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## Séanadh

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## Executive Summary

**This paper examines the concept of demographics and it reviews secondary sources to illustrate the key demographic trends which drive changes in Voted expenditure.**<sup>1</sup> It cannot, and is not intended to be, a comprehensive analysis of all aspects of how demographics influence budgetary policy. However, **it serves as a primer and to identify the fundamental issues that relate to Demographics in the Voted allocations presented to Dáil Éireann for approval and to Select Committees for scrutiny.**

The paper proposes a *conceptual framework* (see Figure 4) for linking demographics to changes in Voted expenditure and recommends greater clarity in relation to how demographics are incorporated within the budgetary process. Central to achieving this clarity is the question of which demographic changes are *discretionary* drivers of expenditure and which are *non-discretionary*. Budgetary resources are finite and it is important therefore to identify the discretionary areas of expenditure which are driven by demographic changes as this will inform a debate as to the policy decisions which must be taken in these areas.<sup>2</sup> Equally, establishing which demographic changes are non-discretionary will enable a discussion in relation to how to make provision for the attendant costs which are non-avoidable.

The urgency and form of the action which may be required depends on the time-frame; short; medium; or long-term. Where possible, expenditure that requires long-term commitment (such as capital investment or the recruitment of civil and public servants)<sup>3</sup> should be matched to long-term trends rather than in response to temporary peaks in demand.<sup>4</sup> In such cases there should be a focus on either making investments which can be re-purposed, or to avoid financial commitments which do not represent value for money (VfM) in the long-term. An example of this, identified by IGEES, is a demographic bulge passing through the education system which creates a temporary need at different levels for additional staff. IGEES note that this will present challenges, particularly in relation to retirement, redeployment and recruitment of teachers.<sup>5</sup>

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- 1 In discussing Government expenditure, the PBO refers to Gross Voted Expenditure (GVE) including the estimated expenditure from the Social Insurance Fund (SIF) and the National Training Fund (NTF). The total GVE allocation amounts to €66.6 billion distributed across 42 Votes in 2019. This allocation can be disaggregated to current expenditure of €59.3 billion and €7.3 billion of capital expenditure.
  - 2 For example, in the Education sector, the number of teachers recruited is based on the pupil teacher ratio. However, as teachers retire or the number of pupils increases, there is a policy choice to be made. In the absence of a policy change to the ratio, teachers must be recruited. A policy change to increase the ratio would limit the number of teachers to be recruited. Other policy choices such as teacher re-allocation also illustrate that this is a sector of discretionary expenditure (to some degree) in relation to demographic change.
  - 3 For a discussion of the latter see PBO Briefing Paper 8 of 2018, *Public Service Pay and Pensions: Features and Key Determinants*, pp.37-42.
  - 4 This issue was previously identified by the PBO. See *Revised Estimates for Public Services 2018 (Briefing Paper 3 of 2018)* p.48.
  - 5 IGEES, *Budgetary Impact of Changing Demographics 2016-2026 (2015)* p.5.

Demographics should not only be viewed in relation to the costs they may imply through demand for public expenditure in relation to the cohort aged 65+; they are also important in how they affect the levels of economic activity, in which sectors such activity occurs, and ultimately the tax revenue generated from such activity. Demographic changes in younger age cohorts may imply costs in areas such as maternity services, education, etc.; however, a healthy, educated population of working age has the potential to generate economic activity (and therefore revenue). Expenditure in relation to certain demographic changes can therefore be viewed as a potential investment as well as a cost to the Exchequer. It should also be borne in mind that demographic changes can also result in reduced expenditure, i.e. where cohort sizes are projected to decrease.

**The key messages of this PBO paper are:**

- Ireland's population profile is currently favourable in comparison to other EU Members States. In particular, it has a relatively small cohort of over 65s and a relatively high fertility rate. Indeed, it has the highest share of population aged less than 15 years and the second lowest share aged over 65 in the EU;<sup>6</sup>
- The current (relatively) atypical cohort composition of Ireland's demographic profile is projected to evolve towards the current EU norm over the coming decades, i.e. the cohort of over 65s will grow very significantly, the fertility rate will drop and the relative size of the working age cohort will decline. While the peak years for increased age-related expenditure (as a percentage of GNI\*)<sup>7</sup> are forecast in most cases (pensions, healthcare, long-term care) to be decades away, the initial effects may be discerned from 2020 onwards with a forecasted drop in the economic growth rate and a projected peak expenditure year in relation to Education of 2026;<sup>8</sup>
- Public expenditure, particularly the €59.3 billion of current Voted expenditure (2019), is sensitive to such significant demographic change notwithstanding the long-term nature of some of the absolute changes in cohort composition. This issue is therefore of high and ongoing relevance to the annual scrutiny and approval of the Estimates of Public Services. In addition, policy decisions taken today in one demographic context may have significant budgetary impacts over the medium- and long-term. The implications of demographic projections over different time-frames should always be considered;
- It should be borne in mind though that projected demographic changes are open to error and that changes in migration rates, in particular, can have a significant effect on the actual outcome;
- Demographic change is an incremental process. The Department of Public Expenditure and Reform has provided projections of cost changes based on net changes to the composition of demographic cohorts for the period up to 2027. How these changes are incorporated in the annual budgetary process (particularly the adjustments made to the expenditure ceilings of individual Votes in the *Expenditure Report*) is unclear. This lack of clarity underlines how little consideration is apparently given to whether expenditure provision is made on the basis of being discretionary or non-discretionary. This is underlined by the fact that it is also not clear what proportion of existing expenditure was based on previously making provision for demographic changes;

<sup>6</sup> Eurostat, 'Population (Demography, Migration and Projections)'.

<sup>7</sup> This PBO paper draws upon the Department of Finance paper *Population Ageing and the Public Finances in Ireland*, which explains (p.15) the basis for referring to GNI\* rather than GDP when analysing the projected growth in age-related expenditure in Ireland.

<sup>8</sup> Department of Finance, *Population ageing and the Public Finances in Ireland (September 2018)* Figure 9, p13 and Table 4 p.16.

- There is no ‘line of sight’ as to how the demographic provision made for Health, Education and Social Protection is utilised in the Revised Estimates (i.e. at subhead level). One approach which could address this would be to provide an Appendix to the Revised Estimates detailing how these demographic changes are addressed at subhead level. The *Revised Estimates for Public Services 2019* did not address this potential course of action;
- IGEES (2016) multi-annual projections relate only to the ‘pure’ costs of demographic changes in relation to the three most fiscally significant Votes (incorporating changes to the pension age which have been agreed). No account is taken of other Votes, capital expenditure or changes which relate indirectly to demographics. The fact that these aspects of demographic change are not included suggests that actual costs will differ from those associated with the ‘pure’ costs that are used in the budgetary process. The estimate for the period 2020-2027 is €2.7 billion (see Table 1). A theoretical framework in which to situate demographic factors as a driver of public expenditure (see Figure 4), and how and to what extent they interact with other such drivers, may therefore be useful when considering the full budgetary implications of demographic change;
- IFAC’s (2018) short-term projections (2019-2023) of the cost of demographic changes utilise a different methodology to IGEES. There is no consensus between IGEES (2016) and IFAC as to what the short-term expenditure estimates of demographic changes are;
- The Department of Finance released a report in September 2018 analysing how projected population ageing would affect Ireland’s economic and budgetary outlook. It includes estimates of the increases in expenditure (as a percentage of GDP and GNI\*) that may be required – in 2020 and every 10 years out to 2070 and including the peak year. This provides a very useful overview and is broken down according to pensions, healthcare, long-term care, education and unemployment benefits. Further co-ordination between the Departments of Finance and Public Expenditure and Reform as to the categories of public expenditure that will be affected by demographics and how this will affect individual Votes in the period 2020 to 2030 would be welcome; and
- The issue of demographics was previously addressed in *PBO Briefing Paper 11 of 2018* which analysed the Spending Review 2018. While the Spending Review addresses demographics as a driver of public expenditure (in addition to public service pay and labour market, which are both integrally linked to demographics), the deficiencies in the Review process as to how it feeds into budgetary planning were highlighted in the PBO’s paper.

# Introduction

The Parliamentary Budget Office (PBO) has provided this paper to advise Members on the role of demographics in the context of Voted expenditure and budgetary planning.

This paper describes demographics and discusses the demographic drivers which are of greatest significance to the future cost of public services. Demographic drivers relate to changes in the size, composition and distribution of a population. Demographic analysis can inform forecasts of service demand which can then be employed in both budgetary planning and policy making. Such planning can focus on defining which demographic changes entail discretionary and which non-discretionary expenditure.

Demographics is one of many drivers which may determine the level of public service demand and associated cost. Public service demand and expenditure may be driven by any combination of (and to different degrees by) demographic changes, policy decisions, spatial distribution of the population, and external drivers.

The budgetary process is limited in relation to detailing whether, or to what extent, even ‘pure’ demographic drivers contribute to changes in individual Voted allocations (as opposed to policy changes or other factors). This paper provides a theoretical framework (see Figure 4) in which to situate demographic changes as a driver of public expenditure, and how and to what extent they interact with other such drivers.

The growth of Ireland’s population in the period 1996 to 2016 (+31.3%) was greater than predicted growth for the period 2016 to 2051 (+26.6%);<sup>9</sup> however, the growth rate of *particular cohorts* in each of these periods is different. In the period 1996 to 2016 approximately 67.4% of population growth was in the working age cohort (15-64 years of age), with a further 13% comprised of dependents in the younger age cohort (<15 years of age). Ireland’s age profile during this period was particularly youthful. Looking forward from 2016 to 2051 the working age cohort is projected to grow by 13.9% compared to 2016 levels while growth of 145.1% occurs in the population aged 65 years and older. The number of youth dependents will decline 8.8% in this period. The Department of Finance has recently highlighted the significant expenditure implications of such demographic change which include that age-related expenditure is projected to increase by 6.5% (of GNI\*) by 2050 and that the ageing of the population is expected to reduce the growth rate of the economy to just under 2% *per annum* over the period 2020-2050.<sup>10</sup> It also noted that, in the absence of further policy responses, population ageing would increase the debt-to-GNI\* ratio by approximately 50% by 2070.<sup>11</sup>

These demographic projections and their potential budgetary impacts underline the importance of incorporating demographics into budgetary planning in a multi-faceted way that reflects the complexity of the issue and the various time horizons involved.

<sup>9</sup> Under the CSO central (M2F2) scenario – see pp.8-9 of this paper.

<sup>10</sup> Department of Finance press release, 28 September 2018, ‘Report signals impact population ageing could have on public finances – Donohoe’.

<sup>11</sup> *Ibid.* For an update on General Government Debt see also PBO Note 26 of 2018, *General Government Debt: Key Issues to Consider*.

The objectives of this paper are therefore to:

- Explain and describe the concept of demographics (see Box 1 over);
- Identify and explain the key demographic challenges facing Ireland;
- Place Ireland's demographic profile in an EU context;
- Describe how demographic factors influence public expenditure and ultimately the public finances;
- Illustrate the projected trends in public expenditure which are influenced by demographic changes;
- Identify, where possible, the short term impact of demographic change on Voted expenditure;
- Provide a conceptual framework illustrating why the identification and incorporation of demographic factors in the budgetary process is important; and
- Identify some of the policy proposals which can address demographic changes.

The structure of the paper is based on an overview of:

- Projections of Ireland's population size and structure. It places these projections in the context of an explanation of the consequences of relative changes to the cohort sizes within the Irish population and how it compares to other Members States of the Union;
- The budgetary process and how demographics are factored into that process. It also proposes a conceptual framework (Figure 4) to illustrate the complexity of demographic change in relation to the budgetary process; and
- Key issues and evidence from a range of secondary sources. These include papers from IGEES (2016), IFAC (2018) and the Department of Finance (2018). The first paper provides the 'pure'<sup>12</sup> demographic costs for various programmes for the period 2017-2027 which can be tied back to the three major Votes (Health, Social Protection and Education); the second provides an overall cost for the period 2021-2023 in respect of the same three areas of expenditure; and the final paper provides the growth rate in expenditure as a percentage of GNI\* for the period out to 2070 for these areas. While each paper provides useful information, the sources, methodology, and timeframe differ.

The paper concludes by noting that the Department of Finance has forecast that expenditure is set to increase as a result of population ageing and that economic growth is also projected to decrease. Less research seems to have been carried out into the implications of significant inward migration but IFAC have noted that this tends to be the key source of population projection error. This could have significant implications for the total population size and fertility rates which will in turn have implications for public expenditure. It is therefore to be welcomed that IFAC is working on modelling migration explicitly in order to refine population projections.<sup>13</sup> **Initially, however, this PBO paper notes that it is open to Government to bring greater clarity to how demographics is catered for in Voted allocations in order to engender greater debate around policy in the context of discretionary and non-discretionary expenditure.**

<sup>12</sup> 'Pure' demographic cost estimates, employed by IGEES (2016), are based on projected changes on cohort sizes and (generally) do not take into account any possible policy changes. They do take account of agreed changes, particularly those that relate to increasing the age of retirement and public pension entitlement.

<sup>13</sup> IFAC, *Fiscal Assessment Report (November 2018)*, p.32.

### Box 1: Defining demographics in a budgetary context

In a budgetary context demographic analysis tends to focus on the size and age composition of a population. In some specific contexts additional factors such as the gender breakdown of the population (or a cohort thereof) may also be of relevance to budgetary decision making. An ESRI paper, *The gender impact of Irish budgetary policy 2008-2018* (2018), funded by the PBO addresses such areas.

Demographics can inform policy and budgetary decision making through analysis of the population as a whole or its component parts (these are referred to as cohorts). A cohort is simply a group of persons who share a common characteristic or characteristics. For the purpose of this paper cohorts refer to groups of persons classified by age. Analysis of the total population, or cohorts thereof, can illustrate the demographic pressures developing.

Demographic changes may have positive and negative consequences. These arise as:

- i. Different age cohorts interact to varying degrees with particular aspects of the public service. The frequency and/or intensity of these interactions, the larger the associated cost;
- ii. The age-profile of the State provides an approximation of the total workforce which correlates to the revenue generating ability of the State; and
- iii. The total population size is indicative of certain overarching needs e.g. infrastructure.

It should be noted that short-term projections may be more accurate but that this depends on the cohort in question and the extent to which migration and fertility rates affect it. Long-term projections may also be valuable and are, in some cases, likely to be reasonably reliable e.g. projections of the size of the age cohort eligible for the State Pension.

‘Pure’ demographic factors are demographic drivers of expenditure which relate exclusively to changes to the size and/or age distribution of the population. ‘Pure’ cost/service use projections assume no policy changes and simply extrapolate service demand and cost based on changes to population size and age structure. ‘Pure’ demographic analysis is therefore static and assumes that all other factors remain equal.

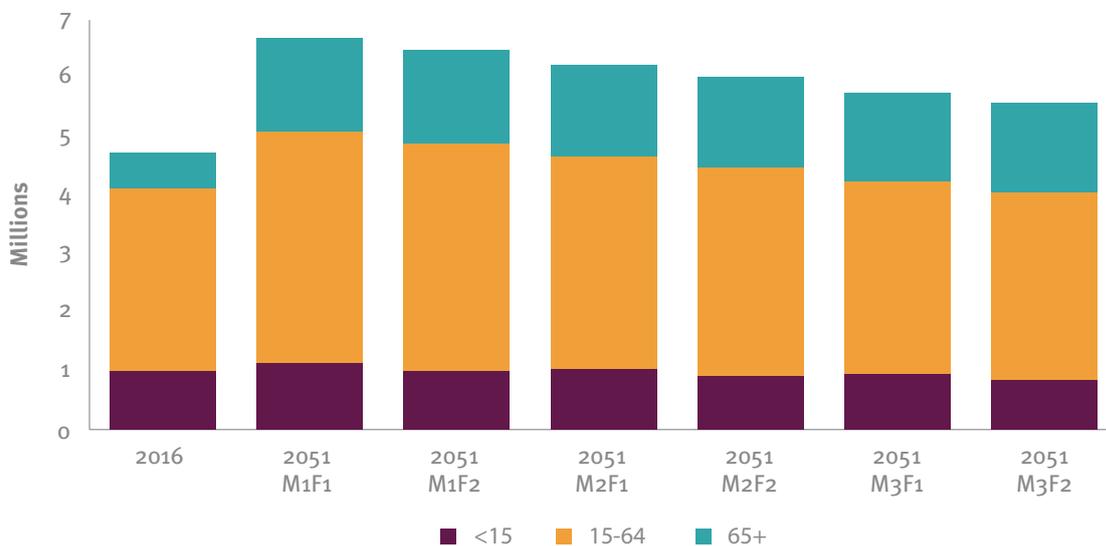
Analysis on the basis of pure demographic change excludes changes to any other factors which may serve to influence the cost of demographic changes. The assumptions made can dramatically affect the outcome of the projections and associated cost estimates. ‘Pure’ demographic analysis holds all variables other than population size and age distribution constant – this means that expenditure estimates based on ‘pure’ demographic changes are sensitive to other variables. These other variables include, but are not limited to, policy changes and external factors (see Figure 4). Reducing the number of variables facilitates analysis of ‘pure’ demographic factors and their impact on public service demand and expenditure; however, it narrows the focus and therefore the apparent impact of demographic change.

## Projections of Ireland’s Population Size and Age Structure

The following overview of demographic projections is prefaced by noting some pertinent findings and comments from the Fiscal Advisory Council’s latest *Fiscal Assessment Report (FAR)* (November 2018). The FAR notes that demographics are a key driver of the public finances, but that projections are challenging given the degree of uncertainty involved. The FAR emphasises that errors on Central Statistics Office (CSO) demographic projections can accumulate and that a shorter projection window does not *necessarily* give more precise results. It is also of note that the FAR singles out net migration trends as the key source of error for population projections and that IFAC is working on modelling migration specifically in order to refine population projections.<sup>14</sup>

With those provisos, recent developments in Ireland’s population size and structure and projected future developments are set out in Figure 1. This illustrates Ireland’s population in the context of three significant cohorts alongside the CSO’s most recent population projections.

**Figure 1: Ireland’s Population 2016 and CSO Projections to 2051**



Source: PBO based on CSO, ‘PEC16’ (July 2018).

Projections of Ireland’s future population are produced by the Central Statistics Office (CSO). The projections set out above (or scenarios) project the future population on the basis of combinations of assumptions; thereby providing a range of possible estimates of future population makeup. It is not possible to create a single definitive projection of what will happen; rather, the CSO generates a number of plausible alternatives. The scenarios generated by the CSO

<sup>14</sup> Fiscal Advisory Council, *Fiscal Assessment Report* (November 2018, p.31).

largely rely on assumptions in relation to **net migration (m)** and **fertility (f)**. The scenarios share common assumptions about mortality.<sup>15</sup> **The CSO's six scenarios combine various assumptions of net migration (m) and fertility (f).** These scenarios are M1F1 through M3F2. **In this PBO paper the CSO scenario M2F2 is used as a reference point as this scenario approximates a central estimate of the range of CSO scenarios.**

M2F2 assumes annual net inward migration of 20,000 and declining total fertility rates (tfr) to 1.6 by 2031 remaining static thereafter.<sup>16</sup> The Eurostat projections used by the Department of Finance in *Population Ageing and the Public Finances* (2018) include a higher average tfr of 1.96 to 2071 and more conservative estimates of inward migration.

## The Consequences of Changes to Ireland's Population Size and Structure

### Box 2: Dependency Ratios and Population Structures<sup>17</sup>

The structure or profile of a population can be measured through a number of metrics; however, for the purpose of this paper three metrics in particular are useful. These metrics are the Age Dependency Ratio (**ADR**) sometimes known as the Total Support Ratio; the Old-Age Dependency Ratio (**OADR**); and the Young-Age Dependency Ratio (**YADR**).

- The **OADR** is the ratio of old-age persons (65 and older) to working-age persons (aged 15 to 64);
- The **YADR** is the ratio of persons aged less than 15 to working-age persons (aged 15 to 64); and
- The **ADR** is the ratio of non working-age persons to working-age persons. This is usually approximated as persons aged less than 15 or older than 64 (generally not able to participate in the workforce) to those aged 15-64 (those generally able to participate in the workforce). **The ADR is the sum of the OADR and the YADR.**

These ratios are generally described as percentages, for example, an OADR of 20% means that for every old-age dependant there are five persons of working age. An ADR of 50% means that for every dependent there are two persons of working age. These classifications of persons by age and relationship to the workforce are internationally comparable; however, in future they may become increasingly less reliable as indicators of the ratio of working age persons to non-working age persons. This may arise as, for example, the State Pension age will increase to 68 by 2028.<sup>18</sup> The State Pension age is currently 66, this means that in calculating the OADR, persons aged 65 are incorrectly categorised as dependents rather than to the working age population. Likewise, including persons in a calculation of the workforce from age 15 may overstate labour supply. While this may be appropriate in certain circumstances, broadly speaking, developed economies require educated staff. This has the effect of delaying entry to the workforce for a considerable proportion of younger persons.

<sup>15</sup> CSO, 'Population and Labour Force Projections 2017-2051' (2018).

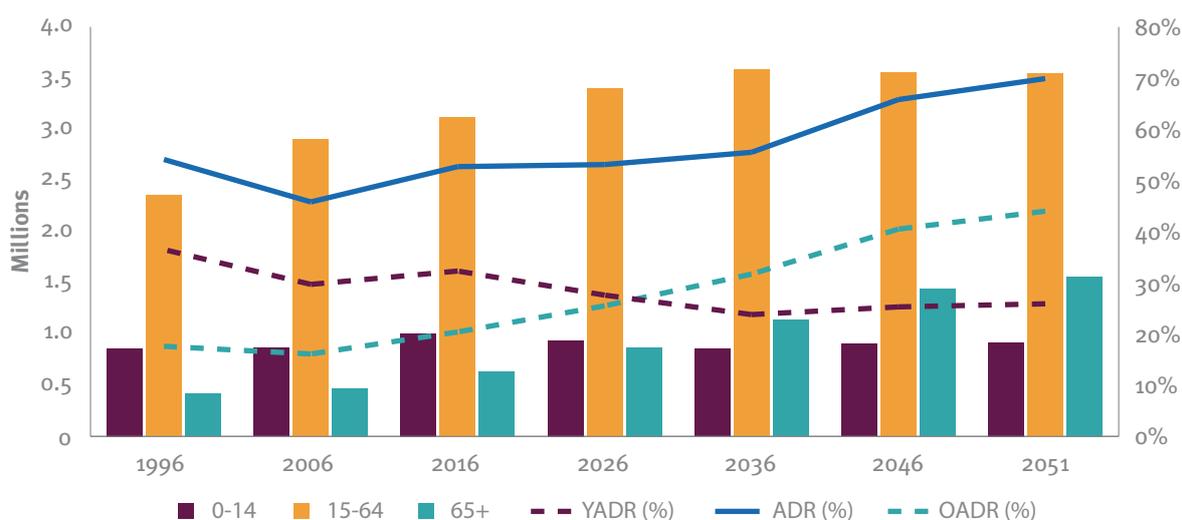
<sup>16</sup> For a breakdown of tfr in 2017 by county see Department of Health, *Health in Ireland: Key Trends 2018*, Figure 1.3, p.11.

<sup>17</sup> OECD (2018), *Population* (indicator). doi: 10.1787/d434f82b-en (Accessed on 17 September 2018).

<sup>18</sup> The Pensions Authority, 'State pension age'.

Figure 2 below illustrates developments in Ireland's population and age profile alongside a snapshot from the CSO's most recent population projections. It should be noted that in the period 1996 to 2016 the majority of the total growth took place in the working age population (67.5% of total population growth).

**Figure 2: Ireland's Population Profile: YADR, OADR, and ADR (1996 to 2051)**



Source: PBO based on CSO, 'EY002' (April 2017) and CSO, 'PEC16' (July 2018).

Figure 2 illustrates changes to the size and age distribution of Ireland's population in the period 1996-2016 and projects forward to 2051 based on the CSO's M2F2 scenario. A number of conclusions may be drawn from Figure 2:

- Ireland's population has grown, and is anticipated to continue to grow substantially in future (+26.6% in the period **2016 to 2051**). This net growth comprises:
  - A decline of approximately 88,000 persons in the cohort aged less than 15 (-8.8%);
  - An increase of approximately 432,000 persons aged between 15 and 64 (13.9%); and
  - An increase of approximately 925,000 persons in the cohort aged 65 and older (145.1%).
- Changes in the number of youth dependents (0-14 years) are comparatively small by comparison with changes in other cohorts. The Young Age Dependency Ratio (YADR) decreases from **2016 to 2036** (-8.5 percentage points below 2016), recovering slightly thereafter **to 2051** (-6.4 percentage points below 2016);
- The number of old-age dependants increases steadily throughout the duration of the analysis. Under this scenario this cohort is expected to grow by approximately 925,000 persons over the period **2016-2051**. This is an increase in the Old Age Dependency Ratio (OADR) from 20.5% **in 2016 to 44% in 2051**; and
- The overall Age Dependency Ratio (ADR) is expected to undergo prolonged increases (rising from 52.7% **in 2016 to 69.9% in 2051**).

These projected changes indicate that expenditure related to the older cohorts (such as pensions) can be expected to increase while expenditure linked to younger cohorts (such as education) could remain relatively static. Growth in the cohort (aged 15 to 64) which is primarily responsible for funding this expenditure is not sufficient to prevent a less favourable ADR.

Demographic projections have underlying assumptions generally informed by the context of the point in time in which the projection is made. The assumptions made, as part of the projection of the demographic change or cost pressure, may increase the level of uncertainty over longer timeframes. It is therefore important to note the limitations of projections. Reasonable and prudent assumptions may not be borne out in reality.

Where considerable uncertainty exists, the focus should not be to attempt the determination of exact costs; rather, if a demographic change has been forecast it is important to evaluate whether there is a likely need to:

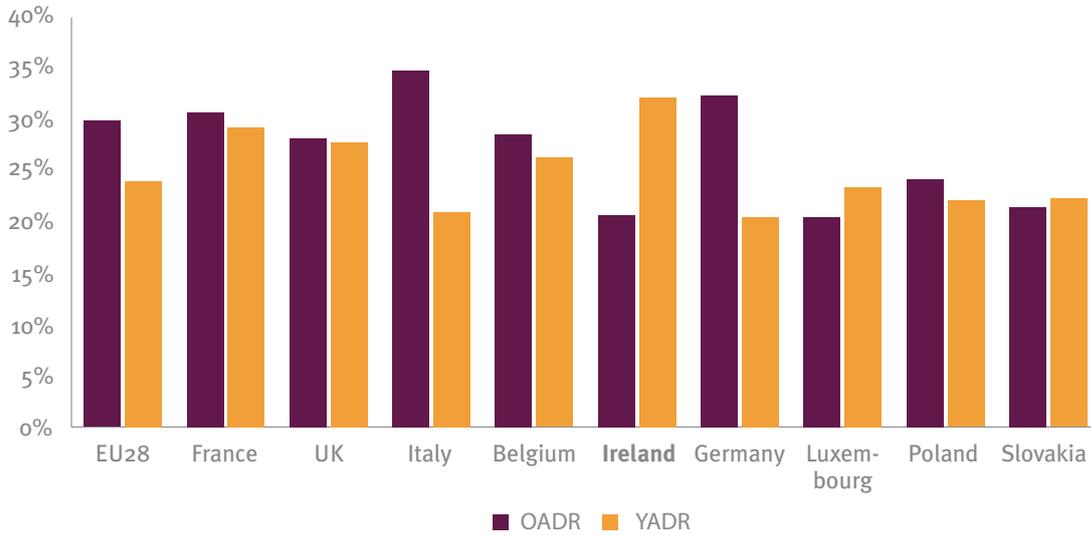
- Generate additional revenue;
- Reduce expenditure;
- Re-prioritise expenditure from other policy areas; or
- Take policy action to address the projected need.

## How Ireland Compares to other Members States of the European Union

Ireland is not unique in facing demographic challenges; indeed, other EU Member States are currently in considerably less favourable situations in respect of dependency ratios (see Box 3 over). Figure 3 (over) illustrates Ireland's Old Age Dependency Ratio (OADR) and Young Age Dependency Ratio (YADR) against a range of European comparators. Figure 3 highlights that, not only, is Ireland somewhat unusual in having a higher YADR than OADR; this is currently the case by a significant margin. According to Eurostat, in 2017:<sup>19</sup>

- Ireland had the highest YADR of the EU28 (32.2%) compared to the lowest in Germany (20.5%);
- Ireland's OADR was second lowest (20.7%), the lowest being Luxembourg (20.5%). The highest was Italy (34.8%); and
- The overall Age Dependency Ratio (ADR) was highest in France (60%) and lowest in Slovakia (43.8%) while Ireland (52.9%) was close to the average for the EU28 average (53.9%).

<sup>19</sup> Eurostat, 'Population: Structure indicators' (September 2018).

**Figure 3: International Comparators – YADR & OADR (2017)**

Source: Eurostat, 'Population: Structure indicators' (September 2018).

It is apparent that while demographic changes in Ireland pose challenges, other EU Member States already do, or will, experience demographic changes similar to those facing Ireland in the future. Analysis of policies introduced in these states may illustrate effective responses to demographic changes. Figure 3 illustrates that, as of 2017, Italy's OADR is 34.8% compared to Ireland's 20.7%. By the mid-2030s however Ireland's population structure may broadly reflect Italy's present age structure.<sup>20</sup> For example, policies enacted in Italy, if effective, may inform Irish responses to the same demographic challenges. In addition, projected total age-related expenditure in Ireland, as a proportion of GNI\*, is set to almost reach the euro area average by 2040 and to exceed it by 2050.<sup>21</sup>

<sup>20</sup> Department of Finance, *Population Ageing and the Public Finances in Ireland*, (September 2018) p.14.

<sup>21</sup> *Ibid*, Table 5, p.17.

### Box 3: Projections of Ireland's Dependency Ratios (European Commission)

Eurostat and the CSO have differing underlying assumptions which underpin their projections; as such, the projections of Eurostat (and therefore of the *2018 Ageing Report*) are not directly comparable to those of the CSO. In addition to this the CSO's projections run to 2051 compared to the *Ageing Report* projections to 2070. As noted by the Department of Finance “*Eurostat* population projections [are] on the basis of 2015 data (to ensure cross-country comparability). These projections do not take account of the revised estimates of the population from the 2016 Census.”<sup>22</sup>

Figure 3 illustrates the YADR and OADR of a number of EU Member States in 2017 based on projections in the *2018 Ageing Report* – themselves based upon Eurostat data. Bearing in mind these differences it is still of note that the projections in the *2018 Ageing Report* to 2070 suggest that increases in Ireland's ADR are comparatively modest (+14.9 pp) compared to a range of other EU Member States such as the UK (+18.3 pp), Denmark (+22.2 pp), Italy (+27.8 pp), Germany (+28.7 pp), Portugal (+36.2 pp), and Poland (41.1 pp).

The *2018 Ageing Report* projects that, while ADR is likely to increase significantly over the period to 2070, ADR in Ireland will remain below levels in other EU Member States.<sup>23</sup> Even with the increases to ADR the *Ageing Report* forecasts that ADR in Ireland will be the lowest of the EU28 at 70.2% compared to the highest in Portugal at 89.7%. The projections also find that in 2070 Ireland's OADR is the lowest in the EU28 at 41.2% compared to a high of 67.2% in Portugal.

However, it should also be noted that the share of the Irish population aged over 85 years of age was the smallest cohort in 2016, by 2070 it is projected to become the largest cohort.<sup>24</sup> Setting aside debates over the direct relevance of age to health status, the growth of this cohort is likely to have implications for both Services for Older Persons (SfOP)<sup>25</sup> and long-term residential care.<sup>26</sup>

<sup>22</sup> Department of Finance, *Population Ageing and the Public Finances in Ireland*, (September 2018) p.4.

<sup>23</sup> European Commission, *The 2018 Ageing Report: Economic & Budgetary Projections for the 28 EU Member States (2016-2070)* (May 2018) p.24.

<sup>24</sup> Department of Finance, *Population Ageing and the Public Finances in Ireland*, (September 2018) p.10 and Figure 8, p.11. In this context, cohorts are based on dividing the population into 5-year intervals concluding with 85+.

<sup>25</sup> For further detail on this policy area see PBO, *Analysis of Spending Review 2018* (September 2018) p.22.

<sup>26</sup> For further detail on this policy area see IGEES, *Budgetary Impact of Changing Demographics 2017-2027* (2016).

## Demographics and the Budgetary Process

Demographic changes affect demand for public services and thus have resource implications; therefore, the study of demographic changes can inform policy and budgetary planning. Such planning can focus on addressing discretionary and non-discretionary spending stemming from demographic changes.

Public service demand and expenditure may be driven by any combination of (and to different degrees by) demographic changes, policy decisions, spatial distribution of the population, and external factors (see Figure 4). The *Spending Review 2018* paper *Trends in Public Expenditure (2018)* provides a useful overview of the variety of drivers of public service demand and expenditure (including demographics). *PBO Briefing Paper 11 of 2018* addresses the Spending Review 2018 and the analysis it provides of drivers of public expenditure including demographics.

**Demographic change is an ongoing process; generally slow and incremental in nature**, as such, it is not always identified as a driver of expenditure within the budgetary process. When it is identified, it is not consistently used, nor is it clearly explained. Additional expenditure allocations (or re-allocations) are generally made without specific mention of demographics; it is unclear whether or not demographics are one of the drivers. **It is also unclear whether provision is being made for all demographic changes or to what extent it is being funded by 'efficiency' or policy change savings.** Demographic changes appear also always to relate to increasing allocations in the annual *Expenditure Report*. IGEES (2016) forecast decreasing costs in relation to the Children and Youth Affairs Vote (Childcare (ECCE) shows a downward pressure of €7 million in 2019) while the *Expenditure Report 2019* (pp.59-62) makes no reference to demographics in relation to this Vote.

A challenge exists in linking incremental increases in expenditure on an annual basis to the overarching concept of long-term demographic changes. It is likely that the budgetary process focuses attention on immediate (and potentially relatively small) changes in demand and consequent resourcing requirements without explicitly linking these changes to longer term processes. It may not be realistic to make these linkages but this context should be acknowledged.

There are particular challenges in linking demographic changes to expenditure; IGEES (2016) addressed these by restricting their analysis to 'pure' demographic changes. Table 1 (over) sets out the starting position of the 2019 Estimate and summarises the projected expenditure for the four Votes (Health, Education and Skills, Employment Affairs and Social Protection, and Children and Youth Affairs) for the remainder of the period reviewed by IGEES (2016), i.e. 2020-2027. It also sets out the 2019 estimate in respect of three other Votes that the PBO consider it plausible are subject to expenditure pressures due to demographic changes, specifically project overall population growth (Housing, Planning and Local Government, Transport, Tourism and Sport, and Garda Síochána).

**Table 1: 2019 Vote Groups – Total Gross Estimate 2019 and ‘pure’ demographic estimates (IGEES)**

Vote	Gross Estimate 2019* (€ billion)	Cumulative Demographic Cost Pressure* (2020-2027) <sup>27</sup> (€ billion)
37 Employment Affairs and Social Protection	20.498	1.495
38 Health	17.027	1.195
26 Education and Skills	10.763	0.105
34 Housing, Planning and Local Government	4.032	
31 Transport, Tourism and Sport	2.368	
20 Garda Síochána	1.602	
40 Children and Youth Affairs	1.511	-0.061
<b>Total</b>	<b>53.344</b>	<b>2.735</b>

Source: *Expenditure Report 2019 (2018)*; and IGEES, *Budgetary Impact of Changing Demographics 2017-2027 (2016)* pp.15-16.

\* Rounding affects totals.

Table 1 has been provided to highlight that while IGEES’ (2016) approach, is practical it may not capture the full impact of demographic change. Likewise, the PBO has provided a table (Table 4) in Appendix 1 to this paper which attempts to illustrate how the seven Votes listed in Table 1 *could* be affected by demographic changes over the period to 2051. Table 4 is illustrative of Votes likely to experience demographic pressures; however, it is not comprehensive and is *indicative* only.

The degree to which demographic analysis is undertaken at a Departmental level is unclear; however, for example, the Department of Education and Skills does undertake its own enrolment projections. Without such analysis and planning demographics, as a driver of expenditure, will not be methodically integrated within the budgetary process. The *Spending Review* process does offer an opportunity to incorporate demographic projections as a driver of expenditure within the budgetary framework. However, the PBO has, in *Analysis of Spending Review 2018*, outlined that the process by which Spending Review findings feed into the Budget are unclear.<sup>28</sup>

<sup>27</sup> IGEES, *Budgetary Impact of Changing Demographics 2017-2027 (2016)*.

<sup>28</sup> PBO, *Analysis of Spending Review 2018 (September 2018)*.

## Conceptual Framework for Incorporating Demographic Change into the Budgetary Process

The IGEES Spending Review paper 2018, *Trends in Public Expenditure*, identifies *three* drivers of public expenditure – demographics, public service pay and pensions, and labour market. The relationship between demographics and public expenditure is clearer and more easily quantified the simpler this relationship, hence IGEES (2016) use of ‘pure’ demographic costs. Complex relationships also tend to be less subject to influence or control by Government.

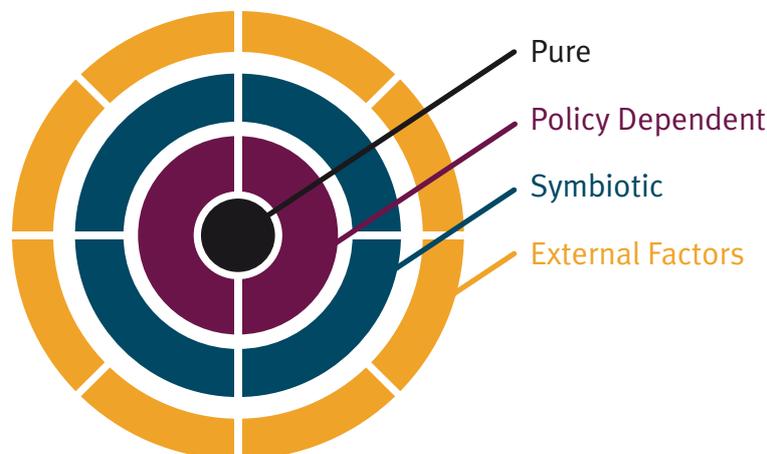
However, the PBO notes that there is a wide range of factors which determine the context to public expenditure and that demographics has a relationship with many of those factors.

The PBO has therefore proposed a conceptual framework (Figure 4) which identifies a spectrum of factors which can be categorised according to how clearly they are linked to demographics. The use of this framework could assist in identifying to what degree demographic changes are driving levels of public expenditure in an area.

Figure 4 illustrates how drivers can be categorised and related to public expenditure. The central point in the figure indicates that the relationship with demographics is direct; with the link becoming more complicated the greater the distance from that point. Figure 4 also illustrates that as demographics’ link to public expenditure grow less direct – the number of factors contributing to public expenditure increase.

- In the case of pure demographic costs there is a perfect relationship between cohort size and expenditure i.e. a 1% increase in the size of the relevant cohort will lead to a 1% increase in expenditure;
- In the case of policy dependant or symbiotic factors there is a relationship but it is progressively more difficult to estimate how demographics is related to expenditure;
- In the case of external drivers these are numerous and their relationship with demographics is too complex to make them amenable to incorporation within budgetary planning.

**Figure 4: A Conceptual Framework Linking Demographic Change and Changes to Public Expenditure**



### Pure drivers

**‘Pure’** demographic drivers of public expenditure and demand are those where demographic changes are the sole and exclusive driver of the level of demand or expenditure. A ‘pure’ driver is a change in the size of the cohort which drives the demand or expenditure. These drive public expenditure in the absence of policy change.

### Policy dependant

**‘Policy dependant’** drivers are related to, but independent from, demographics. Policy dependant drivers interact with demographics (without changing them). In these cases policy decisions affect specific cohorts either by changing the cost associated with each member of that cohort or by redefining the cohort which is affected by the policy. Such changes determine current levels of public expenditure which will then be subject to demographic pressures in future. Examples include:

- An increase to pension payment rates is a policy decision which affects a specific cohort of the population; or
- Introducing means testing to determine eligibility for child benefit is a policy decision which could reduce the number of recipients even in the absence of a demographic change.

### Symbiotic drivers

**‘Symbiotic’** drivers are those where demographic factors influence public service demand and expenditure but where other public policy also contributes to public service demand and expenditure. The **Spatial Distribution** of the population is a driver of public service demand and expenditure which is mixed with demographic changes as is household formation. The *Public Service Obligation* (PSO) in respect of socially necessary but financially unviable public transport is an example of demographic factors (primarily low population density) and policy decisions interacting and driving public expenditure.

### External drivers

**‘External’** drivers are those which have no clear link to demographics. They may be external factors which are not directly influenced by Government. In some cases there may be no relationship between the driver and public service demand and expenditure e.g. expenditure on international aid. These may include:

- Technological developments;
- Environmental factors; and
- International events (global economic climate etc.).

Source: Parliamentary Budget Office (2019).

**Box 4: Application of the Conceptual Framework**

Disaggregating and estimating the cost of demographic factors as drivers of Exchequer expenditure is more approachable (as an exercise) if restricted to ‘pure’ demographic effects. That does not mean that demographics are not a significant contributory driver in other expenditure.

The PBO suggests that the conceptual framework set out in Figure 4 can be used to identify when demographic changes represent a significant contributing factor to a change in public expenditure, in particular, in cases where the relationship between public expenditure and demographic change is either **pure, policy-dependant** or **sympiotic**, demographics should be clearly identified as a driver of the change in expenditure.

Where possible, the proportion of the change which can be attributed to pure demographic or other drivers should be clearly identified.

**Demographic factors and Capital Expenditure**

Most Voted expenditure consists of current expenditure (in 2019, 89% of gross Voted expenditure is current expenditure). Equally, most of the expenditure affected by ‘pure’ demographic factors is also related to current expenditure as reflected in the IGEES paper (2016).

Capital expenditure can also be driven by demographic factors as noted by IGEES (2017).<sup>29</sup> In some cases such expenditure relates to forward-planning in the expectation of changing demographics; in others, expenditure may arise in response to a demographic change which has already occurred.

Capital expenditure is most significant (in monetary terms in 2019) in Vote 34 Housing, Planning and Local Government (€2.113 billion); Vote 31 Transport, Tourism and Sport (€1.613 billion); and Vote 26 Education and Skills (€941 million). The two largest Votes overall (Health, and Employment Affairs and Social Protection) have significantly less capital expenditure (€681 million cumulatively – all but €14 million of which relates to Health).<sup>30</sup>

It is important to note that expenditure on capital projects is not necessarily a result of demographic factors.

In practice this means that increased or decreased capital allocations should not necessarily be viewed solely through a demographic lens, but with regard to multiple factors. These factors are often inter-related e.g. spatial development reflects demographic changes (see Figure 4).

<sup>29</sup> IGEES, *Strategic Public Infrastructure: Capacity and Demand Analysis* (August 2017).

<sup>30</sup> *Expenditure Report 2019* (2018).

## Key Issues and Review of Key Evidence

The Department of Finance project significant age-related expenditure (pensions, healthcare, long-term care, education, and unemployment benefits) in the coming decades; projecting that age-related expenditure for Ireland could rise as high as 31.2% of GDP in 2060 (compared to the EU28 average of 26.8%).<sup>31</sup> The demographic challenges facing Ireland are primarily:

- An increasingly unfavourable OADR<sup>32</sup>; and
- Overall growth in the size of the population.

IGEES (2016) and IFAC (2018) have considered demographic pressures over a reasonably short timeframe (2017-2027, and 2019-2023 respectively). In both cases projections, and calculations, of demographic pressures and associated costs were conducted. These indicated that demographics, while incremental in nature, remain a relatively constant and significant fiscal pressure (barring counteracting policy action). Within this, IGEES' projections illustrate that pensions are a major driver of public expenditure (averaging 67.3% of their forecast demographic cost pressures for the period 2023-2027).<sup>33</sup> The *Ageing Report 2018* and the Department of Finance report, *Population Ageing and the Public Finances*, likewise focus on pension expenditure as a key emerging demographic pressure.

### Irish Government Economic and Evaluation Service (2016)

*Budgetary Impact of Changing Demographics 2017-2027* (2016) is an examination of how public expenditure is affected over time as a result of changes to the size and structure of the population. IGEES' paper focuses on three main areas of current expenditure; Social Protection, Health, and Education and examines key services within these areas and how they are impacted by demographic change. IGEES' paper estimates the cost pressure generated by the demographic changes projected and also sets out the assumptions and some of the policy considerations which may impact upon these key services in future.

IGEES' analysis of expenditure identified areas of expenditure within these Votes which are driven by 'pure' demographic changes. This means that IGEES' projections are based on the assumption that the only variables changing over the projection period are the size and age distribution of the population i.e. the size of all cohorts cumulatively, or of specific cohorts, or of groups of cohorts.

<sup>31</sup> Department of Finance, *Population Ageing and the Public Finances* (2018) p.17.

<sup>32</sup> Department of Health, *Health in Ireland: Key Trends* (2018), Figure 1.1a shows in map-format the Old Age Dependency Ratio, by Electoral Divisions, 2016 and illustrates how the higher rates of dependency are skewed towards the western half of the country – particularly the seaboard.

<sup>33</sup> IGEES, *Budgetary Impact of Changing Demographics 2017-2027* (2016) p.16.

IGEES' paper found that, even on an annual basis, demographic change is a significant contributor to changes in public expenditure. Demographic pressures of €428, €435, and €148 million were identified in respect of the three areas analysed (Social Protection, Health, and Education) for 2019, 2020, and 2021 respectively.<sup>34</sup> Given the narrow focus of IGEES' analysis, annual costs where demographics are a driver could, and are likely, to be in excess of these figures. IGEES' paper was not subject to revision as part of the *Spending Review 2018*.

#### **Box 5: IGEES' Analysis of the Budgetary Impact of Demographic Change**

IGEES' analysis focussed on current expenditure which represents 89% of Voted expenditure in 2019. IGEES estimated the cost pressure generated by the demographic changes projected and also set out the assumptions and some of the policy considerations which may impact upon these key services in future; however, in a demographic context IGEES' analysis covers a relatively short timeframe (2017-2027). Demographic changes may be relatively small over shorter timeframes but may, over longer timeframes, present large cumulative changes.

IGEES' analysis of expenditure identified areas of expenditure within these Votes which are driven by 'pure' demographic changes. This means that IGEES' projections are based on the assumption that the "only variables changing over the projection period are the size and age distribution of the population" i.e. the size of all cohorts cumulatively, or of specific cohorts, or of groups of cohorts. Cohorts are the number of persons within a specific age bracket at a point in time. IGEES extended their analysis beyond 'pure' demographic factors in one case, to take account of a policy change in relation to State Pension Age. In so doing IGEES illustrated the impact that non-demographic factors may have on public service demand and expenditure as reflected in the significant decrease in demographic costs in 2021 (arising from a legislative change to the pension age of entitlement).

IGEES' methodology is primarily to multiply the average cost of service provision per unit by the net change in numbers availing of a service or scheme. In some contexts (i.e. payments of social welfare entitlements/benefits) this methodology, while simple, is likely to be highly accurate e.g. in the case of child benefit it is possible to multiply the projected net change in recipient numbers by the basic payment rate (€140) by the payment frequency to get a reasonably reliable estimate of the cost of the demographic change. In other cases, particularly in relation to Acute Services and the Primary Care Reimbursement Scheme it is less clear how IGEES estimated costs.

IGEES' approach, while relatively effective, does not address the breadth of Voted expenditure potentially impacted by demographic factors; it also does not address the impact demographic factors may have on capital expenditure. Finally, it specifically excludes any other than 'pure' demographic factors (with one exception - the agreed change in the age of entitlement to a State pension) – for an overview of this concept see Box 1.

*Source: IGEES, Budgetary Impact of Changing Demographics 2017-2027 (2016).*

<sup>34</sup> *Ibid.* p.15.

## Irish Fiscal Advisory Council (2018)

IFAC have conducted analysis on expenditure related to provision for demographics. IFAC's paper, *Stand-Still Scenario for Government Spending in the Medium Term, 2019-2023* (2018) estimates (using a different methodology to IGEES) the resources that may be required to address demographic needs. IFAC's methodology found that the costs required to meet 'pure' demographic costs i.e. demographic costs in a no-policy-change scenario, are higher than those of IGEES in each year from 2019 to 2023. IFAC projected total demographic costs of €2.24 Billion for 2020 to 2023;<sup>35</sup> this is €1.1 Billion greater than IGEES' (2016) estimate (approximately half of this difference may relate to how pension costs are treated).

### Box 6: IFAC's Stand-Still Scenario for Government Spending in the Medium Term (2018)

IFAC 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. These were then extended mechanically to 2023 to produce a five-year ahead scenario. IFAC consider that its estimates could form an important input into the expenditure planning process by enriching the evidence base for budgetary decisions. IFAC's Scenario is based on:<sup>36</sup>

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.

IFAC's estimate of demographic costs differs from IGEES (2016) estimate and from demographic costs identified in Budget 2019. As IFAC's estimate is not broken down on a Vote-by-Vote basis it is not possible to determine where the differences arise.

Source: IFAC, *Stand-Still Scenario for Government Spending in the Medium Term, 2019-2023* (2018) pp.3-4.

<sup>35</sup> IFAC, *Stand-Still Scenario for Government Spending in the Medium Term, 2019-2023* (2018) p.8-10.

<sup>36</sup> *Ibid*, p.4.

## Parliamentary Budget Office (2018)

In *Budget 2019 – Analysis of Voted Expenditure* (November 2018), the PBO reviewed the provision made in respect of demographics in *Expenditure Report 2019* and established that it was unclear.

A range of estimates, from different sources (see Table 2), are provided that conflict with each other. Demographic pressures are alluded to in the budgetary documentation without being systematically and clearly set out.

The *Expenditure Report 2019* takes the *Mid-Year Expenditure Report 2018* figure in respect of 2019 as its starting position, without specifically detailing the demographic costs included.<sup>37</sup> Elsewhere, the *Expenditure Report 2019* sets out that the IGEES paper *Budgetary Impact of Changing Demographics 2017-2027* is its source for the likely additional costs (€435 million) arising out of demographic pressures in 2019.<sup>38</sup>

In its analysis of the *Spending Review 2018*, the PBO compared the projections from IGEES to those more recently produced by IFAC. Table 2 updates this with information from the *Mid-Year Expenditure Report* and the *Expenditure Report 2019*.

**Table 2: Projected cost implications of demographics, 2019-2021.**

Projections	2019	2020	2021
IGEES (2016)	€0.428bn	€0.435bn	€0.148bn
<i>Expenditure Report 2018</i> (2017)	€0.53bn*	€0.48bn	N/A
IFAC (2018)	€0.55bn	€0.67bn	€0.67bn
<i>Mid-Year Expenditure Report 2018</i> (2018)**	€0.4bn	€0.4bn	€0.5bn
<i>Expenditure Report 2019</i> (2018)	€0.435bn <sup>37</sup>	€0.45bn	€0.46bn

Source: PBO, *Analysis of Spending Review 2018*, p. 20, *Mid-Year Expenditure Report 2018*, p. 4, and *Expenditure Report 2019*, p. 45.

\* Includes amounts in respect of the Rural Development Programme (RDP).

\*\* Figure is net of live register savings of €50 million.

As Table 2 illustrates, while *Expenditure Report 2019* references *Budgetary Impacts of Changing Demographics, 2017-2027* as its key source for demographic effects, the allocation for demographic effects in 2021 is substantially higher (210%) than those forecast in the IGEES paper but close to the *Mid-Year Expenditure Report (MYER) 2018*. The reasons for this discrepancy are not set out in either the *Expenditure Report 2019* or the *MYER 2018*. However, the higher allocation set out in the *MYER 2018* and the *Expenditure Report 2019*<sup>40</sup> appears to exclude the pre-planned saving in 2021 and 2022 in relation to the changing pension age which should see the demographic cost fall to €148 million in both these years. As this is explicitly referenced in the *Expenditure Report 2019* (p.21) it is unclear what basis there is for this higher figure or whether it is an error.

<sup>37</sup> *Expenditure Report 2019*, Table 9, p. 45.

<sup>38</sup> *Ibid*, p. 21.

<sup>39</sup> *Expenditure Report 2019* states that the IGEES paper (2016) estimates a demographic cost of €435 million for 2019. However, this appears to be an error, as the paper estimates €428 million for 2019 and €435 million for 2020.

<sup>40</sup> *Expenditure Report 2019*, Table 9.

The *MYER 2018* states that “all other demographic costs will be revisited during the Estimates process and adjusted accordingly at that point”.<sup>41</sup> The *Expenditure Report 2019* is not clear about what the outcome of this review was, other than that an additional “€0.29 billion arising primarily from additional reductions in Live Register expenditure and expenditure on employment supports” is being used to fund demographic pressures and other expenditure measures.<sup>42</sup> These reductions are presumably being utilised to reduce the allocation that would have been required by the Employment Affairs and Social Protection Vote Group in 2019 but what proportion is being used to address demographics specifically was not detailed.

Assuming that the *MYER 2018*'s position on demographic changes in the Health, Employment Affairs and Social Protection, and Education and Skills Ministerial Vote Groups<sup>43</sup> remain unchanged in the *Expenditure Report 2019*, the MYER's opening position can be used to calculate the demographic pressures in these Vote Groups as set out in Table 3.

**Table 3: Demographic adjustments in the Ministerial Vote Group Ceilings for 2019.**

Vote Group	MYER 2018 Demographic Adjustment	Expenditure Report 2019 Demographic Adjustment	Total Estimated Adjustment
Health	124	0	124
Social Protection	241	0	241
Education and Skills	49	21*	66*
<b>Total</b>	<b>414</b>	<b>21</b>	<b>431</b>

Source: *Revised Estimates for Public Services 2018, Mid-Year Expenditure Report 2018, Expenditure Report 2019.*

\* Total Education and Skills adjustment for demographics is stated to be €66 million in the *Expenditure Report* (see p. 77). However, the additional demographic measures in the *Expenditure Report* sum to €21 million while the MYER included an adjustment in the Ministerial Ceiling of €49 million, which sums to €70 million. In Education and Skills, €16 million is included under “Demographics and additional carryover”. This may result in the figures not summing correctly, as other carryover items are included.

Table 3 shows the combined changes implied by the MYER and selected measures where Demographic adjustments are noted in the *Expenditure Report*. This is the PBO's own calculation based on the *Revised Estimates for Public Services 2018*, the *MYER 2018* and *Expenditure Report 2019* but this is not specifically set out anywhere in these documents. Therefore, the exact amount of additional demographic costs arising in 2019 is not clear in the *Expenditure Report*, other than where it is specifically referenced under Vote Group chapters in the ‘Expenditure Allocations’ section of the report.

<sup>41</sup> *Mid-Year Expenditure Report 2018*, p. 5.

<sup>42</sup> *Expenditure Report 2019*, p. 39.

<sup>43</sup> *Mid-Year Expenditure Report 2018*, p. 5, states that “Health, Social Protection and Education [are] where amounts are included in respect of demographics”.

## Department of Finance (2018)

The purpose of the Department of Finance's paper, *Population Ageing and the Public Finances* (2018) is to “shed light on the likely economic and budgetary impacts of demographic change in Ireland [and] attempts to quantify the likely budgetary costs of population ageing in order to inform the appropriate policy response.”<sup>44</sup>

This paper identifies significant demographic challenges arising primarily as a result of population ageing; primarily focussing on older age cohorts and their impact on health and pension expenditure. The paper briefly considers the age-related budgetary impact of projected demographic changes on education expenditure. The paper does not attempt to address broader budgetary challenges posed by providing public services to a steadily growing population such as infrastructural issues. The paper contributes to the literature on demographics relationship to public expenditure by noting, *inter alia*, that age related expenditure will have a negative impact “on key fiscal ratios”<sup>45</sup> and “highlights that a significant policy response will be necessary to safeguard the Irish public finances over the long-run.”<sup>46</sup> Ultimately the Department of Finance find that “[f]iscal restraint in non-age related expenditure will be necessary. Furthermore, any windfall gains ... should be used to reduce public debt.”<sup>47</sup> **It should be noted that the demographic projections of this paper are those of Eurostat and as such can differ from the projection scenarios set out by the CSO.**

The Department's paper<sup>48</sup> provides an overview of total age-related expenditure as a percentage of GNI\* and disaggregates that total in respect of five areas of expenditure. These are not correlated with Voted expenditure but effectively relate to the three major Vote areas of Employment Affairs and Social Protection (Pension and Unemployment benefits), Health (Healthcare and Long-term care) and Education. The percentage growth in each decennial year after 2016 and up to and including 2070 is provided.

## European Commission (2018)

The European Commission publishes a report every three years on demographic issues; specifically including projections of the economic and budgetary consequences of ageing populations.<sup>49</sup> *The 2018 Ageing Report* makes a large range of projections for the period 2016 to 2070.

Substantial increases in the revenue of public pension schemes as a percentage of GDP are projected in a number of Member States including: Germany (+2.6 pp of GDP), Cyprus (+2.5 pp of GDP), and Ireland (+2.2 pp of GDP).<sup>50</sup> In the Irish case, Eurostat notes that the increase is linked to the State's obligation to cover any financial gap (subventions) which cannot be met by the Social Insurance Fund (SIF). This projection therefore suggests that pension provision is likely to have a significant budgetary impact over the projection period. This is supported by both the analysis of the *Actuarial Review of the Social Insurance Fund* (2017) and *A Roadmap for Pensions Reform: 2018-2023* (2018).

44 Department of Finance, *Population Ageing and the Public Finances* (2018), p.1.

45 *Ibid.*, p.23.

46 *Ibid.*

47 *Ibid.*, p.24.

48 *Ibid.*, Table 4, p.16.

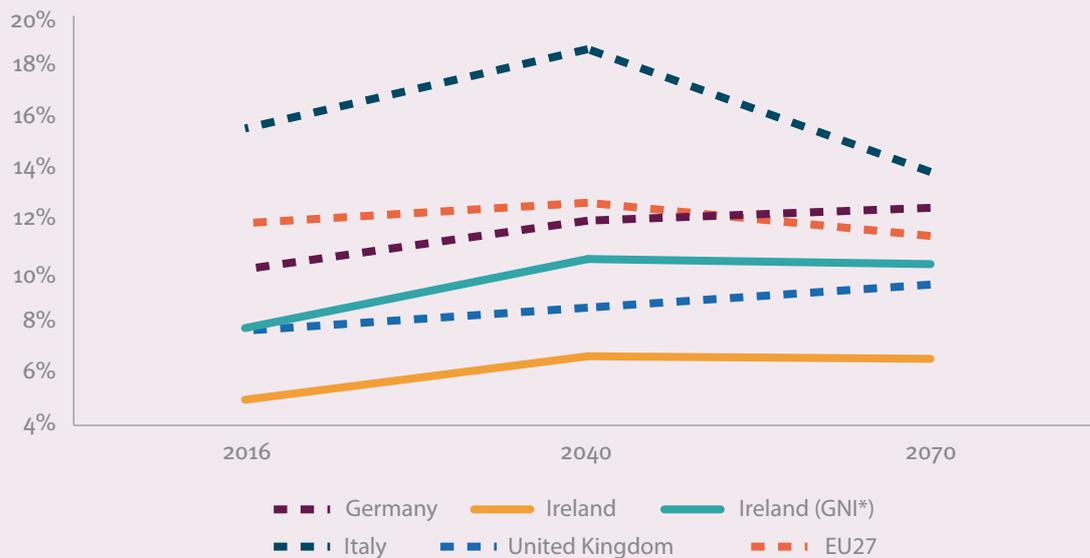
49 European Commission, *The 2018 Ageing Report: Economic & Budgetary Projections for the 28 EU Member States (2016-2070)* (May 2018).

50 *Ibid.* p.60.

### Box 7: Public Pension Expenditure Projection 2016-2070

Pension Expenditure is expected to increase significantly in the coming decades as illustrated in Figure 5; however, measured in terms of GDP pension related expenditure it is well below the projected EU27 average throughout 2016 to 2070. It should be noted that “GDP overstates the size of the [Irish] economy, it follows that ratios with GDP as the denominator give a misleading picture.”<sup>51</sup> Incorporating the Department of Finance’s projections of Ireland’s levels of gross public pension expenditure in Figure 5 illustrates that Ireland’s gross expenditure on pensions (either in terms of GDP or GNI\*) remains below EU norms over the period. Notwithstanding the obvious challenges posed by increased expenditure on pensions Ireland’s relative position is considerably more favourable than that of several other Member States.

**Figure 5: Level and change in gross public pension expenditure; 2016-2070, baseline scenario (%/pps. of GDP)**



Source: PBO based on European Commission, *The 2018 Ageing Report: Economic & Budgetary Projections for the 28 EU Member States (2016-2070)* (May 2018) p.66; and Department of Finance, *Population Ageing and the Public Finances (2018)* p.16.

<sup>51</sup> Department of Finance, *Population Ageing and the Public Finances (2018)* p.15.

## Department of Health (2018)

The 2018 edition of *Health in Ireland: Key Trends* was published on 27 December and provides summary statistics on health and health care over the past ten years. It highlights selected trends and topics in addition to comparing Ireland with EU or OECD Member States. It is divided into seven chapters covering topics from population growth, life expectancy and health status to health service efficiency, staffing and costs. It identifies the ageing of the population (which it describes as rapid) in conjunction with lifestyle-related health threats as the present and future major challenges in sustaining and improving health and health services in Ireland.

The link between economic conditions, policy decisions and public expenditure is also briefly noted in the publication which points out that:

- From 2008 to 2012 the population eligible for a medical card increased steadily but that that trend has reversed as economic conditions have improved;<sup>52</sup> and
- Provision was made for GP visit cards to be made available to all children under 6 in 2015.<sup>53</sup>

Demographic projections in this publication are to 2038 and therefore differ from those in other publications reviewed in this PBO paper. Some of the Department of Health's projections for the period from 2018 to 2038, related to demographic changes in that time period, are that:

- As mentioned elsewhere in this paper the number of people over the age of 85 is projected to increase very significantly; in the context of these Department of Health projections, i.e. from 2018 to 2038, they are projected to increase by over 2.5 times the current figure<sup>54</sup> which will have a significant impact on the demand for health care services in Ireland;
- Life expectancy is continuing to increase, currently standing at 83.6 years for women and 79.9 years for men;<sup>55</sup>
- The proportion of life expectancy at age 65 to be lived in good health is higher for both men and women in Ireland compared with the EU average;<sup>56</sup>
- In respect of emergency and elective hospital attendance in terms of bed days used in 2017, the greatest use is by those aged 65+. There is also a significant gender difference among the older age groups, owing to greater female life expectancy;<sup>57</sup>
- The percentage of the population covered by private health insurance has risen slightly in the past five years, from 41.4% to 42.8%. This increase can be seen across most age groups but is particularly large among those aged 80 and over (+5% since 2013).<sup>58</sup>

52 See Medical Card numbers by overall population and % in the 0-15 age cohort in Department of Health, *Health in Ireland: Key Trends (2018)*, Table 4.1, p.50. This table shows an overall increase from 1.35 million in 2008 to 1.85 million in 2012 before decreasing to 1.58 million in 2017. The percentage increase in the population aged 65+ that have a medical card in contrast to other age cohorts is also clearly set out in Figure 4.1 (p.49). The spatial distribution of medical cards as set out in Figure 4.2 (p.51) is also of interest being particularly concentrated in the south-east and north-west.

53 See GP Visit Card numbers in Department of Health, *Health in Ireland: Key Trends (2018)*, Table 4.1, p.50. This table shows an increase from 160,000 in 2014 to 431,000 in 2015 and subsequent increases in 2016 and 2017 to 487,000.

54 See population 2018 and projected population by age group in Department of Health, *Health in Ireland: Key Trends (2018)*, Table 1.4, p.13. This table shows an increase from 73,000 in 2018 to 191,000 in 2038 (+164%).

55 Department of Health, *Health in Ireland: Key Trends (2018)*, p.5.

56 *Ibid*, Figure 1.8, p.18.

57 *Ibid*, Figure 3.1, p.37.

58 *Ibid*, p.48 and Figure 4.5 (p.54).

## Conclusion

The Department of Finance has urged a “comprehensive policy response”<sup>59</sup> to the projected demographic changes outlined in *Population Ageing and the Public Finances in Ireland* – on the basis that expenditure is set to expand as a result of these changes by 6.5% of GNI\* by 2050 and that without such a response, “it is not inconceivable that the debt ratio could move onto an unsustainable path.”<sup>60</sup> It acknowledges that policy reforms including changes to the State pension age and the introduction of the Public Service Single Pension Scheme (SPS) will help to mitigate the impact the impact of population ageing on the public finances.<sup>61</sup> It further recommends:<sup>62</sup>

- Increasing the employment rate of older people (for instance by linking retirement age to life expectancy);
- Increasing the employment rate of those of working age (by addressing barriers that weigh on female participation rates);
- Implementing structural reforms that boost productivity;
- Balancing the fiscal accounts over the economic cycle;
- Exercising fiscal restraint in non-age related expenditure; and
- Using any windfall gains to the State (e.g. disposal of State owned banking assets) to reduce public debt.

The Department of Finance (2018) has also highlighted that demographic trends will weigh upon additional labour supply and that economic growth is projected to decelerate from an estimated 4.3% *per annum* over the period 2016-2020 to 1.8% on average *per annum* over the period 2020-2050.

<sup>59</sup> Department of Finance, *Population Ageing and the Public Finances in Ireland*, (September 2018) p.24.

<sup>60</sup> *Ibid.*

<sup>61</sup> *Ibid.*

<sup>62</sup> *Ibid.*

**Box 8: Pensions Reform**

In Ireland the State Pension is either contributory (funded by Pay Related Social Insurance contributions to the Social Insurance Fund) or non-contributory (Exchequer funded). The Social Insurance Fund is described in *An Overview of the Social Insurance Fund (SIF)*. The challenge presented by the current model of State Pension provision (a pay-as-you-go model) is that current workers pay for the pension entitlements of current pensioners; therefore, the OADR is illustrative of the risk in this regard – with projections that it will more than double in the period 2016 to 2051 (see Figure 2). This means that the working population, projected to be a decreasing proportion of the total population, are responsible for funding growing pension expenditure.

The Department of Finance has projected that total pension expenditure will increase from 7.8% of GNI\* in 2016 to a peak of 11.7% in 2053 before falling to 10.3% in 2070. The State Pension (SP) comprises the bulk of this expenditure (rather than Public Service Occupational Pension (PSO)); the SP expenditure will increase steadily between 2023 and 2057 to 9.9% of GNI\* before falling moderately to 9.4% in 2070.<sup>63</sup> Most of the increase in total expenditure is attributed to the State Contributory Pension.<sup>64</sup> The Department also notes that “there is a substantial reallocation of pension expenditure from PSO to SP over the projection period”.<sup>65</sup>

The Government has published *A Roadmap for Pensions Reform: 2018-2023* (2018) to set out a range of policy responses intended to reduce the budgetary impact of an ageing population.

The reforms set out in this Roadmap include linking pension rates to some combination of average wages and the consumer price index; and linking increases in the State Pension Age to increases in life-expectancy. The most significant reform proposed may be the ‘Total Contributions Approach’ which, *inter alia*, “will offer a full State pension to all people with a full record of 40 years social insurance contributions with pro-rata payments for people with less than 40 years of contributions.”<sup>66</sup>

The reforms set out in the Roadmap help to militate against demographic changes by increasing the age at which persons exit the workforce and through a combination of incentivising greater contributions during their working lives and more stringent eligibility criteria for higher rates of payment. Cumulatively these policy options aim to redefine the cohort affected and to amend the *per capita* cost of members of that cohort (a ‘policy dependant’ response).

In addition to these options, the Department of Finance suggests that increased contributions to the SIF can also be achieved by increasing participation rates. This can be done by, *inter alia*, “addressing barriers that weigh on female participation rates”.<sup>67</sup>

One policy lever for controlling pension related expenditure is to facilitate reductions in payment rates on the same basis as increases to payment rates i.e. pension rates which increase in line with a combination of average wages and CPI could, likewise, decrease in line with these metrics. This would have the effects of maintaining the steady purchasing power of pensions over time and reducing pension expenditure during periods of poorer economic performance.

63 Department of Finance, *Population Ageing and the Public Finances in Ireland*, (September 2018) Table 6 and p.18.

64 *Ibid*, p.19.

65 *Ibid*.

66 Government of Ireland, *A Roadmap for Pensions Reform* (2018), p.8.

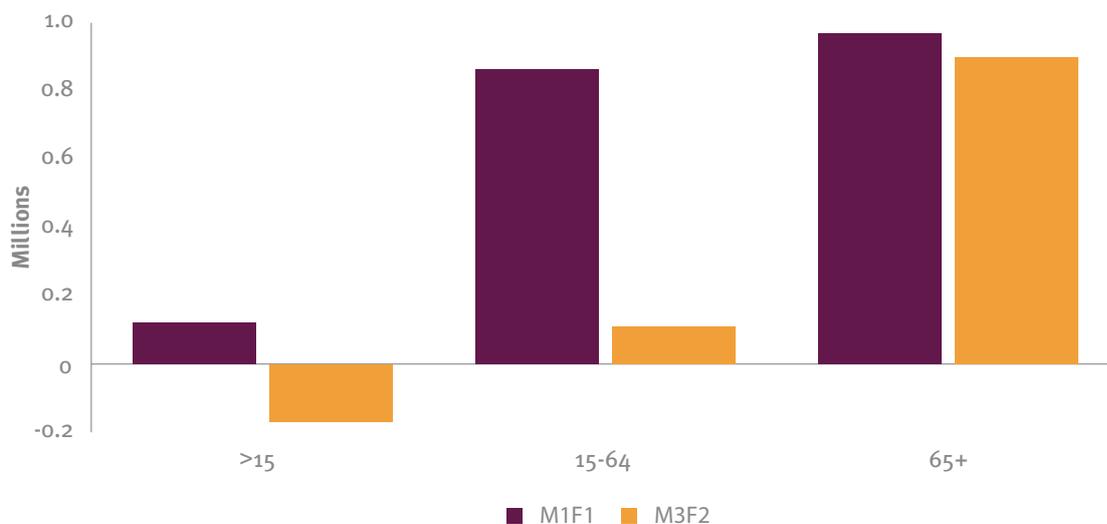
67 Department of Finance, *Population Ageing and the Public Finances* (2018) p.24.

In relation to the issue of an ageing population (as focussed on by the Department of Finance) policies could be pursued which may address the consequences of demographic change. Some of the policy options can themselves create additional challenges. For example, incentivising inward migration of working age persons can favourably affect the OADR; however, this would also accentuate the challenges of a growing population in other areas such as housing, transport infrastructure etc. Ireland could examine the policy options employed by other EU Member States experiencing (see Figure 3) or soon to experience high OADR in order to respond more effectively and efficiently to these challenges.

All six of the CSO's population projection scenarios (see Figure 1) confirm that two key demographic pressures are present for the period 2016-2051. Figure 6 illustrates these challenges in both the most extreme CSO scenarios (lowest and highest growth, M3F2 and M1F1 respectively). These challenges are:<sup>68</sup>

- Overall population growth in a range of 838,400 (17.7%) to 1,953,300 (41.2%); and
- A decreasingly favourable OADR arising from the increase of the old-age cohort by a range of 898,400 (142.6%) to 967,400 (153.6%).

**Figure 6: Changes to Cohort Size – CSO Maximum and Minimum Projections 2051 (2016 baseline)**



Source: PBO based on CSO, 'PEC16' (July 2018).

<sup>68</sup> The size of the ranges set out in the projections are indicative of the certainty of the projection i.e. total population growth is subject to low certainty over time hence the projected scenarios range by 1,114,900 persons; whereas, the population aged over 65 years is a reasonably certain projection and hence subject to a smaller range. This remains true even taking account of the scale of the respective cohorts.

The urgency and form of the policy response required in respect of demographic changes may depend on the time-frame of the projected demographic pressure; short; medium; or long-term. Where possible, expenditure that requires long-term commitment such as capital investment or the recruitment of civil and public servants should be matched to long-term trends rather than in response to temporary peaks in demand.<sup>69</sup> In such cases there should be a focus on either making investments which can be re-purposed, or to avoid financial commitments which do not represent value for money (VfM) in the long-term. An example of this, identified by IGEES, is a demographic ‘bulge’ passing through the education system which creates a temporary need at different levels for additional staff.<sup>70</sup>

Population growth necessitates responses across the full spectrum of public service provision and in both current and capital expenditure. A growing population will require additional infrastructural capacity etc. IFAC have noted that net migration tends to be the key source of error for population projections and that is reflected in the potential disparity in outcomes for the 15-64 age cohort under the two different scenarios set out in Figure 6.

Greater certainty exists in relation to the scale of longer term growth in the 65+ age cohort and this will place pressure on expenditure in relation to health, pensions, and long-term care.

**In the short-term, the significance of demographic changes as a driver of public expenditure should be reflected in the level of detail provided in Voted allocations and disaggregated according to whether it is discretionary or non-discretionary. This clarity would be a good building block for a more thorough analysis of all aspects of this driver of expenditure and this will become increasingly important in light of the population projections examined in this paper.**

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<sup>69</sup> PBO, *Revised Estimates for Public Services 2018 (Briefing Paper 3 of 2018)* p.48.

<sup>70</sup> IGEES, *Budgetary Impact of Changing Demographics 2016-2026 (2015)* p.5.

## Appendix 1

**Table 4: Votes/areas identified by PBO where demographics may be drivers – indicative only**

Vote	Area/Scheme	Demographic Driver(s) of Expenditure	Timeframe of demographic change	Increase/decrease in expenditure <sup>71</sup>
<b>37. Employment and Social Protection</b>	Pensions	Growing cohort > 65	2019-2051	Increased current expenditure
	Child Benefit	Declining cohort < 18	2019-2028	Reduced current expenditure
	Paternity Benefit	Declining cohort < 18	2019-2028	Reduced current expenditure
	Disability	Overall population increase	2019-2051	Increased current expenditure
<b>38. Health</b>	Acute Services	Overall population increase	2019-2051	Increased demand for services and consequent current and capital expenditure pressures
	Primary Care Reimbursement Service	Overall population increase	2019-2051	Increased demand for services and consequent current expenditure pressure
	Nursing Home Support Scheme	Growing cohort > 65	2019-2051	Increased demand for services and consequent current expenditure pressure
	Palliative Care	Growing cohort > 65	2019-2051	Increased demand for services and consequent current expenditure pressure
<b>26. Education and Skills</b>	Primary Education	Declining cohort	2019-2030 <sup>72</sup>	Reduced current expenditure

<sup>71</sup> In the absence of further policy changes.

<sup>72</sup> These projections rely on Department of Education and Skills, *Projections Of Full-Time Enrolment Primary and Second Level: 2018-2036 (2018)*. These differ from CSO projections as a result of differing definitions of primary schoolchildren (see PBO, *Analysis of Spending Review 2018 (2018) p.22*).

Vote	Area/Scheme	Demographic Driver(s) of Expenditure	Timeframe of demographic change	Increase/decrease in expenditure
	Secondary Education	Short-term cohort increase; then significant decline	Increase to 2024, decline 2025-2030 <sup>73</sup>	Increased current expenditure followed by declining expenditure
	Third level Education	Growing cohort	2019-2029 <sup>74</sup>	Increased current expenditure
	Special Needs (Resource Teachers)	Overall population increase	2019-2051	Increased current expenditure
<b>20. Garda Síochána</b>		Overall population increase	2019-2051	Increased current expenditure
<b>31. Transport, Tourism and Sport</b>	Road Transport	Overall population increase	2019-2051	Increased current and capital expenditure
	Public Transport	Overall population increase	2019-2051	Increased current and capital expenditure
<b>34. Housing Planning and Local Government</b>	Housing Demand	Overall population increase	2019-2051	Increased demand for current and capital expenditure in the absence of adequate private sector response
	Water Infrastructure	Overall population increase	2019-2051	Increased current and capital expenditure
<b>40. Children and Youth Affairs</b>	ECCE	Declining births	2019-2028 <sup>75</sup>	Reductions in current expenditure offset by extension of scheme duration.

<sup>73</sup> *Ibid.*

<sup>74</sup> *The identified demographic trend may continue beyond the date provided; however, the PBO does not currently have access to longer term participation rates.*

<sup>75</sup> *This assumes that birth rates are the primary driver of eligible cohort size for this scheme.*



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