to the scenarios carried out in the last iteration of this report published in 2018, a scenario based around the possible impact that the pandemic might have on output in the economy was included. In addition, two policy scenarios relating to the impact on the public finances of changing the State Pension Age (SPA).

The section presents a summary of the main scenarios.

### 7.1 Demographic/labour market scenarios

Reflecting weaker growth in the working-age population relative to those aged 65 and over, a scenario with a fertility rate 20 percentage points lower than the baseline rate would suggest an increase in annual pension expenditure of 1.4 percentage points of GNI\* by 2070 compared to the baseline. Similarly, a scenario with higher life expectancy (by two years) results in an increase in annual pension expenditure of 0.6 percentage points of GNI\* by 2070, as, *ceteris paribus*, recipients spend longer in retirement.

Moving in the other direction, a scenario that envisages an employment rate of older workers (aged 55-74) 10 percentage points higher than the rate in the baseline, projects annual pension expenditure to be 0.5 percentage points of GNI\* lower than the baseline by 2070.

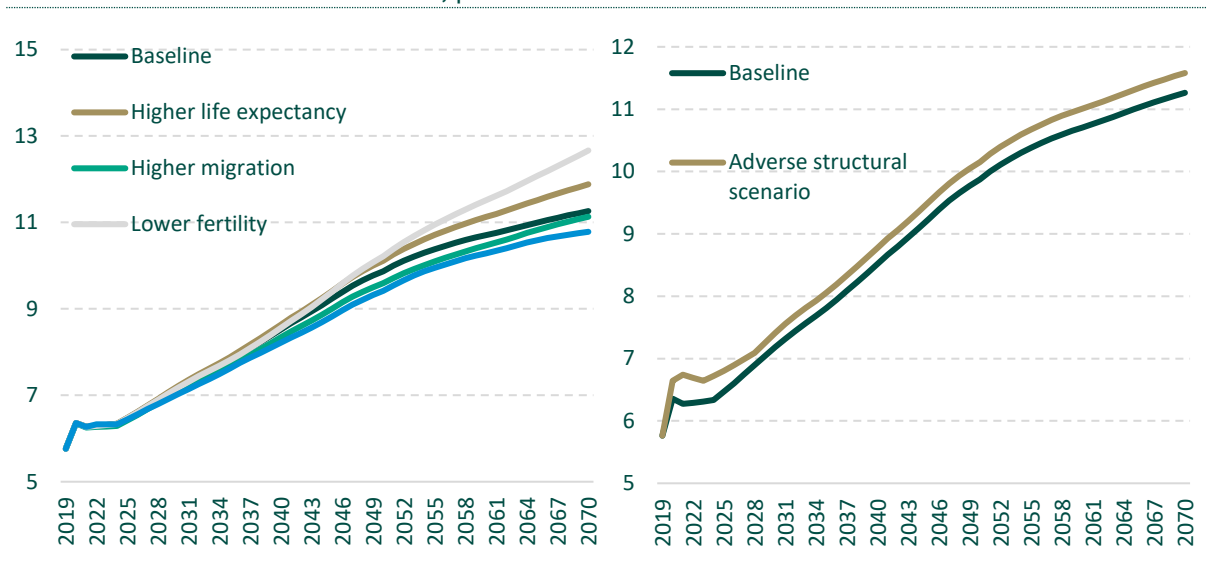
### 7.2 Macroeconomic/covid scenarios

It is important to note that detailed analysis of the impact of the Covid-19 pandemic is not included in the baseline projections. The demographic projections underpinning the projections, published in early 2020, do not take account of the impact of the pandemic on demographic indicators, while the macroeconomic projections assume a V-shaped recovery entailing a sharp decline in output in 2020 followed by a return to strong economic growth in 2021, with no long-term structural impact. A scenario that assumes a permanent impact on the growth capacity of the economy as a result of the pandemic is also included in the sensitivity scenarios. This adverse structural scenario assumes the growth capacity of the economy would be lower over the next decade as a result of the pandemic and potential output growth will therefore be permanently lower than in the baseline. Under this scenario annual pension expenditure is expected to 0.3 percentage points of GNI\* higher than the baseline by 2070.

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<sup>26</sup> The higher life expectancy scenario assumes an increase in life expectancy at birth of two years by 2070 compared to the baseline scenario. The higher employment rate of older workers scenario assumes an increase of 10 percentage points in the employment rate of older workers (55 to 74). The linking SPA to life expectancy scenario assumes the SPA increases to 67 in 2021 and 68 in 2028, after this, for every year of an increase in life expectancy, the SPA increases by  $\frac{3}{4}$  of a year. The adverse structural scenario additionally assumes that the growth potential would be lower over the next decade as a result of the pandemic and potential output growth will thus be permanently lower than in the baseline. It is assumed labour productivity growth would recover to a lower trend growth, through lower investment and/or TFP growth stemming from reduced business activity for a long period of time, with the crisis contributing to the historical downward trend. The larger fall in output and slower recovery would lead to unemployment becoming permanently higher due to lower business activity, resulting in a hysteresis effect and permanently higher unemployment.

**Figure 19: social welfare pension expenditure under selected demographic/labour market/macroeconomic scenarios, per cent of GNI\***



Source: Department of Finance.

### 7.3 Policy scenarios – change in the State Pension Age

Up until late 2020, and the passing of the Social Welfare Act 2020, the SPA was legislated to increase to 67 in 2021 and 68 in 2028. The Department of Finance has undertaken analysis on the projected long-term cost of this change in legislation, based on the SPA remaining at 66 years of age for the projection period.

Table 6 below outlines the difference from the baseline scenario, which assumes the SPA remains at 66, and a scenario in which the SPA increases as previously legislated for. As can be seen, modelling by the Department suggests keeping the SPA unchanged will result in significant increases in annual expenditure on pensions. By 2070, annual pension expenditure is expected to be 0.8 percentage points of GNI\* higher than would have been the case if the SPA increases in line with the previous legislated changes. Crucially, there is a significant divergence in costs from an early point in the projection period, as the original increase in the SPA to 67 was previously legislated to occur in 2021. Looking at this on a cumulative basis over the projection period, the estimated cost of this policy decision is projected to amount to €50 billion by 2070.<sup>27</sup>

**Table 6: social welfare pension expenditure projections, per cent of GNI\***

	2019	2030	2040	2050	2060	2070
Constant SPA	5.8	7.2	8.5	9.9	10.7	11.3
Previously legislated increases in SPA	5.8	6.7	7.9	9.1	10.0	10.4
<b>Difference</b>	<b>0.0</b>	<b>0.5</b>	<b>0.6</b>	<b>0.7</b>	<b>0.7</b>	<b>0.8</b>

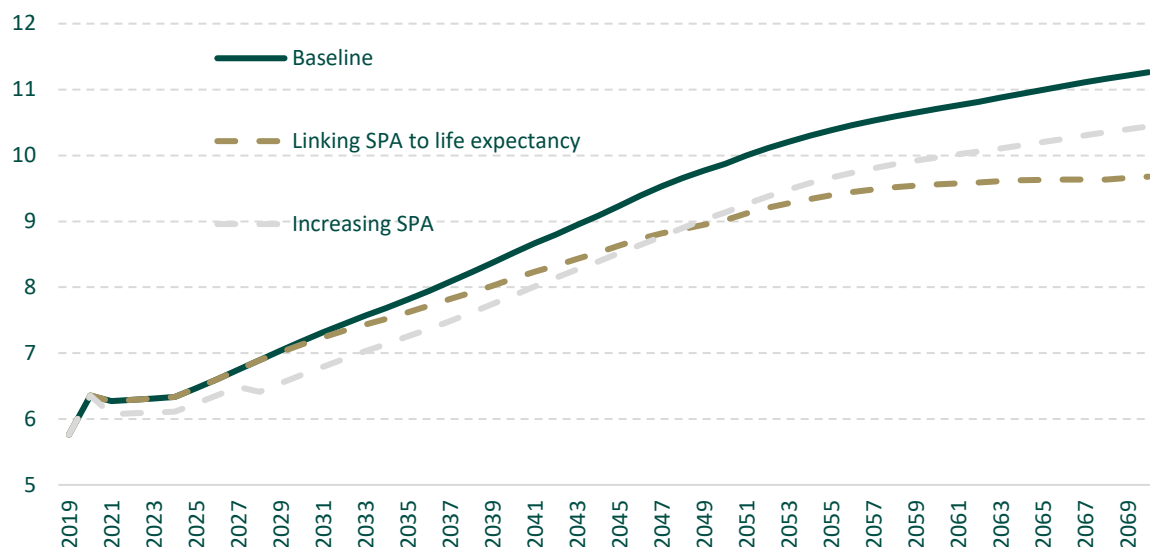
Rounding may affect totals. Source: Department of Finance.

A further policy scenario analysed by the Department of Finance involves linking the SPA to increases in life expectancy. Considering that an increase of one year in life expectancy may not result in one additional healthy year of life, this framework assumes that for every additional year in life expectancy,

<sup>27</sup> Assuming a nominal discount rate of 4 per cent per annum.

the SPA increases by  $\frac{3}{4}$  of a year. As highlighted in Figure 20, annual pension expenditure is projected to be 1.6 percentage points lower than the baseline by 2070, if the SPA was linked to life expectancy.

**Figure 20: social welfare pension expenditure, selected State Pension Age scenarios per cent GNI\***



Source: Department of Finance. Based on social welfare pension expenditure only.

## 7.4 Summary

As with all long-term projections, it is important to run sensitivity scenarios. Such scenarios allow for the analysis of the impact of different policy options. This analysis shows that the keeping the SPA will put significant strain on the public finances. Indeed, keeping the SPA at 66 compared to it increasing to 67 in 2021 and 68 in 2028 is likely to cost approximately €50 billion by 2070. A policy linking the SPA to life expectancy is likely to reduce pension expenditure significantly.



## Chapter 8 Conclusion

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Over the coming decades, the **demographic profile of the Irish population is set to change significantly**. Ireland's population structure will transition from one of the youngest in the EU towards one that more similar to the EU norm. This will make Ireland one of the most rapidly ageing EU Member States.

Such developments will see demand for demographically-sensitive public expenditure such as health and pensions grow, **with significant costs for the State**. Analysis suggests such expenditure will increase by **approximately 8 percentage points of GNI\*** by the mid-part of the century. At the same time, as the pace of growth of the working age population slows, the **rate of economic growth will moderate**, as additional labour supply becomes more scarce. As a result, fiscal revenues will, evolve at a slower rate.

In summary, both the revenue and expenditure side of the fiscal accounts will be adversely affected.

**Significant structural reforms are, therefore, absolutely necessary to meet the fiscal costs associated with population ageing**. Analysis in this report indicates that without these, a large deficit will emerge and the debt ratio will move onto an unsustainable path.

Further modelling carried out in this paper suggests the most **important reform involves better aligning the State Pension Age with increased life-expectancy**.

The Covid-19 pandemic has ushered in a new period of rising public indebtedness. While the exact impact of the pandemic on the public finances is beyond the scope of this paper, **it is clear the pandemic has significantly worsened the starting position**.

Ireland's currently favourable population profile provides the opportunity to undertake the necessary policy changes to ensure the sustainability of the public pension system before the fiscal implications of population ageing begin to impact. Nevertheless, the **window of opportunity is rapidly closing and a delay in implementing the necessary policy interventions will raise the cost** of the ageing of the population.

## Annex 1

### Expenditure projections scaled by GDP

**Table A1: annual age-related expenditure projections 2019-2070, per cent of GDP<sup>28</sup>**

	2019	2030	2040	2050	2060	2070	Δ2009-2018
Pension	4.6	5.9	6.9	7.5	7.5	7.6	+3.0
Health care	4.1	4.4	4.8	5.1	5.3	5.5	+2.3
Long-term care	1.3	1.6	2.0	2.4	2.8	3.2	+1.9
Education	3.3	3.3	3.1	3.2	3.2	3.2	-0.1
Total age-related	13.2	15.2	16.7	18.1	18.8	19.4	+6.2

Based on Ageing Report framework. Source: 2021 Ageing Report, European Commission and Department of Finance.

**Table A2: projected annual pension expenditure, as per cent of GDP**

	2019	2030	2040	2050	2060	2070
Social Welfare Pension	3.5	4.4	5.2	6.1	6.6	6.9
Public Sector Pension	1.0	1.5	1.6	1.4	0.9	0.7
Total Pension	4.6	5.9	6.9	7.5	7.5	7.6

Rounding may affect totals. Source: Department of Finance.

<sup>28</sup> Statistical distortions to GDP, that overstate the size of the Irish economy, mean expenditure projections scaled by GDP can paint an overly benign picture. GNI\* is also used as a denominator in an attempt to better capture the repayment capacity of the economy.

## Annex 2

### Schemes included in pension expenditure projections

**Table A3: classification of schemes**

Old-Age	
<i>flat component</i>	<i>basic</i>
State Contributory Pension	State Non-Contributory Pension
Disability	
<i>flat component</i>	<i>basic</i>
Invalidity Pension	Disability Allowance, Blind Pension
Survivors	
<i>flat component</i>	<i>basic</i>
Widow's, Widower's or Surviving Civil Partner's Contributory Pension	Widow's, Widower's or Surviving Civil Partner's Non-Contributory Pension
Others	
<i>flat component</i>	<i>basic</i>
Illness Benefit, Deserted Wife's Benefit, Carer's Benefit	Deserted Wife's Allowance, Carer's Allowance

## Annex 3

### Further disaggregation of pension expenditure

The Pension expenditure projections summarised in Section 5 are based on the AWG framework used in the 2021 Ageing Report. These include some payments related to recipients below the State Pension Age. As discussed in Section 5, disaggregated figures including payments to recipients at above or the State Pension Age only were also provided to the Commission on Pensions. These disaggregated projections are set out below.

Table A4 first presents the disaggregation of pension expenditure under the standard AWG framework. Rows d-f present a disaggregation of pension expenditure removing expenditure for recipients who have yet to reach the SPA.

**Table A4: projected expenditure, as per cent of GNI\* - below SPA**

	2019	2030	2040	2050	2060	2070
Social Welfare Pension (a)	5.8	7.2	8.5	9.9	10.7	11.3
Public Sector Pension (b)	1.6	2.4	2.7	2.3	1.5	1.1
<b>(a+b) Total Pension (c)</b>	<b>7.4</b>	<b>9.6</b>	<b>11.2</b>	<b>12.1</b>	<b>12.2</b>	<b>12.3</b>
Social Welfare Pension excluding expenditure below SPA (d)	3.8	5.0	6.4	7.9	8.7	9.2
Public Sector Pension (e)	1.6	2.4	2.7	2.3	1.5	1.1
<b>(d+e) Total Pension excluding expenditure below SPA (f)</b>	<b>5.4</b>	<b>7.5</b>	<b>9.1</b>	<b>10.1</b>	<b>10.2</b>	<b>10.3</b>

Rounding may affect totals. Source: Department of Finance.

Table A5 follows the same format as Table A3. Rows d-f again exclude removing expenditure for recipients who have yet to reach the SPA except in the case where recipients have yet to reach the SPA but are in receipt of a Widow's, Widower's or Surviving Civil Partner's Pension, i.e. rows d-f include expenditure on Widow's, Widower's or Surviving Civil Partner's Pension for recipients aged 65 or below.

**Table A5: projected expenditure, as per cent of GNI\* - below SPA but including survivors**

	2019	2030	2040	2050	2060	2070
Social Welfare Pension (a)	5.8	7.2	8.5	9.9	10.7	11.3
Public Sector Pension (b)	1.6	2.4	2.7	2.3	1.5	1.1
<b>(a+b) Total Pension (c)</b>	<b>7.4</b>	<b>9.6</b>	<b>11.2</b>	<b>12.1</b>	<b>12.2</b>	<b>12.3</b>
Social Welfare Pension excluding expenditure below SPA (d)	4.0	5.3	6.6	8.1	8.9	9.5
Public Sector Pension (e)	1.6	2.4	2.7	2.3	1.5	1.1
<b>(d+e) Total Pension excluding expenditure below SPA but including survivors payments (f)</b>	<b>5.6</b>	<b>7.7</b>	<b>9.3</b>	<b>10.3</b>	<b>10.4</b>	<b>10.5</b>

Rounding may affect totals. Source: Department of Finance.



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