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Budgetary Impact of Changing Demographics from 2020 - 2030

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Executive Summary

This paper is an updated version of a 2016 IGEES Paper *"Budgetary Impact of Changing Demographics 2017-2027"*. The updated paper takes account of the most recent outturn data and CSO population projections.

The paper looks at the overall impact of demographics across key areas of public expenditure. This is not an exhaustive list but examines core areas where demographics are closely linked to spending pressures. Examining these changes provides an indication of future challenges and is an essential tool for medium term planning.

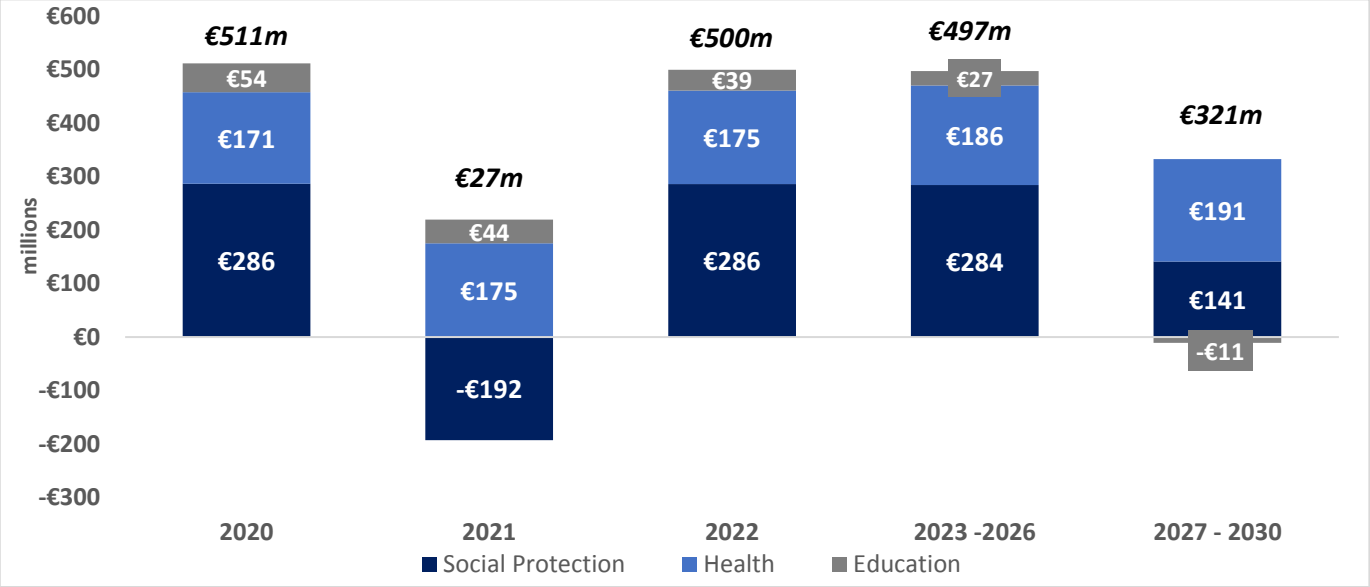
Key Findings

The headline demographic estimates have increased from the previous projections in the 2016 Paper. This paper estimates the cost of demographics for 2020 at €511m, this is higher than the 2016 paper estimate of €435m. The difference is primarily due to the greater than expected population level. Other changes from the 2016 paper include the addition of Disability Allowance and Carer Allowance schemes in the Social Protection estimates.

Between 2020 and 2030, core demographic spending pressures are estimated to require an additional €4.3bn. This results in an annual average increase in spending of €392m.

- *Upward Pressures:* The key driver of the estimated annual demographic pressure is Social Protection in the form of Pensions. Over the period, there is expected to be an additional 22,000 pension recipients each year.
- *Downward Pressures:* As a result of Pension reforms, there is expected to be some once-off reductions in pension demographic costs in 2021 and 2028. These reductions are driven by increases in the retirement age to 67 in 2021 and 68 in 2028. Increased pressures are also expected to be partly offset by a reduction in numbers availing of supports/services for children, due to declining birth rates, these include Child Benefit and Primary Education.

The graph below illustrates the annual estimated demographic costs across key areas of expenditure from 2020 to 2030.



Sources: Sectorial expenditure data and CSO population estimates (M2F2)

Introduction

According to Census 2016 results, the population stood at 4.76m and this is projected to continue to increase through to 2046. In the coming decades, the age structure of the Irish population is expected to change. This development is due to the changing dynamics of fertility, life expectancy and net migration.

Over the next decade, the number of births is expected to continue to fall, primarily due to an annual decline in the number of women in the child-bearing age cohort. By 2026, the F2 fertility scenario assumes the fertility rate will decrease from 2.1 to 1.8 and then stabilise at this level until the end of 2046. The decline in Ireland's fertility rate will generate a convergence with EU norms as prior to this Ireland experienced exceptionally high fertility rates. In absolute terms, the number of older people in Ireland is growing. This ageing population will have an effect on the proportion of the elderly population to the working age population.

Three areas of public expenditure are particularly impacted by demographic pressures; Social Protection, Health and Education. The changing age profile of the population impacts the underlying expenditure within these sectors. This paper examines expected changes in the structure of the Irish population and how these transformations impact public expenditure in the short, medium and long term. **The primary objective of the paper is to estimate the "pure" demographic cost pressures[1] from 2020 to 2030 across three main areas of current expenditure; Social Protection, Health and Education.**

The objectives of the paper are as follows:

1. **Overview of Demographic Trends in Ireland:** highlight the most recent demographic trends in Ireland.
2. **Review of Literature and Methodology:** outline findings from previous papers estimating the cost of demographics and set out the preferred methodology for this analysis.
3. **Baseline Demographic Cost Projections:** estimate the demographic cost pressure across each service area based on the most recent data and evidence available. This will be described as the baseline position.
4. **Analysis of Other CSO Population Assumption:** set out a scenario analysis exercise considering other CSO population assumptions and how these may impact the baseline position

[1] It is assumed that the prevalence or utilisation remains constant at the reference year level 2017/2018.

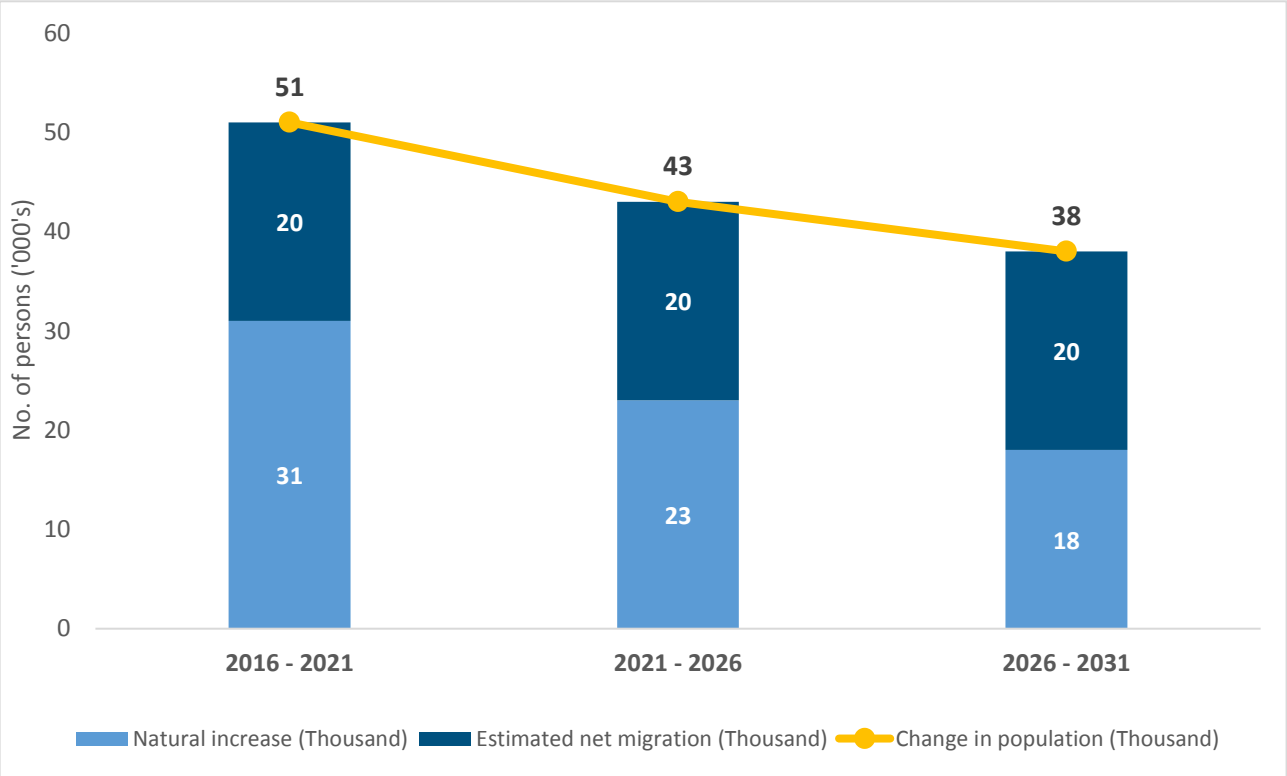
1. Overview

Over the last decade, Ireland has experienced significant demographic as well as economic change. The population has increased and is expected to continue to increase in the future. According to CSO mid-scenario (M2F2)[2] projections, the population is set to reach 5m in 2021 and 5.2m in 2026. In the coming years, the age structure of the population is expected to change considerably. This development is due to changing dynamics of fertility, mortality and net migration.

Key Components of Population Changes

Figure 1 below sets out estimated annual changes in key population determinants from 2016 to 2031. Key determinants of population change include the natural increase and net migration. The number of births minus the number of deaths is known as the natural increase.

Figure 1: Estimated average annual change in the natural increase, net migration, total population from 2016-2031



Source: CSO M2F2 Population Projections

In recent years, the number of births in Ireland has been on a downward trajectory. Since 2009, the number of births has declined steadily with fewer than 65,000 births recorded in 2016. The main factors impacting the number of births annually are the number of women of child bearing age (15 - 49 years) and their fertility levels. In 2016, the total fertility rate (TFR) in Ireland was 1.8. The combination of declining fertility rates at

[2] M2F2 Scenario – see appendix A for detail on assumptions underpinning each scenario

specific ages along with decreases in the number of women of child bearing age has resulted in the total fertility rate falling from 2.1 in 2010 to 1.8 in 2016, a reduction of 13%. This is expected to continue as the F2 fertility scenario assumes that the fertility rate will decrease from 1.8 to 1.6 by 2031 and then stabilise at this level until 2051. The decline in Ireland's fertility rate has generated a convergence with EU norms as prior to this Ireland experienced exceptionally high fertility rates.

In absolute terms, the number of older people in Ireland is growing. This ageing population will impact the dependency ratio, this is the proportion of elderly population to working age population. Projections around the number of deaths expected in the future are based on assumptions around mortality rates. In 2015, life expectancy for females in Ireland was 83.3 years and for males it was 79.3 years. There have been considerable increases in life expectancy for both men and women in Ireland over the last couple of decades.

In terms of net migration, this is the most ambiguous population driver. Given that Ireland is often described as a small open economy, migration is very important but also quite volatile. It is difficult to predict future economic conditions which are key to understanding future trends in migration. As a result of the economic downturn in 2008, there was a period of net outward migration from 2010 to 2014. Ireland returned to net inward migration in 2015 and immigration has increased steadily from a low of around 42,000 in 2010 to just under 85,000 persons in 2017 (CSO 2018).

Changing Age Structure of the Irish Population

While Figure 1 shows the changes in headline population components, the result of these changes can be illustrated further through the expected age breakdown of the population. Figure 2 and Figure 3 outline the breakdown of the population by age and gender in 2016 and in 2031.

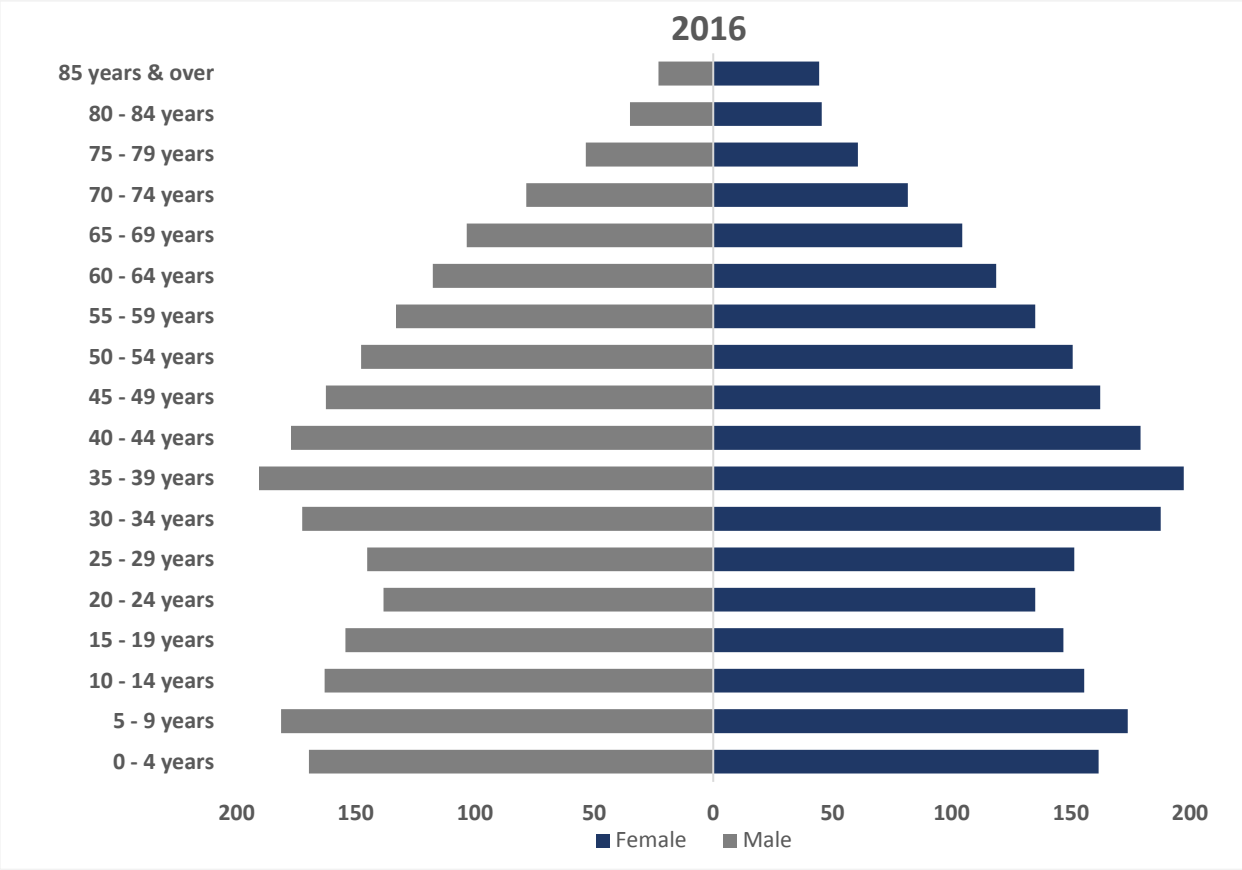
A number of key points emerge from the population pyramid for 2016 (Figure 2);

- The pyramid has a broad base and very narrow peak indicating that there is a considerably young population with fewer elderly people.
- The largest age cohort is 35 -39 year olds.
- There is a significant working age population seen by large numbers in the middle age cohorts and a broad middle section of the pyramid.

A number of key points emerge from the population pyramid for 2031 (Figure 3);

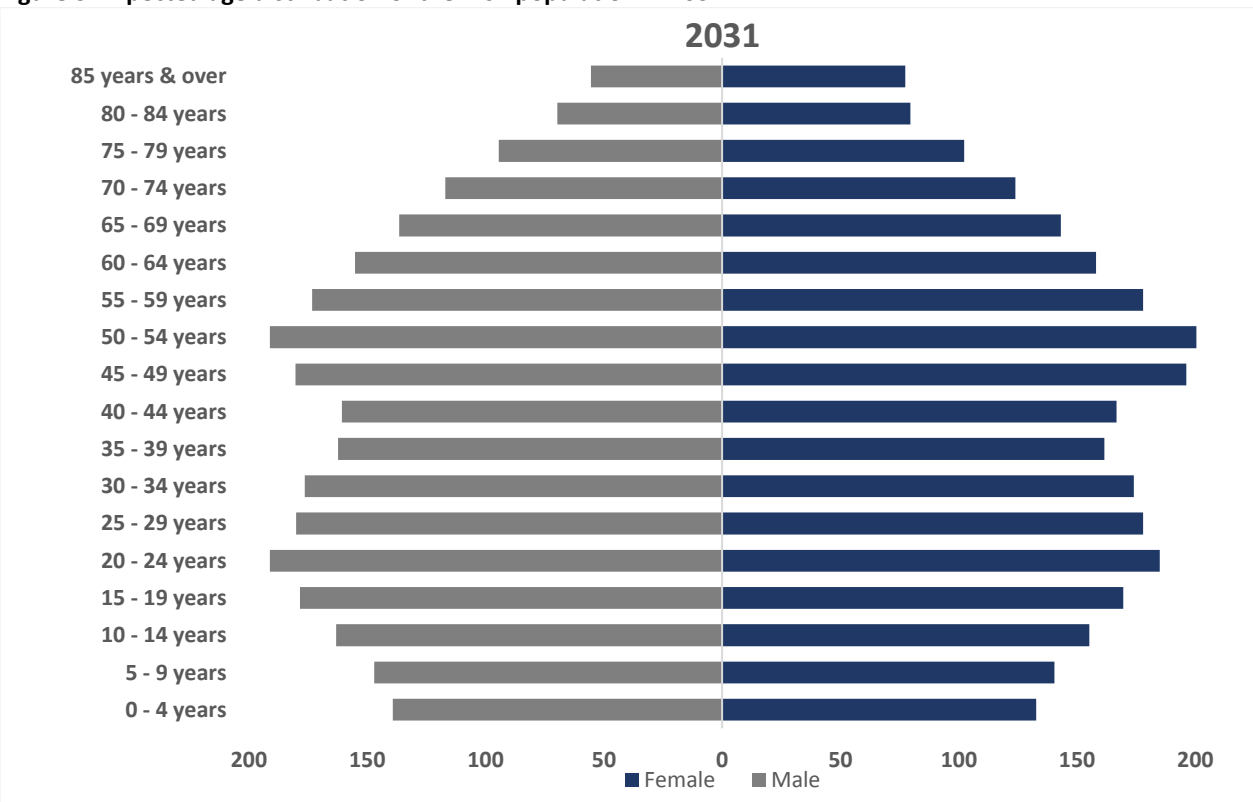
- Compared to 2016, the base of the pyramid is now much narrower and the peak wider.
- The largest cohort is now older at 50 -54 years.
- However, the pyramid is still very broad around the middle cohorts, highlighting that there continues to be a large working age population.

Figure 2: Age distribution of the Irish population in 2016



Source: CSO Census 2016

Figure 3: Expected age distribution of the Irish population in 2031

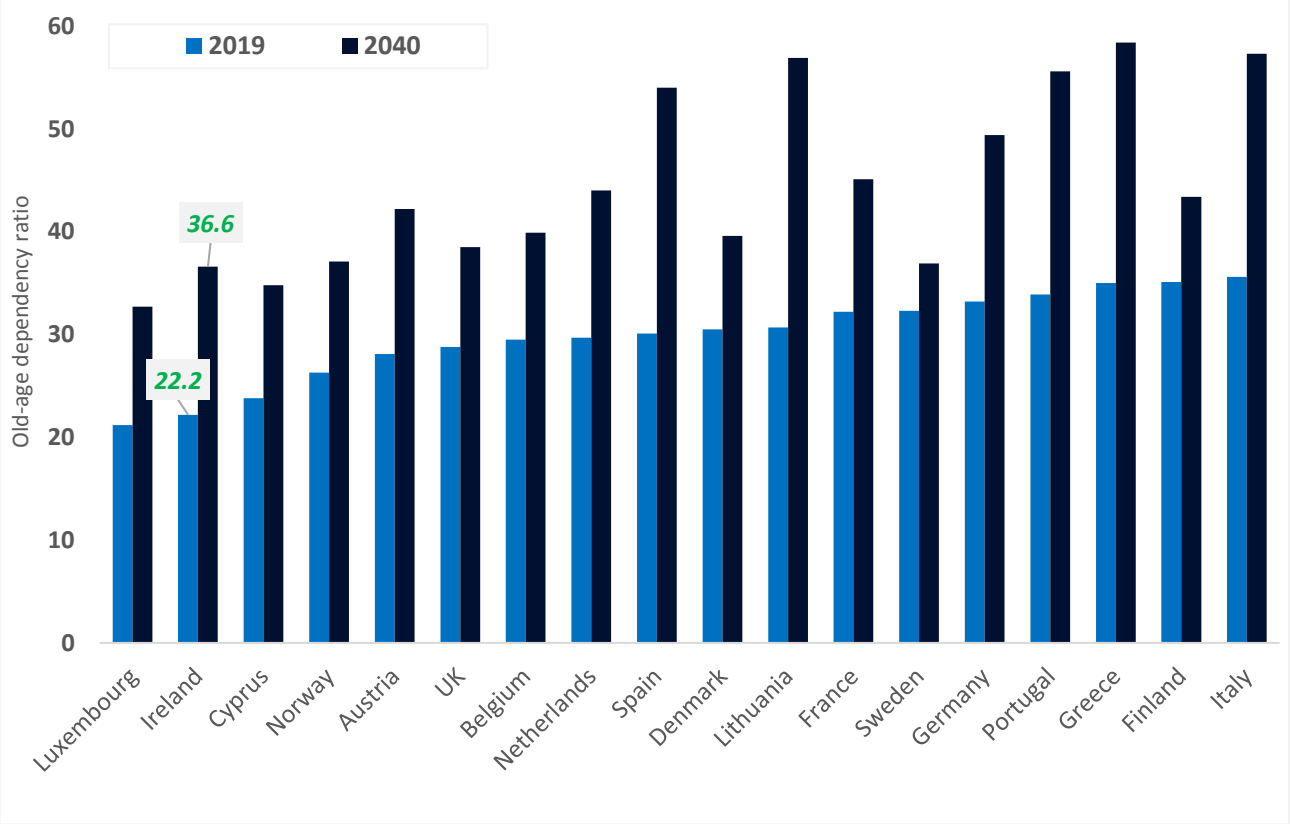


Source: CSO population projections, M2F2 scenario

Irelands International Position on Ageing

It is evident that Ireland's population is ageing and is expected to get progressively older over the next couple of decades. However, it is also important to identify where Ireland sits relative to other countries in order to provide context on the degree of ageing expected. Figure 4 sets out Ireland's position in terms of the old age dependency ratio compared to other European counterparts in 2019 and in 2040. Ireland has the second youngest population in 2019 with an old age dependency ratio of 22.2. It is estimated that by 2040 the old age dependency ratio in Ireland will be around 36.6. This would result in Ireland continuing to have one of the youngest populations across Europe with only Luxembourg and Cyprus having a lower old age dependency ratio in 2040.

Figure 4: Evolution of old - age dependency ratios[3] across Europe 2019 and 2040



Source: Eurostat

[3] This is the ratio between the number of persons aged 65 and over and the number of persons aged between 15 and 64. The value is expressed per 100 persons of working age (15-64)

2. Methodology and Review of Previous Analysis on Demographics

Demographic or age related spending is expected to continue to have an impact on the fiscal and budgetary position in the future. Section 1 shows the ongoing population changes which are occurring in Ireland. Examining these expected changes in advance provides an indication of the future challenges which may arise in terms of funding public services and expenditure management. This enriches the evidence base for budgetary and policy planning decisions, and forms an important input into the planning process.

Looking forward towards the longer term, examining demographic expenditure scenarios allows for identification of areas which may affect fiscal sustainability. The longer term analysis provides an indication of potential challenges due to an aging population and this forms a key input into the planning process. Policy changes introduced in the short term could either mitigate or exacerbate pressures and so the longer term trajectory must be considered when examining potential changes. In the absence of policy change, pressures must be manage and this creates trade-offs which may reduce scope for existing or new policy measures.

Therefore, examining demographic expenditure scenarios allows for the identification of areas which may impact fiscal sustainability. Estimating future demographic cost pressures highlights areas where policy decisions could be considered to mitigate pressures and where improvements in productivity and efficiency are required to provide sustainability of expenditure in the future. This analysis is an input that should be considered when making budget and policy planning decisions in the short and medium term.

Data Sources

The following analysis is primarily based on data from two sources; CSO population projections and administrative data. A brief description of both data sources is set out as follows:

1. CSO Population Projections 2017 to 2051

This report provides projections of the total population classified by age and sex for the period 2017 to 2051. The base for the projections is the Census 2016 population figure of 4,739,597 persons[4]. The report presents six population projection scenarios under contrasting assumptions for each year from 2017 to 2051. The 2016 population is projected forward under chosen assumptions relating to future trends in fertility, mortality, migration and labour force participation. The scenario used for baseline projections in this paper is known as the M2F2 scenario, this relates the mid migration assumption and the low fertility assumption[5].

[4] This relates those 'usually resident' in Census 2016

[5] **F2:** Total fertility rate to decrease from 1.8 to 1.6 by 2031 and remain constant thereafter to 2051. **M2:** Net migration +20,000 per annum to 2051

2. Administrative data

Administrative data is collected at a scheme level by the relevant Department on recipients. The information collected spans a variety of variables such as gender, age, and regional location.

Methodology

Broadly, the analysis takes a bottom up approach to forecasting demographic cost pressures across key areas of Public Expenditure. The estimates within each of these key service areas are based on current coverage rates and unit cost. In some instances, other underlying assumptions may be made or policy measures that have already been agreed may be taken into account if they have an impact in the future. This will be the 'no change scenario' and is identified as the baseline position.

In addition to the baseline position, the final section will add a scenario analysis. This analysis provides an overview of how demographic related expenditure could evolve under different possible scenarios. Some of these scenarios include; changes to population estimates and changes in health status. These additional projections will provide further insights on potential impact of changing demographics on expenditure levels in the future.

Review of Other Analysis on Demographic Cost Pressures

Irish Fiscal Advisory Council (Fiscal Council)

The Fiscal Council published projections of demographic cost pressures on expenditure for the period 2019-2023. That paper used the latest available information in respect of demographics, expenditure and macroeconomic forecasts in order to produce estimates for the period 2019-2021.

The Fiscal Council's Scenario is based on:

1. A cohort-component method for estimating demographic changes; and
2. A macro-simulation (cell-based) modelling approach for estimating changes in expenditure based on the demographic assumptions in (1) and other macro drivers.

The Fiscal Council's estimate of demographic costs differs from IGEES (2016) estimate and from demographic costs identified in Budget 2019. As the Fiscal Council's estimate is not broken down by section or Vote it is not possible to determine where the specific differences arise. However, it is likely a considerable proportion of the difference reflects the difference in methodology and objective of analysis.

The Fiscal Council's Stand Still estimates are an illustrative scenario of what would happen if there was no policy change, given expected demographic and economic changes. In contrast, the methodology in this paper

seeks to examine, under the three biggest expenditure areas, the effect of demographics on the areas which are closely linked to population changes. For example this paper considers Child Benefit where demographics has a direct impact but not unemployment benefit which is more driven by the economic environment. Thus examining solely demographic pressures allows this paper to examine the trajectory of expenditure in face of an aging population in the absence of policy change. This provides estimates for consideration in the context of policy decisions.

Previous IGEES paper on "Budgetary Impacts of Changing Demographics 2017 – 2027"

The paper found that on an annual basis, demographic change is a significant contributor to changes in public expenditure. Total demographic pressures were identified in respect of the three areas analysed (Social Protection, Health, and Education), these estimates were €428m for 2019 and €435m for 2020.

3. Estimated Demographic Cost Projections: Baseline Position

a. Employment Affairs and Social Protection Demographic Cost Pressure Projections

Child Benefit, Pensions and, Disability and Carer related schemes represent the key demographically-driven expenditure areas within Social Protection. These are expected to account for the majority of the increase in total Department of Employment Affairs and Social Protection (DEASP) expenditure in 2020. The projections are based on year end 2018 expenditure data and assume a no change position. Broadly, the only variables changing over the projection period are the size and age distribution of the population.

I. Child Benefit

The projected expenditure and demographic pressures for Child Benefit from 2020 to 2030, have been modelled using CSO M2F2 population projections based on Census 2016. Using these population estimates, Child Benefit recipients are expected to increase slightly in 2020 by around 0.1% and are then expected to reduce annually for the remainder of the period to 2030. This annual reduction is due to a fall in the expected total fertility rate. This underpinning assumption is that the total fertility rate will fall from 1.8 to 1.6 by 2031 and will remain constant at 1.6 to 2051. This results in a reduction in scheme expenditure and participation from 2020.

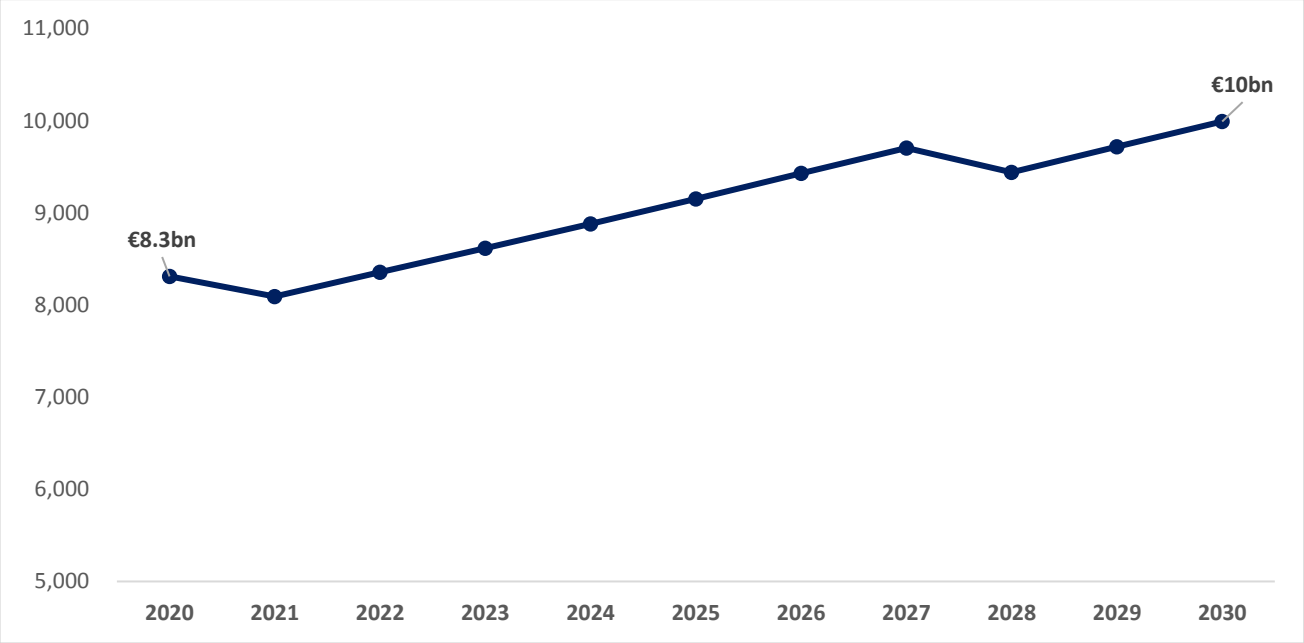
II. Pensions

The projections are based on the assumption that the only variables changing over the projection period are the size and age distribution of the population. However, the projections do take account of the change in legislation to increase the pension age in 2021 and 2028. The age of eligibility will be increased to 67 in 2021 and will rise to 68 from 2028 onwards.

There is projected to be an increase of around 21,000 additional pension recipients in 2020. In 2021 the annual change in numbers turns negative with a reduction in recipients of 17,597 due to the increase in pension eligibility from 66 years to 67 years in 2021. This reform results in no new recipients entering the scheme that year. However, there will be gross outflows as people exit the scheme. There is no inflows expected as those who turn 67 in the year will already be in receipt of a pension as they became eligible at age 66 in the previous year. Following the reform and from 2022 to 2027, the average annual change in recipients is expected to turn positive again with an annual average increase in recipients of around 22,000.

As illustrated in **Figure 5**, pension expenditure is expected to increase from €8.3bn in 2020 to just under €10bn by 2030, this is an additional funding requirement of €1.7bn over the next 10 years.

Figure 5: Total Projected Pension Expenditure based on Demographic cost estimates 2020 - 2030



Source: *Author Calculations*

III. Disability Allowance and Carers Allowance

Projections are again based on a no change scenario assumption and the only variable changing is the size of the population. All other prevalence factors are kept constant at 2018 rates. A recent IGEES paper published in January 2019, titled "An analysis of Disability Allowance inflows and outflows"[6] found that around 15% of the total annual increase in Disability Allowance (DA) recipients from 2012 to 2017 was due to demographics. To identify the impact of demographic changes only over the period 2012 to 2017, the analysis uses utilisation rates for DA in 2012 and holds these constant for the period. The same method is used in this paper to isolate the impact of demographics, as the only changing variable is the number and structure of the population. The

[6]*An analysis of Disability Allowance inflows and outflows,* Cronin 2018 https://igees.gov.ie/wp-content/uploads/2019/01/An-analysis-of-Disability-Allowance-inflows-and-outflows.pdf

2018 IGEES analysis found that, over the period 2012 to 2017, the total increase in DA recipients as a result of changing demographics was around 4,798 recipients or 5%. See **Table 1** for further detail.

Table 1: Breakdown of the drivers of DA recipient numbers from 2012 to 2017

	2012 No.	2017 No.	Movement 2012 - 2017 No.	%
Actual Increase in DA Recipients	101,784	133,838	**32,054**	**31%**
Expected DA recipients due to Demographics	101,784	106,582	**4,798**	**5%**
Increase not explained by Demographics			***27,256***	
% of total increase			***85%***	

Source: *Cronin, 2018*

DA recipient numbers grew by 32,054 or 31% from 2012 to 2017 and demographic changes only explains 15% of this total recipient growth. The remaining 85% of the total increase in recipient numbers over the period is due to inflows to DA from other DEASP schemes, such as Jobseekers Payments, JobPath and Domiciliary Care Allowance (DCA).

Summary: ***Total Cost of Demographics in Social Protection 2020 to 2030***

Table 2 sets out the annual demographic cost pressure projections in Social Protection from 2020 to 2030.

Table 2: Social Protection Demographic Cost Pressures by Scheme from 2020 – 2030

	Annual Cost 2020 €m	Annual Cost 2021 €m	Annual Cost 2022 €m	Average Annual Cost 2023 -2026 €m	Average Annual Cost 2027 - 2030 €m
Total Child Benefit	**2**	**-2**	**-7**	**-16**	**-30**
Total Pensions	**256**	**-218**[7]	**264**	**269**	**140**
Total Disability & Carers	**28.7**	**28.6**	**28.8**	**31.2**	**30.8**
Of which;					
Disability Allowance	19.3	19.1	19.2	21.3	20.2
Carers Allowance	9.4	9.5	9.6	9.9	10.6
Total Social Protection	**287**	**-191**	**286**	**284**	**141**

See Appendix A for a breakdown of the annual changes in recipient numbers underpinning estimates.

[7] It should be noted that this does not reflect the total cost implication of the Pension change in 2021. It only reflects the impact on Pension expenditure and there may be upward pressures on other areas of DEASP spend following the reform.

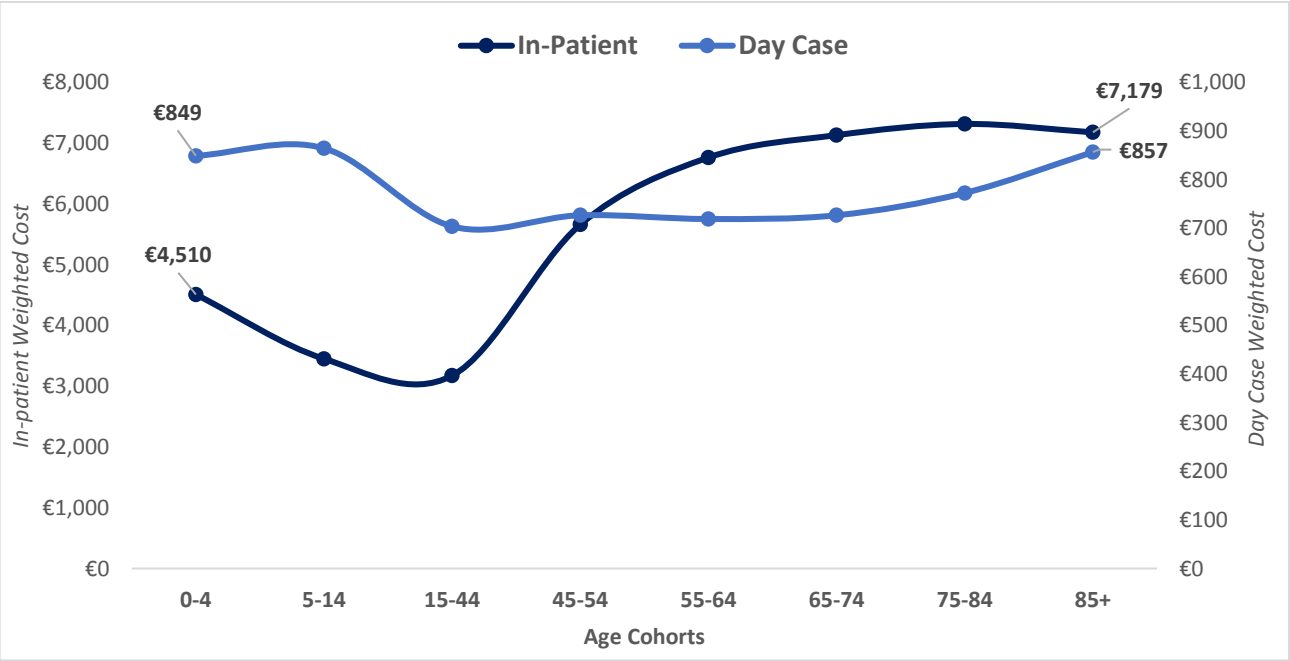
b. Health Demographic Cost Pressure Projections

For Health expenditure, four core areas account for the majority of the demographic cost pressure; Acute Services, Primary Care Reimbursement Services (PCRS), the Nursing Home Support Scheme and Older Persons Services. There are other areas of health spend which have smaller demographic components however for these areas, there is limited data available on expenditure across specific age cohorts. Estimating healthcare expenditure is highly complex as many factors impact pressures on healthcare services. Baseline estimations here focus on "pure" demographic pressures, these are pressures due to changes in the structure of the population. Other factors beyond demographics positively and negatively impact healthcare costs. Some of these factors include, technological advances, healthcare prices, productivity, and population behaviour.

I. Acute Services

The demographic cost pressures for in-patient and day case procedures are derived separately as the relative costs across age groups and procedures varies. For example, the difference between the relative cost of an inpatient procedure for those aged over 85 years is significantly higher than a procedure for a person aged 15 to 44 years, there is an increase of around €4,000 or 126% in the average cost of a procedure between both these age cohorts. There is considerable fluctuation in the cost of in-patient procedures across age when compared to the relative weighted cost of day case procedures across age cohorts. For day case procedures, the weighted costs reach a low of €704 for a person aged 15 -44 years and a high of €857 for a person aged over 85 years, an increase of €153 or 22%. See Figure 6 below for the weighted average cost across age cohorts for in-patient and day case procedures.

Figure 6: Relative Weighted Cost for In-patient and Day Case Procedures by age cohort, 2017



Source: *HIPE data*

The Acute projections are based on the assumption that the only variables changing over the projection period is the size and age distribution of the population. The cost structures and utilisation rates are held constant at 2017 rates as this is the most recent data available. The final demographic cost estimates are based on discharge rates and the relative cost of treatment across age cohorts. The projections are calculated by multiplying the relative cost per case by the projected numbers of discharges for each age group.

II. Primary Care Reimbursement Services (PCRS)

PCRS projections are based on 2017 PCRS Claims and Payments data[8], this is the most up to date dataset available. This data provides the total payment cost for those in receipt of services under PCRS schemes across each age cohort. This payment data is then used to calculate a per capita cost for each age group. These per capita costs were combined with age-specific population projections and then aggregated to give a total cost for each scheme. The per capita costs were held constant over the projection period assuming that both the cost structure and rates of utilisation remain unchanged. This method is applied for medical cards under the General Medical Scheme (GMS) and for all other non- GMS schemes such as the Drug Payment Scheme and Long Term Illness scheme.

The element of the GMS scheme relating to GP Visit Cards takes account of the extension in eligibility for GP services to those under 6 years and over 70 years. In Q3 2015, children under 6 and people over 70 were prioritised for the first phase of the roll-out of universal GP care. In 2016, the decision was taken to rollout the next phase of universal GP care, providing free access to all those under 12 years. The rollout of free GP care to children under 12 years has yet to be implemented and is therefore not included in this analysis.

III. Nursing Home Support Scheme (NHSS) and Other Services for Older People

Services for Older People: these services are predominantly required by the older age groups and are highly responsive to changes in this age cohort. As part of the 2018 Spending Review, a paper was published on *Trends in public Social Care Service Provision and Expenditure for Older Persons.* It is assumed that costs are aligned with the annual demographic pressure in the relevant age cohort, those aged over 65 years. Given the lack of available data on this area currently, it was not possible to breakdown expenditure or utilisation rates by specific age profiles.

[8] PCRS Statistical Analysis of Claims and Payments 2017 https://www.hse.ie/eng/staff/pcrs/pcrs-publications/annual-report-2017.pdf

NHSS: assumptions are based on previous analysis on the NHSS carried out by IGEES in 2015 and 2017[9]. As set out in the 2017 IGEES paper on the NHSS, the annual growth rate in recipient numbers entering the scheme was much lower than the annual increase in the corresponding demographic, the numbers aged over 80 years. The estimates are based on the following assumptions:

1. Trends in recipient numbers on the NHSS from 2012 to 2018, an annual average increase of 0.82%.
2. The split between private and public recipients remains at 79% private and 21% public.
3. The individual contribution provided by new members entering the scheme has increased.
4. The cost of care remains constant at 2018 level.

Summary: *Total Cost of Demographics in Health 2020 to 2030*

Table 3 below illustrates the annual demographic cost pressure projections in Health from 2020 to 2030

Table 3: Demographic Cost Pressure in Acute Sector from 2020 to 2030

	Annual Cost 2020 €m	Annual Cost 2021 €m	Annual Cost 2022 €m	Average Annual Cost 2023 -2026 €m	Average Annual Cost 2027 - 2030 €m
Total Acute	**91**	**94**	**94**	**100**	**102**
Of which;					
Inpatient	74	77	77	82	85
Day case	17	17	17	18	18
Total PCRS	**43.6**	**44.5**	**44.1**	**46.8**	**48.1**
Of which;					
GMS	32.3	33.1	32.9	35.3	36.8
Non –GMS	11.3	11.5	11.2	11.5	11.2
Total Older Persons	**36.5**	**36.3**	**36.9**	**38.9**	**40.8**
Of which;					
Older Persons Services	28.8	28.6	29.1	31.0	32.6
NHSS	7.7	7.7	7.8	7.9	8.2
Total Health	**171**	**175**	**175**	**186**	**191**

[9] *Nursing Home Support Scheme (2015)*, by Tomás Campbell and Jenny Connors http://igees.gov.ie/wp-content/uploads/2014/11/Nursing-Homes-Support-Scheme.pdf , Nursing Homes Support Scheme Trends and Figures, by Judith Meirmans https://igees.gov.ie/wp-content/uploads/2018/04/Staff-Paper-2017-Nursing-Homes-Support-Scheme-%E2%80%93-Trends-and-Figures.pdf

c. Breakdown of Education Cost Pressure Projections

For Education expenditure the core areas of 'pure' demographic pressures are primary, post primary and tertiary education. As outlined in Figures 2 and 3 there is a demographic "bubble" working its way through Ireland's youth population. This "bubble" is currently moving from primary to secondary level education, which should lead to demographic dividend at primary level that can be used to offset costs as the demographic "bubble" moves into the post-primary level. This will lead to policy challenges in managing demographic pressures, geographic distributions and recruitment, retirement and redeployments.

Primary and Secondary Level Education

Expenditure projections for primary and second level education are based on the key assumptions as outlined in the 2018 spending review paper. This paper extends the analysis undertaken in that paper for 2020 and 2021 out to 2030. Demographic projections employed are those in the Department of Education and Skills report Projections of Full Time Enrolment, Primary and Second Level, 2018-2036.[10] The demographics used as part of this analysis are based on current year projections.[11] The expenditure combines additional teachers' salaries and pupil capitation.

Primary level demographics peaked in 2018 at almost 569,000 students. This "bubble" is expected to continue into post-primary level, and reach a peak by 2025. Demographic demand leads to additional expenditure pressures to provide for an increasing student population. While the number of students at primary level are expected to decrease over the coming years, this will present challenges as pressures move into post primary level. This demographic shift will present challenges particularly in relation to retirements, recruitment and redeployment. The 2018 Spending Review paper outlines the importance of effective workforce planning to address the evolving demographics issue. It indicates the reduction in pupil numbers, and corresponding drop in primary teachers, could be achieved through non-replacement, while undertaking a mapping exercise to identify regional divergence in pupil enrolments can maximise the efficiency of redeployment, ensures a response to any challenges which may arise.[12]

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[10] https://www.education.ie/en/Publications/Statistics/projections/projections-of-full-time-enrolment-primary-and-second-level-2018-2036.pdf

[11] While the application of the more detailed staffing schedule can lead to difference estimates overall the trend impact of demographics should be similar. Special Education Teachers are excluded and the resulting pupil teacher is held constant for the duration.

[12] Pay Expenditure Drivers at Primary and Secondary Level, Education and Skills Vote, Spending Review, July 2018

Third Level Education

Third level demographics are projected to increase over the coming decade.[13] The demographic projections employed are based on scenario 1 in Projections of Demand for Full Time EU Third Level Education, 2015-2029.[14] Scenario 1 assumes a transfer rate from second level to third level of 64.7%, while the number of mature students is calculated as a percentage of the total projected cohort. Third level Exchequer funding (grants to Higher Education Institutions and Student Support Payments) is averaged per full time student. The Department of Education and Skills forecast that student numbers are expected to increase from 183,642 in 2017, to 196,609 by 2020, and 226,172 by 2030.

Summary: *Total Cost of Demographics in Education 2020 to 2030*

The total cost arising from demographic pressures at primary, post primary and third level is estimated to be €54 million for 2020. As the number of primary students continues to fall, while post primary and third level increase, the net result is a softening of pure demographic expenditure pressures. This will see a decrease in the annual cost to €44 million in 2021. By 2022, the annual cost of demographics will decrease further as pressures slightly fall, presenting a cost of €39 million. The average annual demographic pressures are expected to continue softening over the next decade, with average annual costs expected to be €27 million from 2023 – 2026, falling further by 2027 – 2030, when it is expected there will be an average saving of around €11 million per annum.

Table 4: Demographic Cost Pressures in Education from 2020 – 2030

	Annual Cost 2020 €m	Annual Cost 2021 €m	Annual Cost 2022 €m	Average Annual Cost 2023 -2026 €m	Average Annual Cost 2027 - 2030 €m
Primary and Post Primary	35	26	21	8	-26
Tertiary	19	18	18	19	15
Total Education	**54**	**44**	**39**	**27**	**-11**

[13] This increase in student numbers is due to strong economic growth, an increase in student numbers at second level progressing to third level, and increased internationalisation of the third level system in recent years. Changes such as the economic climate and the transfer rate from second level affects the demographic pressures on third level.

[14] https://www.education.ie/en/Publications/Statistics/projections/projections-of-demand-for-full-time-third-level-education-2018-2040.pdf

Total Estimated Cost of Demographic Pressures from 2020 - 2030

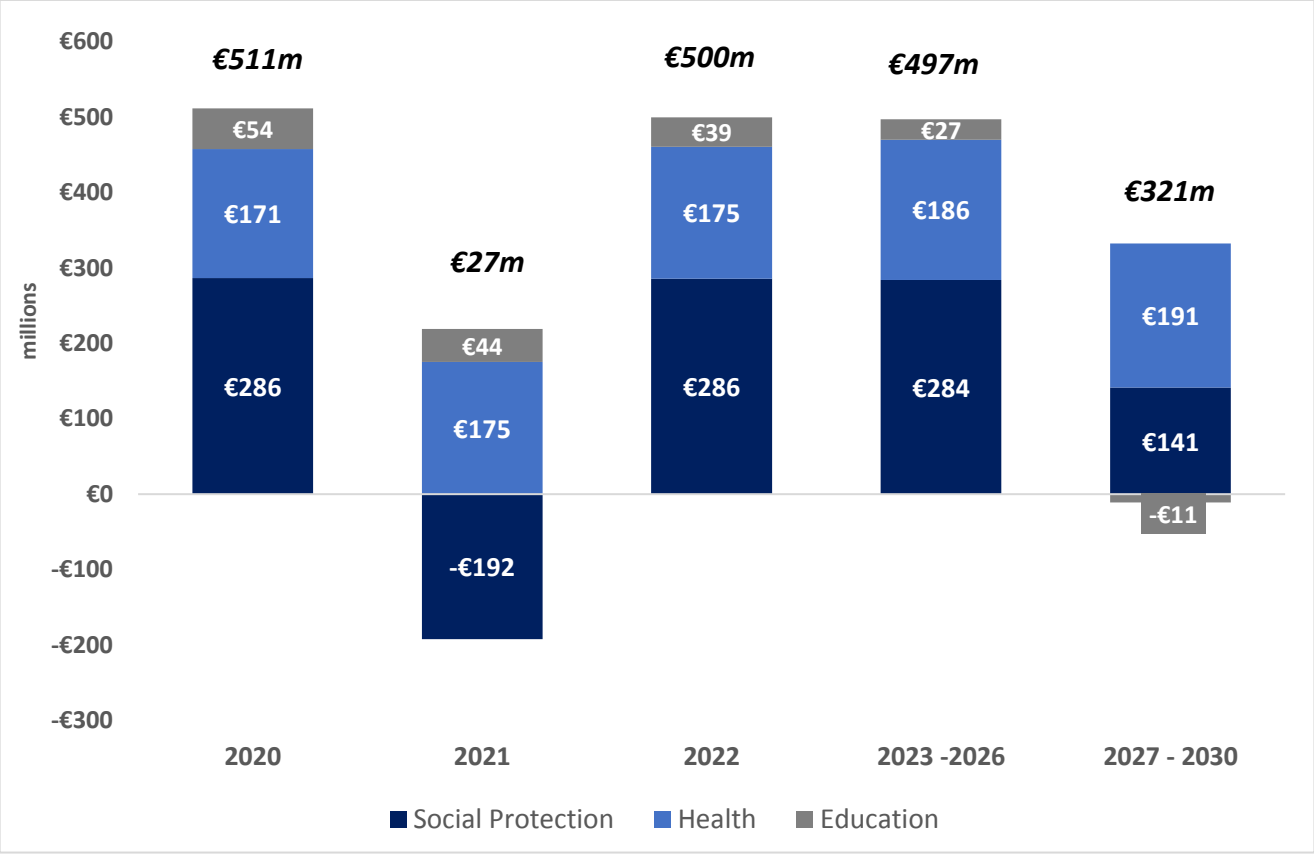
In 2020, the total annual demographic cost pressure across the three sectors is estimated to be €511m.

Over the next three years, 2020 to 2022, the total demographic cost pressure fluctuates as there is a large reduction expected in the overall demographic cost pressure in 2021, falling to €27m. This significant fall off in cost is driven by Pension expenditure and is due to the change in policy underpinning the age of retirement. Based on legislation, the pensionable age will increase to 67+ in 2021. Following this change, the demographic pressure is expected to return to a total annual cost of €500m in 2022.

Demographic pressures in Health and Social Protection are offset slightly by reductions in the pressures in Education, this is primarily due to declining birth rates. In the medium term, 2023 to 2026, the total annual average demographic cost pressure is estimated at €497m. This annual average pressure is expected to reduce slightly in the longer term, from 2027 to 2030, to around €321m. This reduction is again driven by pension reforms as the retirement age is due to increase to 68+ in 2028.

Figure 7 illustrates the annual demographic cost pressure projections by sector from 2020 to 2030.

Figure 7: Annual Demographic Cost Pressure (€ millions) across Sectors, 2020 – 2030



Sources: Sectorial expenditure data and CSO (population estimates) updated by authors to include Census 2016

4. Scenario Analysis

A number of scenarios and assumptions are made by the CSO to assess the potential impact of each of the determinants of population changes. Examining how some of these different scenarios help to identify how sensitive the baseline projections are to changes in key assumptions such as the fertility rates and migration.

Population Assumptions

Demographic determinants include: (i) the fertility rate; (ii) the mortality rate and (iii) the level of net migration. For the purpose of this analysis the main changes to the determinants modelled under each scenario will be fertility rates and net migration. It is important to note the baseline projections assume a mid-migration and low fertility assumption. See below for further detail on each scenario.

- **High Fertility Scenario [M2F1]**

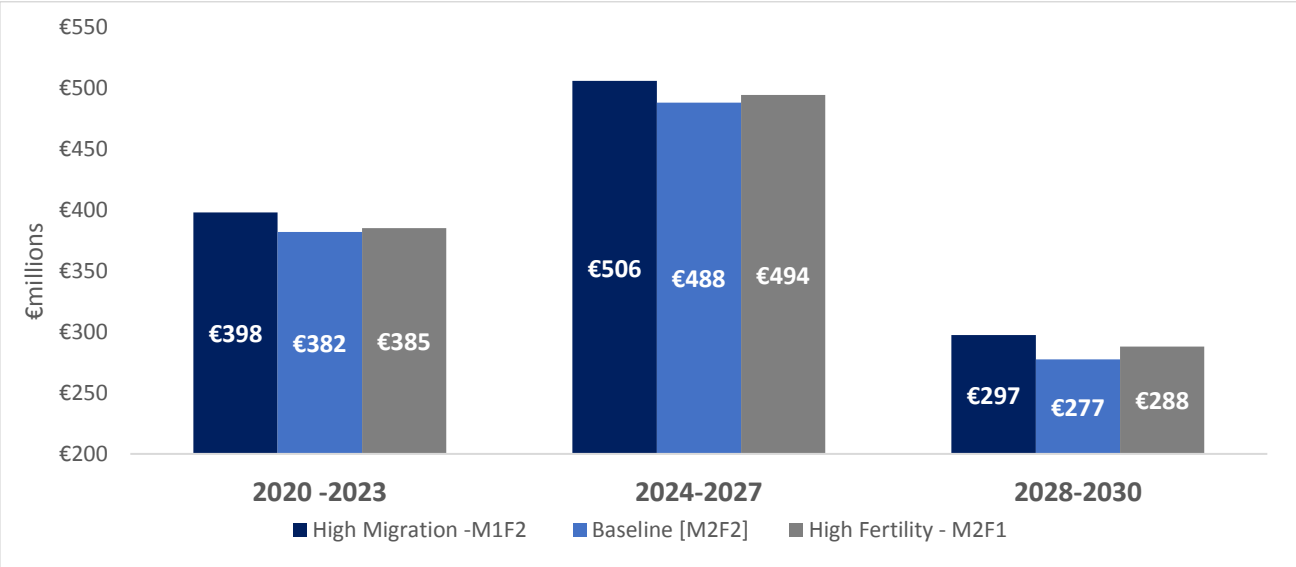
For the high fertility population assumption the total fertility rate remains at the 2016 level of 1.8 for the lifetime of the projections. The migration estimate is left unchanged to isolate the expenditure implications from fertility rate changes.

- **High Migration Scenario [M1F2]**

The high migration estimate assumes net migration of +30,000 per annum over the entire projection period. The fertility estimate is left unchanged to isolate the expenditure implications from changes in net migration.

Figure 8 below illustrates the average annual demographic cost estimates for the different population assumptions.

Figure 8: Average Annual Demographic Cost Estimates for Different Population Assumptions 2020 - 2030



Source: CSO Population Estimates, Author Calculations. See Appendix B for annual estimates underpinning Figure 8.

Over each time period, the baseline assumptions result in the lowest annual cost while the high migration estimates result in the highest annual expenditure implication. This may indicate that the estimates are more sensitive toward increases in the size of the population rather than changes in the age distribution. When compared to the other scenarios, the M2F2 estimates provide the lowest overall population figure and as seen in Figure 8 correspond to the lowest estimated expenditure implication.

Conclusion

In 2020, the annual demographic cost pressure across these policy areas is estimated to be €511m. While pension reforms in 2021 result in a significant fall in the total demographic cost to €27m, as the reduction in Pension expenditure offsets the majority of increased costs in Health, Education, and Disability and Carers schemes in Social Protection. It is important to note that this is a once off occurrence and annual demographic costs are forecast to revert back to €500m in 2022.

From 2023 to 2026, the total annual average demographic cost is estimated to be €497m. This annual average pressure is expected to reduce to around €321m from 2027 to 2030. This reduction is again driven by pension reforms as the retirement age is due to increase to 68 in 2028.

Over the eleven year period, increased demographic pressures in Health and Social Protection are broadly being offset by a reduction in the pressure on schemes for children. This trend is primarily driven by increasing numbers of elderly persons and a fall in the number of births due to the expected decline in the fertility rate. The annual estimates do not reflect actual increases in budgetary allocations as there are a variety of other factors influencing the actual level of expenditure. The annual budget allocation for each sector reflects the number of persons in receipt of services in that particular year and other variables may effect these allocations. However, the estimates provided in this paper are a useful tool for medium-term planning.

Looking toward the longer term projections, the main demographic pressure come from an ageing population in the form of increased requirements in the areas of Health, Social Care, and Pensions. The longer term spending projections are inherently uncertain and subject to upside and downside risks. Other factors also effect public expenditure such as, technological progress, the wider economic climate and changes to underlying policies. These elements are difficult to forecast in the longer term.

Appendix

Appendix A: Estimated increase in recipient numbers underpinning demographic cost estimates from 2020 to 2030

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Pension	20,864	-17,597	21,428	21,260	21,562	21,952	22,825	22,383	-21,399	22,852	22,187
Annual increase (%)	*3.2%*	*-2.6%*	*3.2%*	*3.1%*	*3.1%*	*3.0%*	*3.1%*	*2.9%*	*-2.7%*	*3.0%*	*2.8%*
Child Benefit	863	-1,434	-3,738	-4,885	-6,814	-9,882	-14,800	-16,492	-17,517	-17,731	-16,656
Annual increase (%)	*0.1%*	*-0.1%*	*-0.3%*	*-0.4%*	*-0.6%*	*-0.8%*	*-1.3%*	*-1.4%*	*-1.5%*	*-1.6%*	*-1.5%*
Carers Allowance	499	1,257	890	1,068	980	1,066	1,128	1,146	1,141	1,136	1,097
Annual increase (%)	*0.7%*	*1.6%*	*1.1%*	*1.4%*	*1.2%*	*1.3%*	*1.4%*	*1.4%*	*1.4%*	*1.3%*	*1.3%*
Disability Allowance	1,774	1,754	1,771	1,838	1,988	2,000	2,004	1,992	1,932	1,809	1,716
Annual increase (%)	*1.3%*	*1.3%*	*1.3%*	*1.3%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*	*1.3%*	*1.2%*	*1.1%*

Appendix B: Estimated Demographic Cost Pressures based on different population scenarios from 2020 to 2030

	2020 €m	2021 €m	2022 €m	2023 €m	2024 €m	2025 €m	2026 €m	2027 €m	2028 €m	2029 €m	2030 €m	Total €m
High Migration -M1F2	526	45	515	505	512	516	523	472	-62	479	475	**4,505**
Baseline [M2F2]	511	27	500	489	495	498	504	454	-83	460	455	**4,311**
High Fertility - M2F1	512	32	502	493	500	504	511	461	-71	469	466	**4,381**

Quality assurance process

To ensure accuracy and methodological rigour, the author engaged in the following quality assurance process.

- ✓ Internal/Departmental
  - ✓ Line management
  - ✓ Spending Review Steering group
  - ✓ Other divisions/sections
  - ✓ Peer review (IGEES network, seminars, conferences etc.)

- ✓ External
  - ☐ Other Government Department
  - ✓ Steering group
  - ☐ Quality Assurance Group (QAG)
  - ☐ Peer review (IGEES network, seminars, conferences etc.)
  - ☐ External expert(s)

- ☐ Other (relevant details)

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