



ESRI Hippocrates Model Research Note 1

HSE Health Region Population Projections 2022–2040^{1,2}

Adele Bergin, Aoife Brick, Theano Kakoulidou, Brendan Walsh, Sheelah Connolly

Introduction

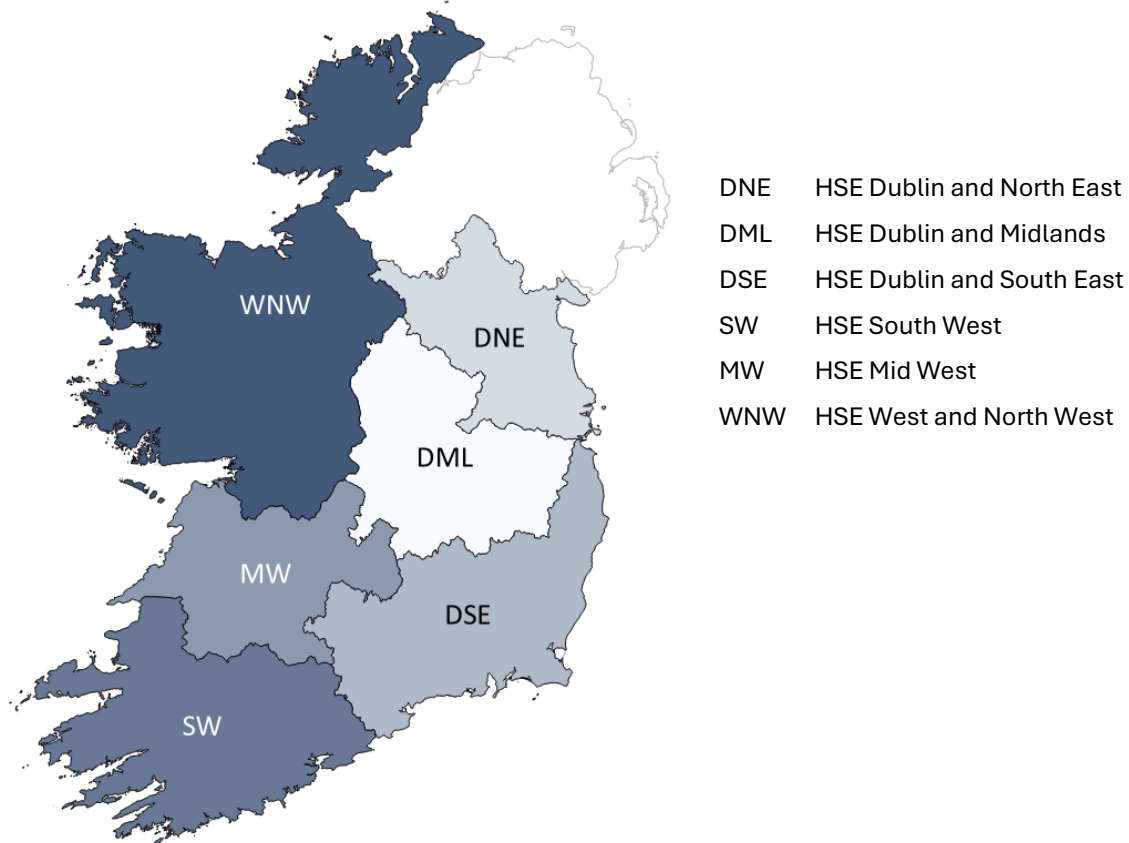
A key input to any process that estimates future health and social care service utilisation for planning purposes is population projections. Understanding how the population may change both in terms of size and structure is essential for producing accurate projections. In Ireland, such projections are routinely produced at national and county level by the Central Statistics Office (CSO) and the Economic and Social Research Institute (ESRI). However, the introduction of new regional health geographies (HSE Health Regions), which are not coterminous with county boundaries, creates a challenge for producing regional-level population projections for health service planning.

In 2025, the ESRI undertook a body of work projecting demand and capacity requirements to 2040 for the health and social care system at the national and HSE Health Region level (Brick and Kakoulidou, 2025; Brick et al., 2025; Connolly et al., 2025a; b; Walsh and Kakoulidou, 2025a; b), Projections at the HSE Health Region level (Figure 1) required estimates of both base year population and projected population for each region to 2040. In the absence of officially published population data or projections for the new HSE Health Regions, this research note provides detail on how mapped population estimates benchmarked to Census 2022 were developed to support health service planning and analysis. The workbook accompanying this note provides population estimates for 2022 and projected populations for 2040, disaggregated by five-year age groups, sex, and HSE Health Region.

¹ This note has been reviewed prior to publication. The authors are solely responsible for the content and the views expressed.

² Cite: Bergin, A., Brick, A., Kakoulidou, T. Walsh, B. and Connolly S. (2026). HSE Health Region Population Projections 2022–2040. ESRI Hippocrates Model Research Note 1. Dublin: Economic and Social Research Institute. <https://www.esri.ie/HippocratesModel>.

FIGURE 1 Map of HSE Health Regions boundaries



Sources: Author generated from health geographies mapping files available from <https://www.geohive.ie/>.

Methods

The data and methods used to develop population estimates using the ESRI regional demographic model and based on the Central Statistics Office (CSO) Census of Population 2022, are described in detail in Bergin and Egan (2024). Here we provide a summary of these methods and describe how the county-level projections were mapped to HSE Health Region level which was used in the recent ESRI demand and capacity projections.

Table 1 provides an overview of the main assumptions for the three demographic scenarios (low, central, high). In summary, the scenarios are based on assumptions around the three key drivers of population change: mortality, migration³ and fertility. The only difference between the three population projection scenarios is in the migration assumption. In the central scenario, net immigration is projected to

³ This is based on projections from the ESRI's macroeconomic model COSMO, in which migration is determined by the relative attractiveness of Ireland to alternative labour markets (Bergin and Egan, 2024).

average +35,000 per annum up to 2030 and 20,000 per annum thereafter. The low (high) scenario assumes 10,000 less (more) per annum. The mortality assumption, which includes an increase in life expectancy at birth for males (females) from 81.1 (84.6) in 2022 to 84.2 (87.1) in 2040, and the fertility assumption, with a constant total fertility rate of 1.65, remain the same across all scenarios.

TABLE 1 Summary of main assumptions for national population scenarios

Assumptions	Central	Low	High
Mortality	Life expectancy at birth for males (females) is expected to increase from 81.1 (84.6) in 2022 to 84.2 (87.1) for males (females) in 2040	No change from Central scenario	No change from Central scenario
Migration	Net immigration to average +35,000 p.a. to 2030 (higher at +45,000 in the first two years) and +20,000 p.a. thereafter	Net immigration to average +25,000 p.a. to 2030 (higher at +35,000 in the first two years) and +10,000 p.a. thereafter	Net immigration to average +45,000 p.a. to 2030 (higher at +55,000 in the first two years) and +30,000 p.a. thereafter
Fertility	Total fertility rate is unchanged at 1.65 over the period	No change from Central scenario	No change from Central scenario

Note: p.a.=per annum.

Source: Bergin and Egan (2024).

While the three population scenarios are defined at a national level, their application to the regional level depends on regional factors. For example, for international migration, the national-level assumption is distributed across counties according to their historic averages (e.g., the percentage of international migrants that migrated into the county), as migrants tend to locate in larger population centres such as Dublin. For mortality, an age- and sex-specific profile of mortality rates is developed for the projection horizon, and these rates are applied at a county level. This means that any variation in mortality at a county level will be driven by differences in the age structure of that county. So, the same assumptions apply across counties but will give different results (depending on the county age and sex profile). For fertility, a national assumption is developed, and the overall total fertility rate (TFR) is applied proportionally to all counties. County-level fertility rates are adjusted so that counties that historically have had higher TFRs will continue to have comparatively higher TFRs over the projection horizon

and vice versa (Bergin and García-Rodríguez, 2020; Bergin and Egan, 2024).

Additionally, for regional population projections, internal migration needs to be incorporated. For internal migration, the model developed in Bergin and García-Rodríguez (2020) is re-estimated to include the most recent census data (see Bergin and García-Rodríguez (2020); Keegan et al. (2022); Bergin and Egan (2024) for more details on the methodology). 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 distance⁴ and whether counties are adjacent to each other, which are proxies for the cost of moving. These updated model results are very similar to those in Bergin and García-Rodríguez (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.

Specifically for use in the health and social care capacity projection reports, an aggregation of county-level population projections (Bergin and Egan, 2024) to HSE Health Region level, using spatial mapping files provided by the Department of Health, was produced. This mapping uses information on the population in each five-year age and sex group within every Electoral Division. Each Electoral Division can be allocated to both a HSE Health Region and a county, which allows county-level population projections to be mapped to the HSE Health Region level.

⁴ Distance is calculated in driving minutes between the main population centres of each given pair of counties

HSE Health Regions estimated populations and population projections

Table 2 presents the HSE Health Region mapped population estimates for 2022 and the projected population in 2040 under each of the three population scenarios. Nationally, in the central scenario, the population is projected to increase by 17.8 per cent between 2022 and 2040 but there is variation across the regions. The highest projected growth is in DML at 20.5 per cent compared to 14.3 per cent in the WNW.

TABLE 2 Population by projection scenario and HSE Health Region, 2022-2040

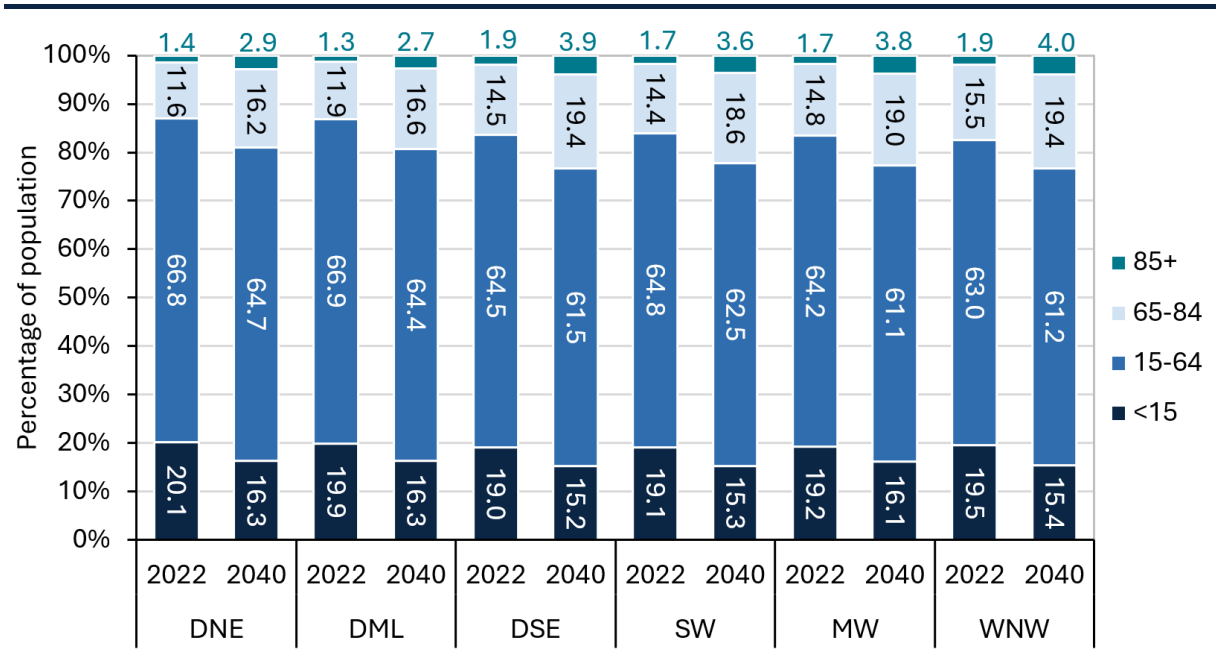
	Population ('000)				Total growth (%)		
	2022	2040			2022-2040		
		Central	Low	High	Central	Low	High
HSE Dublin and North East (DNE)	1,195	1,429	1,375	1,483	19.5	15.0	24.1
HSE Dublin and Midlands (DML)	1,085	1,307	1,261	1,353	20.5	16.2	24.7
HSE Dublin and South East (DSE)	978	1,143	1,110	1,176	16.9	13.6	20.3
HSE South West (SW)	746	874	847	901	17.2	13.5	20.8
HSE Mid West (MW)	416	479	464	495	15.3	11.6	18.9
HSE West and North West (WNW)	765	874	848	901	14.3	10.8	17.8
National	5,184	6,106	5,904	6,308	17.8	13.9	21.7

Notes: It should be noted that the aggregation of regional population projections will not perfectly align with the national-level projections, but the differences are minor.

Source: Based on additional analysis adapted from Bergin and Egan (2024).

Figure 2 presents the proportion of the population in each age group by HSE Health Region in 2022 and 2040 (central scenario). In all regions the proportion of the population aged less than 15 years is projected to decrease, by between 3.1 (MW) and 4.1 (WNW) percentage points. At the other end of the age distribution, the proportion of the population aged 65 years and older is projected to increase by between 5.9 (WNW) and 6.9 (DSE) percentage points over the period, while the proportion aged 85+ is expected to at least double in all regions.

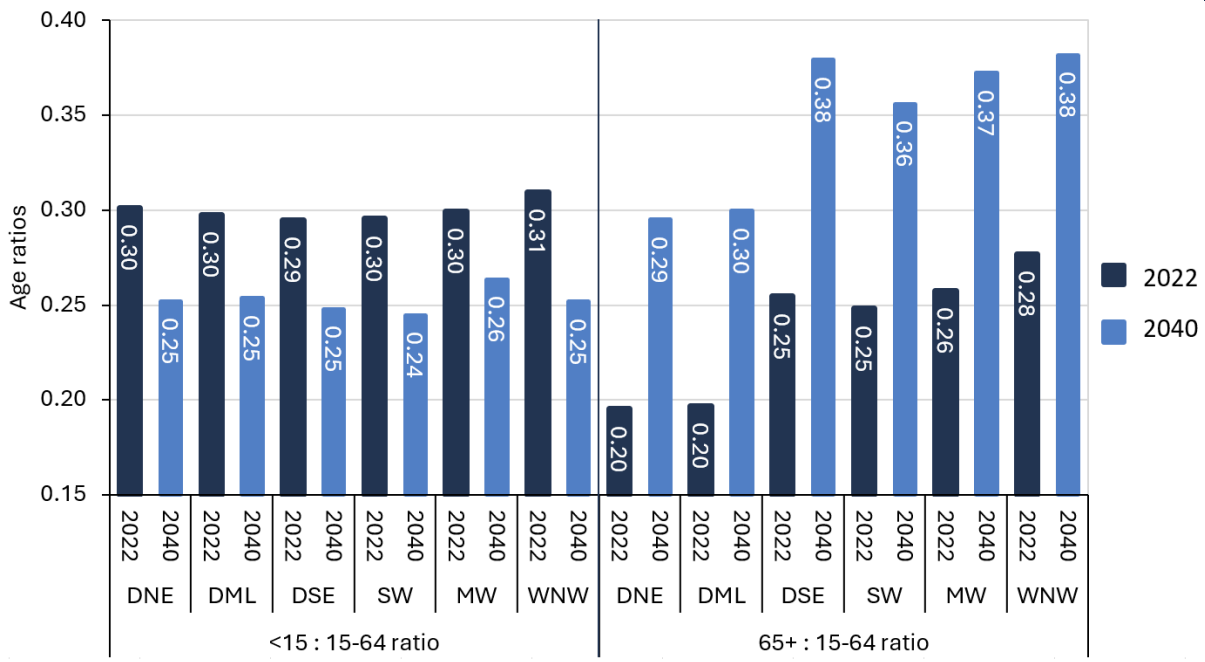
FIGURE 2 Age-specific population distribution by HSE Health Region, 2022 and 2040 (central scenario)



Source: Based on additional analysis adapted from Bergin and Egan (2024).

Finally, Figure 3 shows ratio of young people (here defined as under 15 years of age) and the ratio of the population the population above the age of retirement (here defined as those aged 65 years and over) to the typical working age population (15 to 64 years) in 2022 and 2040. Over time there will be a decrease in the ratio of the under-15s to the 15 to 64 age group and an increase in the ratio the population aged 65 and over relative to the 15 to 64 age group.

FIGURE 3 Population age ratios by HSE Health Region, 2022–2040 (central scenario)



Source: Based on additional analysis adapted from Bergin and Egan (2024).

Summary

At the time of completing the regional capacity projections, no officially published population data or projections for the new HSE Health Regions were available. To ensure that projections for health and social care service requirements could be undertaken, the ESRI undertook an exercise to provide mapped estimates of HSE Health Region population and population projections. Hippocrates projections are kept under review, particularly considering new Census of Population or improvements in service data.⁵

⁵ See Hippocrates Model | ESRI to download an MS Excel version of the population projections.

References

- Bergin, A. and Egan, P. (2024). Population projections, the flow of new households and structural housing demand. ESRI Research Series 190. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/rs190>
- Bergin, A. and García-Rodríguez, A. (2020). Regional Demographics and Structural Housing Demand at a County Level. ESRI Research Series 111. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/rs111>
- Brick, A. and Kakoulidou, T. (2025). Projections of regional demand and bed capacity requirements for public acute hospitals in Ireland, 2023–2040: Based on the Hippocrates model. ESRI Survey and Statistical Series 132. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/sustat132>
- Brick, A., Kakoulidou, T. and Humes, H. (2025). Projections of national demand and bed capacity requirements for public acute hospitals in Ireland, 2023–2040: Based on the Hippocrates model. ESRI Research Series 213. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/RS213>
- Connolly, S., Kakoulidou, T. and McHugh, E. (2025a). Projections of regional demand and workforce requirements for General Practice in Ireland, 2023–2040: Based on the Hippocrates model. ESRI Survey and Statistical Series 136. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/sustat136>
- Connolly, S., Kakoulidou, T. and McHugh, E. (2025b). Projections of national demand and workforce requirements for General Practice in Ireland, 2023–2040: Based on the Hippocrates model. ESRI Research Series 215. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/RS215>
- Keegan, C., Brick, A., Rodriguez, G. and Hill, L. (2022). Projections of workforce requirements for public acute hospitals in Ireland, 2019–2035: A regional analysis based on the Hippocrates model. ESRI Research Series 147. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/rs147>
- Walsh, B. and Kakoulidou, T. (2025a). Projections of regional demand and bed capacity requirements for older people's care in Ireland, 2022–2040: Based on the Hippocrates model. ESRI Survey and Statistical Series 135. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/sustat135>
- Walsh, B. and Kakoulidou, T. (2025b). Projections of national demand and bed capacity requirements for older people's care in Ireland, 2022–2040: Based on the Hippocrates model. ESRI Research Series 214. Dublin: Economic and Social Research Institute, <https://doi.org/10.26504/RS214>