An Coimisiún Pinsean
The Pensions Commission

Population and Labour Force Projections

Technical Sub-Committee – Working Paper 1
July 2021

Introduction

The Pensions Commission established a Technical Sub-Committee. The Terms of Reference for the Sub-Committee, agreed by the Commission, set out that the "*objective of the sub-committee, drawing on relevant material made available to it, is to inform the Commission to enable it to form a view on issues around sustainability and adequacy of the pension system over time (next 30/50 years). It is important that this view is transparent, evidence based and stated in a straightforward manner.*"

The Terms of Reference stated that "*Ideally, advised by the sub-committee, the Commission should reach an agreed view on the data, definitions, analyses, and projections (with sensitivity analysis as appropriate)*". The specific areas identified by the Commission related to population and labour force projections, expenditure projections, the role of the State pension in preventing pensioner poverty, and the proposed approach to benchmarking and indexation of State pension rates of payment.

The Sub-Committee examined the material made available to the Commission through the Secretariat. This included presentations made by a range of external organisations, and submissions made through the public consultation process. It also sought additional material from the Department of Finance (DFIN), the Department of Social Protection (DSP), the Central Statistics Office (CSO) and the Irish Fiscal Advisory Council (IFAC). Four Working Papers were produced for agreement by the Commission. Any conclusions in these papers relate to the Terms of Reference of the Sub-Committee and should not be construed as recommendations of either the Sub-Committee or the Pensions Commission.

The four Working Papers are:
> Working Paper 1 – Population and Labour Force Projections
> Working Paper 2 – Expenditure Projections
> Working Paper 3 – Poverty Prevention and State Pensions
> Working Paper 4 – Benchmarking and Indexation

Membership of the Technical Sub-Committee

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Purpose

A Technical Sub-Committee (the Sub-Committee) was set up to review relevant data to enable the Commission to form a view on issues around sustainability and adequacy of the pension system over time (next 30/50 years). The Sub-Committee's Terms of Reference includes a review of pensioner population, labour force, and dependency ratios.

The purpose of this note is to summarise the projections provided to the sub-committee and the conclusions arising from their consideration of same.
The findings of this paper underpin the expenditure projections considered by the Sub-Committee. This paper should be read in conjunction with the Sub-Committee's Paper 2 - *Expenditure Projections*.

Summary

1. Ireland's **population** is projected to increase from approximately 5 million in 2020 to approximately 6 million in 2050. The IFAC, CSO and DFIN population projections are broadly similar, despite different methodologies and assumptions. There is no outlier and the trends are consistent.

2. Projections point to younger age cohorts declining in relative terms by 2051 while older age cohorts will continue to grow in absolute and relative terms. Accordingly, Ireland's population is ageing.

3. CSO, Eurostat, DFIN and IFAC projected **dependency ratios** appear to be consistent in their findings, changing from (approximately) **4.5** people of working age to every older person in 2020 to **3.5** in 2030 and then to a little over **2** by 2050.

4. The Government's National Risk Assessment 2019 describes the Old Age Dependency Ratio as the most useful metric for looking specifically at the dependence of the older age cohort on the working age population.

5. While the old age dependency provides an indication of trends, it does not tell us the whole picture. Dependency ratios are purely based on the ratio of different age groups, and do not reflect the economic contribution of different sub-groups of the population which are key to pension sustainability.

6. The Committee looked at the key assumptions used when projecting the population and calculating the dependency ratio: migration and fertility:
   o To maintain the current 'older' dependency ratio of 1:4.5 into 2051 would require a working age population (15-64) of almost 7.2 million persons by 2051. A working age population of 7.2 million would be 3.3 million (85%) persons in excess of the CSO's high migration M1F2 projection (Table 2 of this paper sets out the CSO's central migration scenario, M2F2).
   o The fertility rate assumptions do not have as much of an impact on population projections as net migration assumptions.

7. Projections for **labour force participation** assume increases in the participation rate of working age people, but the <u>overall</u> participation rate as a proportion of the total adult population falls as the population ages.

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Population and Labour Force Projections

1. Population projections

This section first sets out overall population projections, and the assumptions around the components of population change - namely net migration (immigration minus emigration) and natural increases (births minus deaths). The breakdown in the population by age is then set out, which then enable the calculation of dependency ratios. Finally, labour force projections are considered and the different assumptions in relation to labour force participation.

Where possible (and relevant), projections from the CSO, IFAC, Department of Finance and Eurostat are all presented for comparative purposes. Where possible, projections are presented for consistent years: 2020, 2030 and 2050. CSO figures are generally slightly different (2021, 2031 and 2051).

How are population projections calculated?

The base of the projection is the resident population (all persons who are permanently resident in the State and those who intend to reside in the State for a period of 12 months or more[1]) going forward under the chosen assumptions governing births, deaths (natural increase) and net migration (migration flows). From IFAC sensitivity analysis and CSO scenarios, changing fertility rate assumptions do not have as much of an impact on population projections as net migration assumptions.

Population projections – components of change

Table 1 below sets out the overall population projections from IFAC, the CSO and DFIN, with their assumptions for net migration and natural increases.

In terms of background assumptions:
- IFAC uses a gravity model for migration (economy performing well attracts more inward migration), resulting in lower net migration projections than in other

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[1] See CSO's information at: Population and Labour Force Projections - CSO - Central Statistics Office

models. Fertility assumptions are higher than DFIN and CSO - increasing to 1.9 by 2050 (p.106 report).

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- CSO has 3 different migration scenarios - 30,000 (M1), 20,000 (M2) or 10,000 (M3) per annum (average over 20 years). Fertility scenarios retain fertility at 1.8 (F1) or reduce to 1.6 by 2031 (F2) then level off.[2]

- DFIN uses Europop 2019 figures for Ageing Report 2021. Migration is similar to CSO's M2 scenario. Fertility remains at 1.8, i.e. same as the CSO.

Table 1 - Population projections (thousands)

	2020	**2030**	**2050**
Fiscal Council	000s	000s	000s
Net migration	6.7	13.3	-6.2
Natural increase	30.6	27.8	15.0
Population change	37.3	41.1	8.8
Population	4,960	5,411	6,048
CSO M2F2			
Net migration	20	20	20
Natural increase	29.0	16.9	4.9
Population change	49.0	36.9	24.9
Population	4,945	5,358	6,007
DFIN/Eurostat			
Net migration	32.7	19.3	14.4
Natural increase	30	24	10
Population	5,001	5,526	6,225

Sources: Irish Fiscal Advisory Council (IFAC) presentation to the Commission. DFIN e-mailed Natural Increase Figures to Secretariat on 26/4/21.

Conclusions:
- The IFAC, CSO and DFIN/Eurostat population projections are broadly similar. There is no outlier and the trends are consistent.

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[2] CSO published their Vital Statistics Annual for 2020 on 28 May 2021 – Available at: https://www.cso.ie/en/csolatestnews/presspages/2021/vitalstatisticsyearlysummary2020andquarter42020/. The number of births registered in 2020 was just under 56,000. The CSO's population projections for 2017-2051 (published in June 2018) had a forecast range for 2020 births of 60,100 to 61,600. The actual figure was accordingly 4,100 to 5,600 lower - and that for a year right at the start of the forecast window. The total fertility rate in 2020 was 1.6 which is below replacement rate. In the population projections the CSO had a "low fertility assumption". This was termed F2 and assumed that "Total fertility rate to decrease to 1.6 by 2031 and to remain constant thereafter to 2051." If the lower total fertility rate in 2020 is not a one-off (notwithstanding that any pandemic effects will not show until 2021) then we are already below the low fertility assumption.

Population projections by age

Table 2 below sets out the total population projections from above, but split by age groups - older people (65 and over), working age (15 to 64 inclusive), and children (14 and under). It can be seen that by 2030, the proportion of the population made up of older people is increasing with a proportionate decrease in the proportion of the population made up of children. By 2050, the working age population as a proportion of the total population has declined, while the number and proportion of older people continues to increase.

Table 2 - Demographic projections – split out by age cohort (thousands)

	2020	**2030**	**2050**
IFAC	000s	000s	000s
Total population	4,960 (100%)	5,411 (100%)	6,048 (100%)
Older people (65+)	717 (15%)	987 (18%)	1,608 (27%)
Working age (15 – 64)	3,233 (65%)	3,480 (64%)	3,397 (56%)
Children (14 and under)	1,009 (20%)	944 (18%)	1,043 (17%)
CSO M2 F2[3]	**2021**	**2031**	**2051**
Total population	4,992.2 (100%)	5,394.6 (100%)	6,030.5 (100%)
Older people (65+)	743.1 (15%)	999.6 (19%)	1,562.5 (26%)
Working age (15 – 64)	3,243.5 (65%)	3,516.8 (65%)	3,549.7 (59%)
Children (14 and under)	1,005.6 (20%)	878.1 (16%)	918.2 (15%)
DFIN[4]	**2020**	**2030**	**2050**
Total population	5,001.4 (100%)	5,526.2 (100%)	6,225.2 (100%)
Older people (65+)	728.4 (15%)	981.0 (18%)	1,543.1 (25%)
Working age (15 -64)	3,266.6 (65%)	3,597.9 (65%)	3,657.4 (59%)
Children (14 and under)	1,006.4 (20%)	947.3 (17%)	1,024.7 (16%)

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[3] The CSO provides breakdowns for all combinations of population projection scenarios. M2F2 is set out above (migration at 20,000 per year on average, and fertility decreasing to 1.6 by 2031), as the Commission was advised at Meeting 3 that this was considered by the Expert Group as the most credible of the scenarios.

[4] Eurostat's EUROPOP 2019 projections that underpin DFIN's projections for the EU Ageing Report. The projections are all done on a "January 1st basis- in common with all Eurostat population data". There is a slight adjustment done to the population projections used for the Ageing projections, where they take the population in year and year t+1, and divide by 2 to get a proxy for the mid-year population.

> **Conclusions**:
> - Projections point to younger age cohorts declining <u>in relative terms</u> while older age cohort will continue to grow (in both absolute and relative terms).
> - Accordingly, Ireland's population is ageing.

2. Dependency Ratio

- Old age dependency generally refers to the population aged 65+ as a percentage or ratio of the working age population.

- CSO and IFAC use 15-64 and 65+ for calculating the old age dependency ratio (OADR), while DFIN uses ages 20-64 as the working age population base for the Ageing Report.

- The Government's National Risk Assessment 2019 also describes the OADR as the most useful metric for looking specifically at the dependence of the older age cohort on the working age population.[5]

Shortcomings of dependency ratio

- While the old age dependency provides an indication of trends, it does not tell us the whole picture. For example, the ESRI sets out three ways of conceptualise ageing: Chronical Age, Biological Age and Social Ageing.

- The dependency ratio does not make it clear that the 65+ age group are not necessarily 'dependent' and that many of those of 'working age' are actually not working.

- In this regard, dependency ratios are purely based on the ratio of different age groups, and do not reflect the economic contribution of different sub-groups of the population which are key to pension sustainability.

- It is possible that the participation rate of working age and older people might increase in the future.

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[5] Irish Government (2019) National Risk Assessment 2019 – pg. 68

Table 3 - Projected Old-Age Population Percentages and Dependency Ratios (Old age: working age)

Year	Eurostat	CSO M2F2	IFAC	DFIN
	(65+)/(15-64)	(65+)/(15-64)	(65+)/(15-64)	(65+)/(20-64)
2020	22.3% (1:4.5)		22.20%(1:4.5)	25% (1:4)
2021		22.9% (1:4.3)		
2030	27.3% (1:3.7)		28.40% (1:3.5)	30% (1:3.3)
2031		28.4% (1:3.5)		
2050	42.1% (1:2.4)		47.30% (1:2.1)	47% (1:2.1)
2051		44.0% (1:2.2)		

Sources: Eurostat figures provided by DFIN. Irish Fiscal Advisory Council (2020) *Long-term Sustainability Report* p. 32. DFIN figures based on same Eurostat figures but different age base. Pensions Commission Meeting 2, DFIN link to report.

Conclusions:
- CSO, Eurostat, Fiscal Council and DFIN dependency ratios appear to be consistent – from (approximately) 1:4.5 in 2020 to 1:3.5 in 2030 and then to about 1:2.2 in 2050.
- The difference in assumptions among the different organisations has little impact in the projected old age dependency ratios going out to 2030/2050.

Alternative demographic assumptions

The Nevin Economic Research Institute (NERI) in its submission to the Commission noted the impact of migration assumptions on population projections and dependency ratios. In particular, it stated that CSO and Europop (which underpins DFIN's projections) both significantly underestimated the actual extent of net migration that has taken place, as recently as 2020: "*While the latest estimates for 2020 show some 27,700 net migrants into Ireland (itself a fall from the 30,000 seen the previous two years), the CSO's central scenario estimated some 20,000 per year, while Eurostat Europop2015 estimates generated an estimate of 9,877 net migrants in 2020.*"

The submission from NERI notes that the impact of these changes was more pronounced for working age population projections, and that "*assumptions feeding into demographic modelling can have significant impacts, even over relatively small periods of time. This is compounded over longer time frames.*"

In terms of the impact of these assumptions on dependency ratios, NERI states that by considering the high migration scenarios[6] of the CSO and Europop, and looking at the 66+ as a proportion of a working age population aged 15-65 inclusive, "*This amounts to a decline of approximately 4.92 working age persons per pension aged individual in 2020 to between 2.45 and 2.67 by 2050. This is significantly more sanguine than the Fiscal Council's estimate of …. 2.11 individuals over 15 and under 65 per person over 65.*"

The Sub-Committee considered the previous net migration projections and whether increased net migration could improve dependency ratios. In this regard, the Sub-Committee asked the CSO to set out the level of migration that would be required to maintain current dependency ratios.

The CSO has estimated that maintaining the current 'older' dependency ratio of 1:4.5 into 2051 would require a working age population (15-64) of almost 7.2 million persons by 2051. A working age population of 7.2 million would be 3.3 million (85%) persons in excess of the CSO's high migration M1F2 projection (Table 2 presents the CSO's central migration scenario, M2F2).

Therefore, in order to achieve a working age population of 7.2 million persons through migration in 2051, this would require fertility and/or migration rates that are multiples of the official CSO projections.

Conclusion:
- To maintain the current 'older' dependency ratio of 1:4.5 into 2051 would require a working age population (15-64) of almost 7.2 million persons by 2051. A working age population of 7.2 million would be 3.3 million (85%) persons in excess of the CSO's high migration M1F2 projection (Table 2 presents the CSO's central migration forecast, M2F2).

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[6] This would be average net migration of 30,000 per annum instead of 20,000 for the CSO, and average net migration of 23,195 between 2030 and 2039, and 20,494 between 2040 and 2049 for Europop.

3. Labour force projections and participation rates

Labour force projections and labour force participation rates provide an additional indicator of the impact of the ageing population - if participation rates increase, then a greater proportion of working age population is attached to the labour market, which could help the relatively smaller working age population to pay for increasing pension costs.

Table 5 below sets out labour force projections from the CSO and IFAC. The CSO undertakes labour force projections out to 2031. The figures below show a similar projected labour force out to 2031 from both sources.

Table 5– CSO & IFAC Labour Force Projections

Year	2021	2031	2051
	000s	000s	000s
CSO M2	2,472.8	2,736.4	-
	2020	**2030**	**2050**
IFAC	2, 455.2	2,730.7	2,891.8

Source: Labour Force Projections Results - CSO - Central Statistics Office; IFAC data pack for Fig 2.8

The labour force projections are based on, among other things, assumptions around labour force participation[7]. IFAC and DFIN have projected labour force participation rates, but their bases (in terms of ages) are different and accordingly difficult to compare. Table 6 below sets out IFAC's projected labour market participation rates and unemployment rates going out to 2050. The table shows a slight decrease in the projected participation rates for those aged 15 and over. However, when the participation rate for those aged 20 to 70 is considered, there is an increase.

IFAC's Methodology Report (p.25) notes in relation to the participation rate that

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[7] The Sub-Committee noted that CSO and IFAC labour force projections do not take into account rising education levels in the population and considered if changes to education levels would impact on labour force projections. According to research undertaken for a 2018 EU report, *Demographic and human capital scenarios for the 21st century* (the author provided specific information on Ireland to the Sub-Committee), including education levels resulted in very similar labour force projections to those in Table 5.

"For ages 15–65, the rate is rising slightly, due to relatively optimistic assumptions by age group. However, when expressed differently in terms of the participation rate of the total population aged 15+, the rates decrease. This is due to a higher share of older people with structurally low participation rates."

To give an idea of the impact of their participation rate assumptions, IFAC note (p. 34) that, if the age structure of the population remained as it was in 2020, the assumed participation rate increases would lead to an increase in participation rates of the population aged 15+ from the current 61% to 66.5% by 2050, a substantial increase.

Table 6 – IFAC Projected Participation and Unemployment Rates

	2021-2025 Short run	2026-2030 Convergence to long run	2031-2050 Long run
%, ages 15+	61%	60.4%	59.5%
%, ages 20-70	72.7%	72.8%	74.6%
Unemployment	6.9%	5.3%	5.5%

Source: Irish Fiscal Advisory Council (2020) *Long-term Sustainability Report,* p. 24.

DFIN advise that their labour market projections are produced by the European Commission, taking the demographic projections from Eurostat and applying them to their Cohort Simulation Model. Table 7 below sets out their projected participation, unemployment and employment rates out to 2070. While labour productivity across the EU is assumed to converge, the growth rate of labour supply is expected to slow significantly by the mid-point of the century, as a result of population ageing. Employment growth for 15-64 year olds is projected to reduce from 1.9% in 2021 to -0.1% in 2070.

Similar to the IFAC assumptions, DFIN assumes increases in the participation rate for 15-64 year old population over the decades, but decreases in the participation rate when older ages are included (15-74 year olds).

Table 7- DFIN Projected Participation, Unemployment and Employment rates

	2021	2031	2051	2070
Employment growth (15-64)	1.9%	0.7%	0.1%	-0.1%
Population growth (working age:15-64)	1.3%	0.5%	0.1%	-0.1%
Participation rate (15-64)	73.5%	74.3%	75.3%	75.2%
Participation rate (15 – 74)	67.0%	66.8%	65.2%	65.5%
Employment rate (15-64)	68.4%	68.7%	70.0%	69.9%
Unemployment rate (15-64)	7.0%	7.6%	7.0%	7.0%

Source: DFIN e-mail to Secretariat on 26/4/21

Conclusion:

- Projections for **labour force participation** assume increases in the participation rate of working age people, but the <u>overall</u> participation rate as a proportion of the total adult population falls as the population ages.

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