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POPULATION PROJECTIONS, THE FLOW OF NEW HOUSEHOLDS AND STRUCTURAL HOUSING DEMAND

ADELE BERGIN AND PAUL EGAN

AN INSTITIÚID UM THAIGHDE EACNAMAÍOCHTA AGUS SÓISIALTA
ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

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THE AUTHORS

Adele Bergin is an Associate Research Professor at the Economic and Social Research Institute (ESRI). She also holds an adjunct position at Trinity College Dublin (TCD) and is Research Fellow at IZA Bonn. Paul Egan is a Research Officer at the ESRI and an Adjunct Lecturer at TCD.

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ABBREVIATIONS

ACS	American Community Survey
CSO	Central Statistics Office
DLUHC	Department for Levelling Up, Housing and Communities
GFC	Global Financial Crisis
LA	Local authority
NPF	National Planning Framework
OECD	Organisation for Economic Co-operation and Development
ONS	Office for National Statistics UK
PIM	Perpetual inventory method

EXECUTIVE SUMMARY

This report provides estimates of structural (demographic) housing demand at a regional level. Any assessment of structural future housing demand relies on assumptions around (1) population growth, (2) headship rates (the typical household size) and (3) rates of obsolescence of the housing stock. Each of these key drivers of structural housing demand is subject to uncertainty, therefore a range of alternative assumptions for each key driver is considered and results from a range of scenarios are presented.

Ireland has experienced rapid population growth in recent years, both compared to historical experience and relative to the EU. Census 2022 data reveals that the population was 5.184 million, having increased by 422 thousand or by 9 per cent since 2016. The recent data means that many previous population scenarios for Ireland have underestimated population growth over the short term. Net migration is the key driver of population change in Ireland and net migration flows have been very strong in recent years.

As in the past, while all regions experienced population growth, the growth has not been evenly dispersed throughout the country. At a national level, the population grew at an annual average growth of 1.4 per cent between 2016 and 2022; the Eastern and Midlands region experienced the strongest growth of 1.6 per cent (driven especially by growth in the Mid-East).

At a national level, in the baseline population scenario, the population is expected to increase by 922k between 2022 and 2040, resulting in a total population of over 6.106 million people by the end of the period. This implies significant overall population growth of 1.0 per cent on an annual average basis, which is high relative to other countries. Given the key role of international migration in shaping population growth in Ireland, a range of alternative scenarios are considered where migration is higher and lower than in the baseline scenario. While this provides a range for alternative international migration scenarios, any unanticipated major structural changes may require the projections to be revised. In the high (low) international migration scenario, the population grows by 1.2 (0.8) per cent on an annual average basis over the period and reaches 6.308 (5.904) million by 2040. By 2040, the difference in the population between the high and low international migration scenarios is just over 400k, showing how sensitive the overall population projections are to different assumptions around net international migration.

At a regional level, while all regions are expected to experience population growth over the projection horizon, the Eastern and Midlands region is expected to experience relatively higher growth, concentrated in the Dublin and Mid-East

regions, while the Northern and Western and Southern regions are expected to experience relatively lower population growth.

Transforming population projections into the number of future households requires assumptions on headship (the typical household size). To date, headship has been parameterised in existing research using current data and scenario-based analysis. The report uses two sets of alternative sets of assumptions for headship rates, one based on current trends in the data and another based on new research evidence, where headship rates increase (or household size falls), consistent with the magnitude and pace of the fall in household size observed in other European countries. Applying these sets of headship rates to the population scenarios provides estimates of the flow of new households. The report also draws on numerous different sources and methods to generate a range of obsolescence rates for the housing stock. Two obsolescence rates are used in the projections – a lower rate of 0.25 per cent and a higher rate of 0.5 per cent.

It is important to state the report presents a range of scenarios for future structural housing demand based on a set of assumptions. Across all scenarios, assumptions are driven by data and international trends, and the research evidence base. To highlight the uncertainty associated with any projection exercise and the sensitivity of projections to key assumptions, the projections in the report are presented in terms of ranges. Furthermore, factoring in prevailing pent-up household demand is beyond the scope of this research. The scenarios present the flows of household demand over time. In any year, if the demand is not met, it can accumulate in subsequent years.

Based on the three demographic scenarios (baseline, high international migration and low international migration), as well as a range of assumptions on headship rates (based on current trends and a fall in household size) and obsolescence rates (0.25 per cent and 0.5 per cent), 12 main structural housing demand scenarios are considered. Taking the average over all 12 scenarios, structural housing demand is projected to be around 44,000 per annum (p.a.) from 2023–2030, and around 39,700 p.a. over the 2030–2040 period. In the baseline population scenario, estimated structural housing demand in the period 2023–2030 ranges from around 38,000 p.a. (assuming current trends in headship and a 0.25 per cent obsolescence rate) to 50,000 p.a. (assuming household size falls and a 0.5 per cent obsolescence rate). In the high (low) international migration population scenario, estimated structural housing demand for the same 2023–2030 period ranges from around 40,700 (35,000) p.a., assuming current trends in headship rates and a 0.25 per cent obsolescence rate, to 53,000 (47,000) p.a., assuming a fall in household size/increase in headship and a 0.5 per cent obsolescence rate.

At the local authority level, we find that Kildare, Meath, Fingal, South Dublin, Dublin City, Galway City, Wicklow and Laois have lower levels of structural housing demand than population share. Meanwhile, Longford, Cavan, Monaghan, Kilkenny,

Cork City and Carlow have structural housing demand on par with the population share, while the remainder of local authorities have higher levels of structural housing demand than the population share. However, any differences between structural housing demand relative to population share, either higher or lower, are relatively small.

CHAPTER 1

Introduction

The issues around the measurement of future housing demand in Ireland are of considerable importance to our understanding of the imbalances in the housing market. Previous research in this area (e.g. Bergin and Garcia Rodriguez, 2020) was based on 2016 Census data, and more recent population developments require this analysis to be revisited with 2022 Census data, and new international migration scenarios. Any assessment of structural (demographic) future housing demand rests on assumptions around population growth, headship rates (the inverse of typical household size) and rates of obsolescence of the housing stock[1].

In this report, we consider a range of population projections, with the range based on various international migration assumptions. We update the analysis of future structural housing demand based on a regional demographic model, where internal migration is related to economic conditions. The cohort component methodology is used to generate regional population projections. This method projects the population at a county level by gender and age based on the components of population change (fertility, mortality, international and internal migration).[2] As international migration is the key driver of population change in Ireland, and it is also volatile and difficult to project, the report considers a range of alternative scenarios for international migration. While this provides a range for alternative international migration scenarios, any unanticipated major structural changes may require the projections to be revised.

We estimate the flow of new households based on the population projections and headship (the typical household size). To date, headship has been parameterised in existing research using current data and scenario-based analysis. However, headship itself is likely to be determined by a broad range of socio-demographic and economic factors as well as broader societal and cultural trends. This report draws on new research (O'Toole and Slaymaker, 2024) which explores the drivers of household size to inform assumptions around future headship rates. The report also draws on numerous different sources and methods to generate a range of obsolescence rates for the housing stock.

We consider a range of alternative scenarios given the uncertainty inherent in any projection exercise. Overall, there are three demographic scenarios, two sets of headship (household size) assumptions and two sets of assumptions for obsolescence rates. Interacting each demographic scenario with the assumptions on headship and obsolescence rates generates 12 scenarios. The difference

[1] Obsolescence of the housing stock can occur for several reasons, the most common being the age of the building and the lack of maintenance (see Thomsen and der Flier, 2011).

[2] See section 3.1 for more details.

between the scenarios highlights the impact of different assumptions on population growth, household size and obsolescence rates.

It is important to state at the outset that the report examines a range of scenarios for future structural housing demand based on a set of assumptions. Across all scenarios, assumptions are driven by data and international trends, and the research evidence base. To highlight the uncertainty associated with any projection exercise and the sensitivity of projections to key assumptions, the projections in the report are presented in terms of ranges.

An important point to note is that this report examines structural demand for housing as opposed to total housing demand. In the context of this report, structural demand is future demand based on demographics (such as the change in population), those factors which are influenced in part by demographics (such as household size/headship rates) as well as the level of depreciation of the housing stock (measured by the obsolescence rate). Total housing demand includes this structural element as well as what is referred to as 'pent-up' demand. While structural demand can be considered the number of additional housing units needed in a given year to meet new demand, pent-up demand includes the gap between supply and demand on a recurrent historical basis. As pointed out by Disch et al. (2024), there was a significant reduction in the number of dwellings being built in Ireland, and elsewhere, in the years following the global financial crisis. This meant a backlog of sorts built up which exacerbated the gap between the supply and demand of housing.

It is pertinent to therefore highlight that factoring in this prevailing pent-up household demand is beyond the scope of this research. However, the scenario where headship rates rise/household size falls is consistent with reducing *some* pent-up demand.

Previous studies have produced national and regional population projections[3] and the CSO produces national and regional population projections generally every five years after a census (for example, see CSO, 2018 and CSO, 2019). Several studies have also examined housing demand projections.[4] While these studies generally use a similar approach, they differ in terms of assumptions made around future population growth, headship rates and rates of obsolescence of the housing stock. As discussed later in the report (see Chapter 2), Ireland has experienced rapid population growth (largely driven by net migration) in recent years, generally exceeding previous projections[5] and hence underestimating structural housing demand. It is important to update projections when new data, such as a census,

[3] For example, see Bergin and Garcia Rodriguez (2020), Morgenroth (2018), Bergin et al. (2016), FitzGerald et al. (2013), FitzGerald et al. (2008), FitzGerald et al. (2005), Bergin et al. (2003) for national projections and Bergin and Garcia Rodriguez (2020) and Morgenroth (2018) for regional projections.

[4] For example, see Lyons (2021), Bergin and Garcia Rodriguez (2020), Conefrey and Staunton (2019), Healy and Goldrick Kelly (2019), Morgenroth (2018) and Morgenroth (2014).

[5] See Figure 4.2 for a comparison of population projections with the previous National Planning Framework (NPF), the previous CSO's Population Projections and scenarios in Bergin and Garcia Rodriguez (2020).

becomes available. Housing demand estimates will also differ depending on the assumptions chosen for headship rates and the rates of obsolescence rates of the housing stock. Given the importance of these assumptions, the report considers a range of assumptions for international migration, headship and obsolescence rates.

The remainder of the report is structured as follows: Chapter 2 provides an overview of recent population trends at a national and regional level; Chapter 3 outlines the methodology and assumptions used in generating the scenarios; Chapter 4 describes the range of population and structural housing demand scenarios, and Chapter 5 concludes.

CHAPTER 2

Population in Ireland: Recent trends

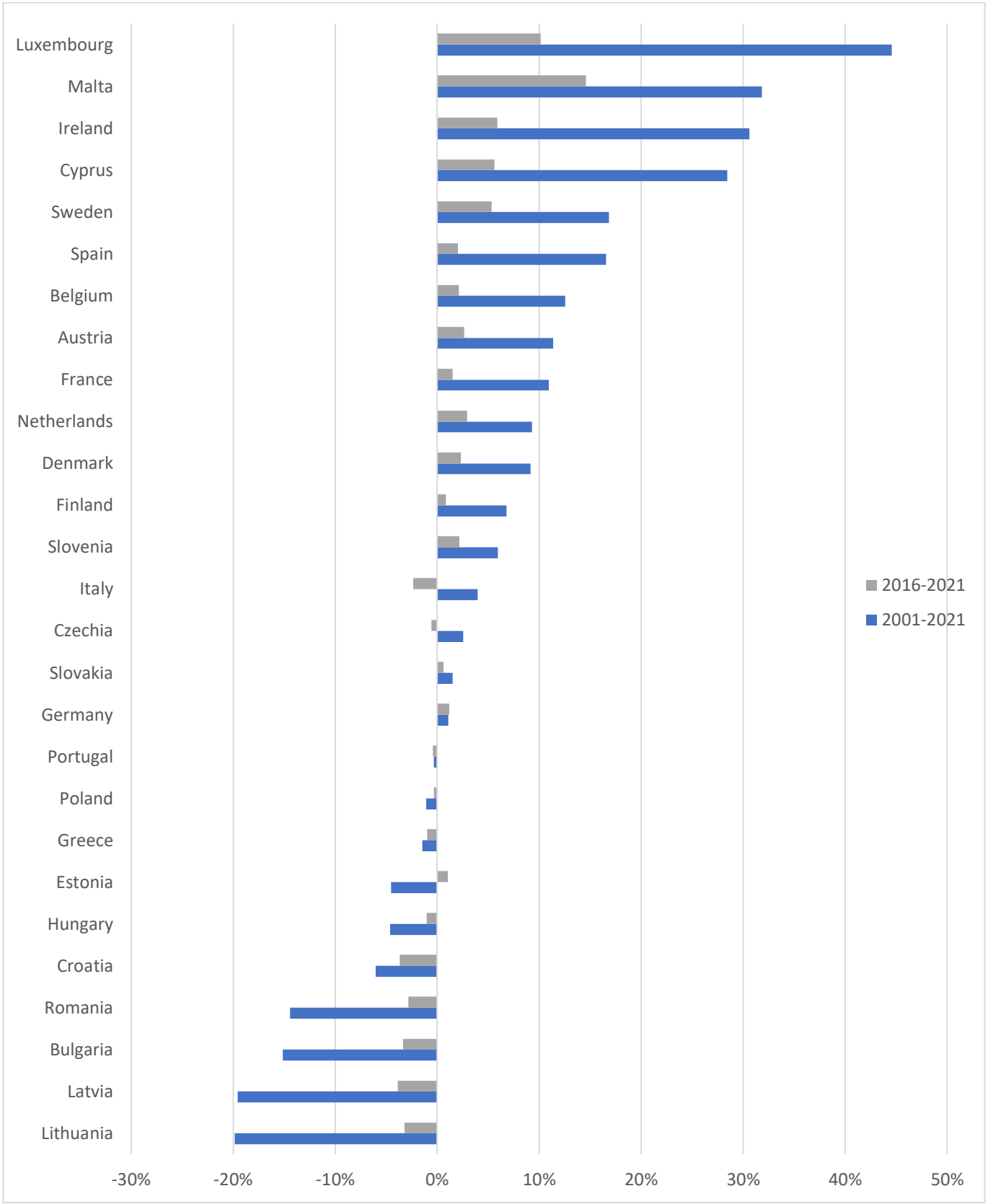
This chapter describes recent trends in population change in Ireland. It begins by comparing population growth in Ireland to the wider EU before discussing more recent national and regional trends. It then examines the drivers of population change, namely international and internal migration, fertility and mortality, in more detail. The trends in the data are used to inform some of the assumptions for the demographic scenarios developed in subsequent chapters.

2.1 RECENT POPULATION GROWTH IN IRELAND COMPARED TO THE EU

Ireland has experienced rapid population growth in recent years. This growth is somewhat unusual in a wider EU context. Over the 20-year period 2001 to 2021, the population in Ireland grew by 30.3 per cent compared to population growth of just 4.1 per cent in the EU27 (as a block). This translates to annual average population growth of 1.3 per cent per annum compared to 0.2 per cent per annum in the EU27.

Relative to other EU countries, population growth in Ireland was the third highest in the EU (after Luxembourg and Malta) over the 2001 to 2021 period (Figure 2.1). Over this period, across all individual countries, the population grew by an average of 6 per cent, although ten countries experienced no population growth or declines in their population. This trend in stronger population growth in Ireland has continued and more recently, between 2016 and 2021, the population in Ireland grew by 6 per cent compared to average growth of 1 per cent across EU countries (Figure 2.1).

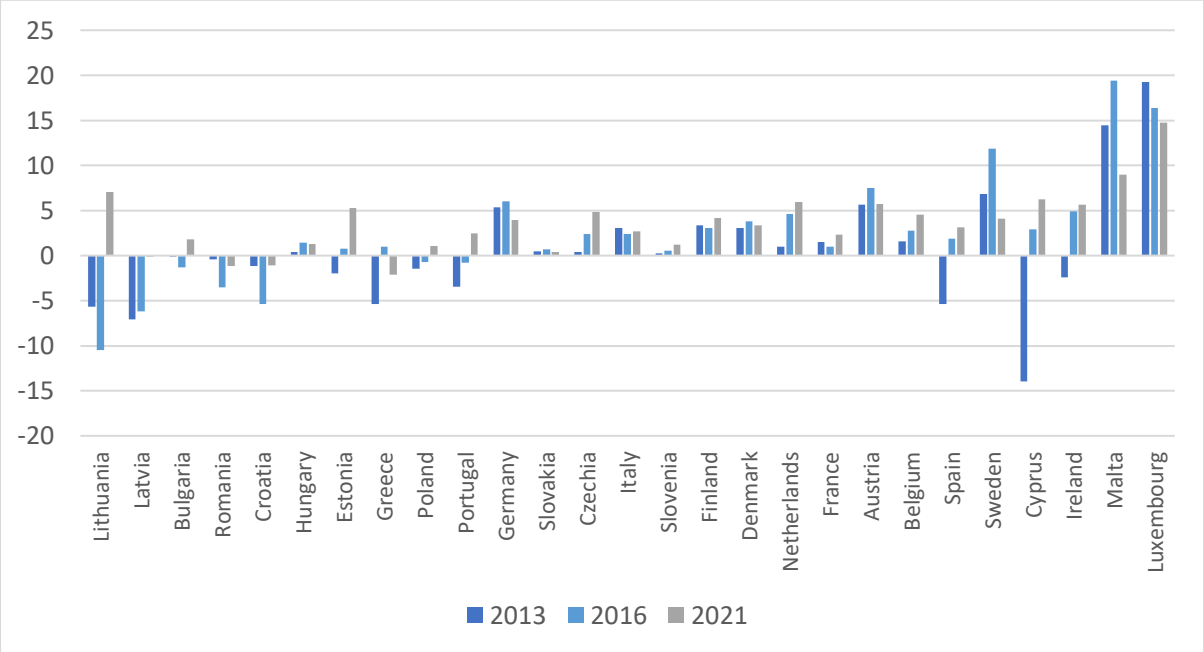
FIGURE 2.1 POPULATION GROWTH ACROSS THE EU, 2001–2021



Source: Eurostat Database.

A significant driver of the differences in population growth across EU countries has been the contribution of net international migration. Migration flows are very sensitive to economic conditions in host and destination countries and, as such, can be volatile and difficult to predict; however, for a country such as Ireland, assumptions around net migration flows are a key component of population projections (see sections 2.2 for more details and 3.1 for net migration assumptions considered in the report). Figure 2.2 shows the net migration rate per 1,000 population across EU countries in some recent years. The countries are ordered from left to right according to lowest to highest population growth from Figure 2.1. The graph reveals that the countries with the highest population growth generally also tend to be the countries with the highest net migration rates. Ireland has a higher-than-average net migration rate, although it was negative in 2013 following the Great Recession and has been positive in more recent years in line with the recovery in the economy and also, in the most recent period, by the increase in international protection applicants.

FIGURE 2.2 NET MIGRATION RATE (PER 1,000 POPULATION) ACROSS THE EU



Source: Eurostat Database.

2.2 RECENT TRENDS IN THE POPULATION OF IRELAND

Census 2022 data reveals that the population was 5.184 million in 2022, having increased by 422 thousand or by 9 per cent since 2016 (Table 2.1).[6] This rate of

[6] This is higher than the figure reported for Ireland by Eurostat used in Section 2.1, largely because the figures here also include 2022 (the year the Census took place in Ireland).

growth is comparable to the long-run population growth over the past 25 years. As in the past, while all regions[7] experienced population growth, the growth has not been evenly dispersed throughout the country. Table 2.1 shows that, compared to the national annual average growth of 1.4 per cent between 2016 and 2022, the Eastern and Midlands region experienced the strongest growth of 1.6 per cent, while the Southern, Northern and Western regions experienced lower population growth of 1.3 per cent and 1.2 per cent respectively. Over the 2016 to 2022 period, the Mid-East region experienced the highest population growth, averaging 1.9 per cent per annum, while the Border region experienced the lowest population growth of 1.1 per cent per annum (see Table 2.1).

TABLE 2.1 USUALLY RESIDENT POPULATION BY REGION

	Population ('000s)						Annual Average Growth Rate	
	1996	2002	2006	2011	2016	2022	1996–2022	2016–2022
State	**3626.1**	**3917.2**	**4239.8**	**4588.3**	**4761.9**	**5184.0**	**1.4%**	**1.4%**
Eastern and Midlands	**1703.4**	**1862.6**	**2025.5**	**2209.5**	**2328.5**	**2557.5**	**1.6%**	**1.6%**
Dublin	1058.3	1122.8	1187.2	1273.1	1347.4	1468.0	1.3%	1.4%
Mid-East	439.6	514.4	586.6	654.0	688.9	769.3	2.2%	1.9%
Midlands	205.5	225.4	251.7	282.4	292.3	320.2	1.7%	1.5%
Northern and Western	**667.5**	**711.0**	**771.4**	**837.4**	**847.4**	**911.6**	**1.2%**	**1.2%**
Border	315.1	330.7	357.1	392.0	394.3	422.3	1.1%	1.1%
West	352.4	380.3	414.3	445.4	453.1	489.3	1.3%	1.3%
Southern	**1255.2**	**1343.6**	**1443.0**	**1541.4**	**1585.9**	**1714.9**	**1.2%**	**1.3%**
Mid-West	392.6	418.7	444.2	467.8	473.3	508.8	1.0%	1.2%
South-East	316.0	344.5	377.6	409.1	422.1	460.5	1.5%	1.5%
South-West	546.6	580.4	621.1	664.5	690.6	745.6	1.2%	1.3%

Source: CSO Census, various issues.

[7] The regional classification used throughout the report is based on the Nomenclature of Territorial Units for Statistics (NUTS) classification. The allocation of counties to their NUTS 3 regions is as follows: Dublin: County Dublin; Mid-East: Kildare, Louth, Meath and Wicklow; Midlands: Laois, Longford, Offaly and Westmeath; Border: Cavan, Donegal, Leitrim, Monaghan and Sligo; West: Galway, Mayo and Roscommon; Mid-West: Clare, Limerick and Tipperary; South-East: Carlow, Kilkenny, Waterford and Wexford; South-West: Counties Cork and Kerry. The more aggregate NUTS 2 classification of regions are highlighted in bold in the tables.

As shown in Table 2.2, the faster growth in the Eastern and Midlands region means that it is capturing a higher share of the population over time. While the region had 47 per cent of the population in 1996, the share has been trending slowly upwards so that by 2022 the region had 49.3 per cent of the population. Within the region, while Dublin dominates in terms of overall population share, the population share of the Mid-East region has increased by 2.7 percentage points since 1996 while Dublin's population share has fallen by just under one percentage point over the same period. The Northern and Western and Southern regions have experienced a slight downward trend in their population share, except for the South-East region, where the population share has shown a marginal increase over time.

TABLE 2.2 POPULATION SHARE (%) BY REGION

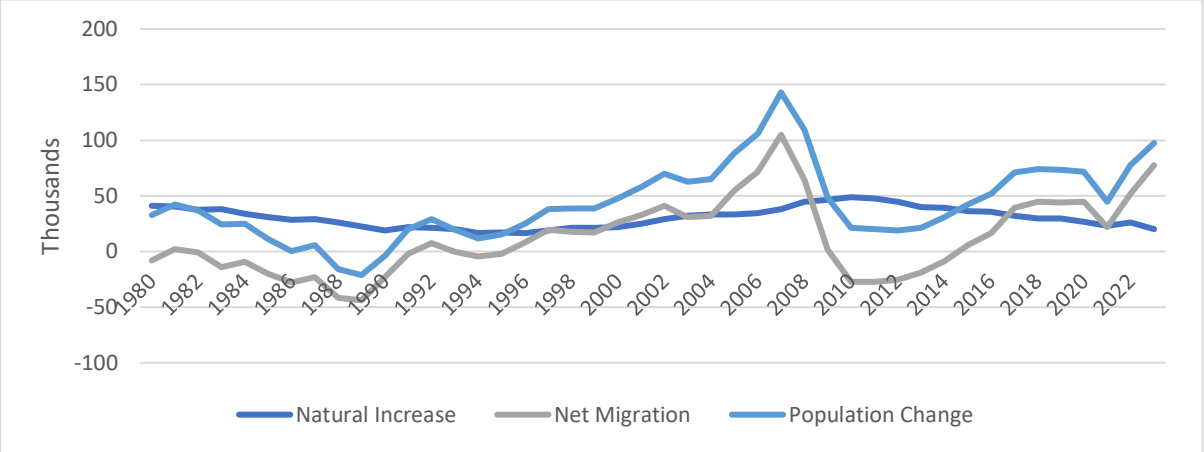
	1996	2002	2006	2011	2016	2022
State	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Eastern and Midlands	**47.0%**	**47.5%**	**47.8%**	**48.2%**	**48.9%**	**49.3%**
Dublin	29.2%	28.7%	28.0%	27.7%	28.3%	28.3%
Mid-East	12.1%	13.1%	13.8%	14.3%	14.5%	14.8%
Midlands	5.7%	5.8%	5.9%	6.2%	6.1%	6.2%
Northern and Western	**18.4%**	**18.2%**	**18.2%**	**18.2%**	**17.8%**	**17.6%**
Border	8.7%	8.4%	8.4%	8.5%	8.3%	8.1%
West	9.7%	9.7%	9.8%	9.7%	9.5%	9.4%
Southern	**34.6%**	**34.3%**	**34.0%**	**33.6%**	**33.3%**	**33.1%**
Mid-West	10.8%	10.7%	10.5%	10.2%	9.9%	9.8%
South-East	8.7%	8.8%	8.9%	8.9%	8.9%	8.9%
South-West	15.1%	14.8%	14.6%	14.5%	14.5%	14.4%

Source: CSO Census, various issues.

2.3 COMPONENTS OF POPULATION CHANGE

Figure 2.3 shows the contribution of the components of population change (net migration and the natural increase) to overall population change in Ireland since 1980. The figure shows that migration has a central role in driving population change in Ireland. The figure also reveals that while the contribution from the natural increase (births minus deaths) in the population is relatively slow to change over time, net migration is very volatile which results in year-on-year volatility in population changes.

FIGURE 2.3 COMPONENTS OF POPULATION CHANGE



Source: CSO, Population and Migration Estimate, 2023.

Migration flows are closely linked to the wider macroeconomy and migration tends to be concentrated in the 15-to-44-year-old age group.[8] In the 1980s, relatively high unemployment rates in Ireland encouraged many people to emigrate. In the second half of the 1990s, strong economic growth and a tight labour market led to net inflows. These inflows accelerated in the early 2000s and were boosted following the eastern enlargement of the EU in 2004. The Great Recession led to a reversal of net immigration and Ireland experienced net outflows from 2010 to 2014. Following the economic recovery, net inflows re-emerged in 2015. While net migration was broadly constant at around 44 thousand per annum over the 2018–2020 period, it dipped down in 2021, most likely as a result of the COVID-19 pandemic, and has been at a higher level since 2022, driven by an increase in immigration. There has also been a change in the country of origin of immigrants in recent years.[9] Over the period 2008 to 2021, just under three-quarters of immigrants came from other countries in the EU, the UK, the US, Canada and Australia, with the remainder coming from other countries, while this proportion fell to below half in 2022 and 2023[10]. The other country grouping includes Ukrainian recipients of temporary protection (see Figure 2.4)[11], beneficiaries of international protection, as well as other more usual economic migration.

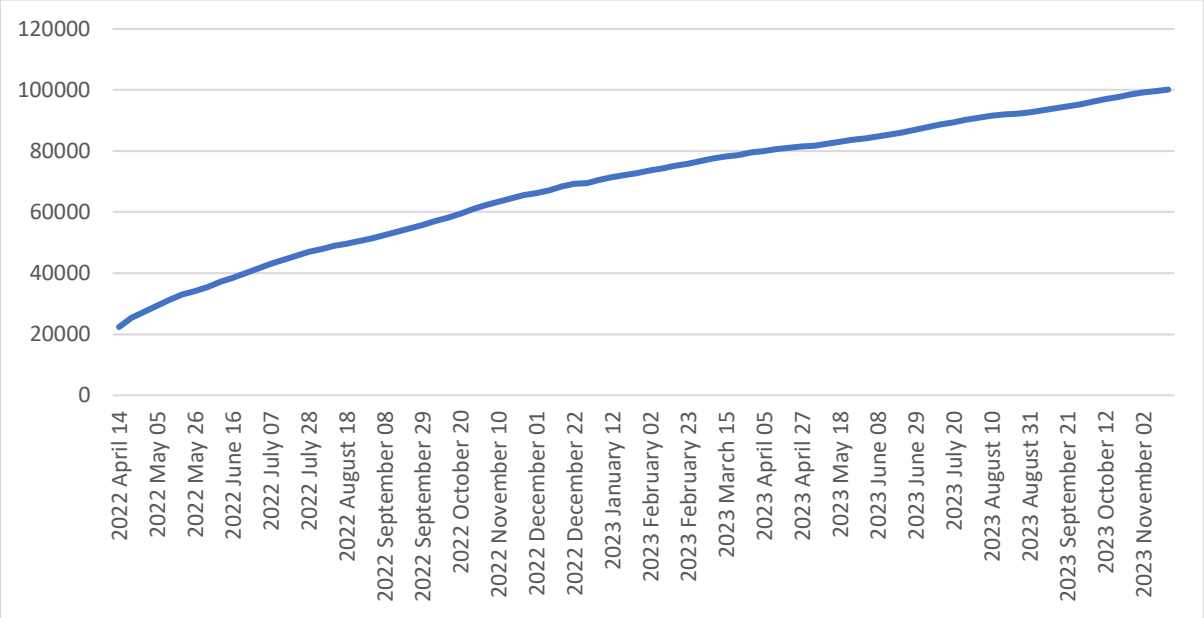
[8] See, for example, Barrett et al., 2002.

[9] There has been less volatility in the destination countries for emigrants. Since 2008, around 80 per cent of emigrants have gone to other countries in the EU, UK, US, Canada and Australia, with the remainder going to other countries.

[10] See CSO (2023), Population and Migration Estimates

[11] The Russian invasion of Ukraine in February 2022 has led to a cumulative 100,000 people arriving from Ukraine since the outbreak of war.

FIGURE 2.4 UKRAINIAN PERSONS (CUMULATIVE)



Source: CSO.
Notes: Based on PPSN allocations.

The natural increase in the population is given by the difference between the number of births and the number of deaths. Data on the number of deaths by age can be used to calculate various measures of mortality, including commonly used measures such as life expectancy.[12] A broad range of factors including access to quality healthcare services, income, education and lifestyle will together generally determine life expectancy and it is difficult to disentangle the role of each in driving changes in life expectancy. Life expectancy has continued to increase in Ireland albeit at a lower rate of improvement than in the past. Eurostat data[13] show that life expectancy at birth in Ireland in 2022 was 80.9 years for males and 84.2 years for females. For both males and females, life expectancy at birth is above the prevailing rates in the EU27 of 77.9 years for males and 83.3 years for females.

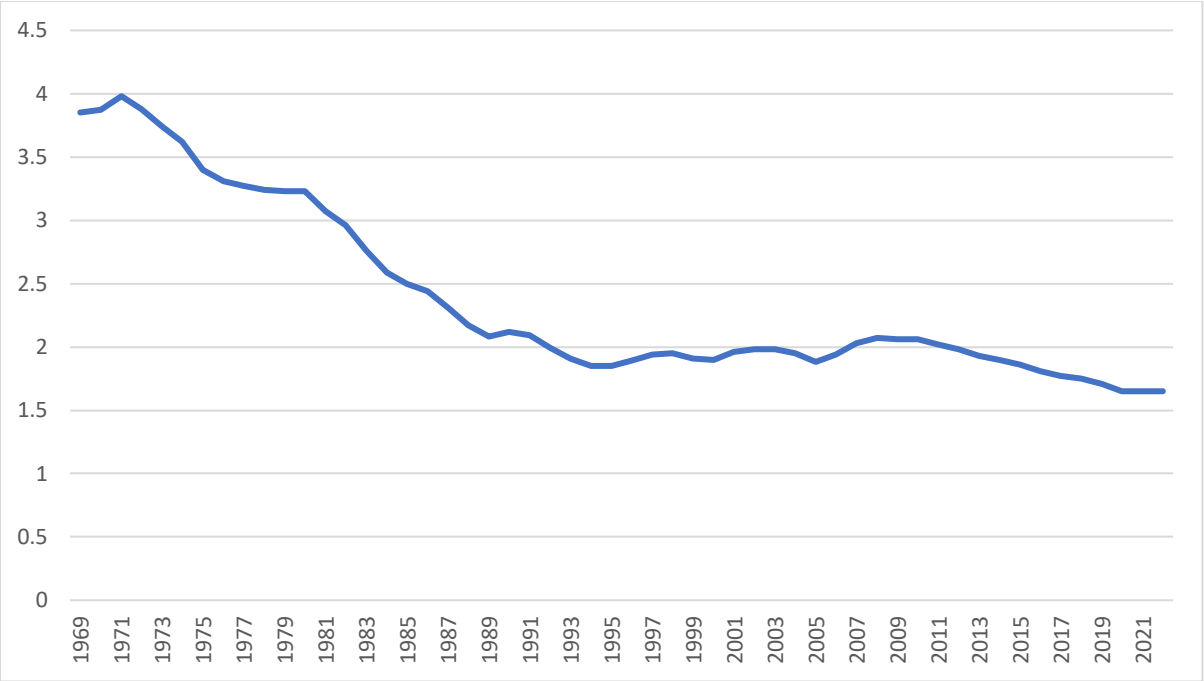
The total fertility rate (a measure of the number of children that a representative woman will have over her lifetime) is shown in Figure 2.5. The graph reveals that the fertility rate fell considerably from the early 1970s to the mid-1990s when it stabilised, although it has been declining at a slow pace for the past decade. Again, a complex range of factors will determine the overall fertility rate including participation in higher levels of education and the labour market, relationship status, income, etc. The total fertility rate in 2020 was 1.63 in Ireland and while it has been converging downwards towards the EU27 rate of 1.53, it remains

[12] Life expectancy at birth is the average number of years a newborn would live, based on prevailing mortality rates for that year.

[13] https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20240314-1#:~:text=In%202022%2C%20the%20life%20expectancy,3.7%20years%20compared%20with%202002).

above this level. There are also persistent differences in fertility rates between counties in Ireland. For example, the fertility rate in Dublin is consistently around 10 per cent below the national average, while in Longford it tends to be around 20 per cent above the national average over time.

FIGURE 2.5 TOTAL FERTILITY RATE



Source: CSO Vital Statistics, various issues.
Notes: The Total Period Fertility Rate is an international demographic indicator that estimates the average number of children that a woman has over her childbearing years (ages 15–49).

Internal migration is the final element that determines the population at a regional level. There is no available annual data source for internal migration; however, census data can be used to track intercounty population movements. Specifically, the census asks respondents for their current residence and their residence in the previous year, so the number of people who move from one county to another can be estimated for a census year. Two broad patterns emerge from the data, one that generally applies to the 1991, 1996 and 2011 data and the other that applies to the 2002, 2006, 2016 and 2022 data.

Figure 2.6 shows the internal migration flows for 1996, 2006 and 2022, with the shading for counties indicating the overall sign and magnitude of internal migration flows, and Table 2.3 shows the top ten net internal migration county-to-county migration flows for the same years. The data for 1996 in Figure 2.6 provide a good example of one of the two patterns that is typical for net internal migration flows. The figure shows that in that year, the largest net inflows were from the large population centres to Dublin and from Dublin to the adjoining counties. In contrast, the data for 2006 and more recently for 2022 illustrate the other pattern that is

typical for net internal migration flows. In these years, Dublin experienced large net outflows to other counties, with many moving to adjoining counties or to counties that are well connected to Dublin by transport links[14].

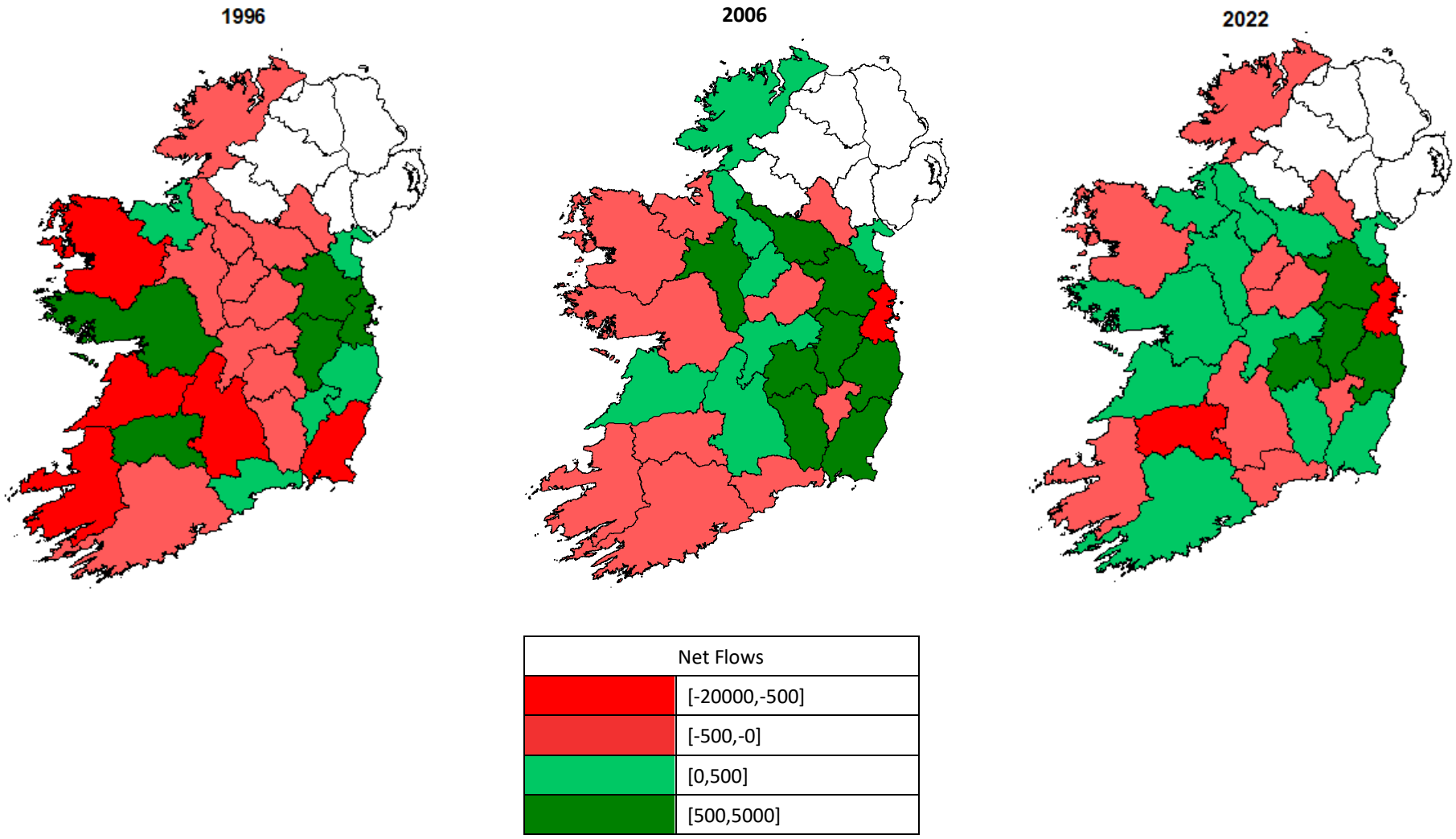
TABLE 2.3 TOP TEN NET INTERNAL FLOWS BY NUMBER OF PEOPLE

1996		2006		2022	
Dublin to Kildare	1,127	**Dublin to Meath**	3,534	**Dublin to Kildare**	2,309
Dublin to Meath	758	**Dublin to Kildare**	2,301	**Dublin to Meath**	1,737
Cork to Dublin	696	**Dublin to Wicklow**	1,718	**Dublin to Wicklow**	950
Dublin to Wicklow	401	**Dublin to Wexford**	788	**Cork to Dublin**	434
Limerick to Dublin	367	**Dublin to Laois**	695	**Galway to Dublin**	317
Kilkenny to Dublin	302	**Wicklow to Wexford**	475	**Limerick to Dublin**	309
Galway to Dublin	281	**Dublin to Cavan**	470	**Dublin to Wexford**	308
Tipperary to Dublin	261	**Dublin to Louth**	450	**Dublin to Louth**	292
Wexford to Dublin	246	**Kildare to Laois**	406	**Dublin to Laois**	284
Mayo to Galway	231	**Meath to Cavan**	394	**Carlow to Laois**	248

Source: Authors' calculations based on CSO, census data.

[14] It is likely that post-pandemic increased remote working opportunities may be contributing to this pattern.

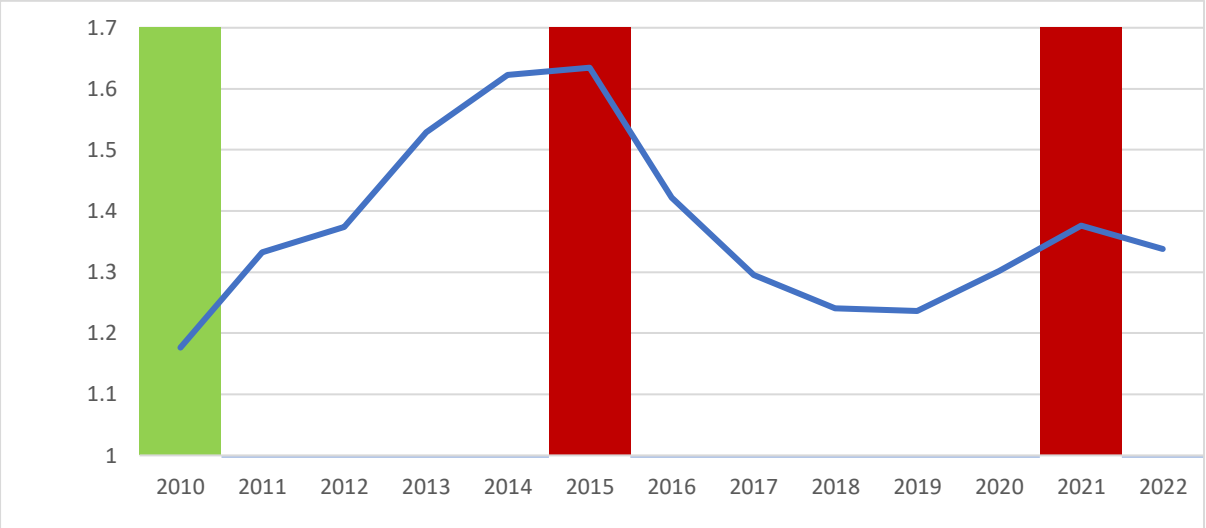
FIGURE 2.6 NET INTERNAL MIGRATION FLOWS



Source: Authors' calculations based on CSO, census data.

Overall, inflows to and outflows from Dublin seem to be the dominant factor shaping the internal migration scenario. These internal migration flows are also consistent with regional economic conditions. For example, Figure 2.7 shows the ratio of new house prices in Dublin compared to the national average. The graph also highlights the year preceding the censuses, with red highlighting years where Dublin experienced net internal outflows and green bars referring to years where Dublin has net internal inflows. While new house prices in Dublin are always above the national average, when the ratio is higher, Dublin tends to experience net outflows (e.g. 2016 and 2022), whereas when the ratio is more moderate (i.e. when the gap between new house prices in Dublin relative to the national average is narrower), Dublin tends to experience net inflows (e.g. 2011).

FIGURE 2.7 RATIO OF HOUSE PRICES IN DUBLIN TO THE NATIONAL AVERAGE



Source: CSO.
Notes: In the above figure, red bars highlight years where Dublin experienced net internal outflows with green bars referring to years where Dublin has net internal inflows.

2.4 SUMMARY

Ireland has experienced rapid population growth, both compared to historical experience and relative to the EU. Census 2022 data reveals that the population was 5.184 million, having increased by 422 thousand or by 9 per cent since 2016. Net migration is the key driver of population change in Ireland and net migration flows have been very strong in recent years.

As in the past, while all regions experienced population growth, the growth has not been evenly dispersed throughout the country. At a national level, the population grew at an annual average growth of 1.4 per cent between 2016 and 2022; the Eastern and Midlands region experienced the strongest growth of 1.6 per cent (driven especially by growth in the Mid-East).

CHAPTER 3
Methods and assumptions

This chapter outlines the methodology and assumptions underpinning the demographic and structural housing demand projections in the report. First, the ESRI's regional demographic model and the assumptions and trends that drive the population projections are presented. Secondly, the chapter outlines the assumptions made regarding the flow of new households (headship rates) and the rate of obsolescence of the existing housing stock. By applying county-level age-specific headship rates and incorporating expected housing obsolescence, the population projections can be converted into estimates of structural (demographic) housing demand.

3.1 ESRI REGIONAL DEMOGRAPHIC MODEL

The ESRI regional demographic model follows the cohort component method to generate population projections under different sets of assumptions. The model projects the population by gender and single year of age at a county level for each year over the long term. It can be summarised with two equations as follows:

$$P_t^{i,j} = \left(1 - d_{t-1}^{i-1}\right) * P_{t-1}^{i-1,j} + nEM_t^{i,j} + nIM_t^{i,j}, \text{for i} > 0$$

$$P_t^{0,j} = B_t^j + nEM_t^{0,j} + nIM_t^{0,j}$$

The first equation says that the population aged i in county j at time t, $P_t^{i,j}$, is given by the surviving population from the previous year $(1 - d_{t-1}^{i-1}) * P_{t-1}^{i-1,j}$, where d_{t-1}^{i-1} is the age-specific mortality rate and ($P_{t-1}^{i-1,j}$) is the previous years' population aged $i - 1$ in county j, plus net international ($nEM_t^{i,j}$) and internal migration ($nIM_t^{i,j}$) of the population aged i in county j. The second equation is for the population under the age of 1 and this equation uses the number of births in county j, B_t^j, rather than the surviving population that is used for all other ages. The base year for the analysis is the 2022 Census, which has data on the population by gender and single year of age at a county level. The analysis also incorporates the estimates of the population and international migration flows for 2023.[15]

To project the population forward by gender, age and county with this approach requires assumptions on the drivers of population change, namely mortality, fertility, international migration and internal migration[16].

[15] See CSO (2023), Population and Migration Estimates.

[16] The regional demographic model builds on analysis in Morgenroth (2018). For more details see Bergin and Garcia Rodriguez (2020).

We follow the mortality assumptions of the CSO's national and regional projections (see CSO, 2018 and CSO, 2019). This provides an age- and gender-specific profile of mortality rates for the projection horizon and these rates are applied at a county level. As a result, any variation in mortality at a county level will be driven by differences in the age structure across counties. The CSO projects an increase in life expectancy at birth for males from 80.8 years in 2020 to 84.2 years in 2040 and for females from 84.4 years in 2020 to 87.1 years in 2040.[17]

The overall total fertility rate is assumed to remain constant over the projection horizon.[18] This assumption is applied proportionally at a county level, maintaining the differences between counties noted in Chapter 2 so that individual counties that tend to consistently have high or low fertility rates continue to do so over the projection horizon.

Three alternative international migration scenarios are considered, given the volatility of international migration flows and the inherent uncertainty associated with projections of international migration. The impact of these alternative assumptions on the projected size and age structure of the population (shown in Chapter 4) demonstrates the sensitivity of population projections to this key component of population change. The national projection is then distributed among the counties according to historical trends, as migrants tend to locate in the main cities, particularly Dublin. We also assume that international migrants have a similar age profile to the past, i.e. that the majority are in the 15 to 44 age group. The three alternative sets of assumptions for international migration are:

- **Baseline scenario:** net immigration of +35k p.a. to 2030 (higher in the next two years) and +20k p.a. thereafter. This is based on projections from the ESRI's macroeconometric model COSMO and is consistent with expected economic conditions domestically and internationally.[19]
- **High International Migration:** net immigration is +10k p.a. higher in each year than in the baseline scenario.

[17] This implicitly assumes that the long-term mortality projections have not been significantly altered by the pandemic.

[18] The overall fertility rate has been broadly constant in recent years, and we assume it will remain at that level over the projection horizon. This could overestimate the younger population over time should the Irish fertility rate converge to the EU rate.

[19] In COSMO, migration is determined by the relative attractiveness of Ireland to alternative labour markets. For example, if the returns to working in Ireland disimprove relative to those abroad (lower relative real after-tax earnings in Ireland), there will be a tendency for outflows to occur. Similarly, poorer employment opportunities in Ireland relative to abroad (higher relative unemployment rate in Ireland) will also lead to outflows. The level of migration implied by projections from COSMO is fed into the demographic model. As discussed elsewhere, net international migration is volatile and difficult to predict. We do not distinguish between different types of migration (e.g. beneficiaries of international protection, Ukrainian recipients of temporary protection and other more usual economic migration). Over the period 1990 to 2023, net international migration averaged just under 22k per annum, and just over 29k per annum over the 2000 to 2023 period. The baseline scenario has net international migration averaging just under 38k per annum out from 2024 to 2030 and around 20k per annum after 2030. This is consistent with a continuation of recent trends in the data in the short to medium term and the expectation that net migration will taper off somewhat as growth converges to a more modest path. Of course, unanticipated major structural changes could alter this path. As there are no available projections on the path for international protection, we are implicitly assuming no further substantial increases over the projection horizon in the baseline scenario.

- **Low International Migration:** net immigration is 10k p.a. lower in each year than in the baseline scenario.

For internal migration, the model developed in Bergin and Garcia Rodriguez (2020) is re-estimated to include the most recent census data. A regression model is used to determine the relationship between the flows of people among counties and the factors that might drive these flows, including differences in labour market conditions between counties, house prices in the origin county, and distance and whether counties are adjacent to each other, which are proxies for the cost of moving. The model results are very similar to those in Bergin and Garcia Rodriguez (2020) and, for example, indicate that an increase in the cost of moving tends to reduce flows while an increase in house prices in the origin county makes it relatively less attractive and tends to increase flows to other counties. In a second step, the determinants of internal migration are projected over the horizon at a county level and these shape the pattern of county-to-county flows.[20] If current economic trends continue, we project a pattern of internal migration that is similar to that observed in 2016 and 2022, where there is a soft outflow from Dublin, mostly going to the counties around Dublin, and with most other counties experiencing small gains of internal migrants.[21]

While this section discussed the various demographic assumptions underpinning the population scenarios, to provide projections of the overall structural housing demand, various assumptions related to the housing market are also needed. The next sections outline the assumptions made regarding the flow of new households (headship rates) and the rate of obsolescence of the existing housing stock. By applying county-level age-specific headship rates and incorporating expected housing obsolescence, we can convert the population projections into estimates of structural housing demand.

3.2 HEADSHIP RATES

A crucial component in the formulation of planning and housing policy is the evolution of new household formation. The percentage of people who head a household is measured by the headship rate. The number of people living in the household is the inverse of the headship rate. As a result, household size is crucial to this analysis as it converts population estimates into estimates of the number of households, which can be a useful lens for determining housing needs (O'Toole and

[20] The national projections for the various macroeconomic variables come from the COSMO model and are applied at a county level according to historical relationships.

[21] The modelling framework can also be used to examine how changes in economic conditions could lead to a different spatial distribution of the population. For example, Bergin and Garcia Rodriguez (2020) considered a scenario, broadly consistent with the 50:50 city scenario developed in the National Planning Framework, where population growth was more evenly distributed between the Eastern and Midland region and the rest of the country, and where counties with larger cities attracted higher inflows, and this was achieved by changing relative regional economic conditions. This type of scenario gives an indication of where policy interventions could be used to influence the spatial distribution of economic activity and ultimately the population.

Slaymaker, 2024). Assumptions around the future path of Ireland's headship rate (or household size) play a key role in determining future demographic housing demand. It should be noted that these assumptions will project the flow of new households into the future and the associated resulting demographic housing demand. As discussed in the introduction of this report, we do not explicitly account for pent-up demand. However, some amount of pent-up demand will be met in the scenario where headship rates rise/household size falls. The mechanism behind this can be explained by the fact that pent-up demand will mean higher household size than would otherwise have been the case, resulting in lower headship rates and therefore lower structural demand.

There has been a lack of research on what determines headship in Ireland[22], but potential drivers could include macroeconomic factors such as income and labour market conditions, housing market conditions such as the cost and supply of housing as well as broader societal and cultural factors.

Table 3.1 shows headship rates by five-year age groups from the census years between 1996 and 2022. They are calculated as the number of private households in permanent housing units divided by population, per local authority and five-year age group. At an aggregate level, the census data provided in Table 3.1 indicates that between 1996–2011 headship rates increased, indicating a fall in household size. This trend was reversed between 2011 and 2016, however, with headship rates reducing slightly, indicating an increase in household size. Finally, the most recent intercensal period, 2016–2022, would suggest that headship rates were constant, at an aggregate level, and that there was no change in overall household size in the most recent period.[23]

[22] Although previous research by Duffy, Byrne and FitzGerald (2014) considered the effect of prospective demographic changes on the need for additional dwellings over a ten-year period.

[23] The table shows that while the aggregate headship rate was constant between 2016 and 2022, headship rates fell across most age groups over this period (indicating an increase in household size for most age groups). The larger increase in the size of the population aged 65 and over this period is keeping the overall headship rate constant over the period.

TABLE 3.1 HEADSHIP RATES BY FIVE-YEAR AGE GROUP, 1996–2022; 2022 MAX AND MIN

	1996	2002	2006	2011	2016	2022	2022 Min	2022 Max
All ages	**31**	**32.9**	**34.7**	**36.1**	**35.7**	**35.7**	**32.6 (Fingal)**	**38.6 (Leitrim)**
20–24	14.9	18.9	19.3	18.7	14.2	15.0	11.2 (Mayo)	29.7 (Galway City)
25–29	29.3	31.2	33.8	35.4	29.6	26.3	20.2 (Wicklow)	32.8 (Dublin City)
30–34	42.4	42.9	45	46.9	43.3	39.7	36.3 (Kerry)	42.4 (Sligo)
35–39	48.2	47.8	49.2	51	49.5	46.6	43.9 (Longford)	50.4 (Leitrim)
40–44	51	50.8	51.3	53.1	52.7	50.2	47.3 (Longford)	51.9 (Waterford)
45–49	52.5	52.4	53.5	54.3	54.5	52.7	49.7 (Longford)	54.8 (Leitrim)
50–54	54.5	53.4	55.1	56.2	55.7	55.0	53.1 (Longford)	58.3 (Leitrim)
55–59	56.2	55.2	56.1	57.2	57	56.4	54.7 (Longford)	56.7 (Leitrim)
60–64	59.1	56.9	57.6	58.1	58	57.9	55.9 (Meath)	59.5 (Leitrim)
65 and over	62.6	61.9	62.6	63	62	62	58.1 (Fingal)	66.2 (Leitrim)

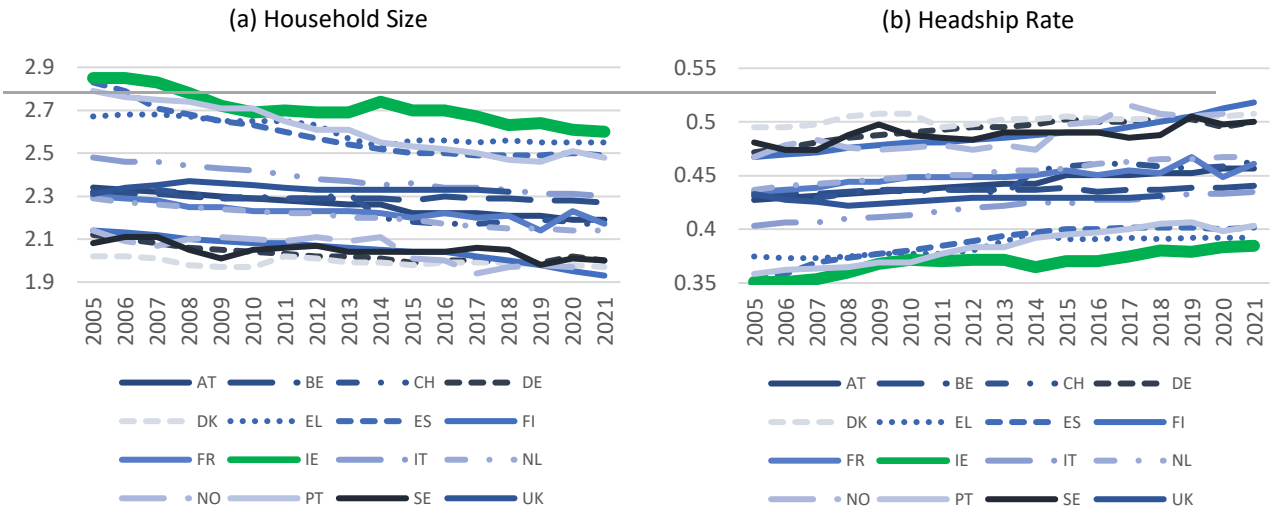
Source: CSO, Census, various issues.

Figure 3.1 shows household size and headship rates for a range of EU countries and the UK. The data is taken from O'Toole and Slaymaker (2024) who undertake a cross-country study on the drivers of household size using the EU-SILC survey. The analysis in O'Toole and Slaymaker (2024) suggests that average household size is high in Ireland and by extension, Irish headship rates are low compared to its European counterparts. Their analysis suggests that cross-country differences in household size are strongly influenced by demographics. The authors find that as Ireland has a relatively higher fertility rate and a relatively younger population, and thus a higher share of households with children, this helps explain the difference in household size compared to other countries[24]. Figure 3.1 (b) plots the headship rates across countries (the inverse of the average number of persons per household[25]). The figure clearly shows that Ireland has the lowest headship rate among the EU countries included in the analysis.

[24] O'Toole and Slaymaker (2024) also include a number of housing market and financial variables to test whether any of these factors can explain the variation in household size, including changes in house prices, changes in mortgage lending interest rates and changes in mortgage credit, but were not found to be significant in any of the specifications.

[25] For example, in Ireland in 2021, the household size is 2.6, so 1/2.6=0.384 or 38.4%.

FIGURE 3.1 HOUSEHOLD SIZE (A) AND HEADSHIP RATES (B) ACROSS THE EU AND THE UK



Source: O'Toole and Slaymaker (2024) and authors' calculations.

With this in mind, our assumptions around headship rates in the future are informed by these most recent trends in the data, as well as a scenario-based approach informed by the recent research on household size. Therefore, for the first of our assumptions, we allow Ireland's headship rates to remain constant at 2022 levels across all age groups and local authority (LA) areas (referred to as current trends assumption). This assumption does however imply that household size in Ireland will fall from 2.8 to 2.6 over time between 2022 and 2040, with the fall purely driven by changes in demographic structure. For the second scenario-based assumption, we adjust headship rates so that the average household size falls further (referred to as fall in household size assumption). As pointed out by O'Toole and Slaymaker (2024), changes in Irish household size are likely to be driven primarily by demographics, but changes in housing supply are likely to impact the rate at which this happens. Therefore, this potential feedback loop between supply and household size is a partial justification for the path for the second scenario.

The key question is to get a sense of how much realistically household size could fall over the medium to long term. In terms of quantifying the second scenario, across the European countries considered in O'Toole and Slaymaker (2024), between 2007 and 2018 household size for those aged less than 50 fell by an average of 0.06 and household size fell by 0.14 in their high country grouping of Spain, Greece and Portugal. The midpoint between these two figures is 0.1 and the fall is over 11 years. Converting this to an annual figure and applying it over the period 2023 to 2040[26] implies that average household size in Ireland would be

[26] This adjustment is made by linear interpolation, which assumes a straight-line relationship over time.

0.16 lower in 2040 than that implied by constant headship rates (current trends assumption).

Using these two headship assumptions (hereafter named current trends and fall in household size) population projections can be transformed into the flow of new households, giving two separate paths for headship over the projection horizon.

3.3 OBSOLESCENCE RATES

Every year, a number of dwellings become obsolete and need to be replaced in order to maintain the level of housing stock. This serves to increase the amount of housing needed to meet demand. Therefore, an assumption around the rate of housing obsolescence needs to be made to obtain a final estimate of structural housing demand. Unfortunately, there is a lack of data in this area as no series for the number of dwellings which become obsolete each year is available for the Irish housing market. Given the lack of data on obsolescence, we apply a holistic approach to inform our annual rate of housing stock obsolescence. The assumptions are based on available data on the housing stock and dwelling completions, the age of Ireland's housing stock and international comparisons relating to housing stock obsolescence and/or demolition rates.

3.3.1 Estimating obsolescence through the stock and flow of dwellings

Previously in measuring structural housing demand, Bergin and Garcia Rodriguez (2020) applied a methodology suggested by FitzGerald (2005) where the difference between aggregate changes in housing stock and change in completions are used to 'back out' an obsolescence rate. However, aggregate housing stock data is limited to years in which a census is undertaken. Therefore, for the 2016–2022 period, the number of dwellings that became obsolete each year can be estimated by taking the change in the stock of dwellings between censuses and subtracting this figure from the numbers of dwellings built over this intercensal period. According to the CSO, between the 2016 and 2022 Census, the change in housing stock was 108,476, increasing from 2,003,645 dwellings in 2016 to 2,112,121 dwellings in 2022. Over the same intercensal period, 2016Q2–2022Q1, the total new dwelling completions amounted to 107,821. The difference between these two figures provides an estimate of obsolete dwellings. As shown in Table 3.2, this results in an implied obsolescence rate of around -0.01 per cent per annum as the increase in dwelling stock outstripped the number of dwelling completions for the same period. A negative obsolescence rate appears counterintuitive; however, this calculation does not consider older formerly obsolete dwellings which may have been renovated, refurbished or converted. To take account of these dwellings we also add the number of ESB reconnections in the intercensal period. The CSO defines reconnections as a property which is reconnected to the ESB network, having been disconnected for more than two years. Adding the figures for

reconnections with the completions data over the period 2016Q2–2022Q1 gives us a flow of 123,617 dwellings (107,821 + 15,796). As shown in Table 3.2, this implies an obsolescence rate of 0.12 per cent.

TABLE 3.2 ESTIMATING HOUSING OBSOLESCENCE USING FITZGERALD (2005)

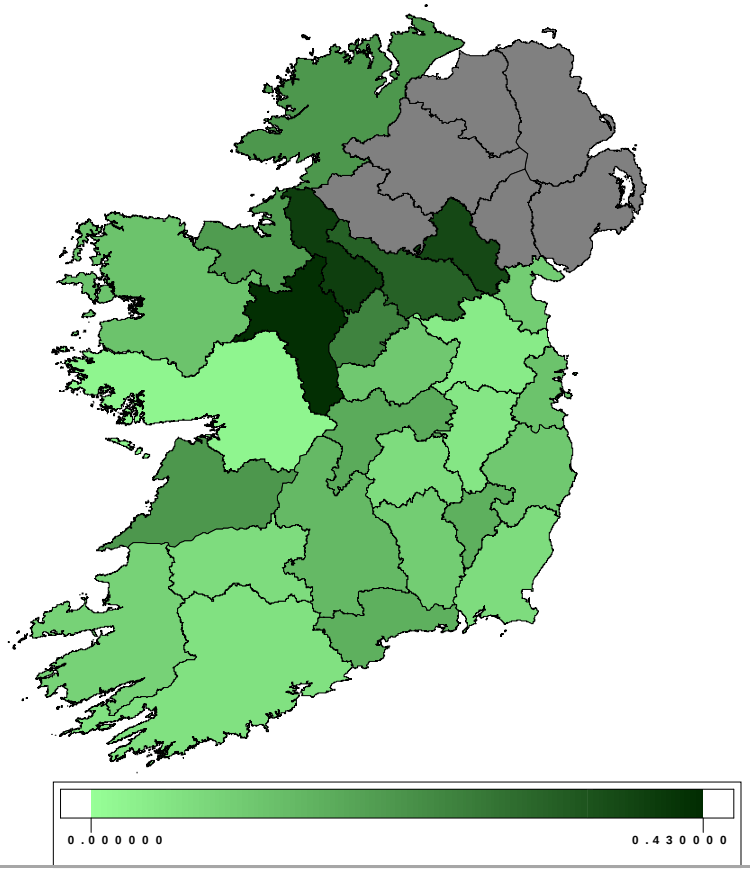
Period	Δ Stock	Δ Flow		Difference in Stock and Flow	Implied Annual Obsolescence Rate (%)
		New Dwelling Completions	ESB Reconnections		
2016–2022	108,476	107,821	-	-655	**-0.01**
			15,796	15,141	**0.12**
2011–2016	8,800	29,296	-	20,495	**0.20**
			9,254	29,750	**0.30**

Source: CSO and authors' calculations.

The figures presented in Table 3.2 represent the implied obsolescence rate at the national level. As the data on dwelling stocks, completions and ESB reconnections are also available at a local authority level, we can also examine the variation across counties (Figure 3.2). The figure suggests that there is a significant degree of variation in implied obsolescence rates across counties ranging from less than 0.05 per cent in Galway, Meath and Kildare to greater than 0.35 per cent in Monaghan, Leitrim and Roscommon.

While the above approach has practical appeal, it suffers from several limitations. For example, as highlighted, using new dwelling completions alone yielded a result which indicated that the increase in stock from 2016 to 2022 was actually greater (by 655 dwellings) than the number of new dwellings completed in the same time period. Also, while we used the number of ESB reconnections as a proxy for previously obsolete stock coming back into use, the reconnections data do not distinguish between vacant and derelict dwellings, nor do they distinguish a dwelling that became obsolete after 2016 and then was reconnected prior to 2022.

FIGURE 3.2 OBSOLESCENCE RATES (%) BY COUNTY, 2016–2021



Source: CSO and authors' calculations.

3.3.2 Estimating obsolescence through the national accounts

A separate approach to providing an estimate of the level of depreciation in the housing stock is to examine the Estimates of Capital Stock from the CSO's National Accounts. This statistical release provides a series including 'Capital stock held (Dwellings, excluding land)' and 'Consumption of fixed capital (Dwellings, excluding land)'. The latter can be interpreted as the level of depreciation of dwellings and is estimated using a perpetual inventory method (PIM). One issue with using these figures as a proxy for housing obsolescence is that the estimates of depreciation (consumption of fixed capital) include property transfer costs (e.g. auctioneers' and solicitors' fees and stamp duties) as part of fixed capital investment, which are depreciated in the year in which the charges are incurred. As this data is available via the CSO for a relatively long time period, 1985–2022, we can use these figures to 'back-out' the depreciation rate of dwellings through $\frac{Stock\ Held_t}{Consumtion\ of\ fixed\ Capital_t}$. Based on an average over the 1985–2022 period, the historical rate of depreciation is around 1.9 per cent. Taking the series for the consumption of fixed capital without transfer costs produces a rate of 1.6 per cent.

However, there are also a number of drawbacks to using this PIM technique as a proxy for dwelling stock obsolescence. The OECD (2001) argues that while the PIM is a cheap and convenient method, it requires many assumptions and the estimates obtained are less reliable than most other official statistics. Given the fact that buildings typically account for the largest part of the capital stock, the uncertainty surrounding capital stock estimates can be substantially reduced if the estimates for buildings are based on reliable administrative records such as those provided in a census (Des Rosiers, 2002). Also, the CSO's National Accounts apply a geometric depreciation, with a rate of depreciation of $1.3/m$ for dwellings, where m is the average life of the asset. The CSO works on the assumption that dwellings have an average service life of 80 years, in line with international standards. However, this generic approach does not take into account any information on the underlying housing stock in the country of question, e.g. such as the age or condition of the housing stock. As we will show in the next section, Ireland appears to have a relatively young housing stock by international standards.

3.3.3 Obsolescence and the age of housing stock

In the literature, the age of properties is strongly linked with the concept of dwelling stock obsolescence. Belsky (2009) and Belsky et al. (2007) state that the age of dwelling stock can be used as a proxy for the number of units that are likely to need replacing, although the authors concede this may be a weak indicator if rehabilitation of older units becomes more common and leads to fewer tear-downs of existing structures. Nygaard et al. (2022) argue that housing assets become increasingly obsolete as they age but when considering age and obsolescence, distinctions should be made between physical depreciation (absolute obsolescence), economic obsolescence (relative obsolescence driven by technology, design or architectural changes) and locational obsolescence. More recently, Goodman (2023) notes the increase in housing obsolescence in the US is likely to increase as the housing stock ages.

As a result, it is also instructive to compare the age of Ireland's housing stock to that of other EU countries as well as that of the UK and US. Two datasets are used to assess the age of the Irish housing stock; the first is the most recent Census (CSO 2022) and the second is the EU Population and Housing Census (Eurostat, 2011) which is used for comparative purposes.[27] Table 3.3 shows the distribution of housing by year of construction across all European countries where data was available.[28] The table shows that, compared to the rest of Europe, Ireland has a particularly young housing stock, with 22 per cent of all occupied dwellings being built between 2001–2011. The comparable EU average for dwellings built between

[27] The 2021 EU Population and Housing Census is currently in progress and housing statistics were not yet available at the time of writing.

[28] Note that the year ranges are those used in the presentation of the data by Eurostat. For details, see https://ec.europa.eu/eurostat/statistics-explained/index.php?title=People_in_the_EU_%E2%80%93_statistics_on_housing_conditions&oldid=266849.

2001 and 2011 is just 9.8 per cent. At the other end of the age distribution, 13.3 per cent of Irish dwellings were built before 1946, which is well below the EU average of 22.3 per cent.[29]

TABLE 3.3 AGE DISTRIBUTION OF INHABITED EUROPEAN UNION HOUSING STOCK (% BUILT IN PERIOD)

	Pre-1946	1946–1980	1981–2000	2001–2011		Pre-1946	1946–1980	1981–2000	2001–2011
EU average	22.3	44.1	22.1	9.8	Latvia	22.7	46.6	24.3	5.1
Belgium	37.1	38.2	16.5	8.2	Lithuania	13.5	49.6	28.9	6.2
Bulgaria	10.5	55.4	25.5	8.6	Luxembourg	21.8	31.5	21.6	14.0
Czech Rep.	19.0	37.1	20.5	7.7	Hungary	20.3	48.3	21.7	9.7
Denmark	34.1	44.6	14.0	7.2	Malta	13.0	23.2	23.4	8.7
Germany	24.3	46.5	23.1	6.1	Netherlands	18.9	41.9	26.4	9.5
Estonia	17.0	47.1	22.8	9.4	Austria	25.5	40.1	22.7	11.7
Ireland	***13.3***	***22.9***	***20.7***	***22.0***	Poland	19.1	43.0	22.7	11.4
Greece	7.6	47.8	29.1	15.5	Portugal	10.7	37.1	36.0	16.3
Spain	11.1	43.0	24.7	18.5	Romania	11.2	59.1	19.0	8.0
France	28.7	37.0	23.9	10.4	Slovenia	21.3	45.0	25.0	8.7
Croatia	13.6	42.5	23.6	11.0	Slovakia	8.2	52.6	21.5	5.8
Italy	20.7	51.4	19.8	7.9	Finland	9.6	48.7	29.7	10.7
Cyprus	3.0	24.6	36.1	34.1	Sweden	24.3	47.7	12.3	4.6

Source: Eurostat, EU Population and Housing Census (2011).

It is also possible to carry out a more recent comparison of the age distribution of the Irish housing stock with English and US housing stock. Estimates of the year of construction of occupied residential dwellings for England are available from the Admin-Based Housing Stock (ABHS) database from the 2021 Census.[30] For the US, housing stock distribution by year built is available from the American Community Survey (ACS).[31] As with the Irish data from the 2022 Census, the English and US data are presented across preset ranges which may differ slightly but are close enough to carry out a reasonable comparison of housing stock age.

Figure 3.3 compares the age profile of Irish housing stock to that of the English housing stock based on both countries' most recent census data. While the percentage of overall inhabited dwelling stock built in the most recent period

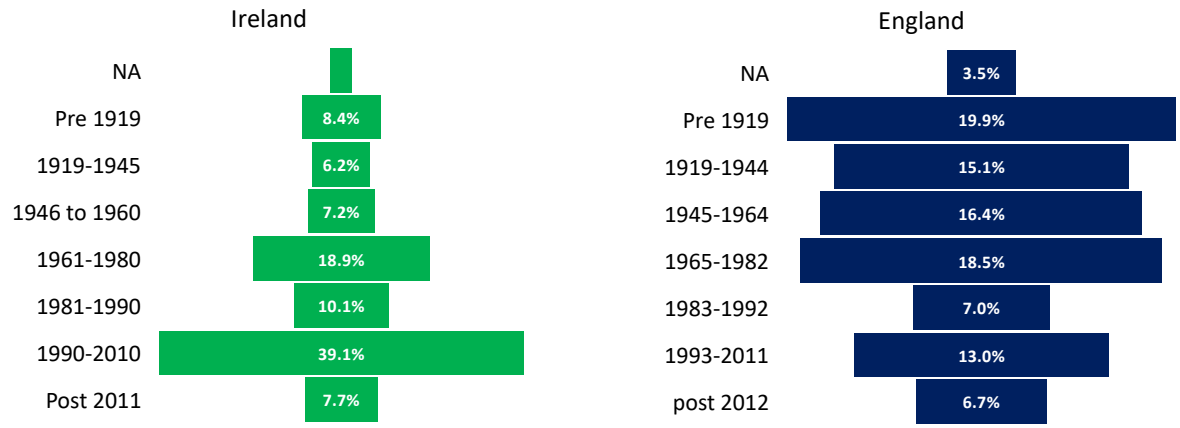
[29] Note that all values do not sum to 100 per cent and any remainder is the percentage of dwellings for which the year of construction is not available.

[30] The ABHS database brings together data from several administrative sources with the aim of developing a new method for producing more regular census-like statistics for occupied residential addresses across England and Wales. It should be noted that the ONS states that these are not official statistics. They are published as feasibility research into a new method for producing census-like statistics on housing using administrative data. The ONS advises caution when using the data.

[31] Falling under the umbrella of the US Census Bureau, the ACS is an ongoing survey that provides information on a yearly basis about the nation and its people.

(since 2011 for Ireland and 2012 in England) is very similar at 7.7 per cent and 6.6 per cent respectively; overall, the figure clearly shows that Ireland has a younger dwelling stock than England. For example, 39.1 per cent of Ireland's inhabited dwelling stock was built between the period 1990 to 2010 compared to just 13 per cent of English stock over a similar period, 1993 to 2011. Also looking at the oldest cohort of housing stock, the data shows that 14.6 per cent of the inhabited dwelling stock in Ireland was built pre-1945 and this compares to 35 per cent of the English stock in the same period.

FIGURE 3.3 DISTRIBUTION OF HOUSING STOCK AGE, IRELAND VS ENGLAND (% OF TOTAL INHABITED STOCK)

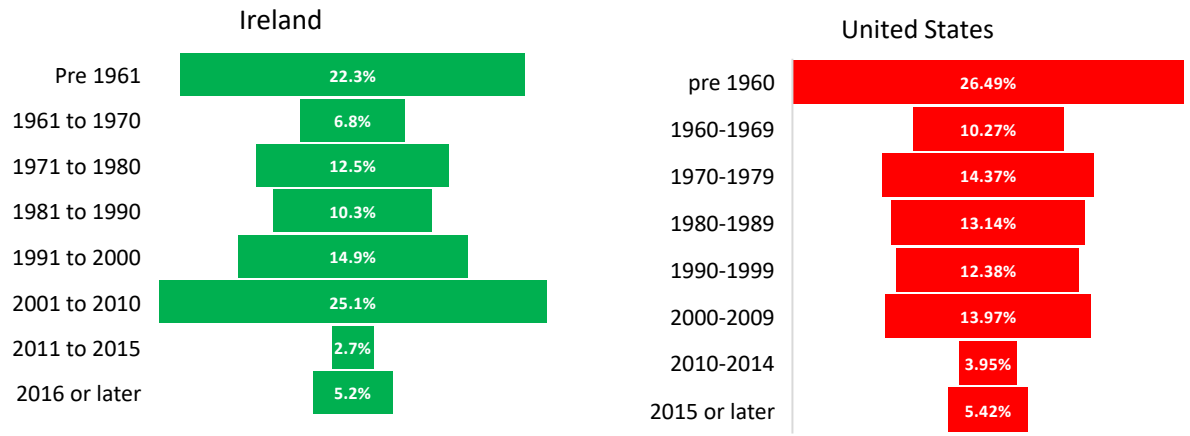


Source: Census 2022 for Ireland and Admin-Based Housing Stock (ABHS) database, ONS.

Figure 3.4 compares the age profile of Irish housing stock with that of the US. The figure suggests that the age distribution of housing stock across both countries is similar, despite large differences in the size of total housing stock.

Based on the analysis presented in this section, the data suggests that Ireland has a relatively young housing stock by international standards. While this does not directly provide an explicit benchmark for a rate of dwelling stock obsolescence, it may be used with other analyses such as a comparison of international evidence from the literature in informing assumptions for obsolescence rates.

FIGURE 3.4 DISTRIBUTION OF HOUSING STOCK AGE, IRELAND VS US (% OF TOTAL INHABITED STOCK)



Source: CSO and American Community Survey (ACS).

3.3.4 Dwelling stock obsolescence international evidence

Despite its obvious importance in the formation of structural housing demand, there is very little international literature which estimates the rate of dwelling stock obsolescence. Several studies have attempted to do so for the US housing market, where the quality and quantity of data are more abundant. In a paper which attempted to project the underlying need for housing units in the US, Belsky et al. (2007) use a number of different data sources including the Decennial Census of Population and Housing, the American Housing Survey (AHS) and the Housing Vacancies and Ownership Survey (HVS) and calculate the implied average annual loss rate of dwelling stock to be somewhere between 0.24 per cent and 0.29 per cent. The authors do highlight however that although this is a relatively narrow range, most housing analysts consider these loss rates to be too low. The paper suggests that at around 2.5 units per thousand replaced every year, the current stock would be expected to last for around 400 years. Given that the completion estimates are measured with considerable accuracy, the implication therefore is that estimates of the growth in the total housing stock (occupied and vacant units combined) are too high.

In a more recent paper, also for the US, Goodman (2018) uses Components of Inventory Change (CINCH)[32] data to calculate the obsolescence rate which includes homes that have been lost to disasters, homes that are uninhabitable without renovation, homes converted to commercial use, and commercial units converted to residential use, and find that the obsolescence rate in 2017 was 0.31 per cent. However, this did not include manufactured housing (commonly referred to as

[32] The Components of Inventory Change (CINCH) report measures changes in the characteristics of the housing stock of the United States. Using data collected from the national American Housing Survey (AHS), conducted every two years, the characteristics of individual housing units are compared across time.

mobile homes or trailers in the US) due to data reliability. Therefore, the authors revise upward their estimate to 0.4 per cent and use this as a benchmark rate in subsequent work (see for example Kaul et al., 2021). While the literature in the area of the US housing market is by no means extensive, the range of figures (between 0.25 per cent and 0.4 per cent) provides an interesting insight into the Irish case, particularly given the similarities in the age profile of the respective dwelling stocks.

Outside of the US, studies which estimate housing stock obsolescence rates are scarce. However, obsolescence has been discussed in the literature with regard to the demolitions of dwelling stocks. Brueckner and Rosenthal (2009) note the ageing and obsolescence of existing dwellings influence the probability of destruction and reconversion of existing housing stock. While quantitative evidence for the number of residential dwelling demolitions is not abundant, data are available for a small number of European countries as well as the English residential market. In an empirical analysis, Thomsen and van der Flier (2011) observe that obsolescence often leads to demolition and find that among several Western European economies, demolition rates generally vary between 0.05 per cent and 0.10 per cent but was 0.17 per cent for the country of interest for their research, the Netherlands. Huuhka and Lahdensivu (2014) examine the number of demolished buildings by building type in Finland (e.g. detached, terraced, apartment as well as non-residential buildings) and found during the period of 2000 to 2012, the average demolition rate for residential properties was 0.15 per cent. Finally, in England, the Department for Levelling Up, Housing and Communities (DLUHC) publishes an annual release titled 'Housing supply: net additional dwellings', which is the primary and most comprehensive measure of housing supply in the UK. This includes figures for new house building, conversions (for example, a house into flats), change of use of an existing building (for example, a shop into a house or a barn conversion), other gains/losses as well as demolitions for the English residential market. Putting the annual data for demolitions, which is available from 2006–2022, over the total stock as estimated using the net additional dwellings data implies an average demolition rate of 0.05 per cent for English residential dwellings, from as high as 0.1 per cent in 2006 to as low as 0.02 per cent in 2021.

While examining the demolition rate may provide a useful insight into the level of obsolescence in an international context, as obsolescence can be expected to precede demolition, it is important to note that obsolescence does not always lead to demolition, nor that demolition is necessarily preceded by obsolescence. It can certainly be a motive or at least a trigger for the decision between demolition or life cycle extension, depending on the interests, motives and capacities of the proprietor (Thomsen and van de Flier, 2011).

3.3.5 Assumptions on obsolescence rates

While there are very few official benchmarks for an appropriate rate of housing stock obsolescence, the analysis here shows there is limited evidence in Irish data that anything over 0.3 per cent of Irish dwellings become obsolete and need to be replaced each year. In addition, the analysis shows that using the PIM technique as a proxy for dwelling stock obsolescence suffers from several drawbacks. For example, it does not contain any information on the underlying housing stock in the country of question, such as the age or condition of the housing stock. The analysis also shows that Ireland's housing stock is relatively young compared to other EU countries and the UK. The age of the Irish housing stock is comparable to that of the US, where studies have assumed obsolescence rates of between 0.25 per cent and 0.4 per cent.

Based on the quantitative and qualitative analysis in this section, two separate obsolescence rates are applied to the subsequent estimates of structural housing demand – a lower rate of 0.25 per cent and a higher rate of 0.5 per cent.

3.4 SUMMARY

This chapter describes the key assumptions for the demographic and structural housing demand projections presented in the next chapter. Owing to the uncertainty inherent in any projection exercise, and in places poor data availability, the report examines a range of alternatives for key demographic and housing assumptions. For international migration, the key driver of population change in Ireland, three alternative sets of assumptions have been outlined. This will generate three alternative population scenarios at a national and regional level. The chapter presents two sets of assumptions for headship rates, one based on current trends and an alternative set of assumptions where household size falls. The latter is based on new research evidence, where household size falls, consistent with the magnitude and pace of the fall in household size observed in other European countries. Applying these sets of headship rates to the population scenarios will provide estimates of the flow of new households. Finally, the chapter examines the available limited data and methods used to estimate housing stock obsolescence. Based on available data and international comparisons, two obsolescence rates will be used in the projections – a lower rate of 0.25 per cent and a higher rate of 0.5 per cent.

CHAPTER 4
Projections

This chapter draws together the demographic and housing assumptions described in the previous chapter to produce a range of population projections at a national and regional level (Sections 4.1 and 4.2) and then a range of structural housing demand scenarios at a national and regional level (Sections 4.3 and 4.4).

4.1 POPULATION PROJECTIONS – NATIONAL

Figure 4.1 shows the total population across the various scenarios out to 2040. The figure also shows the previous projections that underpinned the last National Planning Framework (NPF)[33], as well as recent data from the CSO. The starting point for the population projections is considerably above previous estimates. For example, the latest estimate from the CSO for the national population in 2023 is 5.282 million, which is 225k above the projection for that year in the previous NPF. Recent trends in net international migration are the main source of the difference for these years.

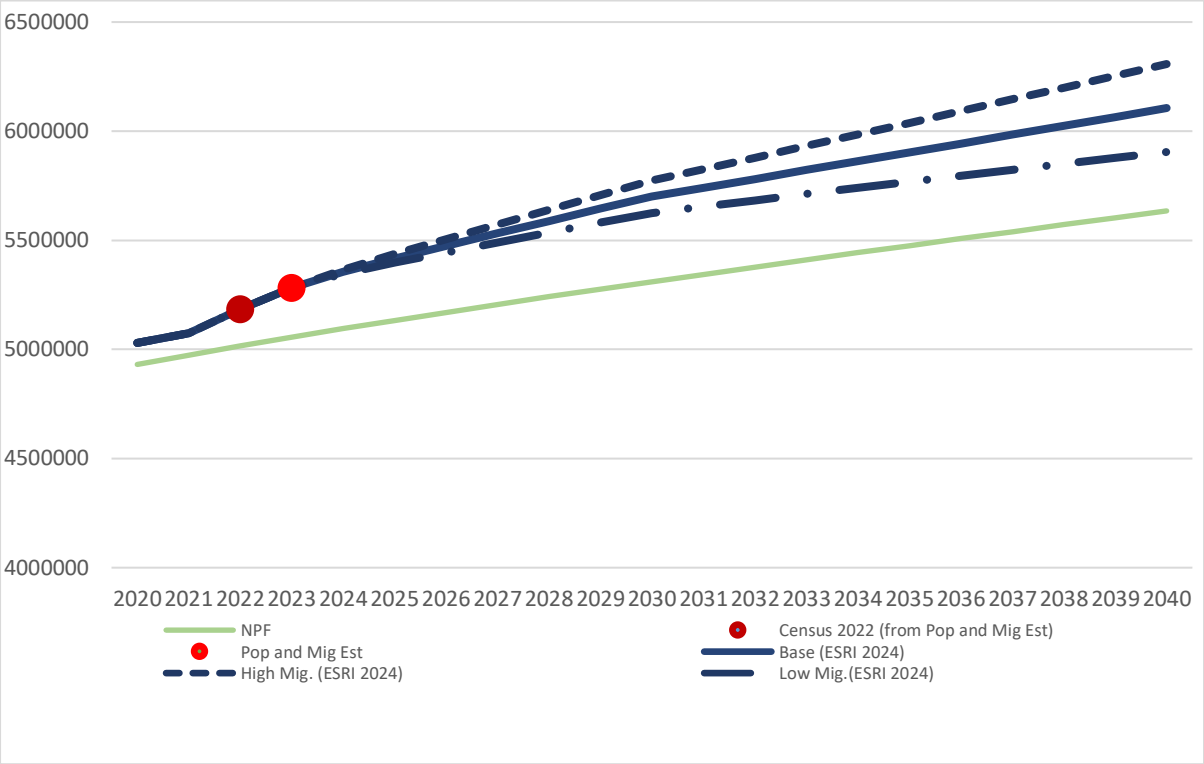
In the baseline scenario, the population is expected to increase by 922k between 2022 and 2040, resulting in a total population of over 6.106 million people by the end of the period. This implies overall population growth of 1.0 per cent on an annual average basis, a slowdown with respect to the 1.4 per cent annual average growth during the 1996 to 2022 period.[34] In the high net international migration scenario, where net international migration is +10k p.a. higher than in the baseline scenario, the national population reaches 6.308 million by 2040. This is consistent with overall population growth of 1.2 per cent on an annual average basis over the period. Finally, in the low international migration scenario, where net international migration is -10k p.a. lower than in the baseline scenario, the population reaches 5.904 million by 2040, consistent with 0.8 per cent annual average population growth. By 2040, the difference in the population between the high and low international migration scenarios is just above 400k, showing how sensitive the overall population projections are to different assumptions around net international migration. Given the volatility in international migration flows and the difficulty in predicting these flows over the longer term, it is prudent to consider a range of international migration scenarios. Over the projection horizon, a change in economic conditions or migration patterns could have a significant

[33] See Department of Housing, Planning and Local Government (2018), *Project Ireland 2040: National Planning Framework*.

[34] While this annual average growth is high relative to other EU countries, it represents a slowdown on the 1996 to 2022 period. It is important to note that this earlier period includes quite distinctive periods in Ireland's economic history, from the Celtic Tiger era to the Great Recession, each of which had opposite impacts on net migration. The earlier period also includes the two eastern expansions of the EU in 2004 and 2013. The 2004 expansion of the EU, in particular, led to a considerable increase in migration from the new member states. For example, between 2005 and 2008, net migration from the new/accession states averaged around 45k p.a.

impact on the projected path of the population, and by extension the structural demand for housing.

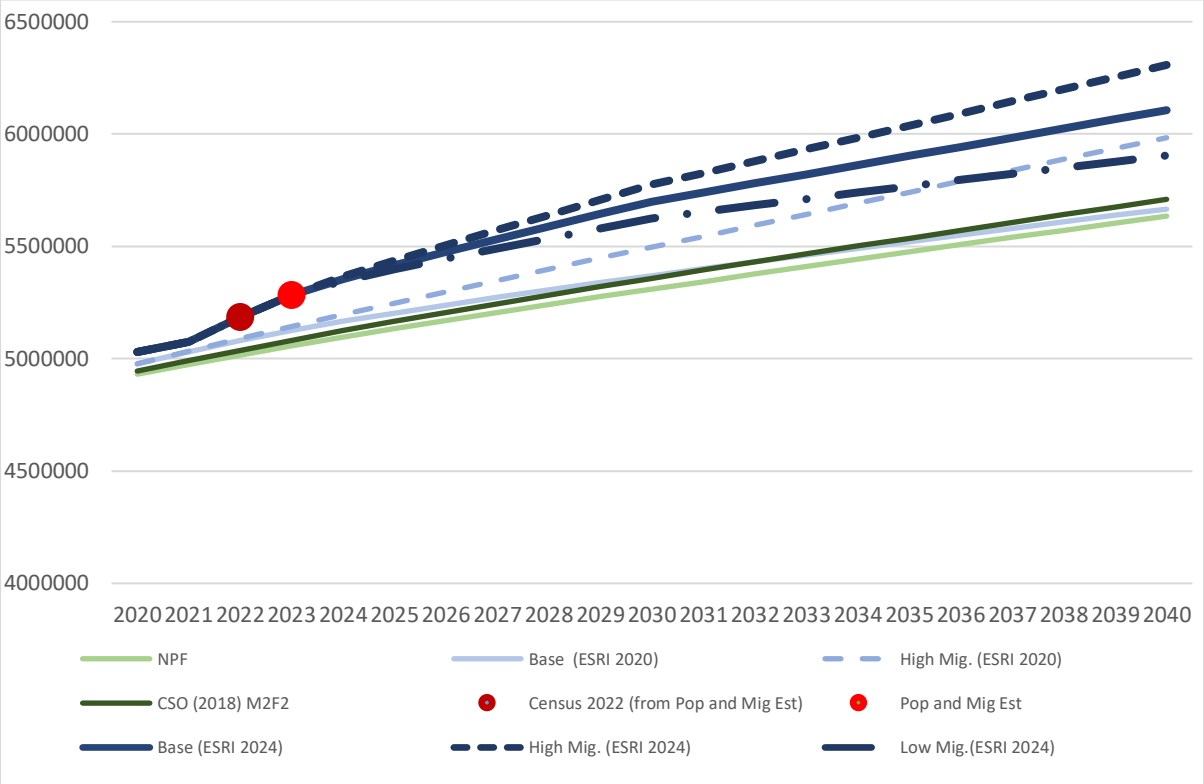
FIGURE 4.1 TOTAL POPULATION ACROSS DIFFERENT SCENARIOS



Source: Authors' calculations.

Across all scenarios, the population is expected to exceed previous projections. Figure 4.2 shows the same scenarios as Figure 4.1 but also includes previous population projections, including those underpinning the previous National Planning Framework (NPF), one scenario from the CSO's Population Projections, and two of the scenarios in Bergin and Garcia Rodriguez (2020). Each of the previous projections was done before the most recent census. The main differences with the projections above are the fact that the new projections are based on the most recent data available and so are starting at a higher level for the population and have stronger assumptions for net international migration over the projection horizon.

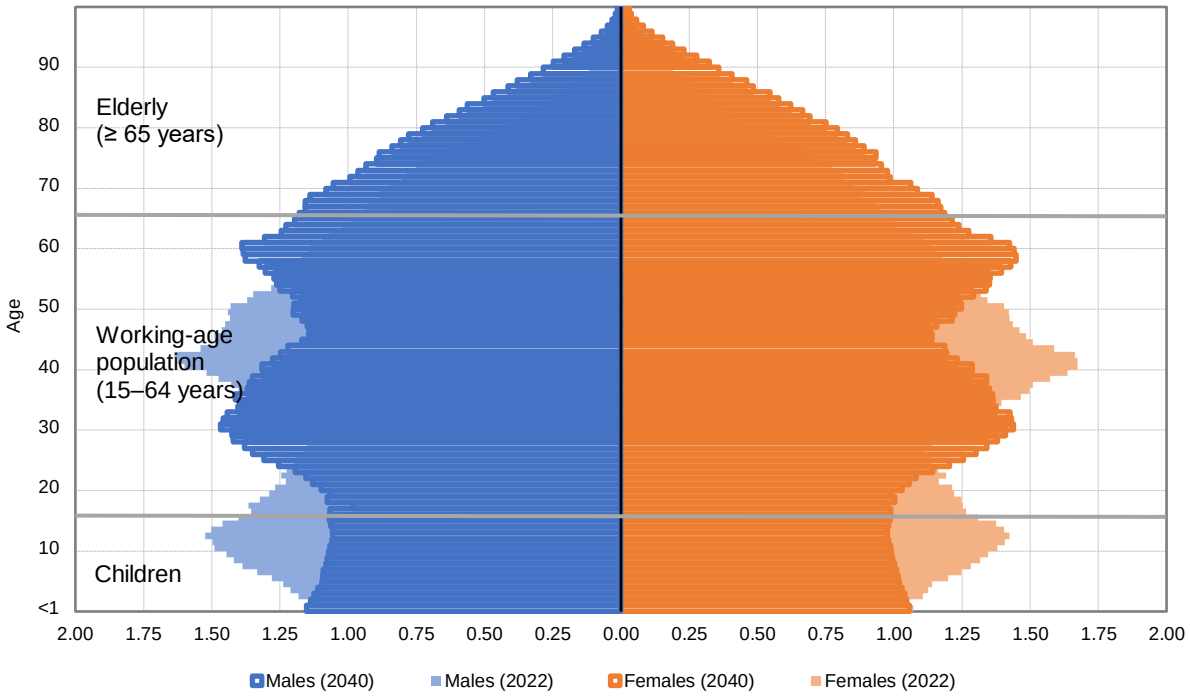
FIGURE 4.2 TOTAL POPULATION ACROSS DIFFERENT SCENARIOS



Source: Authors' calculations.

While the population is expected to continue growing in all scenarios, the age structure of the population will also change, reflecting the ageing of the population. Figure 4.3 shows the percentage of the male and female population by single year of age in 2022 and 2040. The figure shows that in 2022, around 15 per cent of the population is over the age of 65 and this rises to 21 per cent of the population by 2040. At the same time, the share of the population aged 15 to 64, a broad definition of the population of working age, falls from 65 per cent in 2022 to 63 per cent by 2040. Over the period, the share of children (<15) will decline from 20 per cent to 16 per cent by 2040. Changes in the age structure of the population have ramifications for many aspects of planning for the future.

FIGURE 4.3 POPULATION AGEING



Source: Authors' calculations.

4.2 POPULATION PROJECTIONS – REGIONAL

Table 4.1 provides the regional distribution of the baseline scenario projections and appendix Table A.1 shows the baseline scenario projections at a county level, at various intervals, and the associated county-level population growth in the baseline, high and low international migration scenarios. Owing to the national assumptions on net international migration, population growth is expected to be higher to the end of this decade than in the next decade.

In terms of regional population growth, the overall patterns are consistent with what has been observed over the past 25 years. The Eastern and Midlands region is expected to experience the highest population growth, with this growth concentrated in the Dublin and Mid-East regions. Overall, the Eastern and Midlands region is expected to increase its share in the total population from 49.3 per cent in 2022 to 50.7 per cent in 2040. The Northern and Western and Southern regions are expected to experience strong population growth over the projection horizon, albeit weaker growth than in the Eastern and Midlands region.

TABLE 4.1 POPULATION PROJECTIONS, BASELINE SCENARIO

	Population ('000s)			Annual Average Growth		
	2022	2030	2040	2022–2030	2030–2040	2022–2040
State	**5184.0**	**5699.9**	**6106.1**	**1.3%**	**0.7%**	**1.0%**
Eastern and Midlands	**2557.5**	**2856.8**	**3098.2**	**1.5%**	**0.8%**	**1.1%**
Dublin	1468.0	1664.2	1814.6	1.6%	0.9%	1.2%
Mid-East	769.3	848.3	922.4	1.4%	0.9%	1.1%
Midlands	320.2	344.2	361.2	1.1%	0.5%	0.8%
Northern and Western	**911.6**	**983.4**	**1035.0**	**1.1%**	**0.5%**	**0.8%**
Border	422.3	455.0	476.9	1.0%	0.5%	0.7%
West	489.3	528.4	558.2	1.1%	0.6%	0.8%
Southern	**1714.9**	**1859.7**	**1972.8**	**1.1%**	**0.6%**	**0.8%**
Mid-West	508.8	552.2	584.6	1.1%	0.6%	0.8%
South-East	460.5	491.4	514.6	1.0%	0.5%	0.7%
South-West	745.6	816.2	873.6	1.2%	0.7%	0.9%

Source: Authors' calculations.

4.3 PROJECTIONS OF STRUCTURAL HOUSING DEMAND (2023–2040) – NATIONAL LEVEL

Next the assumptions on both headship and obsolescence rates are applied to the population projection scenarios in the previous sections to generate estimates of the structural demand for housing over the period 2023–2040. Based on the three demographic paths (baseline, high migration and low migration), as well as the assumptions on headship rates (current trends and fall in household size) outlined in Section 3.2 and obsolescence rates (0.25 per cent and 0.5 per cent) outlined in Section 3.3, the following section describes structural housing demand projections across 12 different scenarios. A summary of the main assumptions for each scenario is provided in Table 4.2.

TABLE 4.2 SUMMARY OF 12 SCENARIOS AND THEIR ASSUMPTIONS

Assumption			Scenario
Demographics	**Headship Rate**	**Obsolescence Rate**	
Baseline +35k p.a. to 2030 (higher in next two years), +20k p.a. thereafter	Current (2022) headship rates by age group and LA	**Lower** = 0.25%	**1**
		Higher = 0.50%	**2**
	Adjust headship rates so that average household size is 0.16 lower by 2040	**Lower** = 0.25%	**3**
		Higher = 0.50%	**4**
High migration +10k p.a. higher than baseline	Current (2022) headship rates by age group and LA	**Lower** = 0.25%	**5**
		Higher = 0.50%	**6**
	Adjust headship rates so that average household size is 0.16 lower by 2040	**Lower** = 0.25%	**7**
		Higher = 0.50%	**8**
Low migration 10k p.a. lower than baseline	Current (2022) headship rates by age group and LA	**Lower** = 0.25%	**9**
		Higher = 0.50%	**10**
	Adjust headship rates so that average household size is 0.16 lower by 2040	**Lower** = 0.25%	**11**
		Higher = 0.50%	**12**

Source: Authors' calculations.

Household formation projections and subsequent levels of structural housing demand at a national level for all the scenarios are presented in Table 4.3 for the periods 2023–2030 and 2030–2040. The table shows the range of values across scenarios as well as an average across all scenarios over the period 2023–2040.[35] Figure 4.4 plots the paths of these scenarios from 2023–2040.

Owing to the lack of data, the level of uncertainty around the obsolescence rate and the fact that international studies consider a range for the obsolescence rate (as discussed in Section 3.3), the report considers two alternative obsolescence rates. It is useful to examine the sensitivity of the structural housing demand projections to an incremental change in the obsolescence rate. Using the baseline international migration and the current trends headship assumptions, a 0.1 percentage point change in the obsolescence rate would lead to an average extra structural housing demand of around 1,720 p.a. in the 2023–2030 period. For example, in the baseline international migration fall in household size headship scenario, the midpoint of the higher (0.5 per cent) and lower (0.25 per cent) obsolescence assumptions is 0.375 per cent and would represent structural housing demand of around 40,000 between 2023–2030.

[35] In many of the scenarios, the structural housing demand figures for 2023 are higher than those in subsequent years, reflecting the substantial inflow of international migration in that year. In addition, 2030–2040 numbers are lower than those in 2023–2030 primarily based on lower expected international migration. However, this also relies on the assumption that 2023–2030 structural demand is met, i.e. any further unmet demand would cause 2030–2040 figures to be higher.

Taking the average over all 12 scenarios, structural housing demand is projected to be around 44,000 p.a. from 2023–2030, falling to around 39,700 p.a. over the 2030–2040 period. The lower level in the latter period is attributed to declining household formation towards the end of the projection horizon, as the population ages (see Section 4.1). In the baseline population scenario, estimated structural housing demand in the period 2023–2030 ranges from around 38,000 p.a. (assuming current trends in headship rates and a 0.25 per cent obsolescence rate) to 50,300 p.a. (assuming a fall in household size headship rates assumption and a 0.5 per cent obsolescence rate). This represents an increase of between 10,000 and 22,000 from the medium-term baseline projections presented by Bergin and Garcia Rodriguez (2020). In the high (low) migration population scenario, estimated structural housing demand for the same period ranges from around 40,700 (35,000) p.a., assuming current trends in headship rates and a 0.25 per cent obsolescence rate, to 53,000 (47,000) p.a., assuming a fall in household size headship rates assumption and a 0.5 per cent obsolescence rate. These scenarios relate to future demographic housing demand and do not factor in current pent-up demand.[36]

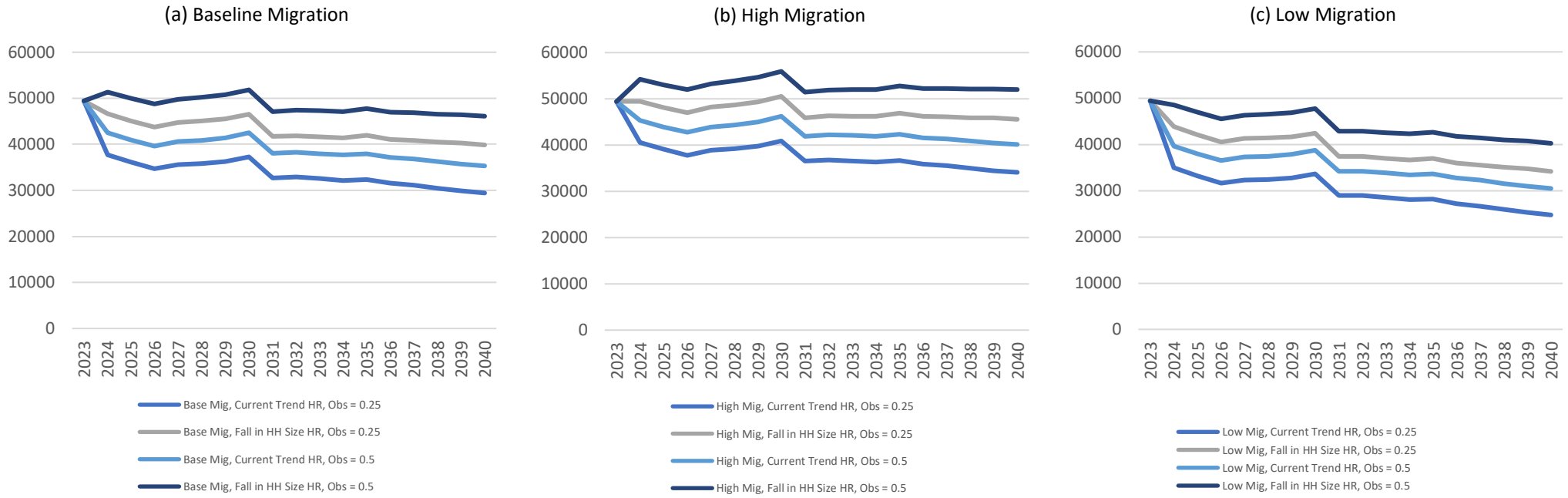
[36] While estimating pent-up demand is beyond the scope of the report, some amount of pent-up demand will be captured in Ireland's lower headship rates/high household size relative to other countries. In a scenario where headship rates rise/household size falls, that will help reduce some pent-up demand.

TABLE 4.3 STRUCTURAL HOUSING DEMAND ACROSS ALL SCENARIOS

Assumption			Average Housing Demand (in '000)		Scenario
Demographics	Headship Rate	Obsolescence Rate (%)	2023–2030	2030–2040	
AVERAGE OVER ALL SCENARIOS			44.0	39.7	Average
Base	Current trends	0.25%	37.9	32.0	1
		0.50%	42.2	37.6	2
	Household size falls	0.25%	45.8	41.6	3
		0.50%	50.3	47.4	4
High Migration	Current trends	0.25%	40.7	36.3	5
		0.50%	45.1	41.9	6
	Household size falls	0.25%	48.9	44.2	7
		0.50%	53.3	52.4	8
Low Migration	Current trends	0.25%	35.0	27.8	9
		0.50%	39.4	33.3	10
	Household size falls	0.25%	42.8	36.7	11
		0.50%	47.2	42.4	12

Source: Authors' calculations.

FIGURE 4.4 STRUCTURAL HOUSING DEMAND ACROSS ALL SCENARIOS



Source: Authors' calculations.

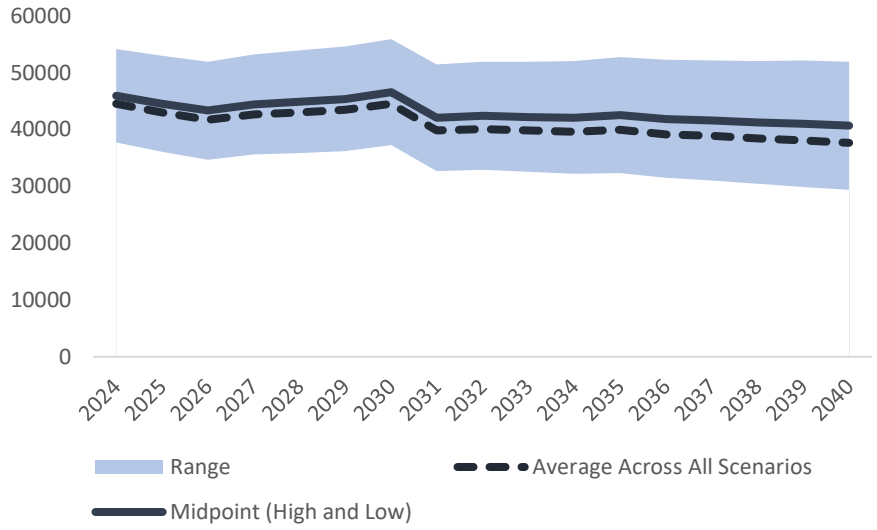
Figure 4.5 presents the range of projections showing the highest and lowest projections. It also overlays the average across all projections and the midpoint between the highest and the lowest scenarios. The figure shows that the lowest estimates, generated from the low international migration scenario with constant headship rates and an obsolescence rate of 0.25 per cent, average 35,000 p.a. and 27,800 p.a. over the periods 2023–2030 and 2030–2040 respectively. The highest estimates, which are based on high international migration, the fall in household size and an obsolescence rate of 0.5 per cent, project structural housing demand to average 53,300 p.a. and 52,400 p.a. over the periods 2023–2030 and 2030–2040 respectively. Overall, the range of values is mostly determined by varying obsolescence and headship rates.

There are a range of possible paths that structural demand could potentially take in the medium term. For example, if we assume a base migration scenario where household size falls in the medium term due to demographic and supply factors as outlined in O'Toole and Slaymaker (2024), structural housing demand would be 28 per cent per year higher than in the current trends scenario over the 2030–2040 period.[37] Alternatively, assume a situation with the base migration scenario and current trends in headship rates assumption. Suppose however that, due to a lack of maintenance or the discovery of large-scale structural defects, the obsolescence rate of Irish housing stock increases from 0.25 per cent to 0.5 per cent in the 2030–2040 period. This would serve to increase structural housing demand per year over the ten-year period by 17.5 per cent (32,000 to 37,600). Finally, if we assume a situation where migration followed the low scenario path, the structural housing demand relative to the base migration scenario would fall by 11.6 per cent per annum over the 2030–2040 period, from 39,650 to 35,050[38].

[37] This is calculated using the average change across the two obsolescence rates of 0.25 per cent and 0.5 per cent.

[38] Figures are based on an average of the four assumptions across the two headship scenarios and obsolescence rates of 0.25 per cent and 0.5 per cent.

FIGURE 4.5 RANGE OF HOUSEHOLD DEMAND BASED ON ALL SCENARIOS



Source: Authors' calculations.

4.4 PROJECTIONS OF STRUCTURAL HOUSING DEMAND (2023–2040) – LOCAL AUTHORITY LEVEL

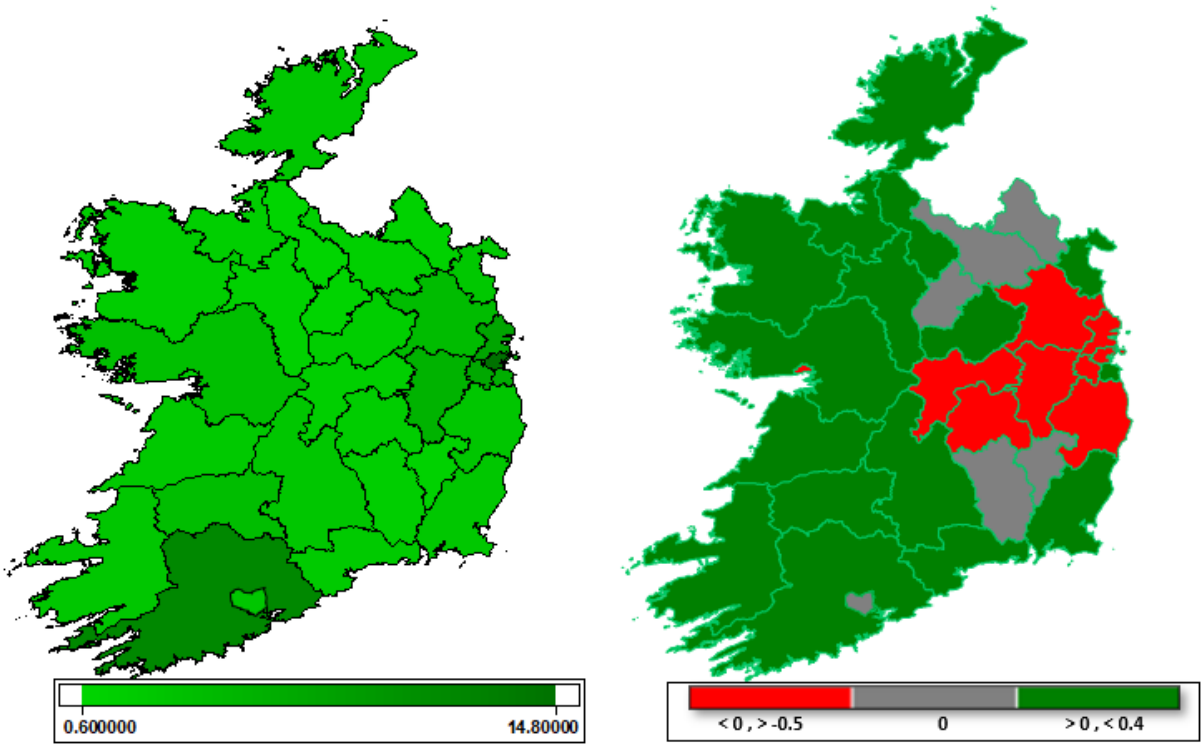
Appendix Table A.2 shows the national and local authority-level structural housing demand projections. The table shows the average of all 12 scenarios as well as average values in the lowest and highest scenarios. Figure 4.6 (LHS) presents the regional distribution/share of structural housing demand on the basis of the average of all the scenarios (i.e. on the basis of the projections in the first column of Appendix Table A.2. Based on the projections, 46.4 per cent of the structural housing demand over the 2023–2030 period will come from Dublin, across Dublin City, Fingal, Dublin-South and Dún Laoghaire-Rathdown, as well as Cork City and County.

While this geographical distribution of structural housing demand provides useful insight into overall housing demand across regions, naturally, local authorities with larger populations will have larger increases in housing demand and the age composition of the population will also play a role in determining housing demand. This can be illustrated using a simple index to show which local authorities will have relatively higher structural housing demand. For each local authority, we calculate the difference between its structural housing demand as a share of the national total and its population share-out of the total population. The index shows a positive value when local authorities are increasing the number of households faster than what would be implied by their population share and vice versa.[39]

[39] For example, in the period 2023–2030, Meath is projected to have a population equal to 4.3 per cent of the national total. At the same time, Meath is projected to account for 4.0 per cent of new household formation expected at a national level. Therefore, the value of the index for Meath for 2030 is -0.3 (=4.0-4.3), indicating that Meath is adding new households at a slower pace than we would expect given its population.

This is presented in the right panel of Figure 4.6. The index shows that Kildare, Meath, Fingal, South Dublin, Dublin City, Galway City, Wicklow and Laois have lower levels of structural housing demand than population share. Meanwhile, Longford, Cavan, Monaghan, Kilkenny, Cork City and Carlow have structural housing demand on par with the population share while the remainder of local authorities have higher levels of structural housing demand than the population share. However, as seen in the right panel of Figure 4.6, differences between structural housing demand relative to population share, either higher or lower, are relatively small.

FIGURE 4.6 PROJECTED DISTRIBUTION OF STRUCTURAL HOUSING DEMAND (LEFT) AND STRUCTURAL HOUSING DEMAND INDEX (RIGHT) USING AVERAGE ACROSS THE BASE MIGRATION SCENARIOS (2023–2030)



Source: Authors' calculations.

4.5 SUMMARY

At a national level, in the baseline population scenario, the population is expected to increase by 922k between 2022 and 2040, resulting in a total population of over 6.106 million people by the end of the period. This implies significant overall population growth of 1.0 per cent on an annual average basis, which is high relative to other countries. Given the key role of international migration in shaping population growth in Ireland, a range of alternative scenarios are considered where migration is higher and lower than in the baseline scenario. In the high (low) international migration scenario, the population grows by 1.2 (0.8) per cent on an annual average basis over the period and reaches 6.308 (5.904) million by 2040. By 2040, the difference in the population between the high and low international migration scenarios is just above 400k, showing how sensitive the overall population projections are to different assumptions around net international migration. At a regional level, while all regions are expected to experience population growth over the projection horizon, the Eastern and Midlands region is expected to experience relatively higher growth, concentrated in the Dublin

and Mid-East regions, while the Northern and Western and Southern regions are expected to experience relatively lower population growth.

Based on the three demographic scenarios (baseline, high international migration and low international migration), as well as a range of assumptions on headship rates (current trends and fall in household size) and obsolescence rate (0.25 per cent and 0.5 per cent), the chapter presents structural housing demand projections for 12 main scenarios. In the baseline population scenario, estimated structural housing demand in the period 2023–2030 ranges from around 38,000 p.a. (assuming current trends in headship rates and a 0.25 per cent obsolescence rate) to 50,000 p.a. (assuming a fall in household size and a 0.5 per cent obsolescence rate). Taking the average over all 12 scenarios, structural housing demand is projected to be around 44,000 p.a. from 2023–2030, and around 39,700 p.a. over the 2030–2040 period. In the high (low) migration population scenario, estimated structural housing demand for the 2023–2030 period ranges from around 40,700 (35,000) p.a., assuming current trends in headship rates and a 0.25 per cent obsolescence rate, to 53,000 (47,000) p.a., assuming a fall in household size and a 0.5 per cent obsolescence rate.

At a regional level, we intuitively find that local authorities (LAs) with larger populations will have larger increases in structural housing demand. In addition, we calculate the difference between structural housing demand as a share of the national total and population share-out of the total population across LAs. We find that Meath, Fingal, South Dublin, Dublin City, Galway City, Wicklow and Laois have lower levels of structural housing demand than population share. Meanwhile, Longford, Cavan, Monaghan, Kilkenny, Cork City and Carlow have structural housing demand on par with the population share while the remainder of local authorities have higher levels of structural housing demand than the population share. However, any differences between structural housing demand relative to population share, either higher or lower, are relatively small.

CHAPTER 5
Conclusions

This report provides estimates of structural (demographic) housing demand at a national and local authority level out to 2040. The cohort component methodology is used to generate regional population projections. This method projects the population at a county level by gender and age based on the components of population change (fertility, mortality, international and internal migration). As international migration is the key driver of population change in Ireland, and owing to the uncertainty around future migration flows, a range of alternative assumptions for international migration are considered. Population growth in recent years has exceeded previous projections so it is important to consider higher levels of international migration than before.

At a national level, in the baseline population scenario, the population is expected to increase by 922k between 2022 and 2040, resulting in a total population of over 6.106 million people by the end of the period. This implies significant overall population growth of 1.0 per cent on an annual average basis, which is high relative to other countries. At the same time, over the projection period, the ageing of the population is apparent. In the high (low) international migration scenario, the population grows by 1.2 (0.8) per cent on an annual average basis over the period and reaches 6.308 (5.904) million by 2040. By 2040, the difference in the population between the high and low international migration scenarios is just above 400k, showing the sensitivity of the projections to net international migration. Both population growth and population ageing have implications for planning, including for housing. At a regional level, while all regions are expected to experience population growth over the projection horizon, the Eastern and Midlands region is expected to experience relatively higher growth, concentrated in the Dublin and Mid-East regions, while the Northern and Western and Southern regions are expected to experience relatively lower population growth.

Transforming population projections into the number of future households requires assumptions on headship (the typical household size) and obsolescence rates for the housing stock. Owing to the uncertainty associated with any projection exercise, a range of assumptions for both headship and obsolescence are considered. These assumptions are grounded in data, international trends, and the research evidence base. On headship rates, one set of assumptions considered is they remain broadly constant as has been the case in recent years (based on current trends in headship rates). This set of assumptions implies that household size in Ireland will fall from 2.8 to 2.6 between 2022 and 2040, with the fall purely driven by changes in demographic structure. A second set of assumptions, based on new research evidence, assumes that headship rates increase, consistent with the magnitude and pace of the fall in household size observed in other European

countries. This set of assumptions implies that typical household size will fall further to around 2.4 by 2040. The report also draws on numerous different sources and methods to generate a range of obsolescence rates for the housing stock. Two obsolescence rates were used in the projections – a lower rate of 0.25 per cent and a higher rate of 0.5 per cent. Based on the three demographic scenarios (baseline, high international migration and low international migration), as well as a range of assumptions on headship rates (current trends in headship rates and a fall in household size) and obsolescence rate (0.25 per cent and 0.5 per cent), 12 main structural housing demand scenarios are considered. Factoring in prevailing pent-up household demand is beyond the scope of this research. The scenarios present the flows of household demand over time. In any year, if the demand is not met, it can accumulate in subsequent years.

Taking the average over all 12 scenarios, structural housing demand is projected to be around 44,000 p.a. from 2023–2030, and around 39,700 p.a. over the 2030–2040 period. In the baseline population scenario, estimated structural housing demand in the period 2023–2030 ranges from around 38,000 p.a. (assuming current trends in headship rates and a 0.25 per cent obsolescence rate) to 50,000 p.a. (assuming a fall in household size and a 0.5 per cent obsolescence rate). In the high (low) migration population scenario, estimated structural housing demand for the same period ranges from around 40,700 (35,000) p.a., assuming current trends in headship rates and a 0.25 per cent obsolescence rate, to 53,000 (47,000) p.a., assuming a fall in household size headship assumption and a 0.5 per cent obsolescence rate.

At the local authority level, we find that Meath, Fingal, South Dublin, Dublin City, Galway City, Wicklow and Laois have lower levels of structural housing demand than population share. Meanwhile, Longford, Cavan, Monaghan, Kilkenny, Cork City and Carlow have structural housing demand on par with the population share, while the remainder of local authorities have higher levels of structural housing demand than the population share. However, any differences between structural housing demand relative to population share, either higher or lower, are relatively small.

REFERENCES

Barrett, A., FitzGerald, J., and Nolan, B. (2002). 'Earnings inequality, returns to education and immigration into Ireland', *Labour Economics*, Vol. 9, No. 5, pp.665–80, https://doi.org/10.1016/S0927-5371(02)00073-8.

Belsky, E.S. (2009). 'Demographics, markets, and the future of housing demand', *Journal of Housing Research*, Vol. 18, No. 2, pp.99–120, https://doi.org/10.1080/10835547.2009.12092006.

Belsky, E.S., Bogardus Drew, R., and McCue, D. (2007). *Projecting the underlying demand for new housing units: Inferences from the past, assumptions about the future*, Joint Centre for Housing Studies, November 2007, W07-7, https://www.jchs.harvard.edu/sites/default/files/w07-7.pdf

Bergin, A., and Garcia Rodriguez, A. (2020). *Regional demographics and structural housing demand at a county level*, ESRI Research Series 111, Dublin: ESRI, https://doi.org/10.26504/rs111.

Bergin, A., Garcia Rodriguez, A., McInerney, N., and Morgenroth, E. (2016). 'Baseline: Methodology, assumptions and projections', *Ireland's Economic Outlook*, Dublin: Economic and Social Research Institute.

Bergin, A., Cullen, J., Duffy, D., FitzGerald, J., Kearney, I., McCoy, D. (2003). *Medium-term review 2003–2010*, No. 9, Dublin: Economic and Social Research Institute.

Brueckner, J.K., and Rosenthal, S.S. (2009). 'Gentrification and neighbourhood housing cycles: Will America's future downtowns be rich?', *The Review of Economics and Statistics*, Vol. 91, No. 4, pp.725–743, https://doi.org/10.1162/rest.91.4.725.

Conefrey, T., and Staunton, D. (2019). 'Population change and housing demand in Ireland', Central Bank of Ireland Economic Letters, Vol. 2019, No. 14.

CSO (2023). 'Population and Migration Estimates', Central Statistics Office.

CSO (2019). 'Regional Population Projections 2017–2036', Central Statistics Office.

CSO (2018). 'Population and Labour Force Projections: 2017–2051', Central Statistics Office.

Department of Housing, Planning and Local Government (2018). *Project Ireland 2040: National Planning Framework*.

Des Rosiers, F. (2002). *Measuring net capital housing stock critical analysis of the perpetual inventory method*, L'Institut de la statistique du Québec, May 2002, https://collections.banq.qc.ca/ark:/52327/bs53869.

Disch, W., Egan, P., Kenny, E., and McQuinn, K. (2024). *Contrasting housing supply in Ireland, Northern Ireland and the rest of the United Kingdom*, ESRI Research Series 175, Dublin: ESRI, https://doi.org/10.26504/rs175.

Duffy, D., Byrne, D., and FitzGerald, J. (2014). 'Alternative scenarios for new household formation in Ireland', Special Article in ESRI *Quarterly Economic Commentary*, Spring, Dublin: The Economic and Social Research Institute.

Eurostat (2011). '2011 EU population and housing census', Eurostat.

FitzGerald, J. (2005). 'The Irish housing stock: Growth in number of vacant dwellings', *Quarterly Economic Commentary*, Spring, Dublin: ESRI, www.esri.ie/publications/the-irish-housing-stock-growth-in-number-of-vacant-dwellings.

FitzGerald, J., Kearney, I., Bergin, A., Conefrey, T., Duffy, D., Timoney, K. et al. (2013). *Medium-Term Review: 2013–2020*, No. 12, Dublin: Economic and Social Research Institute.

FitzGerald, J., Bergin, A., Conefrey, T., Diffney, S., Duffy, D., Kearney, I. et al. (2008). *Medium-Term Review 2008–2015*, No. 11, Dublin: Economic and Social Research Institute.

FitzGerald, J., Bergin, A., Kearney, I., Barrett, A., Duffy, D., Garrett, S. et al. (2005). *Medium-Term Review 2005–2012*, No. 10, Dublin: Economic and Social Research Institute.

Goodman, L. (2018). 'What is holding housing back?', *Business Economics*, Vol. 53, No. 2, pp.79–85.

Goodman, L. (2023). 'Confronting the housing supply shortage: policy options', *Business Economics*, Vol. 58, No. 3, pp.158–165, https://doi.org/10.1057/s11369-023-00326-2.

Healy, T., and Goldrick-Kelly, P. (2019). 'Ireland's housing emergency – time for a game changer', NERI WP 2017, No. 41.

Huuhka, S., and Lahdensivu, J. (2016). 'A statistical and geographical study on demolished buildings', *Building Research & Information*, Vol. 44, No. 1, pp.73–96, https://doi.org/10.1080/09613218.2014.980101.

Kaul, K., Goodman, L., and Neal, M. (2021). 'The role of single-family housing production and preservation in addressing the affordable housing supply shortage', Housing Finance Policy Center, Urban Institute, Washington, DC, www.urban.org/sites/default/files/publication/105265/the-role-of-single-family-housing-production-and-preservation-in-addressing-the-affordable-housing-supply-shortage.pdf.

Lyons, R.C. (2021). 'Institutional investment and the private rental sector in Ireland', Irish Institutional Property.

Morgenroth, E. (2018). 'Prospects for Irish regions and counties: Scenarios and implications', ESRI Policy Paper No. 70, Dublin: Economic and Social Research Institute.

Morgenroth, E. (2014). 'Projected population change and housing demand: A county level analysis', ESRI *Quarterly Economic Commentary*, Research Note RN2014/2/3.

Nygaard, C., van den Nouwelant, R., Glackin, S., Martin, C. and Sisson, A. (2022). 'Filtering as a source of low-income housing in Australia: Conceptualisation and testing', AHURI Final Report No. 387, Australian Housing and Urban Research Institute Limited, Melbourne, www.ahuri.edu.au/research/final-reports/387.

OECD (2001). *Measuring Capital – OECD Manual: Measurement of Capital Stocks, Consumption of Fixed Capital and Capital Services*, Paris: OECD Publishing, https://doi.org/10.1787/9789264193260-en.

O'Toole, C., and Slaymaker, R. (2024). 'Household size in Ireland: Stylised facts in a cross-country context', ESRI Working Paper, forthcoming.

Thomsen, A., and van der Flier, K. (2011). 'Understanding obsolescence: a conceptual model for buildings', *Building Research & Information*, Vol. 39, No. 4, pp.352–362, https://doi.org/10.1080/09613218.2011.576328.

APPENDIX

TABLE A.1 POPULATION PROJECTIONS

	Population ('000) Baseline				Annual Growth in %, 2022–2040		
	2022	2027	2032	2040	Baseline	High Migration	Low Migration
State	**5184.0**	**5532.1**	**5781.0**	**6106.1**	**1.0%**	**1.2%**	**0.8%**
Carlow	62.4	65.2	66.7	68.8	0.6%	0.7%	0.5%
Cavan	82.3	86.5	88.8	91.4	0.7%	0.8%	0.5%
Clare	128.8	136.4	141.6	149.1	0.9%	1.0%	0.7%
Cork	588.1	626.4	653.6	690.3	1.0%	1.1%	0.8%
Donegal	168.2	177.0	181.9	188.1	0.7%	0.8%	0.5%
Dublin	1468.0	1596.3	1696.9	1814.6	1.2%	1.5%	1.0%
Galway	279.6	297.9	311.8	331.5	1.0%	1.2%	0.9%
Kerry	157.5	167.2	173.8	183.3	0.9%	1.1%	0.7%
Kildare	249.4	270.3	288.2	315.1	1.4%	1.5%	1.2%
Kilkenny	104.9	109.4	111.9	115.4	0.6%	0.7%	0.5%
Laois	92.5	98.0	101.6	106.9	0.9%	1.0%	0.7%
Leitrim	35.4	37.6	39.2	41.5	1.0%	1.1%	0.8%
Limerick	211.0	224.2	233.3	244.9	0.9%	1.1%	0.7%
Longford	47.1	49.3	50.4	51.7	0.7%	0.8%	0.5%
Louth	140.6	147.9	152.1	157.5	0.7%	0.9%	0.6%
Mayo	138.9	143.7	144.7	145.2	0.3%	0.5%	0.2%
Meath	222.3	237.5	249.1	266.9	1.1%	1.3%	1.0%
Monaghan	65.7	68.6	69.8	70.8	0.5%	0.7%	0.3%
Offaly	83.7	88.7	92.3	97.6	0.9%	1.1%	0.8%
Roscommon	70.7	74.7	77.4	81.5	0.9%	1.0%	0.7%
Sligo	70.7	75.6	79.3	85.0	1.1%	1.2%	0.9%
Tipperary	169.0	178.1	183.5	190.6	0.7%	0.9%	0.5%
Waterford	128.2	134.5	138.4	144.1	0.7%	0.8%	0.6%
Westmeath	96.9	101.2	103.1	105.0	0.5%	0.7%	0.4%
Wexford	165.0	173.5	178.7	186.3	0.8%	0.9%	0.7%
Wicklow	156.9	166.3	172.9	182.9	0.9%	1.1%	0.8%

Source: Authors' calculations.

TABLE A.2 STRUCTURAL HOUSING DEMAND PROJECTIONS BY LOCAL AUTHORITY

	Average Across All Assumptions		Lowest		Highest	
			low migr, current trend headship & 0.25% obs.		high migr, lower hh size headship & 0.5% obs.	
	2023–2030	2030–2040	2023–2030	2030–2040	2023–2030	2030–2040
State	**44,047**	**39,654**	**35,018**	**27,805**	**53,294**	**52,445**
Carlow	432	364	343	252	523	484
Cavan	566	502	436	335	700	681
Clare	973	884	770	608	1,180	1,182
Cork City	1,651	1,501	920	1,064	1,386	1,971
Cork County	3,352	3,046	3,081	2,160	4,641	4,001
Dublin – Dublin City	6,526	5,444	5,054	3,656	8,042	7,403
Dublin – DL-Rathdown	2,643	2,435	2,178	1,826	3,121	3,096
Dublin – Fingal	3,211	2,724	2,558	1,844	3,882	3,683
Donegal	1,187	1,079	915	713	1,464	1,474
Dublin – South Dublin	3,033	2,697	2,452	1,918	3,630	3,545
Galway City	794	653	611	421	982	903
Galway County	1,600	1,511	1,320	1,122	1,885	1,928
Kerry	1,193	1,064	944	724	1,448	1,429
Kildare	2,371	2,428	1,971	1,867	2,779	3,028
Kilkenny	675	642	537	460	816	836
Laois	718	709	577	527	862	906
Leitrim	262	256	204	176	322	343
Limerick	1,769	1,484	1,405	1,011	2,142	1,994
Longford	311	261	243	177	381	351
Louth	1,054	953	832	665	1,280	1,262
Mayo	724	542	517	284	935	821
Meath	1,801	1,877	1,468	1,420	2,141	2,368
Monaghan	434	374	333	245	537	514
Offaly	630	609	506	440	757	790
Roscommon	488	479	381	331	598	637
Sligo	627	576	501	401	755	764
Tipperary	1,187	1,048	914	687	1,466	1,438
Waterford	939	836	750	588	1,131	1,098
Westmeath	643	522	494	340	795	717
Wexford	1,113	1,023	891	730	1,339	1,333
Wicklow	1,141	1,129	912	816	1,374	1,465

Source: Authors' calculations.

Whitaker Square,
Sir John Rogerson's Quay,
Dublin 2
Telephone **+353 1 863 2000**
Email **admin@esri.ie**
Web **www.esri.ie**
Twitter **@ESRIDublin**

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