

Europe's Long-term Care Gap: Longevity Risk and Health Uncertainty*

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Abstract. This paper examines how uncertainty in demographic and health trajectories shapes future long-term care (LTC) needs in the European Union. While populations continue to age and life expectancy rises, recent evidence suggests that long-term improvements in health may be slowing, increasing the likelihood that individuals spend more years living with functional impairments. This paper discusses the three demographic and three health scenarios in Börsch-Supan and Rausch (2024), constructed using Eurostat data, SHARE data and the MEA-SOCSIM simulation model of Börsch-Supan and Rausch (2023). Across all scenarios, the population aged 85 and over expands markedly, with roughly 42% projected to experience mild-to-severe functional limitations. The findings show that future health trajectories exert a stronger influence on LTC demand than demographic ageing alone. Under optimistic health assumptions, the negative impact of the most pessimistic demographic scenario can be curbed, this mitigating the increase in the share of individuals requiring care. The paper highlights several modifiable determinants of impairment, such as chronic disease, multimorbidity, frailty and physical inactivity, and concludes that prevention and healthy-ageing policies could substantially mitigate future LTC pressures.

Keywords: Long-term care (LTC); Population ageing; Functional impairment; Health trajectories; Prevention policies; Healthy ageing; Europe

JEL codes: C63, H51, I12, I18, J11, J14

This version: August 21, 2026

* This paper has been prepared within the scope of the BB-Future project (<https://www.bb-future.eu/>). The analysis presented in Section 2 draws on demographic and health projections kindly provided by Axel Börsch-Supan and Johannes Rausch. We are indebted to them for making these data available. We also gratefully acknowledge comments received at the BB-Future Consortium meeting, held in Paris on 24-25 June 2026, from participants at the Bruegel Research Meeting, held in Brussels on 13 April 2026, and at the European Commission's Mutual Learning Workshop on "Enhancing the Monitoring and Evaluation of Evidence-Based Practices in Long-Term Care", held in Brussels on 17-18 March 2026. We are particularly grateful to Roel Dom, Hans Gerooms and Lucio Pench for their valuable comments and feedback, as well as the other members of the BB-Future consortium. The BB-Future project has received funding from the European Union's Horizon 2020 research and innovation programme under project ID 101093849.

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1. Introduction

One of the most remarkable achievements of the past century is the prospect of living longer than previous generations. This progress reflects major technological advances in health as well as broader economic and social developments that have reduced mortality, particularly among older people. According to the World Health Organization (WHO), global life expectancy at birth reached 73.3 years in 2024, an increase of 8.4 years since 1995. Between 2015 and 2050, the WHO projects that the share of the world's population aged 60 and above will nearly double from 12% to 22%. Such a demographic shift has profound implications for public health, as maintaining good health is essential for older people to remain independent and active members of society.

In response to these challenges, the United Nations launched the UN Decade of Healthy Ageing (2021–2030), aimed at improving the lives of older people, their families and their communities. Ensuring access to long-term care⁵ (LTC) for those who need it is one of its four central action areas. The European Union (EU) has similarly emphasized the importance of high-quality, affordable LTC through Principle 18 of the European Pillar of Social Rights. The 2022 European Care Strategy and the accompanying Council Recommendation further highlight the need to support healthy ageing to preserve independence and dignity. This challenge is particularly pressing for the EU: by 2070, the share of people with LTC needs is expected to rise from 11.6% in 2020 to 14.1% (Belmonte et al., 2023).

This paper examines how different scenarios for population ageing and health trajectories shape the uncertainty surrounding projections of individuals requiring long-term care (LTC). It also considers how policies aimed at improving population health may alter these projections. The focus is therefore on the demand side of LTC, in contrast to Jensen, Pinkus and Ruer (2024), who emphasize initiatives to expand the supply of LTC.

A key policy concern is that people are living longer but not necessarily spending these additional years in good health. While life expectancy continues to rise in most countries, improvements in health appear to be slowing. According to recent Eurostat data, the gap between life expectancy and

⁵ According to the European Commission, long-term care comprises a range of services and assistance for individuals who, as a result of mental and/or physical frailty and/or disability over an extended period of time, depend on help with daily living activities and/or are in need of some permanent nursing care.

healthy life expectancy at the age of 65 stood at approximately 9.9 years in 2024, one year more than in 2004⁶.²⁰⁰⁷⁷ This combination of rising longevity and stagnating healthy life expectancy suggests a potential expansion of morbidity (Robine and Michel, 2004), which could substantially increase future care needs.

The scenario analysis carried out in this paper shows that population ageing alone would already produce a significant increase in the number of very old individuals across all five countries studied, with the group of individuals aged 85 years and above growing faster than the population as a whole. However, the health trajectory these individuals follow matters more for future LTC demand than demographic change itself, as the share of people projected to experience mild-to-severe functional impairment is projected to rise substantially under pessimistic assumptions about future health. This suggests that while population ageing is largely unavoidable, the pace at which LTC needs grow is not predetermined.

This paper contributes to the growing literature on long-term care needs and population ageing in several ways. First, whereas much of the existing literature focuses primarily on demographic projections, we explicitly incorporate uncertainty regarding future health trajectories. This distinction is important because increases in longevity do not necessarily translate into equivalent improvements in healthy life expectancy. By combining alternative demographic and health scenarios, we show that future LTC demand is often more sensitive to assumptions about health outcomes than to assumptions about population ageing itself.

Second, the paper adopts a comparative perspective by analysing five European countries that differ markedly in their demographic outlooks and long-term care systems. France, Germany, Italy, Poland and Sweden were selected to capture a broad range of institutional arrangements, financing models and levels of LTC generosity. This allows us to examine how common demographic and health trends may generate different long-term care challenges across countries. Finally, the paper moves beyond projections of future care needs by identifying policy-relevant determinants of functional impairment and discussing how prevention and healthy-ageing policies can influence future LTC demand. In doing so, it links the projection literature with the policy debate on the sustainability of European long-term care systems

⁷ Check Figure 6.

Our results point to several modifiable levers that could meaningfully slow the growth in care needs, such as: i) promoting physical activity and frailty prevention; ii) managing chronic disease and multimorbidity; and iii) reducing the extent to which functional impairment translates into dependency (for example, through housing adaptations and assistive technologies). Based on these, we argue that healthy-ageing and prevention policies should be treated as a core pillar of LTC strategy, alongside efforts to expand the supply of formal and informal care.

The remainder of the paper is structured as follows. Section 2 presents the demographic and health scenarios and discusses the uncertainty surrounding these projections. Section 3 examines how healthy-ageing policies can improve health outcomes and reduce functional impairment and offers policy recommendations to help contain future LTC demand. Section 4 concludes.

2. Demographic and health scenarios

To address the uncertainty inherent in long-term projections, the analysis relies on different assumptions about the future demographic structure of the EU. These projections use Eurostat data and are generated with the simulation model MEA-SOCSIM (Börsch-Supan and Rausch, 2023). They are carried out under three demographic scenarios (Baseline, Young, and Old), each based on different assumptions regarding future fertility rates, net migration, and life expectancy. For each scenario, the model provides projections of total population size and age distribution, allowing us to distinguish between individuals of working age (20–64), old individuals (65+), and very old individuals (85+).

In addition to demographic trends, research on long-term care (LTC) must also consider future health trends. Understanding how healthy people will be in old age is essential for anticipating future care needs. According to Eurostat, in 2019 almost half of the EU population aged 65 and above reported difficulties with at least one personal care or household activity (Eurostat, 2022). With population ageing, this share is expected to rise. The analysis therefore incorporates three scenarios of healthy ageing (No Expansion, Mild Expansion, and Strong Expansion), based on detailed health data from the Survey of Health, Ageing and Retirement in Europe (SHARE) (Börsch-Supan et al., 2013). These health scenarios help estimate the probability of developing conditions requiring care. Like the demographic scenarios, they do not evaluate specific policies but instead illustrate how uncertainty affects estimates of future LTC needs.

Overall, the aim is to understand how projected LTC needs vary depending on different demographic and health trajectories, and on the interaction between the two.

2.1. Demographic Scenarios

The projections are carried out for France, Germany, Italy, Poland, and Sweden, five EU countries selected to capture geographical and economic diversity, as well as a broad range of social security systems. Germany and France both rely on social-insurance financing but differ in scope and generosity: whereas Germany's dedicated LTC insurance offers partial coverage with defined benefit levels, France's system is more tax-financed and means-tested. Sweden represents a universal, tax-funded model with extensive public provision and comparatively low reliance on family care. Italy, by contrast, is representative of Southern European systems, which rely heavily on cash allowances and informal family or migrant care rather than public services. Poland represents the Central and Eastern European systems, where formal LTC structures remain underdeveloped and informal family care continues to dominate. Focusing on the generosity of the LTC systems, Sweden represents high-generosity systems, France and Germany represent middle-generosity systems, and Italy and Poland represent low-generosity systems (Barczyk et al, *forthcoming*). This selection allows the analysis to capture how these differing institutional starting points, in terms of financing, coverage and the balance between formal and informal care, shape the fiscal and demographic pressures each country will face⁸.

The demographic projections are generated using the MEA-SOCSIM model (Börsch-Supan and Rausch, 2023, 2024), following the EUROPOP2023 assumptions as closely as possible⁹. This model projects future contribution rates and expenditures for statutory pension, health, and long-term care insurance based on demographic and labour market trends. These projections are deterministic, as they rely on predefined assumptions about future fertility rates, net migration, and life expectancy. The scenarios are built on the idea of socio-economic convergence within the EU, which is expected to drive convergence in the demographic determinants themselves. However, as emphasised by the

⁸ While these considerations are outside the scope of this paper, they are discussed in other Deliverables and papers from the BB-Future project.

⁹ Please refer to https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population_projections_in_the_EU_-_methodology for a detailed description of the EUROPOP2023 methodology and assumptions. This dataset consists of a baseline demographic projection together with five sensitivity tests, focused on interactions of migration, mortality and fertility scenarios.

Eurostat, population projections are not forecasts and do not incorporate current or future policy changes in Member States.

Table 1 summarises the three demographic scenarios used in the analysis. For each country, the (i) Baseline scenario reflects Eurostat and national demographic projections; the (ii) Young scenario assumes higher fertility, higher net immigration, and higher mortality relative to the baseline; and the (iii) Old scenario assumes lower fertility, lower net immigration, and lower mortality. While EUROPOP2023 includes five separate sensitivity tests around the baseline, the scenarios developed by Börsch-Supan and Rausch (2024) are more comprehensive, as they combine the five Eurostat sensitivity tests on fertility, migration, and life expectancy simultaneously¹⁰.

Table 1: Demographic scenarios.

Scenario	Fertility	Migration	Mortality / Life Expectancy
Young	Fertility rates 20% above the baseline	Net migration 33.3% above the baseline	Mortality adjusted such that life expectancy is approximately 2 years lower than the baseline
Baseline	Baseline fertility path	Baseline net migration path	Baseline mortality and life-expectancy path
Old	Fertility rates 20% below the baseline	Net migration 33.3% below the baseline	Mortality adjusted such that life expectancy is approximately 2 years higher than the baseline

Source: Börsch-Supan and Rausch (2024).

Based on these scenarios, Figure 1 shows the projected population growth for each country relative to 2023. The results reveal substantial cross-country differences. In France, the Baseline scenario suggests moderate population growth in the medium term, followed by a decline beginning in the mid-2040s, resulting in a net increase of around 1% by 2070¹¹. Under the Old scenario, the

¹⁰ Please refer to Section 4 in Börsch-Supan and Rausch (2024) for a detailed discussion on how the different assumptions are used to construct the demographic scenarios, and how they deviate from the EUROPOP2023 assumptions.

¹¹ Notice that the projections reported in this paper may differ from those produced by other providers, such as the UN World Population Prospects, because the assumptions and methodologies used to construct the baseline demographic

population also rises initially but then declines more sharply, ending about 3% below its 2023 level. In contrast, the Young scenario leads to sustained growth, with the population increasing by roughly 5% by 2070.

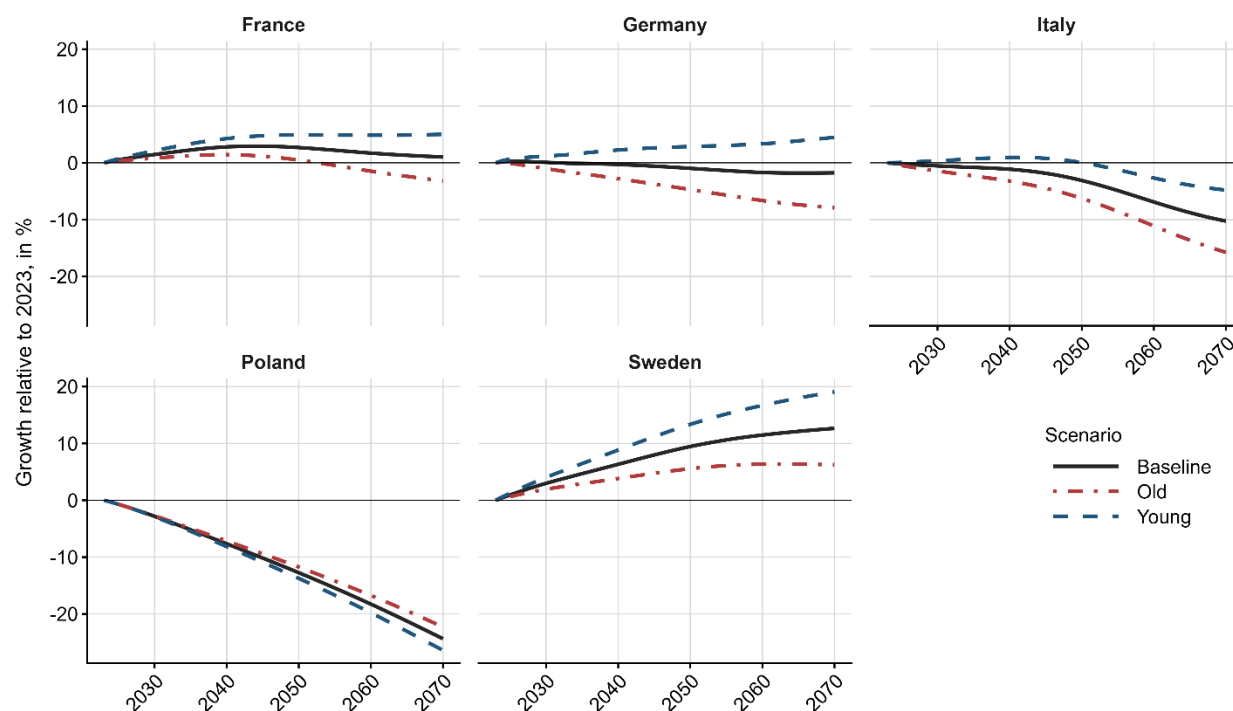
Germany is projected to experience a slight population decline of about 1.8% under the Baseline scenario. The Young scenario yields a positive growth of 4.5%, while the Old scenario results in a more pronounced decline of around 8%. Italy, which already faces significant demographic pressures, shows negative population growth under all scenarios (despite a short-term increase under the Young scenario), ranging from –4.8% to –15.8%.

Poland is projected to undergo the steepest population decline among the five countries, with reductions between –18% and –22% across scenarios. By contrast, Sweden stands out as the only

trajectory are not identical. In particular, projection frameworks may adopt different assumptions regarding future fertility, mortality and life expectancy, and migration, resulting in different estimates of population growth.

country with positive population growth in all scenarios, ranging from 6.3% to 19%. Table 4 in the Appendix provides the detailed projected growth rates for each country and scenario.

Figure 1: Population growth by country and demographic scenario, relative to 2023.



Note: The solid black line represents the Baseline population scenario, the dashed blue line depicts the Young population scenario, and the dashed-dotted red line depicts the Old population scenario.

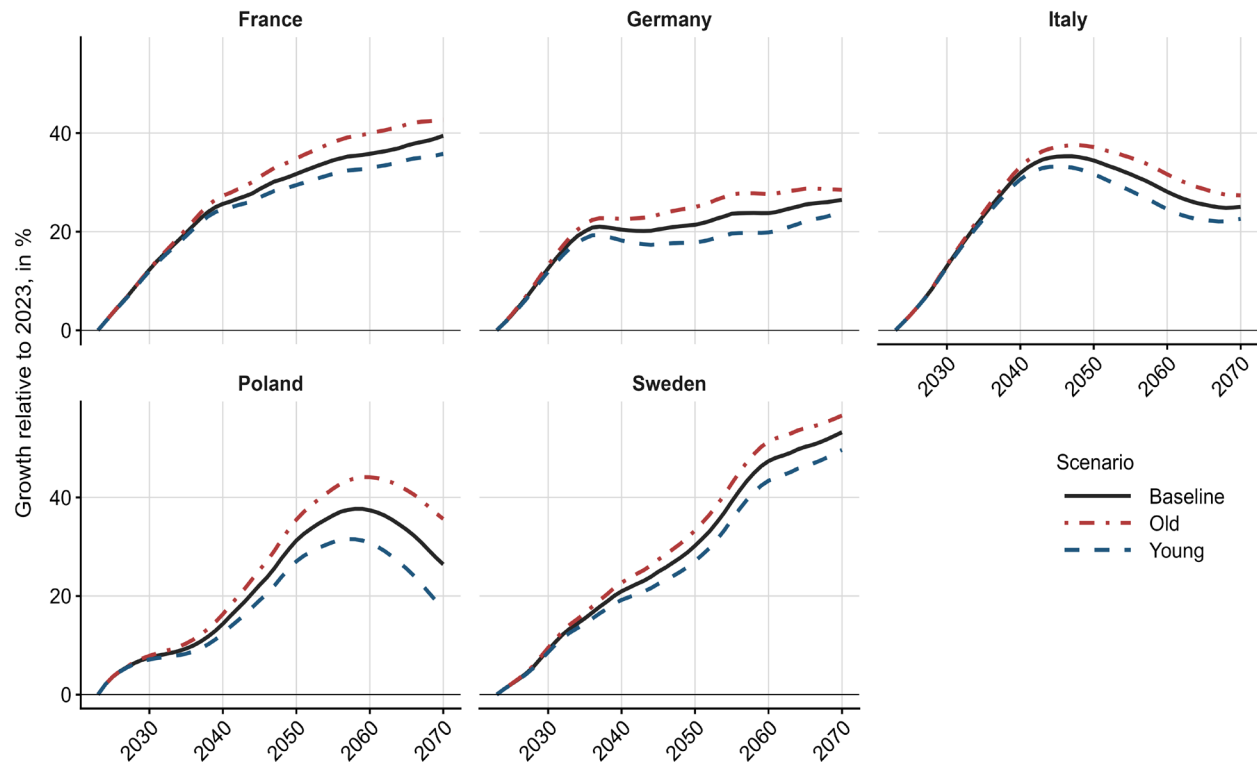
Source: Own calculations with data provided by Börsch-Supan and Rausch (2024).

Despite the differences in overall population growth, all scenarios share a common pattern: a substantial increase in the population aged 65 and above (65+), and an even more pronounced rise in the population aged 85 and above (85+) between 2023 and 2070. Figures 2 and 3 illustrate the projected growth of these two age groups for each country and demographic scenario.

Focusing on Figure 2, France and Sweden are projected to experience the largest increases in the 65+ population. Italy and Poland also see growth in this age group until the mid-2040s, after which the pace of growth slows or reverses. Germany shows a medium-term increase, with the size of the 65+ population stabilising at around 25% above its 2023 level. As expected, the Old scenario produces the highest growth in this age group across all countries. The patterns for the 85+ population, shown in Figure 3, are broadly similar, but with one notable difference: Poland is projected to experience the strongest increase in this age group, followed by Sweden, France, Italy,

and Germany. This highlights the particularly rapid ageing expected in Poland at the upper end of the age distribution.

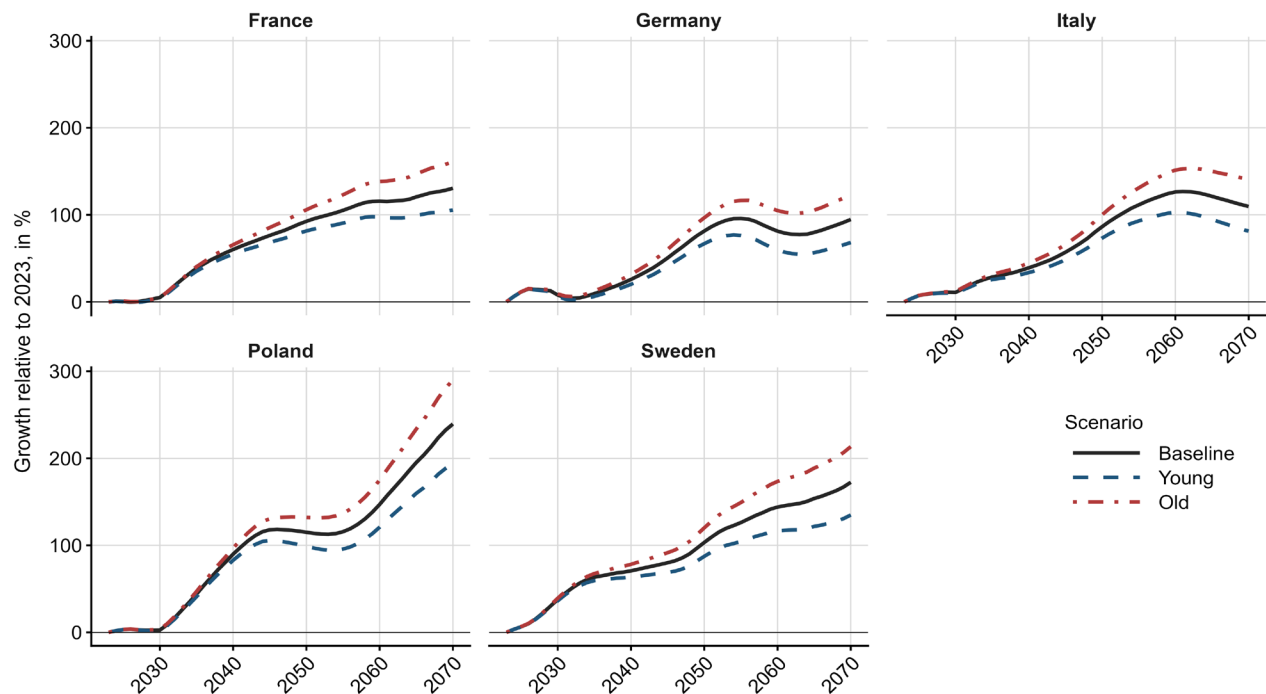
Figure 2: Growth of the population aged 65 and above by country and demographic scenario, relative to 2023.



Note: The solid black line represents the Baseline population scenario, the dashed blue line depicts the Young population scenario, and the dashed-dotted red line depicts the Old population scenario.

Source: Own calculations with data provided by Börsch-Supan and Rausch (2024).

Figure 3: Growth of the population aged 85 and above by country and demographic scenario, relative to 2023.



Note: The solid black line represents the Baseline population scenario, the dashed blue line depicts the Young population scenario, and the dashed-dotted red line depicts the Old population scenario.

Source: Own calculations with data provided by Börsch-Supan and Rausch (2024).

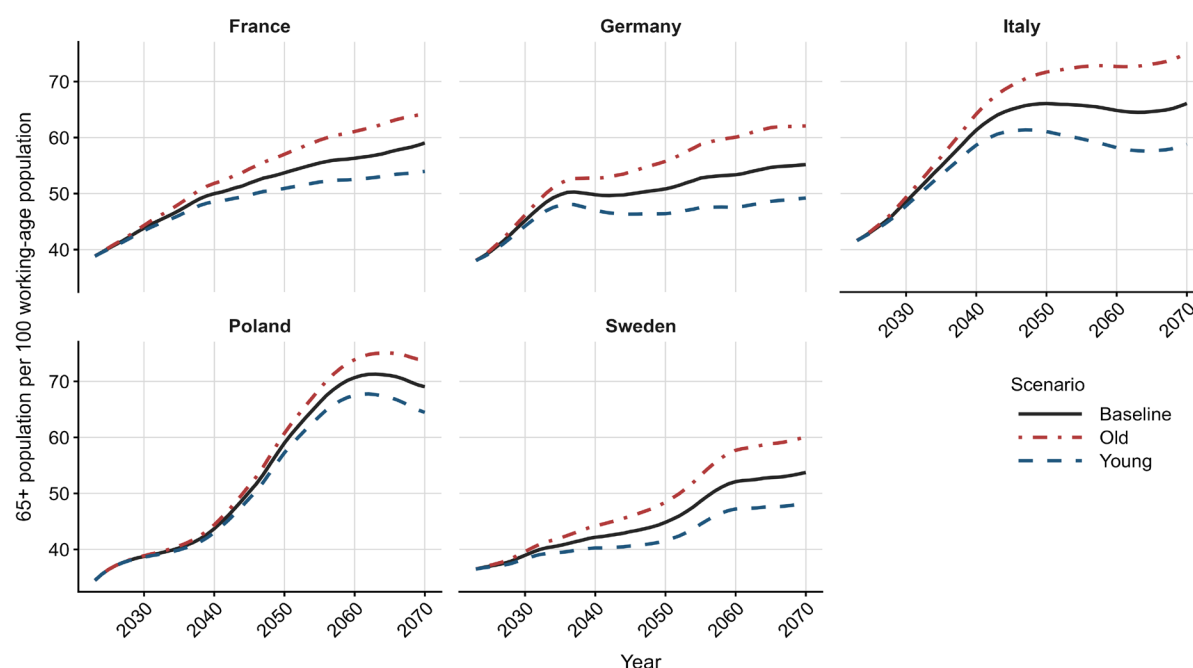
Overall, despite the uncertainty surrounding long-term projections, all scenarios point to a substantial increase in the number of people leaving the labour market and entering retirement (the old, aged 65+), as well as those with a higher likelihood of requiring care (the very old, aged 85+). In several countries, population decline is projected to occur alongside growth in the older population, with Poland being a notable example, thereby intensifying demographic pressures.

In addition, the fact that the old population is projected to grow faster than the total population implies a rising old-age to working-age population ratio¹². Figure 4 illustrates this trend, showing a marked increase in this ratio across all countries and scenarios. This ratio matters because the working-age population represents the primary contributor to the tax revenues and social insurance

¹² The old-age to working-age ratio is the number of individuals aged 65 years and above (old-age) by 100 individuals aged between 20 and 64 years old (working-age). This metric gives an idea about the relative shift between potential retirees and potential workers, and thus of how an ageing population alters the balance between beneficiaries and contributors.

systems that fund pensions and health-related expenditures. As the balance between contributors and beneficiaries shifts, sustaining existing levels of public support becomes increasingly fiscally challenging, placing pressure on governments to either adjust benefit levels, raise contributions, or pursue structural reforms (Darvas et al., *forthcoming*).

Figure 4: Old-age to working-age ratio by country and demographic scenario, relative to 2023.



Note: The solid black line represents the Baseline population scenario, the dashed blue line depicts the Young population scenario, and the dashed-dotted red line depicts the Old population scenario.

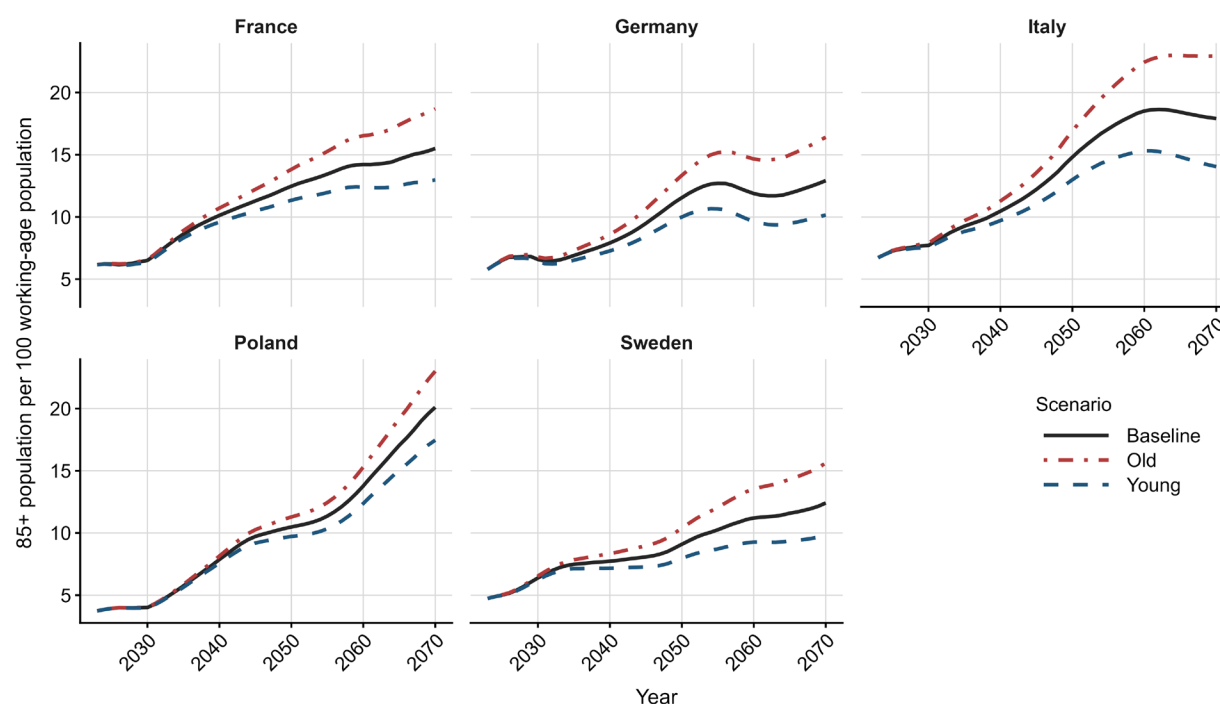
Source: Own calculations with data provided by Börsch-Supan and Rausch (2024).

However, because our focus is on individuals likely to require care, and because functional limitations become increasingly prevalent at older ages¹³, the more relevant indicator is the ratio of the very old individuals relative to the working-age population, shown in Figure 5. This ratio is projected to rise sharply across all countries and scenarios, in some cases nearly quadrupling between 2023 and 2070. The significance of this indicator goes beyond a simple demographic accounting exercise. As discussed in Section 3, the very old are disproportionately likely to suffer from chronic conditions, cognitive decline, and mobility impairments that give rise to substantial

¹³ Please refer to Figure 7.

long-term care needs. At the same time, the working-age population constitutes not only the fiscal base for publicly funded care systems, as previously discussed, but also the primary pool from which formal and informal caregivers are drawn. A sharp rise in this ratio therefore signals a potential double strain: growing demand for long-term care services on one side, and a shrinking relative supply of both financial resources and caregiving capacity on the other. However, as reported by the OECD (2025a), more than 13% of people aged 50 years and above across OECD countries have provided informal care. While these ratios implicitly assume that care is provided by individuals of working-age, it is important to emphasise that individuals in the 65+ and 85+ age ranges may be providing informal care themselves.

Figure 5: Very-old-age to working-age ratio by country and demographic scenario, relative to 2023.



Note: Figure 5: Very-old-age to working-age ratio by country and demographic scenario, relative to 2023. The solid black line represents the Baseline population scenario, the dashed blue line depicts the Young population scenario, and the dashed-dotted red line depicts the Old population scenario.

Source: Own calculations with data provided by Börsch-Supan and Rausch (2024).

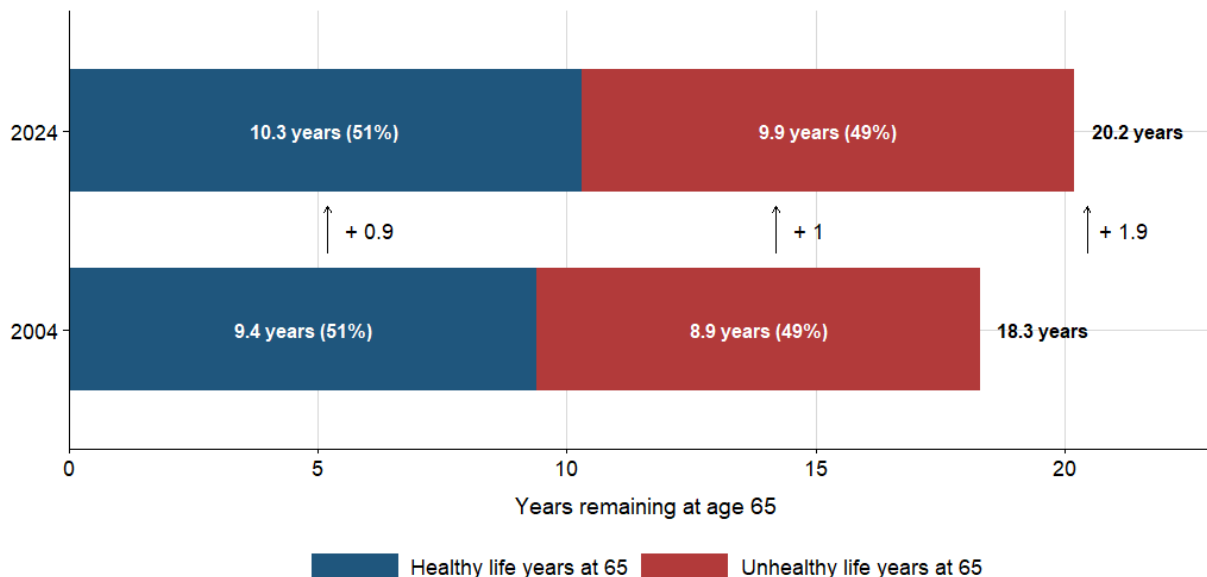
The projections reflect the well-documented trend of rising life expectancy and the resulting ageing of the population. As shown in Figure 6, life expectancy at age 65 increased by 1.9 years in the European Union between 2004 and 2024. However, these gains have not been matched by

equivalent improvements in healthy life years as half of the additional years are expected to be lived in poor health. Although the proportion of life spent in poor health remained virtually unchanged, the absolute number of years lived in poor health, i.e., years that the person will potentially need healthcare and LTC, increased from 8.9 to 9.9 years..

The COVID-19 pandemic had a significant effect on life expectancy, as between 2019 and 2021, life expectancy at age 65 declined by an average of 6 months across all OECD countries (OECD, 2023). Moreover, by April 2022, on average 90% of all cumulative COVID-19 deaths were among people aged 60 and above, and more than 50% were among those aged 80 and above. As illustrated by this example, as some health challenges disproportionately affect older people, it becomes crucial for policymakers to develop measures to accommodate for population ageing.

When increases in longevity are accompanied by additional years lived in poor health, the implications for healthcare utilisation and long-term care needs become more significant. For this reason, demographic projections alone are insufficient and must be complemented by alternative health scenarios, which we introduce in the following section.

Figure 6: Life expectancy at age 65



Source: Eurostat (hlth_hlye).

2.2. Health Scenarios

As discussed in the previous section, the fraction of the population aged 65 and above and 85 and above are projected to increase across all countries and scenarios. Understanding how healthy these individuals will be is therefore crucial for policymaking. In this section, we complement the demographic projections with projections of age-impairment profiles, in order to assess how healthy the future older population is expected to be.

2.2.1. Defining Functional Impairment

Within the health literature, an individual is considered functionally impaired when experiencing limitations in either (i) basic Activities of Daily Living (ADLs), such as eating, walking, or bathing, or (ii) more complex Instrumental Activities of Daily Living (IADLs), such as performing housework or managing financial matters (Amlak et al., 2025, Katz et al., 1963; Lawton and Brody, 1969, OECD 2025a). ADL and IADL limitations are strong predictors of institutionalisation, formal care use, and mortality (Chatterji et al., 2015; Halonen et al., 2019). Consequently, when estimating long-term care demand, functional limitation provides a more policy-relevant metric than disease prevalence alone.

Based on these definitions, the SHARE data is used to construct a hierarchical and cumulative measure of functional impairment with three levels. An individual is classified as having low impairment if they report basic mobility or light functional limitations. individuals are classified as having mild impairment if, on top of low impairment, they also report limitations in IADLs. Finally, an individual is classified as having high impairment if, besides reporting mild impairment, they also experience limitations in ADLs. These definitions are summarised in Table 2.

Table 2: Definition of the different levels of functional impairment.

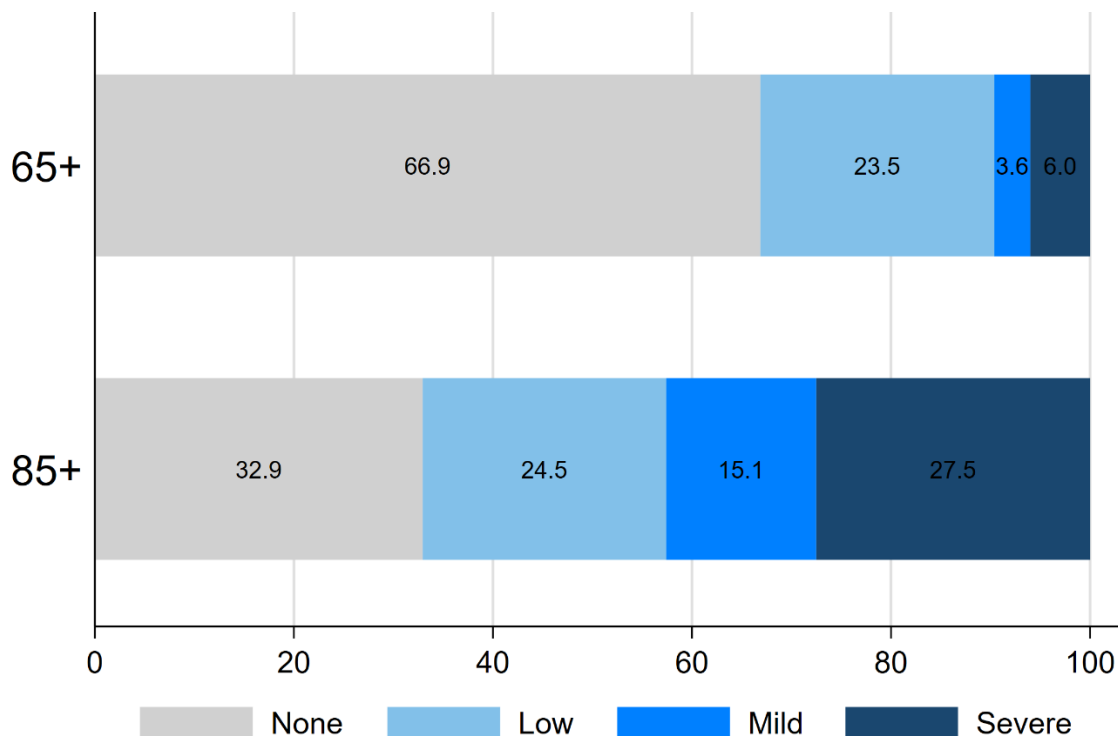
Level	Components (SHARE-based)	Definition (difficulties in):
Low	Mobility / light limitations	Walking stairs, climbing several flights, doing work around the house
Mild	Mobility + IADL	Independent living tasks (shopping, cooking, managing money, taking medication)
Severe	Mobility + IADL + ADL	Basic self-care tasks (dressing, bathing, eating, using the toilet)

Note: This paper focuses on individuals with **mild** and **severe** limitations. Individuals with "only" low level of functional limitations are excluded.

Source: This definition was developed by Börsch-Supan and Rausch (2025).

Figure 7 shows the distribution of functional limitations by age group. It is striking that the share of individuals with severe (mild) impairment more than quadruples (quintuples) when comparing the population aged 85 and above with those aged 65 and above. By contrast, the share of individuals with low functional impairment remains somewhat constant. This once again motivates the need for policy intervention targeted at older ages, either to reduce the prevalence of severe impairments or delay their onset.

Figure 7: Distribution of functional impairment levels by age group.



Source: Authors' calculations based on SHARE Wave 9 data.

In what follows, we focus on individuals who have progressed beyond initial mobility limitations to more substantial losses in independent living, namely those with mild or severe functional impairment. Based on this definition, we find that nearly 10% of people aged 65 and above are functionally impaired, compared with approximately 43% among those aged 85 and above.

2.2.2. Projecting Functional Impairment

Using SHARE data and applying our definition of impairment, we project age- and sex-specific impairment profiles for each country¹⁴. To account for uncertainty in future health developments, the analysis incorporates two alternative health scenarios in addition to a neutral baseline. In the baseline, referred to as the No Expansion scenario, age-specific impairment probabilities are shifted by the same number of years as the increase in life expectancy. For instance, if life expectancy increases by 5 years, the impairment profile shifts also by 5 years, so that the probability of impairment at age 70 equals the previous probability at age 65. This represents a neutral middle ground between morbidity compression (Fries, 1980), which would imply a shrinking period of end-of-life illness, and morbidity expansion (Gruenberg, 1977; Kramer, 1980), under which additional years of life are disproportionately spent in poor health. Under the No Expansion scenario, increasing life expectancy simply implies additional healthy years gained at younger ages.

Both alternative health scenarios are based on the theory of morbidity expansion (Gruenberg, 1977; Kramer, 1980), under which a longer life means more years spent in poor health, increasing the overall prevalence of disease in society. The Mild Expansion scenario is slightly more pessimistic than the No Expansion scenario, assuming that increases in longevity are only partially accompanied by improvements in health: impairment probabilities are shifted by half of the increase in life expectancy. The Strong Expansion scenario is the most pessimistic, assuming no shift in impairment probabilities as life expectancy rises, meaning that the additional life years are spent in impaired health at the end of life.

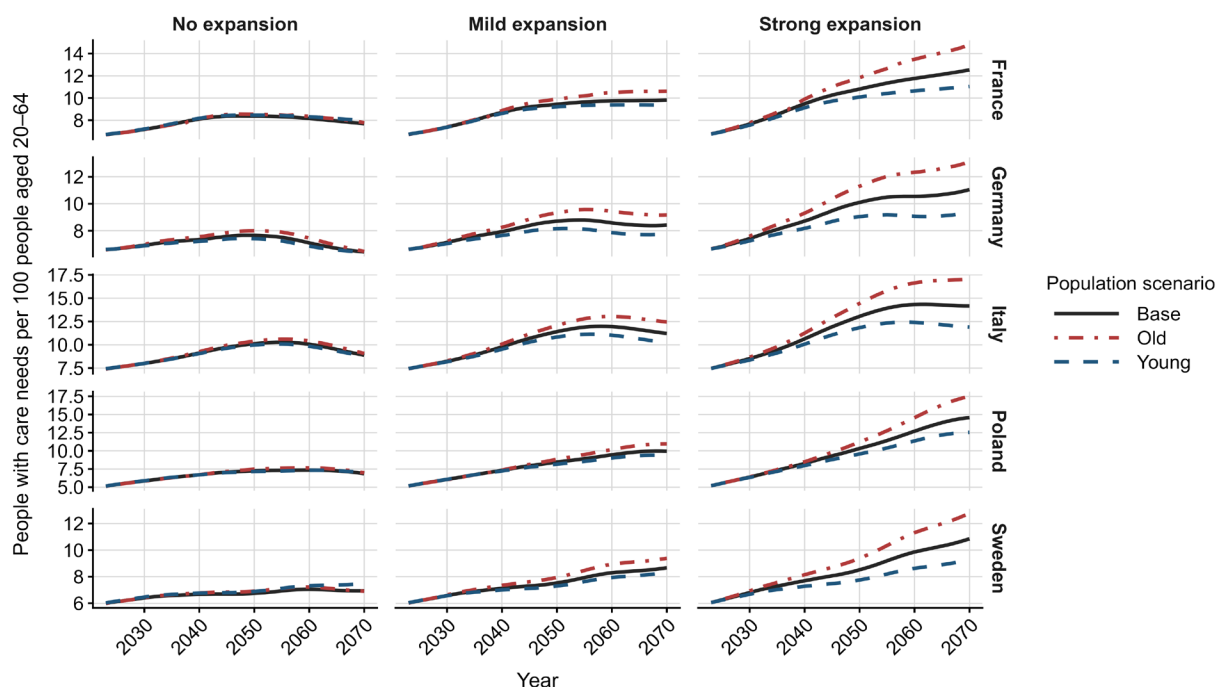
We consider these three scenarios because recent health developments do not provide clear evidence of morbidity compression (Börsch-Supan and Rausch, 2025). As shown in Figure 6, life expectancy at age 65 increased by 1.9 years between 2004 and 2024, of which 0.9 years were spent in good health and 1.0 year in poor health. The observed pattern is therefore more consistent with our Mild Expansion scenario, in which improvements in health accompany only part of the increase in longevity. We therefore consider the Mild Expansion as the baseline health scenario, with the No

¹⁴ The age-impairment profiles for each country and health scenario can be found in Figure A1 in the Appendix.

Expansion scenario representing a more optimistic evolution of health and the Strong Expansion scenario a more pessimistic one.

Combining these health scenarios with the demographic scenarios produces a range of outcomes regarding the share of individuals in need of care relative to the population potentially able to provide it, namely, the healthy, predominantly working-age population. Figure 9 illustrates the evolution of the ratio of individuals with moderate-to-severe care needs relative to the working-age population, for each country and for each combination of health and demographic assumptions. A common pattern emerges across all countries: even under the least pessimistic health scenario, this ratio is projected to initially rise, as more individuals survive to ages at which the probability of impairment is highest.

Figure 8: Share of the population with Moderate-to-Severe Care Needs, relative to the working-age population.



Source: Own calculations with data provided by Börsch-Supan and Rausch (2024).

However, the magnitude of these increases varies substantially across health scenarios. Under the **No Expansion** scenario, the rise in the ratio is relatively modest, with the trend stabilising or even slightly declining over time, reflecting the long-run stabilisation of the demographic structure. This

scenario corresponds to a situation in which gains in longevity are fully matched by improvements in health, effectively postponing the onset of impairment to later ages.

In contrast, under the **Mild Expansion** scenario, the increase becomes more pronounced, as only part of the additional years of life are spent in good health. Differences across demographic scenarios also become more visible. Naturally, the most pessimistic dynamics emerge under the **Strong Expansion** scenario, where age-specific impairment probabilities remain unchanged. In this case, the ratio rises sharply in all countries, indicating a substantial increase in the number of individuals requiring care relative to those who can potentially provide it.

Cross-country differences are also noteworthy. Italy and Poland are projected to experience the steepest increases in the number of individuals in need of care per 100 working-age individuals, particularly under the Strong Expansion scenario, reflecting their more advanced ageing profiles and less favourable demographic structures. Under this scenario, uncertainty about demographic developments generates a range of roughly 4 percentage points in the ratio. France, Sweden, and Germany exhibit a similar pattern but with more moderate increases, with Germany showing the smallest rise. These differences highlight how initial demographic conditions and projected ageing trajectories shape future care needs and influence the urgency and scale of required policy adjustments.

The impact of demographic scenarios is relatively limited under the No Expansion scenario, becoming more pronounced as health outcomes deteriorate. However, under the Strong Expansion scenario, the Old population scenario significantly amplifies the increase in the ratio, while the Young scenario mitigates it. This interaction suggests that demographic dynamics matter most when health improvements fail to keep pace with rising life expectancy.

Overall, the scenarios indicate that although population ageing is a key driver of future care needs, the evolution of health at older ages plays a central role in determining their magnitude. This underscores that while demographic trends are largely exogenous, health trajectories are more responsive to policy, particularly through measures that promote healthy ageing.

3. Healthy ageing as a lever for reducing future long-term care demand

Overall, the scenarios analysed in the previous section indicate that, although population ageing is inevitable and consistent across all scenarios, health projections reveal substantial variation in the resulting pressure on long-term care (LTC) systems. We find that functional impairment appears to

be far more responsive to changes in health trajectories than to demographic trends themselves. This implies that, while the rise in LTC needs driven by demographic ageing is largely unavoidable, health trajectories remain at least partly amenable to policy intervention from a demand-side perspective

To explore these opportunities, we draw on the geriatric literature to identify the primary determinants of functional impairment. We then examine policy levers capable of shifting health trajectories from morbidity expansion toward morbidity compression (moving closer to the No Expansion scenario), by delaying the onset or reducing the severity of the most common functional limitations. Such interventions could meaningfully slow the growth of LTC demand.

From a LTC policy perspective, not all determinants of health are equally important. The most relevant factors are those that directly affect functional capacity and independent living. The geriatric literature identifies several drivers of functional decline, including chronic diseases, multimorbidity, frailty, falls, cognitive impairment and environmental barriers (Chatterji et al., 2015; World Health Organization, 2015). However, these factors differ considerably in the extent to which they can be modified through policy intervention. Some, such as ageing itself, are largely unavoidable. Others, including physical inactivity, frailty progression and the management of chronic diseases, are substantially more responsive to preventive policies and therefore represent promising levers for reducing future LTC demand.

3.1. Physical activity, frailty and fall prevention

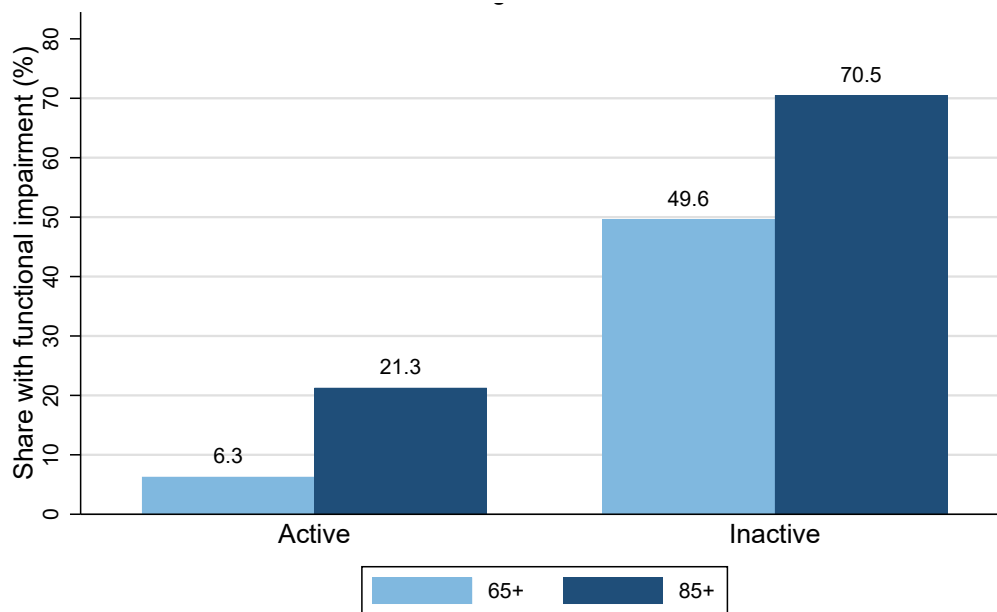
Physical activity

Lack of physical activity influences multiple pathways associated with care dependency (Sowa et., 2016; Pinheiro et al., 2022). Unlike many determinants of ageing, physical activity can be influenced by preventive interventions, making it an important policy lever.

Furthermore, the scope for improvement is substantial. According to Eurostat (2020), only 44.5% of individuals aged between 65 and 74 years report engaging in at least three hours of physical activity per week, while participation falls to 33.4% among those aged 75 and above. This suggests that a large share of older Europeans is not adopting activity levels associated with healthy ageing standards. The importance of this channel is reflected in SHARE data. Figure 10 shows that functional impairment among individuals aged 85 and above is more than three times higher among

those reporting no moderate or vigorous physical activity. Although this relationship should not be interpreted as causal, it highlights the close association between physical inactivity and the loss of independent living capacity. Given that long-term care needs arise precisely when individuals can no longer perform activities of daily living independently, physical activity appears particularly relevant from a LTC perspective.

Figure 10: Functional impairment by age group and activity



Note: Physical-activity status is based on SHARE's generated *phactiv* variable: "inactive" identifies respondents reporting never engaging in either vigorous or moderate physical activity, while "active" comprises all other substantive responses.

Source: Authors' calculations based on SHARE Wave 9 data.

To be specific, physical inactivity contributes to LTC demand through several mechanisms. First, it accelerates frailty, a geriatric syndrome characterised by reduced physiological reserves and increased vulnerability to adverse health outcomes. Frailty is a strong predictor of disability, hospitalisation, institutionalisation and mortality (Clegg et al., 2013). Second, inactivity weakens muscles and balance, thereby increasing the likelihood of falls, which frequently represent turning points in functional decline: hip fractures and other fall-related injuries often lead to permanent

losses in mobility and independence, thereby increasing demand for both formal and informal care (Deandrea et al., 2010; Gill et al., 2013; Dyer et al., 2016).

Importantly, both frailty progression and fall risk are among the most modifiable drivers of impairment. A large body of evidence shows that structured exercise interventions can improve mobility and physical functioning among older adults, thereby helping to preserve their capacity to perform everyday activities independently (Pahor et al., 2014; Treacy et al., 2022). Randomized control trials provide further evidence that such interventions can delay mobility loss of these interventions. In the LIFE trial, an intervention combining walking, strength, balance and flexibility training reduced the hazard of major mobility disability by 18% among sedentary older adults at risk of mobility limitations, compared with health education alone (Pahor et al., 2014). The SPRINTT trial followed a similar framework but broadened the intervention by combining structured physical activity with nutritional counselling and activity monitoring. Among frail older adults with sarcopenia and more severe functional limitations, the intervention reduced the hazard of mobility disability by 22% compared with a healthy ageing education programme alone (Bernabei et al., 2022). Evidence on falls points in the same direction: strength and balance programmes have been shown to reduce fall rates by approximately 20–25% among community-dwelling older individuals (Sherrington et al., 2019).

Several policy approaches have proven effective. Physical-activity promotion can be integrated into primary healthcare through brief counselling interventions, exercise prescriptions and referral schemes can be delivered at relatively low cost and reach large populations (World Health Organization, 2023). Community-based programmes, including walking groups, adapted sports activities and exercise classes designed for older adults, can further increase participation by combining physical activity with social engagement. At a broader level, urban design and transport policies can also influence activity levels. Age-friendly environments characterised by safe pavements, accessible public transport, green spaces and walkable neighbourhoods encourage older adults to remain active as part of their daily routines (Barnett et al., 2017). Although these interventions are often not considered part of traditional health policy, they can influence health trajectories over long periods and therefore contribute indirectly to reducing future LTC demand.

Taken together, the evidence suggests that physical activity promotion represents one of the highest-leverage interventions available to policymakers. Unlike many determinants of ageing, physical activity affects multiple pathways leading to impairment simultaneously and can be

influenced through relatively inexpensive interventions. As a result, policies promoting active ageing may generate substantial benefits both in terms of population health and future LTC sustainability.

3.2. Preventing chronic disease and multimorbidity

A second important channel operates through chronic disease prevention and management. Non-communicable diseases (NCDs), including cardiovascular diseases, diabetes, chronic respiratory diseases, cancer and dementia, account for a large share of disability and mortality at older ages, therefore being closely associated with determinants of LTC. Although these conditions do not automatically result in care dependency, they significantly increase the likelihood of functional limitations, particularly when multiple conditions coexist (Ryan et al., 2015; Calderón-Larrañaga et al., 2019).

The coexistence of several chronic conditions often accelerates functional decline, increases healthcare utilisation and raises the probability of requiring assistance with daily activities (Academy of Medical Sciences, 2018). Many chronic diseases are linked to modifiable behavioural risk factors. According to the World Health Organization (2014), around 80% of premature cardiovascular disease, stroke and type 2 diabetes cases, and approximately 40% of cancers, could be prevented through reductions in smoking, harmful alcohol consumption, physical inactivity and unhealthy diets. Similarly, the Lancet Commission on Dementia estimates that up to 40% of dementia cases may be attributable to modifiable risk factors across the life course (Livingston et al., 2020).

From a LTC perspective, the relevance of prevention lies not only in extending life expectancy but in delaying the onset of disability. Policies that reduce cardiovascular disease, improve diabetes management or postpone cognitive decline can extend the period during which individuals remain independent and therefore reduce future care needs. Prevention measures may therefore contribute simultaneously to better health outcomes and lower long-term care expenditure.

Effective interventions include smoking cessation programmes, alcohol reduction strategies, cardiovascular screening, hypertension management and obesity prevention initiatives. Evidence from several OECD countries suggests that sustained public health campaigns, particularly when combined with regulatory measures and healthcare interventions, can significantly influence behavioural risk factors and improve population health outcomes (OECD, 2021; OECD, 2024). While the effects of such interventions often materialise gradually, their cumulative impact on disability prevalence may be substantial over the long run.

3.3. Reducing the translation of impairment into dependency

While prevention policies seek to delay the onset of impairment, a complementary policy objective is to reduce the extent to which impairments translate into dependency. Not all individuals experiencing functional limitations require the same level of care. The degree of dependence depends not only on health status, but also on the environment in which individuals live. As emphasised by the WHO Healthy Ageing framework, disability arises from the interaction between an individual's intrinsic capacity and the physical and social environment surrounding them (World Health Organization, 2015).

This distinction is particularly important in ageing societies. Even under optimistic health scenarios, the number of older individuals living with some degree of functional limitation is likely to increase. Policies that enable these individuals to maintain independence for longer can therefore reduce pressure on long-term care systems even when underlying health conditions cannot be fully prevented.

Housing adaptations represent one of the most direct examples of such interventions. Modifications including handrails, stair lifts, accessible bathrooms, improved lighting and step-free access can substantially improve the ability of older adults to perform daily activities independently. Recent evidence suggests that housing adaptations can slow health deterioration and help older adults maintain functional capacity, particularly among those already experiencing health limitations (Wu and Grundy, 2025). These interventions may also reduce fall risk, thereby preventing further deterioration and subsequent care dependency.

Assistive technologies provide a second important policy avenue. Hearing aids, visual aids, mobility devices and digital monitoring technologies can help compensate for declining physical or sensory capacity and support independent living. Untreated hearing and vision impairments are strongly associated with reduced participation in daily activities, social isolation and accelerated functional decline (Livingston et al., 2020). Improving access to assistive technologies therefore represents a relatively direct way of maintaining independence among older populations.

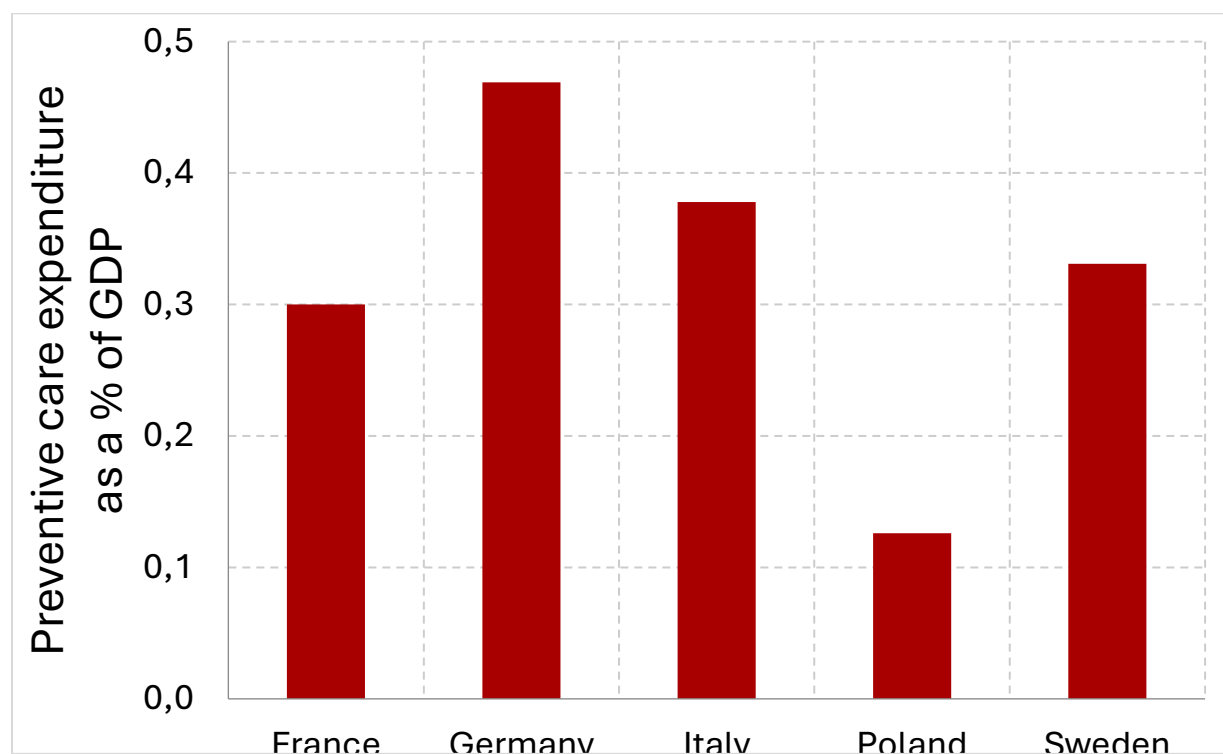
Taken together, these interventions highlight an important distinction for LTC policy. Reducing future care needs does not require eliminating impairment entirely. In many cases, substantial gains can be achieved by enabling individuals to live independently despite physical or cognitive limitations.

As a result, investments in housing, accessibility and assistive technologies should be viewed as complements to traditional prevention policies.

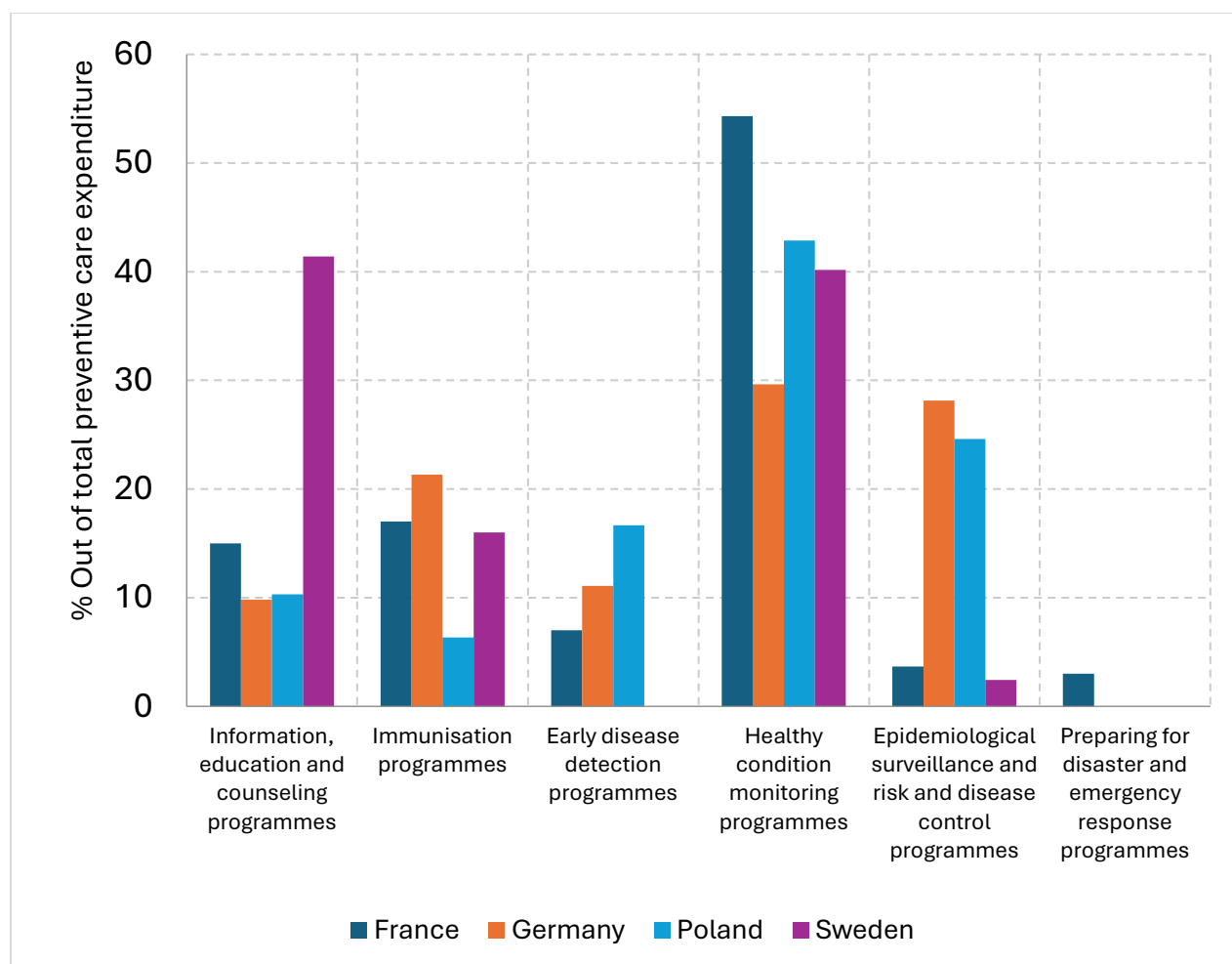
3.4. Prevention expenditure and targeting

The importance of health trajectories for future LTC demand raises two interconnected questions: how much governments invest in prevention and how those resources are allocated. Across OECD countries, preventive care expenditure varies substantially in both level and composition. Figure 11 illustrates these differences for the countries included in this analysis.

Figure 11: Preventive care expenditure and composition across selected OECD countries (2024).



Panel (a)



Panel (b)

Note: Panel (a) shows total preventive care expenditure as a percentage of GDP. Panel (b) shows the breakdown of preventive care expenditure by preventive care sub-function. The values are for all financing schemes and all providers are measured as current expenditure on health in percentage of GDP. When the sub-function is not reported it does not appear on the data, as can be seen in the case for Italy.

Source: OECD Health expenditure and financing

Among the five countries selected to capture a range of regional and institutional settings, Panel (a) shows substantial differences in the overall level of preventive care expenditure. Germany spends the most among the countries considered, at approximately 0.5% of GDP, followed by Italy at 0.4%, Sweden at 0.3% and France at 0.3%. Poland spends considerably less, at approximately 0.1% of GDP.

The contrast is particularly relevant for Poland. As outlined in the introduction, Poland combines comparatively limited formal LTC provision with a high reliance on informal family care. It also

records the lowest level of preventive expenditure among the countries shown in Panel (a), while being projected to experience some of the largest increases in the number of individuals requiring care relative to the working-age population. Although expenditure levels alone do not determine outcomes, this combination suggests that Poland faces future care pressures from a comparatively constrained institutional and preventive starting point.

From a LTC perspective, the effectiveness of prevention spending depends not only on how much is spent, but also on where resources are directed. Prevention encompasses a broad range of activities that differ considerably in their potential impact on future disability and care dependency. Panel (b) of Figure 11 illustrates these differences in allocation: healthy-condition monitoring accounts for a particularly large share of preventive expenditure in France, Poland and Sweden, while Sweden also allocates a comparatively large share to information, education and counselling programmes. Germany, by contrast, devotes relatively more of its preventive expenditure to immunisation and epidemiological surveillance and disease-control programmes. Some of these preventive functions may be more closely connected to the modifiable drivers of functional decline discussed in the preceding sections, including physical inactivity, frailty and chronic disease. However, the OECD data does not allow us to determine whether expenditure within these categories is specifically targeted at older people or at reducing future LTC needs. At the aggregate level, OECD estimates indicate that a 10% increase in preventive expenditure is associated with a reduction in the share of older individuals living with chronic conditions and a subsequent reduction in overall health expenditure after five years (OECD, 2025b). While these estimates focus primarily on healthcare expenditure, the underlying mechanisms are also relevant for long-term care systems because delaying disability reduces future care needs.

The projections from the BB-Future project provide a more direct illustration of the potential implications for LTC. Drawing on evidence on campaign effectiveness, the projections suggest that improvements in health literacy, physical activity and age-friendly housing could reduce future care needs. In Poland, these interventions are estimated to reduce the care gap by approximately 1 to 1.6 monthly hours per person by 2070, depending on the morbidity scenario.¹⁵

¹⁵ See BB-Future's Digest #7, available at https://www.bb-future.eu/wp-content/uploads/2026/07/BB-Future-Digest-7_03072026.pdf

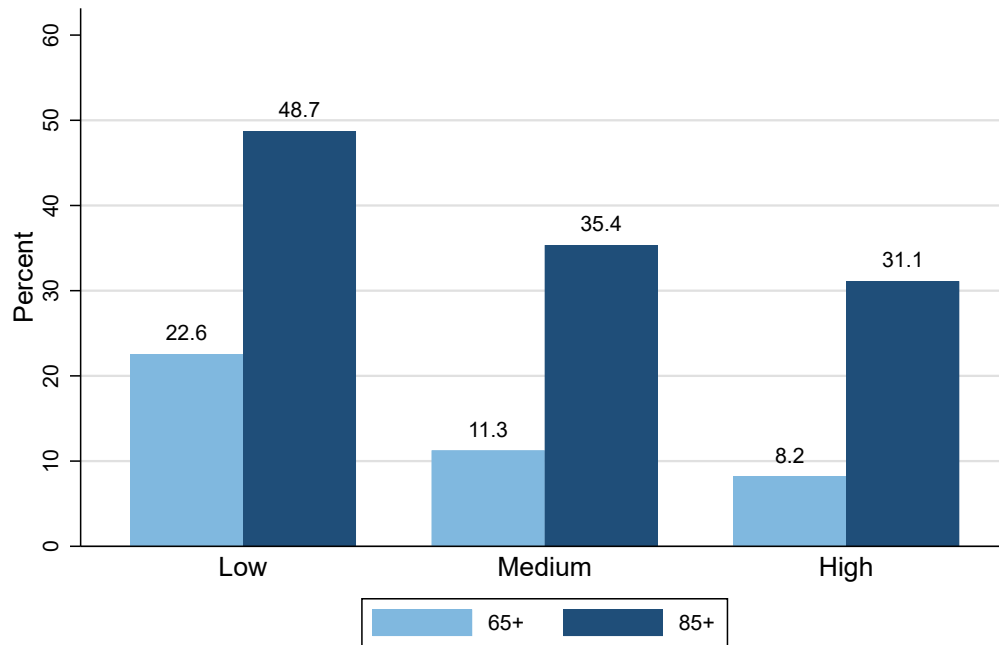
More generally, prevention should not be viewed solely as a healthcare expenditure. By delaying impairment and extending healthy life expectancy, preventive policies may generate fiscal benefits through multiple channels, including reduced healthcare utilisation, lower LTC expenditure and greater labour market participation among both older individuals and informal caregivers. In ageing societies, prevention can therefore be understood as an investment in the long-term sustainability of social protection systems rather than simply a component of health spending.

3.5. Socioeconomic inequalities and future care needs

Health and impairment are not evenly distributed across the population. A substantial body of research shows that individuals with lower levels of education, income and occupational status experience worse health outcomes throughout the life course and are more likely to develop functional limitations in later life (Kawachi, Adler and Dow, 2010; Hajek and König, 2016; Ye et al., 2026).

The SHARE data used in this paper reveal similar patterns. Figures 12 and 13 show that functional impairment is considerably more prevalent among individuals with lower educational attainment and lower incomes. These gradients are evident across countries and become particularly pronounced at older ages. Such findings imply that future LTC demand is likely to be concentrated disproportionately among more disadvantaged groups.

Figure 12: Functional impairment by age group and education level.

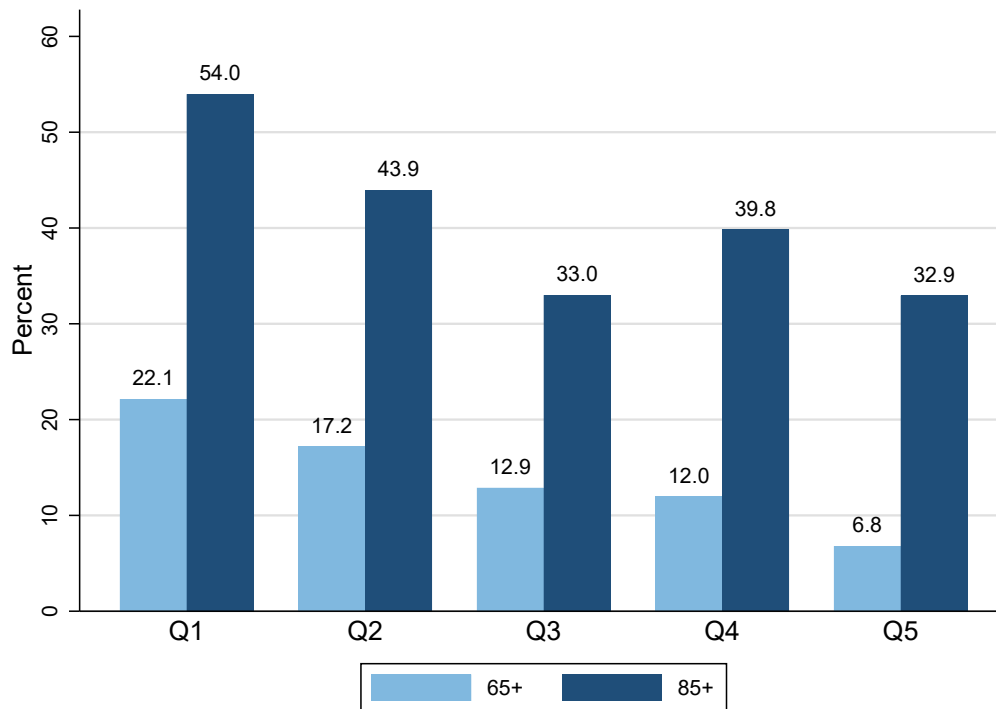


Source: Authors' calculations based on SHARE Wave 9 data.

Source: Authors' calculations based on SHARE Wave 9 data.

Note: Education groups are based on ISCED-97 classifications: low education (ISCED 0–2) includes early childhood, primary, and lower secondary education; medium education (ISCED 3–4) includes upper secondary and post-secondary non-tertiary education; high education (ISCED 5–6) includes tertiary education.

Figure 13: Functional impairment by income quintile



Source: Authors' calculations based on SHARE Wave 9 data.

These inequalities have important implications for policy design. Universal prevention programmes remain important, but targeted interventions may generate particularly large returns when directed towards populations facing elevated risks of disability. Lower-income groups often face greater barriers to healthy lifestyles, preventive healthcare and social participation, increasing the likelihood of functional decline later in life.

Targeted prevention strategies may therefore improve both efficiency and equity. Programmes focusing on disadvantaged populations can help reduce future care needs while simultaneously addressing health inequalities. Examples include targeted physical activity initiatives, improved access to preventive healthcare, community-based programmes in deprived areas and interventions designed to reduce social isolation among vulnerable older adults.

Recognising these socioeconomic gradients is particularly important because improvements in average population health may otherwise mask persistent inequalities in care needs. Future LTC

planning should therefore account not only for aggregate demographic and health trends, but also for how risks are distributed across different population groups.

4. Policy implication and concluding remarks

This paper has examined how demographic and health developments are likely to shape future long-term care (LTC) needs in Europe, drawing on detailed projections for France, Germany, Italy, Poland and Sweden. Across all scenarios, a consistent picture emerges: population ageing will continue to intensify, with particularly rapid growth in the number of individuals aged 85 and above, which is the age group most likely to require long-term care. Even in countries where total population size is projected to stabilise or decline, the number of very old individuals is projected to increase substantially, placing upward pressure on LTC systems. However, demographic change alone does not determine the scale of future care needs. The evolution of health at older ages plays an equally central role, and unlike population ageing, remains at least partly responsive to policy intervention.

A central finding of the paper is that uncertainty regarding future health trajectories may be at least as important as uncertainty regarding demographic developments. Across all countries considered, variations in health assumptions generate larger differences in projected LTC needs than variations in demographic assumptions alone. Under favourable health trajectories, the increase in the number of individuals requiring care is considerably more contained, even when population ageing remains substantial. By contrast, under pessimistic assumptions, the ratio of individuals with care needs relative to the working-age population rises sharply. Future LTC demand is therefore not predetermined by demographic ageing. Instead, it depends critically on whether gains in life expectancy are accompanied by equivalent improvements in health and functional capacity. Policymakers should therefore devote at least as much attention to monitoring and improving healthy ageing outcomes as they do to tracking demographic trends.

This finding has important implications for the way LTC policy is designed. Given the considerable uncertainty surrounding future demographic and health developments, policymakers should be cautious when relying on single central projections. Instead, LTC planning should be based on a range of scenarios that reflect alternative health and demographic futures. Designing systems that perform well under different outcomes may prove more valuable than optimising policies for a single expected trajectory. In practice, this calls for flexible and adaptive LTC strategies that can respond to changing patterns of longevity, disability and care needs as new information becomes available.

The analysis also highlights the importance of viewing healthy-ageing policies as a core component of LTC strategy rather than as a separate public-health objective. Among the policy options examined, interventions that promote physical activity, prevent frailty and falls, improve chronic-disease management, and reduce the translation of impairment into dependency appear particularly promising. Such measures cannot eliminate the effects of population ageing, but they can delay the onset of disability, extend the number of years lived independently and reduce the intensity of future care needs. Healthy-ageing policies should therefore be regarded as demand-side LTC policies, complementing more traditional efforts to expand the supply of formal and informal care services.

This complementarity deserves particular emphasis. Much of the policy debate on long-term care focuses on supply-side challenges, including workforce shortages, financing pressures and the availability of formal and informal caregivers. These challenges will undoubtedly become more pronounced as European populations age. However, the results of this paper suggest that expanding care supply alone may not be sufficient if future health trajectories deteriorate. Sustainable LTC systems will require a combination of policies that increase care provision and policies that reduce or postpone the need for care. Demand-side and supply-side reforms should therefore be viewed as mutually reinforcing rather than as alternative approaches.

The implications extend beyond long-term care systems themselves. Population ageing simultaneously affects pensions, healthcare expenditure and public finances more broadly. Policies that delay disability and preserve functional capacity may therefore generate benefits across multiple areas of social protection. In addition to lowering future LTC needs, successful prevention strategies may reduce healthcare utilisation, support longer labour-market participation and diminish the caregiving burden placed on families. Prevention expenditure should therefore be viewed not only as a health investment but also as an investment in the long-term sustainability of welfare systems.

The results further suggest that future LTC needs are likely to be distributed unevenly across the population. Functional impairment is significantly more prevalent among individuals with lower levels of education and income, implying that the burden of future care needs may fall disproportionately on more disadvantaged groups. This highlights the importance of considering socioeconomic inequalities when designing healthy-ageing strategies. While universal prevention policies remain important, targeted interventions aimed at vulnerable populations may produce

particularly large benefits, both in terms of reducing future care dependency and improving health equity.

Although the five countries examined in this paper differ substantially in their demographic profiles and LTC institutions, they face a common challenge: a growing share of very old individuals and increasing pressure on the resources available to support them. The results therefore point to healthy ageing as a shared European policy priority. Initiatives such as the European Care Strategy, the Council Recommendation on long-term care and the UN Decade of Healthy Ageing provide an important framework for addressing these challenges. Our findings reinforce these initiatives by highlighting the extent to which future LTC pressures depend not only on demographic trends but also on health outcomes that can, at least in part, be influenced through policy.

Finally, several important questions remain for future research. The analysis has focused primarily on the demand side of long-term care and has abstracted from supply constraints, technological change, evolving patterns of informal caregiving and alternative approaches to LTC financing. Better understanding how these factors interact with demographic and health trajectories represents an important avenue for future work. Nevertheless, the evidence presented here points to a clear conclusion. While population ageing is largely unavoidable, the resulting growth in long-term care needs is not. Policies that promote healthy ageing, prevent disability and support independent living have the potential to move outcomes closer to the more favourable scenarios explored in this paper, thereby reducing future care burdens and strengthening the sustainability of long-term care systems across an ageing Europe.

Endnotes

The SHARE data collection has been funded by the European Commission, DG RTD through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812), FP7 (SHARE-PREP: GA N°211909, SHARE-LEAP: GA N°227822, SHARE M4: GA N°261982, DASISH: GA N°283646) and Horizon 2020 (SHARE-DEV3: GA N°676536, SHARE-COHESION: GA N°870628, SERISS: GA N°654221, SSHOC: GA N°823782, SHARE-COVID19: GA N°101015924) and by DG Employment, Social Affairs & Inclusion through VS 2015/0195, VS 2016/0135, VS 2018/0285, VS 2019/0332, VS 2020/0313, SHARE-EUCOV: GA N°101052589 and EUCOVII: GA N°101102412. Additional funding from the German Federal Ministry of Research, Technology and Space (01UW1301, 01UW1801, 01UW2202), the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064, BSR12-04, R01_AG052527-02, R01_AG056329-02, R01_AG063944, HHSN271201300071C, RAG052527A) and from various national funding sources is gratefully acknowledged (see www.share-eric.eu).

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Appendix

Table A1: Population growth by country and demographic scenario, relative to 2023.

Country	Year	Baseline	Old	Young
France	2030	1.46	0.83	2.14
	2050	2.69	0.48	4.94
	2070	1.03	-3.17	5.01
Germany	2030	0.08	-1.02	1.19
	2050	-0.97	-4.71	2.86
	2070	-1.76	-7.92	4.48
Italy	2030	-0.54	-1.43	0.36
	2050	-3.11	-6.26	0.04
	2070	-10.25	-15.76	-4.79
Poland	2030	-2.83	-2.73	-2.92
	2050	-12.75	-11.75	-13.75
	2070	-24.37	-22.30	-26.40
Sweden	2030	2.98	1.94	4.02
	2050	9.46	5.56	13.36
	2070	12.65	6.27	19.09

Table A2: Growth of population aged 65 and above, by country and demographic scenario, relative to 2023.

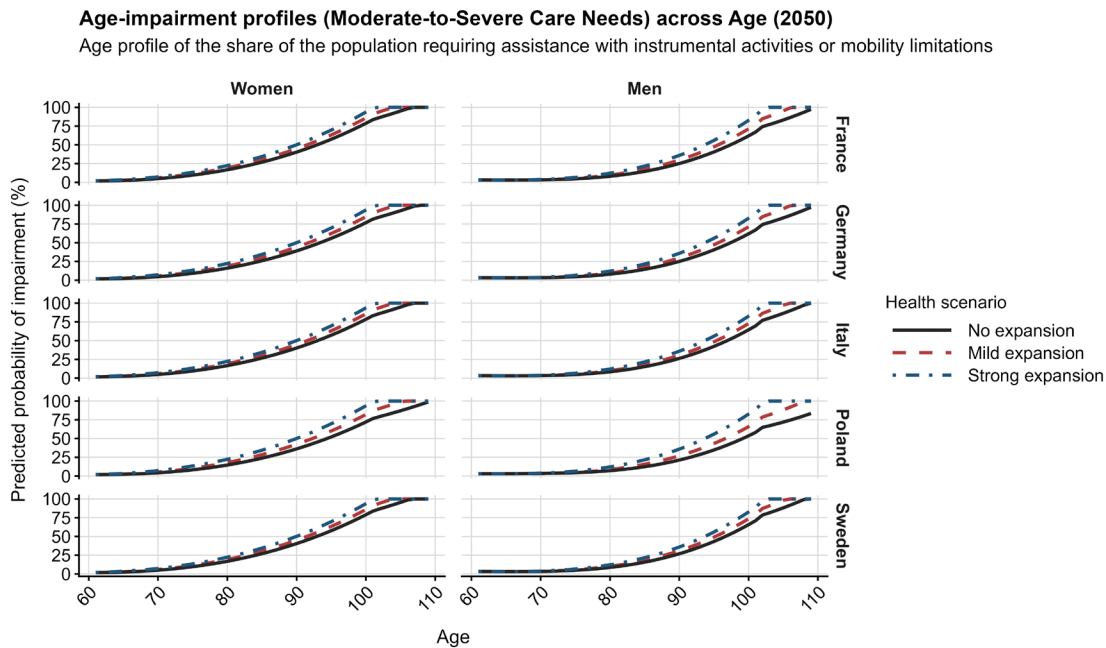
Country	Year	Baseline	Old	Young
France	2030	12.30	12.37	11.99
	2050	31.72	34.85	29.46
	2070	39.46	42.69	35.78
Germany	2030	12.53	13.21	11.86
	2050	21.41	25.01	17.79
	2070	26.43	28.51	23.94
Italy	2030	12.98	13.20	12.75
	2050	34.44	37.17	31.69
	2070	25.03	27.35	22.62
Poland	2030	7.50	7.87	7.13

Country	Year	Baseline	Old	Young
Sweden	2050	31.25	35.48	27.03
	2070	26.42	35.63	17.47
	2030	9.04	9.49	8.59
	2050	30.20	33.32	27.08
	2070	53.21	56.60	49.63

Table A3: Growth of population aged 85 and above, by country and demographic scenario, relative to 2023.

Country	Year	Baseline	Old	Young
France	2030	5.00	4.82	3.42
	2050	92.51	105.77	81.46
	2070	130.52	160.99	105.50
Germany	2030	7.84	9.21	6.49
	2050	81.37	96.65	66.83
	2070	94.66	123.40	68.17
Italy	2030	10.86	11.94	9.80
	2050	86.34	100.03	73.22
	2070	109.60	140.75	81.24
Poland	2030	2.60	3.45	1.75
	2050	115.02	132.10	98.80
	2070	239.38	289.99	193.32
Sweden	2030	37.73	39.17	36.29
	2050	103.27	120.06	87.31
	2070	172.43	213.44	134.84

Figure A1: Age-impairment profiles, for each country and health scenario.



Source: Own calculations with data provided by Börsch-Supan and Rausch (2024).