

## Chapter 2

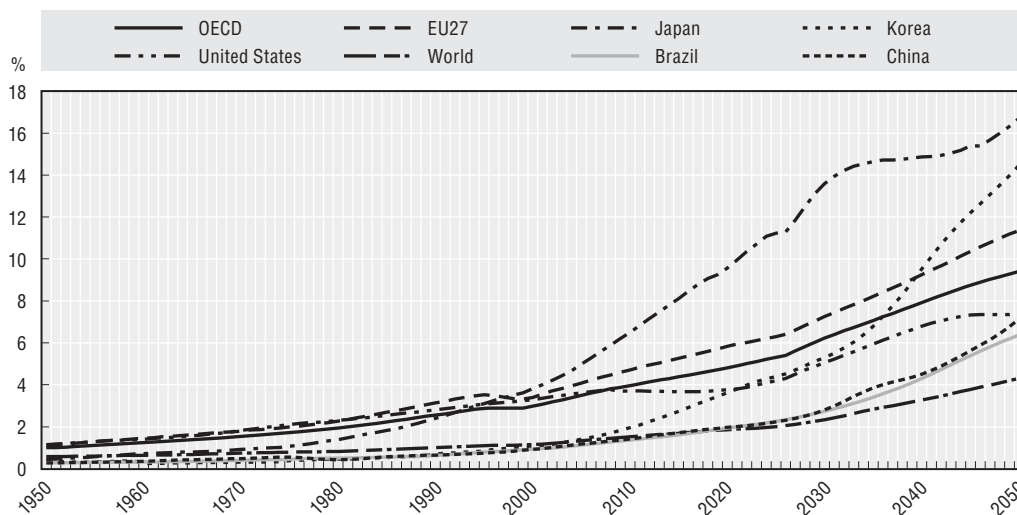
# Sizing Up the Challenge Ahead: Future Demographic Trends and Long-term Care Costs

*Pressures on long-term care (LTC) systems are expected to grow in the future, for at least four reasons. First, although the speed at which populations are ageing varies considerably across countries, and despite uncertainties about future trends in disability among the population, demographic transformations will increase demand for LTC services in all societies. Second, changing societal models – such as declining family size, changes in residential patterns of people with disabilities and rising female participation in the formal labour market – are likely to contribute to a decline in the availability of family carers, leading to an increase in the need for paid care. Third, as societies become wealthier, individuals demand better quality and more responsive social-care systems. People want care systems that are patient-oriented and that can supply well co-ordinated care services. Fourth, technological change enhances possibilities for long-term care services at home but may require a different organisation of care. These factors will create upward pressure on the demand for long-term care services. They will raise pressure for improving the provision of care services and their performance, and, therefore, their cost. This chapter presents demographic forecasts for OECD countries, and projections on family carers in selected OECD countries and long-term care costs.*

## 2.1. Future demographic trends: Growing LTC demand

Over the next decades, OECD countries will continue to age, leading to unprecedented shares of their population being 80 years and over. In 1950, less than 1% of the global population was aged over 80 years old. By 2050, this share is expected to reach 4%. The most important increase is expected for the OECD countries, where, by 2050, almost 10% of the total population will be very old (compared to 1% in 1950) (Figure 2.1).

Figure 2.1. **The share of the population aged over 80 years old will increase rapidly**



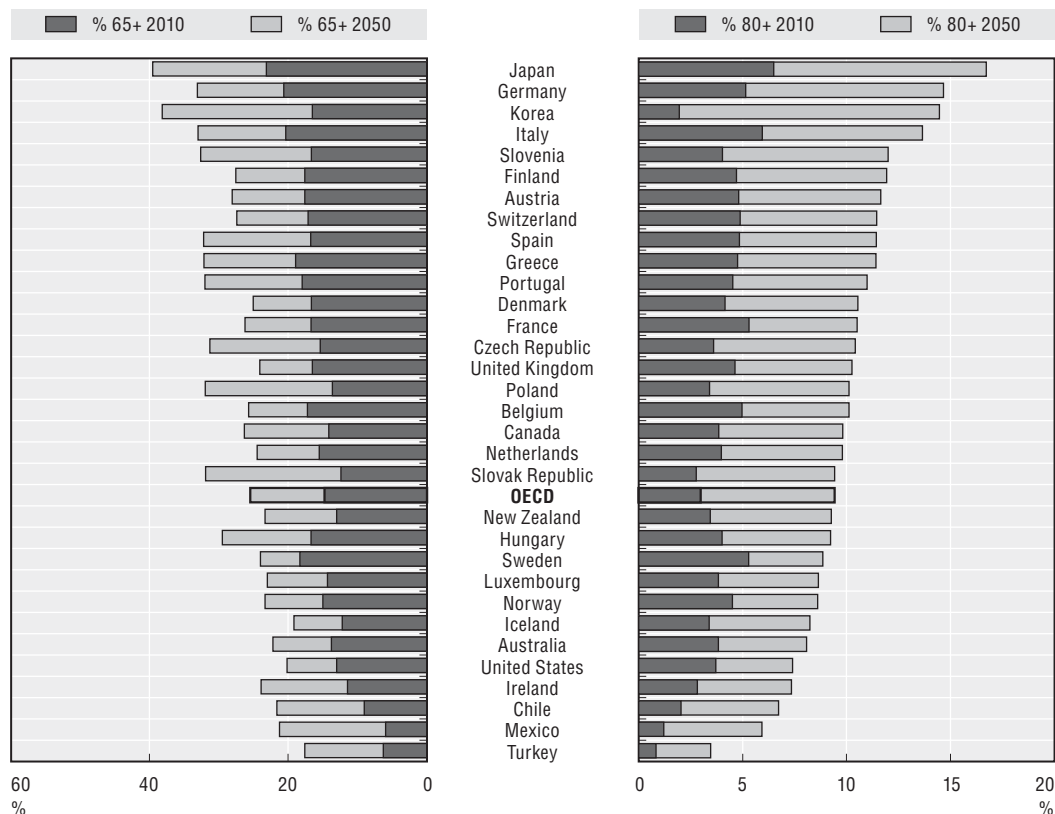
Source: OECD Labour Force and Demographic Database, 2010.

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As shown in Figure 2.2, in the OECD, the share of those aged 80 years and over is expected to increase from 4% in 2010 to 9.4% in 2050 (OECD Demographic and Labour Market Database, 2010). In Japan, but also in Germany, Korea and Italy, the projected shares of those aged 80 years and over will be the highest: around 15%. South Korea stands out as it will experience the largest absolute change in its share of the very old people, increasing from about 2% in 2010 to about 15% in 2050. For some countries the increase will be more gradual and reach relatively lower levels. These include Australia, Iceland, Ireland, Luxembourg, Norway and Sweden, where the share of the oldest old is expected to increase by less than 5 percentage points between 2010 and 2050, and reach levels under 9%.

The growth of the share of the very old will affect the future demand for long-term care. Although theories differ about the expected relationships between the ageing of societies and the need for care, all suggest that this will increase. The major differences relate to expectations about the amount and intensity of the increase, as well as to the moment at which the need for care will set in (Box 2.1).

Figure 2.2. **The shares of the population aged over 65 and 80 years in the OECD will increase significantly by 2050**



Source: OECD Labour Force and Demographic Database, 2010.

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### Box 2.1. Trends in severe disability among elderly people

Although theories suggest different relationships between ageing societies and the expected need for long-term care, evidence does not show consistent trends of declining disability in all OECD countries (Lafortune et al., 2007; Bernd et al., 2009).

In 2007, the OECD assessed the most recent evidence on trends in disability among the population aged 65 and over in 12 OECD countries: Australia, Belgium, Canada, Denmark, Finland, France, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States (Lafortune et al., 2007). The main findings of this review are that even though, in recent years, disability prevalence rates have declined to some extent in some countries, the ageing of the population and the greater longevity of individuals can be expected to lead to increasing numbers of people at older ages with a severe disability. During the last five to ten years, disability among elderly people declined in Denmark, Finland, Italy, the Netherlands and the United States, remained stable in Australia and Canada and increased in Belgium, Japan and Sweden. No conclusion could be reached for France and the United Kingdom because of data limitations. Similarly, while the reduction in certain health risk factors (such as smoking) might have contributed to reducing some functional limitations in old age, the rising prevalence of obesity among adults of all ages over the past two decades in OECD countries might have the opposite effect (Sturm et al., 2004). There are also some uncertainties pertaining to future trends in neurological and cognitive diseases (such as dementia) as there is greater effort and success in diagnosing these diseases.

**Box 2.1. Trends in severe disability among elderly people (cont.)**

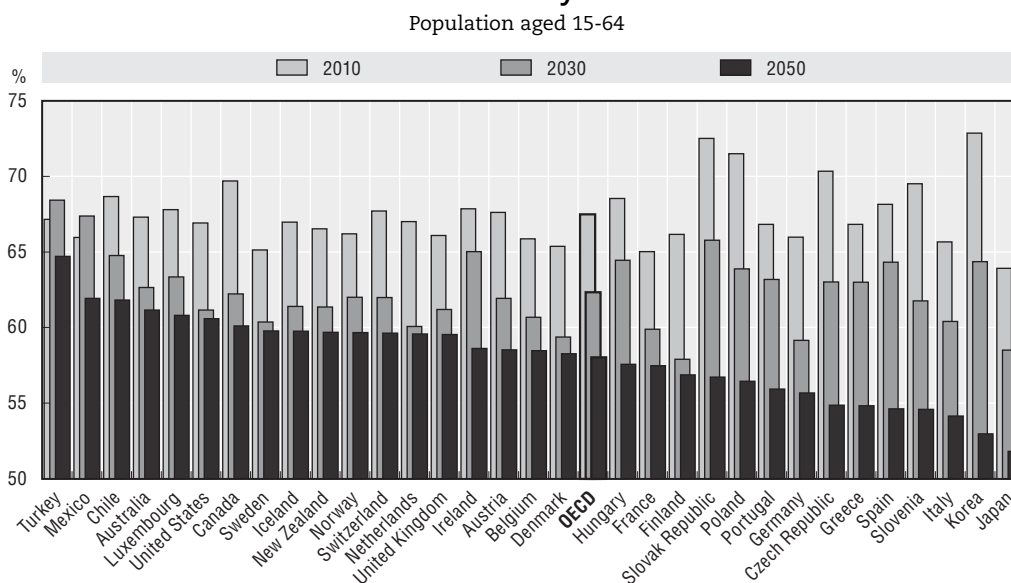
Similarly, recent evidence on disability-free life expectancy at age 65 suggests different processes occur in different European countries (in the period 1995-2001; Jagger *et al.*, 2009). Specific data on Germany (AOK, 2009) suggest that those with a need for long-term care live longer and thus need (more) care for a longer period than in the past (AOK, 2009). This would be in line with the expansion of morbidity theory. However, other German data seem to suggest a compression of disability (Scholz and Schulz, 2010).

Furthermore, life expectancies of those (born and) living with a disability have increased substantially due to better medical care and assistance to those with functional limitations. Those born and living with a disability will increasingly combine a need for care due to their disability with a potential need due to ageing (NDA/NCAOP, 2006; AIHW, 2008; EASPD, 2006). Both developments taken together point to increased needs for LTC services.

**2.2. The pool of family carers is likely to decrease**

The ageing of societies will also affect the potential supply of individuals available to provide both paid and unpaid long-term care services. On average across OECD countries, the size of the *working-age population* as a share of the total population is expected to shrink by about 9 percentage points, from 67% in 2010 to 58% by 2050, although points of departure and outcomes vary (Figure 2.3). As a share of total population, the working-age population will shrink by less than 6 percentage points in Turkey, Mexico, Luxembourg, Australia, the United States and Sweden, and by more than 15 percentage points in Slovakia, Poland, Czech Republic, Slovenia and Korea.

**Figure 2.3. The share of the working-age populations is expected to decrease by 2050**

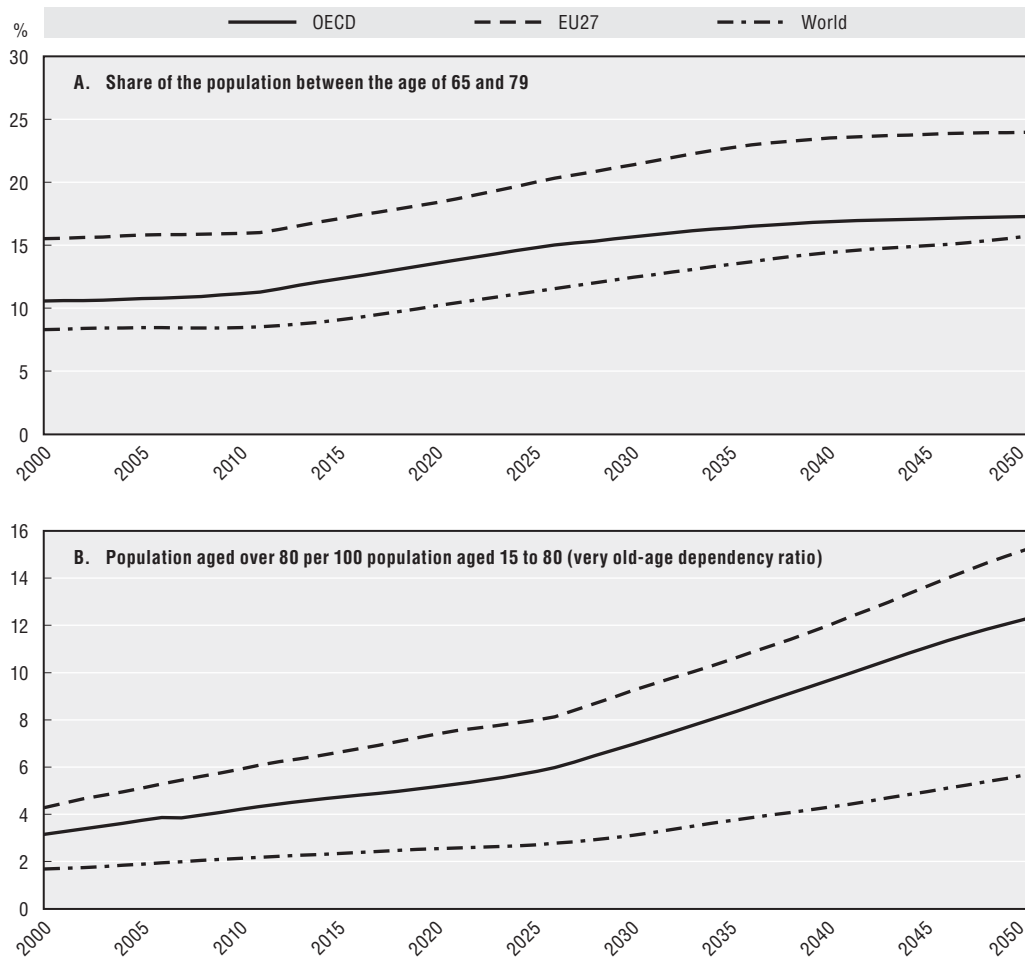


Source: OECD Labour Force and Demographic Database, 2010.


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In addition, by 2050 the potential pool of old family carers will shrink, too. While the average share of the OECD population aged 65 to 79 years is expected to increase from about 10% in 2010 to about 15% in 2050 (Figure 2.4, upper graph), this increase is not sufficient to compensate for the expected relative reduction in the size of the working age population. As a result, for OECD countries, the number of persons over 80 years old per 100 population aged 15 to 80 will triple and increase from about 4 in 2010 to about 12 in 2050 (Figure 2.4, lower graph). Direct human support to those in need and social contributions from working population will reduce as a consequence.

Figure 2.4. **The very old-age dependency ratio is increasing rapidly**



Source: OECD Labour Force and Demographic Database, 2010. World population projection estimates based on UN World Population Prospects, 1950-2050 (2006 Revision).

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Other societal changes – such as declining family size, rising childlessness, changing living arrangements, with decreased co-residence of elderly with their children and families – are likely to reduce the available pool of family carers, especially working-age children providing intensive care to older parents. Higher divorce rates, rising female participation in the formal labour market and a decline in willingness to care are also likely to contribute to a decline in the availability of family carers (Jenkins et al., 2003).

UK projections estimate that changes in marital status and demographics will increase the numbers of people providing care to older parents by 27.5% by 2041, but to keep the pool of carers constant in relative terms, the number of informal carers of working age would have to nearly double<sup>1</sup> (Pickard, 2008). This indicates that the number of potential informal carers could increase at a slower pace than the number of elderly dependent, leading to a reduction of potential available family carers per dependent person.

The reduction in the number of family carers will be partly compensated by other factors. Longer co-survival of spouses – especially men – makes the elderly more likely to live with a partner in the future thereby increasing the availability of family support.<sup>2</sup> In addition, frail elderly living in couple are less likely to rely on formal care or move to an institution. According to a study showing projections in nine European countries, the dependent population with no family carers will increase much more slowly than other dependents having family support; thus in proportion it may remain stable or decrease (Gaymu *et al.*, 2008). Such positive outlook is driven not only by a decrease in the number of elderly women without partners but also by the fact that, by 2030, relatively fewer older people will have no surviving children. These results, which might be surprising at first, are driven by the fact that, although family size decreased, there were fewer never married and childless women in the 1930s and 1940s.

However, this increase in supply of care is unlikely to compensate fully for the expected decline. Longer-term prospects for European countries remain uncertain because the cohorts born since the 1950s have fewer children, higher divorce and lower marriage rates. While Canada's demographic turning points might not be the same as for European countries, the situation is likely to worsen between 2021 and 2050 mainly because the proportion of women aged 85 and over with no surviving children is expected to rise significantly (Keefe *et al.*, 2007). In addition, an older pool of available carers and elderly couples increases the likelihood of having more couples with both spouses in poor health or needing care. When men experience difficulties coping with dependent spouses, they are more likely to seek support from the formal care system, instead of providing care themselves.

### **Projections of informal carers for selected OECD countries**

OECD projections illustrate to what extent the greater availability of spouses could mitigate expected decline in the availability of family care for the elderly (see Box 2.2).

#### **Box 2.2. Modeling the impact of life expectancy on family care among older spouses**

OECD projections are based on a “rough” macro approach, essentially using current proportions of the population being married by age group and gender and their corresponding forecasts in life expectancy. Given uncertainties about future rates of marital formation and dissolution, fertility and labour force participation, the projections do not attempt to cover the supply of family carers among prime-age workers. Instead, the projections for a selected number of European and non-European countries examine how changes in mortality will affect the availability of carers aged 50 and over, taking into account ADL restrictions. The projections exploit the likely gains in life expectancy and assume, for each age-group, similar proportion of the elderly population living together, instead of using projected changes in fertility or divorce rates.

**Box 2.2. Modeling the impact of life expectancy on family care among older spouses (cont.)**

In addition, to determine the current population with disability by gender, age and marital status, SHARE (European Survey of Healthy Ageing and Retirement) and the HRS (US Health and Retirement Study) are used. To forecast marriage prevalence, it is assumed that it will increase in line with gains in total life expectancy. This implies that for women, the proportions of married individuals are shifted along the age axis by the equivalent gains in life expectancy of men between 2007 and 2050. The same shift was assumed to take place for men but by the equivalent gains in life expectancy of women over the same period. This borrows from the approach used to estimate potential gains arising from “healthy ageing”. Such an estimation method differs from other approaches but it does provide comparable results to other studies. For instance, compared to work undertaken by FELICIE ([www.felicie.org/index.asp](http://www.felicie.org/index.asp)), this approach provides for somewhat lower projected estimates for women and higher for men.

An alternative macro approach would be to look at past trends in the provision of informal care and in living arrangements by age group and gender and to extrapolate from there (taking into account other possible changes affecting the demographic structure). This latter approach has been used by the Australian Institute of Health and Welfare in 2003 in a study using data from the Disability, Ageing and Caring Survey from 1993 and 1998 projecting both demand and supply of care for different age groups. The projections are based on general household characteristics such as age, sex and the availability of a co-resident spouse or partner, but also incorporate a 20% linear decrease in the propensity to care for a family member over the projected period.

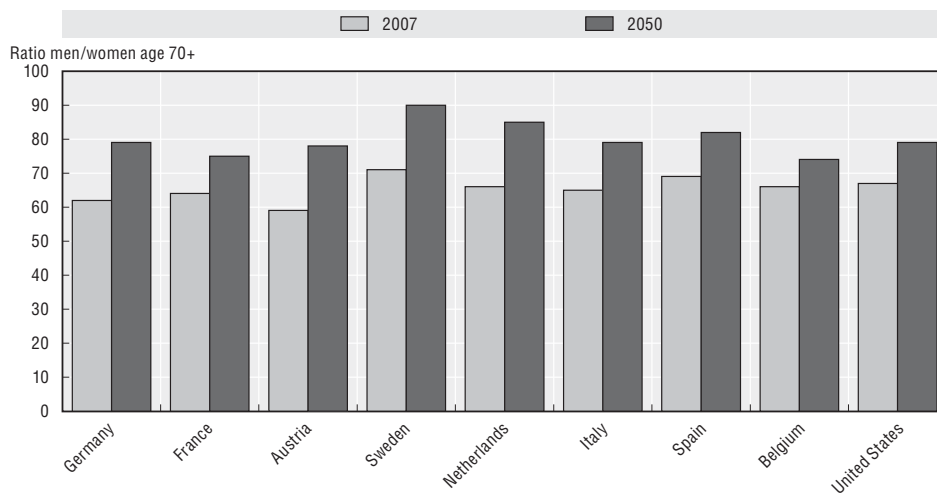
Some authors also used a cohort approach (similar to the approach used to estimate future participation rates of men and women), combined with multinomial ordered and standard logistic regressions, to both predict the probability of developing certain levels of disability and need assistance at the micro-level for those aged 65 and over. The regression results were used in a micro-simulation model in order to project the availability of family care depending on different scenarios (Carriere *et al.*, 2008). The advantage of such a micro study is to control for household level characteristics, such as the number of living children, employment history or educational attainment. Nonetheless, while this approach could have been used, it would be difficult to take into account marriage dissolution arising because of ageing.

Projections should be taken with caution as many societal changes, combined with demographic shifts, are likely to affect the provision of caring and are difficult to model and quantify. Additional factors such as changes in future trends in living arrangements among the elderly and healthy ageing could decrease or increase the availability of family carers among those aged 50 and over. Changes in willingness to care, social networks and distance to family may also influence the forecasts. All in all, this is likely to change the magnitude of the expected decline in the availability of carers but not the underlying changes in the composition of carers driven by demographic factors. Projections still provide insightful elements to the understanding of the evolution of the caring situation.

Gains in life expectancy, particularly for men, will lead to a reduction in the share of single women. Figure 2.5 shows that, with more surviving men over time, the ratio of men/women aged 70 years and over will improve by more than 15 percentage points from 65 to 80% (0.8 men for every woman). Additionally, the proportion of elderly married women (aged 70+) will increase by around 10 percentage points across selected OECD countries (Figure 2.6).

**Figure 2.5. More surviving old men for each woman by 2050**

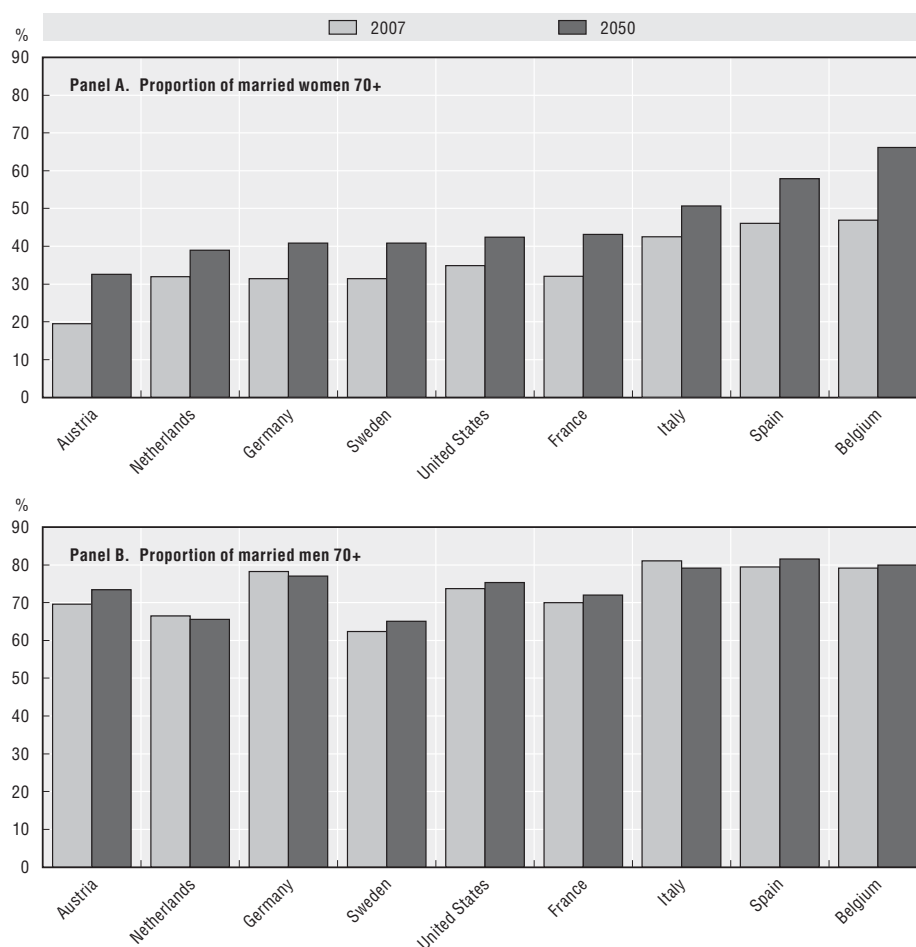
Ratio of men/women over the age of 70



Source: OECD calculations based on population projections.

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**Figure 2.6. Increase in the proportion of old people living in couples, by 2050**



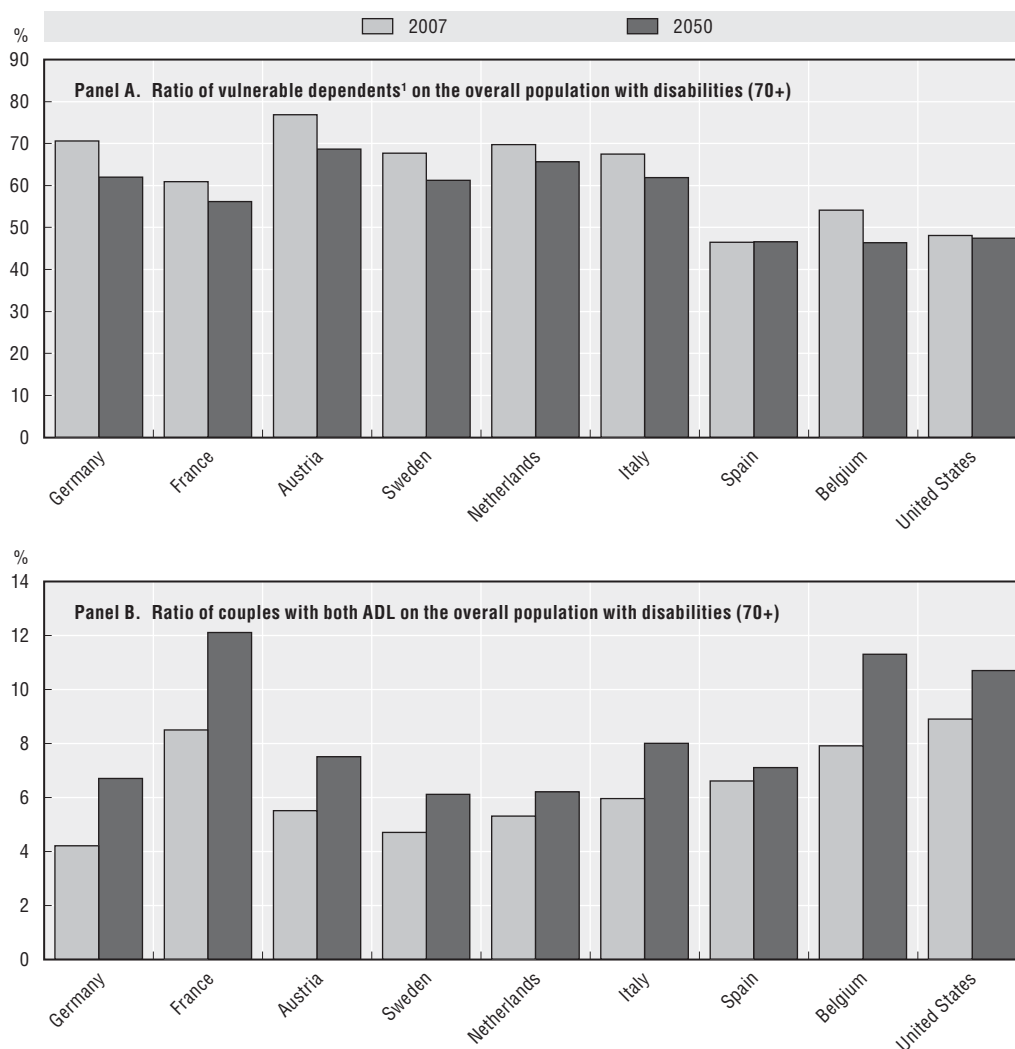
Source: OECD calculations based on population projections, the Survey of Health, Ageing and Retirement in Europe (SHARE) and the US Health and Retirement Study (HRS).

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Despite this positive outlook, a greater proportion of individuals living together will both have ADL restrictions. Given current disability rates, from the total population of dependents aged 70 and over, the proportion of vulnerable dependents, that is those who are not married or who are married but also have a partner with ADL restrictions, will decrease in most OECD countries or remain stable (Spain) (Figure 2.7, Panel A). However, the composition of the vulnerable dependents is expected to change. More specifically, the biggest share of these “vulnerable dependents” concerns those not married: this group will still increase in numbers but will decrease in relative terms. In turn, among the vulnerable dependents, there will be a large increase in the proportion of couples where both are dependent (Figure 2.7, Panel B).

Figure 2.7. **The proportion of frail elderly either living alone or with a frail partner will decrease, but the share of both-frail couples will increase by 2050**



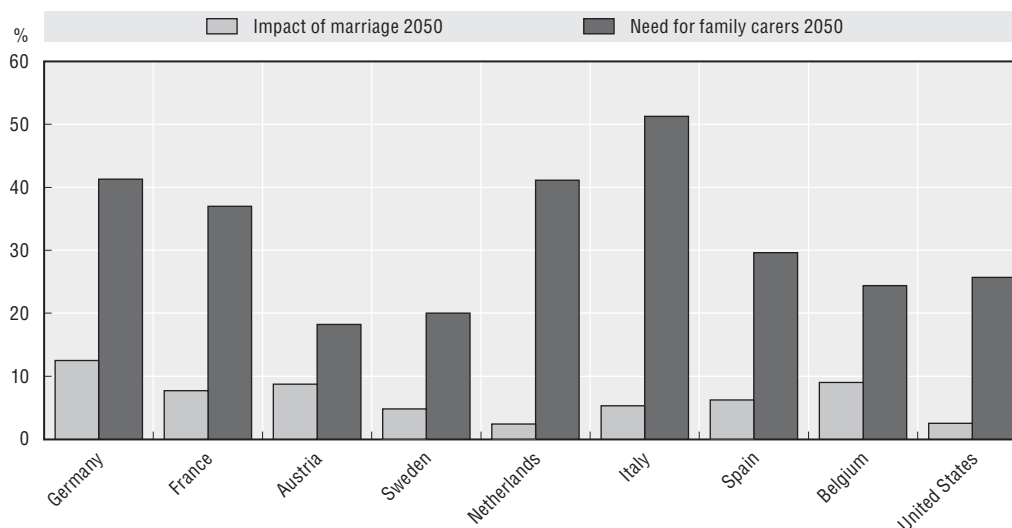
1. Vulnerable dependents are defined as individuals with activity of daily living (ADL) restrictions who are not married or who are married but also have a partner with ADL restrictions.

Source: OECD calculations based on population projections, the Survey of Health, Ageing and Retirement in Europe (SHARE) and the US Health and Retirement Study (HRS).

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Using current country-specific proportions of the population providing family care by age group and gender, rough projections on the availability of family carers in the population can be elaborated and compared relative to the expected number of dependent individuals. For the population age 50 years and over, there are important variations across countries in the current ratio of carers to care recipient – ranging from about two carers per care recipient in the United States and the Netherlands to less than 1 carer per care recipient in Austria and Germany. Rough estimates suggest that to maintain the current ratio of family carers to the number of individuals with ADL restrictions, the total number of family carers would need to increase by about 20 to 30% in the selected countries reviewed, except in Germany and the Netherlands where a 40% increase would be needed, and in Italy, where an increase of over 50% would be necessary (Figure 2.8, dark blue bars). By assuming that all “new” expected married dependents would receive care from their non-dependent spouse, a rough upper bound estimate of the impact of males living longer on the availability of family carers can be derived. At most, the increase in the availability of family carers (Figure 2.8, light blue bars) could reduce this shortfall by about 12 percentage points in Germany and 2 percentage points in the Netherlands.

Figure 2.8. **The projected growth in frail elderly greatly outweighs that of potential caregivers**



Note: “Need for family carers” indicates the change in family carers necessary by 2050 in order to maintain the existing carer/care recipient ratio. This depends on demographic trends, the existing proportions of individuals with restrictions in daily living activities (ADL) and of those providing unpaid care. A relatively high need for family carers can reflect an existing low proportion of family carers among the oldest old (e.g., Germany and Netherlands) or a high proportion of the oldest old having ADL restrictions (e.g., Italy). *Impact of marriage* indicates expected change in the availability of potential carers (spouses), by 2050. The difference between the two indicates the size of the potential care gap.

Source: OECD calculations based on population projections, the Survey of Health, Ageing and Retirement in Europe (SHARE) and the US Health and Retirement Study (HRS).

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This shortfall does not take into account the existing contribution of prime-age individuals (younger than 50 years of age) in supplying family care. This is important since the availability of prime-age family carers – particularly working women – is also expected to decline, thereby potentially exacerbating the size of the shortfall, although the impact of female labour supply on caregiving might depend on current labour force participation. In

countries where current female labour force participation is low, the number of women available for family care could diminish significantly as female labour force participation grows, while in other countries where female participation is already close to the level of males, the impact might be fairly small. For instance, Australian projections show that the number of carers will continue to increase among the working-age population, even with increasing female labour force participation (Jenkins *et al.*, 2003).<sup>3</sup>

### 2.3. How much will long-term care cost?<sup>4</sup>

Most OECD countries currently allocate between about 1 and 1.5% of their GDP to LTC. Some countries allocate more than 2% of their GDP (*e.g.* the Netherlands, Sweden and Norway) while some others allocate less than 0.5% (*e.g.*, Portugal, Hungary). In addition, even among countries with similar share of their GDP allocated to LTC, there can be significant variation in the way LTC systems target resources among beneficiaries.

While still relatively small, there is concern across OECD countries that the demographic and societal changes described earlier will lead to higher ageing-related cost in the future. Projections on such cost as a share of GDP provide an indication on the magnitude (size) or urgency (timing) of the challenge ahead and offer a mean to analyse the main drivers affecting programme use. They typically serve to demonstrate where an existing set of policies or programmes is likely to lead, and are therefore sensitive to the initial level of resources allocated to the LTC sector.

Consistent with the results of a number of other international and country-specific projections on long-term care use and expenditures, the projections presented below point to a significant increase in LTC expenditure. These projections reflect the European Commission 2009 Ageing Report (European Commission, 2009) for European-OECD countries, complemented by estimation for a selection of non-European OECD countries, namely, Australia, Canada, Japan, United States and New Zealand. Box 2.3 provides explanations on methodology, as well as a summary of an earlier OECD analysis (OECD, 2006) and other country-specific studies.

#### Box 2.3. Recent OECD, EU and country-specific cost projections

##### OECD and EU cost projections

OECD and EU projections rely on a macro-simulation approach. Projection models are typically built in two stages. The first stage consists of estimating the future demand of long-term care (volume of care provided) and the second stage consists of estimating the cost associated with providing that future level of care.

Under the 2006 OECD *projections* (OECD, 2006; Oliveira Martins and de la Maisonneuve, 2006), the future demand for LTC is estimated by splitting the population into dependants and non-dependants according to a *uniform* rate of dependency (disability) by age group. The rates of disability by age group are derived according to dependency figures for Germany, Italy, Spain, and the United Kingdom (Comas-Herrera *et al.*, 2003). Second, *long-term care cost per dependant* across countries are derived according to a simple econometric model controlling for age and the participation ratio of the population aged 50-64 (proxy for availability of family care), using a panel of eleven EU countries. Total LTC cost equals the product of the estimated number of dependants by age-group and the estimated country-specific LTC-cost curve per dependant by age group.

**Box 2.3. Recent OECD, EU and country-specific cost projections (cont.)**

Under the 2009 EU projections, future demand for LTC is estimated by splitting the population aged 55 years and older into dependants and non-dependants according to the country-specific rate of dependency (disability) by age group and gender. The dependant population is then further split according to the probability to receive formal care at home, formal care in an institution or unpaid/informal care only (as a residual) by age and gender. Second, the average “user-cost” of providing formal care at home and in an institution, by age, is used to estimate total LTC cost. As for in-cash disability-related benefits, total expenditure is estimated by multiplying the dependant population by the proportion of that population receiving the benefits.

For the purpose of the analysis presented in this chapter, the methodology used for the 2009 EU projections has been applied to selected non-European countries. This methodology allows for a more refined examination of the organisation of LTC services across care settings. It also allows direct examination of the impact of a shift from family to formal care. In addition, the 5-country projections examine the private component of LTC spending and provide an indication of the expected impact of those projections on future demand for LTC workers. For the purposes of the analysis, projected GDP and employment estimates are based on an OECD report (Duval and de la Maisonneuve, 2009).

**Other country studies**

Recent studies in selected OECD countries generally use similar methodological approaches as the ones used by the OECD and the European Union. Nevertheless, country specific reports often benefit from a richer set of information on LTC use and cost.

**Australia.** As part of Australian Government Intergenerational Report 2010 entitled *Australia to 2050: Future Challenges*, projections of aged care expenditure are presented. Spending on aged care is projected to grow from 0.8% of GDP in 2009-10 to 1.8% of GDP in 2049-50. Two-thirds of the growth is accounted for by population ageing alone. Projections assumed that the prevalence of dependency/disability remains constant at the reference year level (pure demographic scenario). The projections allow for estimating the impact of factors influencing the participation rate into the programme. The model also reduces cost to government by increasing private contributions in line with the growing real income of aged-care services users.

**Austria.** In March 2008, the Austrian Institute of Economic Research published a report entitled *Medium and Long-term Financing of Long-term Care Provision*. The report was commissioned by the Federal Ministry of Social Affairs and Consumer Protection. It provides a range of projection scenarios examining changes in disability across the population, shifts from family/informal to formal nursing care reflecting higher labour market participation of women, as well as pressures to increase the value of the LTC cash allowance in line with the expected rise in the real costs of services. According to these scenarios, total spending in Austria on long-term care would fall in the range of 1.25 to 2.31% of GDP in 2030 relative to 1.13% in 2006.

**Czech Republic.** The governmental project Roundtable for the future path of healthcare financing in the Czech Republic published a report – *Financial Sustainability of the Czech Healthcare System Until 2050* – which offers detailed information about possibilities and limits of forecasting and predicting revenues and expenditures of the public health sector. The projected public expenditures on long-term care as to 2050 are going to increase by up to 190%, depending on the scenario.

**Box 2.3. Recent OECD, EU and country-specific cost projections (cont.)**

**Japan.** In 2006, the Ministry of Health, Labour and Welfare elaborated projections on the cost and benefits of Japan's long-term-care insurance. At the time, it was expected that total long-term care benefits would increase from 1.3% of GDP in 2006 to about 2.3% in 2025. The projections reflect the expected impact of recently introduced health prevention initiatives to foster healthy ageing, as well as the promotion of community-care settings. By 2025, these reforms are expected to reduce total long-term care insurance benefits by about 15%, relative to the increase that would occur in the absence of reform.

**Norway.** A recent report of the Norwegian Ministry of Health and Care Services entitled *Long-term Care – Future Challenges* presented information on the projected cost of the nursing and care sector up to 2050. Projections undertaken by Statistics Norway show that the salary costs in the nursing and care sector will increase from 3.1% of GDP in 2005 to 6.1% in 2050. The projection is based on a healthy ageing scenario, under which increase in lifespan are considered to be years with lower dependency.

**Sweden.** A recent report of the Ministry of Health and Social Affairs entitled *The Future Need for Care, Results from the LEV Project* projects the total costs of elderly care in relation to GDP to fall in the range of 4.2 to 4.5% of GDP in 2050 relative to 3.2% in 2010. The projected increase in costs is demographically driven and varies according to different ageing and technological development scenarios.

**Switzerland.** In a recent study prepared by the Swiss Health Observatory entitled *Les coûts des soins de longue durée d'ici à 2030 en Suisse*, total (public and private) LTC expenditure is expected to fall in the range of 2.4 to 3.1% of GDP in 2030, relative to 1.6% in 2005. Two-thirds of the growth in aged care spending is accounted for by population ageing alone. The baseline scenario, is a healthy ageing scenario, under which increases in lifespan are considered to be years with lower dependency.

**United Kingdom – England.** The Personal Social Services Research Unit (PSSRU) elaborated projections of demand for social care and disability benefits for older people (aged 65 and over) in England to 2041. Under the baseline scenario, projected public expenditure on social care and disability benefits would grow from 1.2% of GDP in 2005 to 2.0% in 2041. Under this scenario, it is assumed that the prevalence of dependency/disability remains constant at the reference year level (pure demographic scenario).

**Public LTC expenditure expected to at least double and possibly triple by 2050**

According to the 2009 European Commission projection scenarios, public LTC spending of OECD-EU member states, as a share of GDP, is expected to at least double by 2050. LTC expenditure are expected to fall in the range of 2.2 to 2.9% of GDP in 2050, relative to about 1.2% in 2007 (European Commission, 2009). Complementary OECD projections for a selected number of non-European OECD countries are consistent with those findings (Table 2.1).


Future trends in LTC expenditure can be affected by a number of factors, such as the prevalence of dependency by age-group, the cost of delivering care, and the availability of family care (see Section 2.2). Given uncertainties as to how these factors will evolve overtime, Table 2.1 presents public LTC projections according to six scenarios. Taken together, these scenarios provide a potential range within which a country's public LTC expenditure may fall in the future. The following section takes a closer look at those three factors and the key assumptions underpinning the projections.

Table 2.1. **Public LTC expenditure expected to rise significantly by 2050**  
Percentage of GDP, in base year prices

Base year	2050						
	Prevalence of dependency		Changes to the LTC cost structure		Decline in the availability of family care		
	Pure ageing (1 – Baseline)	Healthy ageing (2)	–1% of GDP per worker (3)	+1% of GDP per worker (4)	All home care (5)	All residential care (6)	
<b>EU 2009<sup>1</sup></b>	<b>2007</b>						
Austria	1.3	2.5	2.4	2.3	2.7	2.6	2.6
Belgium	1.5	2.9	2.8	2.6	3.2	3.1	3.5
Czech Republic <sup>2</sup>	0.2	0.6	0.5	0.6	0.6	0.6	0.7
Denmark	1.7	3.4	3.2	3.1	3.7	3.7	3.4
Finland	1.8	4.2	4.2	3.8	4.7	4.5	5.3
France	1.4	2.2	2.1	1.9	2.5	2.3	2.6
Germany <sup>3</sup>	0.9	2.3	2.2	2.1	2.5	2.4	2.7
Greece	1.4	3.3	3.2	2.9	3.7	3.5	3.9
Hungary	0.3	0.5	0.5	0.4	0.6	0.7	0.9
Ireland	0.8	1.8	1.8	1.6	2.0	1.9	2.2
Italy	1.7	2.9	2.8	2.6	3.2	3.3	3.9
Luxembourg	1.4	3.1	3.0	2.8	3.4	3.3	3.8
Netherlands	3.4	8.2	7.7	7.5	9.0	8.4	9.2
Norway	2.2	4.5	4.3	4.1	4.9	4.6	5.3
Poland	0.4	0.9	0.9	0.8	1.0	1.1	0.9
Portugal	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Slovak Republic	0.2	0.5	0.5	0.5	0.5	0.6	0.5
Spain	0.5	1.4	1.3	1.3	1.5	1.4	3.0
Sweden	3.5	5.5	5.3	5.0	6.1	5.8	6.3
United Kingdom	0.8	1.3	1.2	1.2	1.4	1.3	1.3
<b>OECD-EU average</b>	<b>1.3</b>	<b>2.4</b>	<b>2.3</b>	<b>2.2</b>	<b>2.7</b>	<b>2.5</b>	<b>2.9</b>
<b>Case study</b>	<b>2006</b>						
Australia	0.8	1.8	1.6	1.7	2.0	2.0	2.4
Canada	1.2	2.7	2.4	2.4	2.9	2.7	3.4
Japan	1.4	4.0	3.5	3.6	4.4	4.0	4.4
New Zealand	1.4	3.9	3.6	3.5	4.3	4.6	6.2
United States	1.0	1.9	1.7	1.7	2.1	2.2	2.6
<b>Case study – average</b>	<b>1.2</b>	<b>2.9</b>	<b>2.6</b>	<b>2.6</b>	<b>3.2</b>	<b>3.1</b>	<b>3.8</b>
<b>OECD 2006 projections</b>	<b>2006 (actual)</b>						
Iceland	1.9	2.8	2.5	–	–	–	–
Korea (2007)	0.2	–	–	–	–	–	–
Mexico	–	–	–	–	–	–	–
Switzerland	0.8	1.6	1.3	–	–	–	–
Turkey	–	–	–	–	–	–	–

- Public LTC expenditure as presented in the European Commission 2009 *Ageing Report*. For 2007, figures may differ from those found in OECD *Health Data*, as information from the Eurostat was used to complement available data. Public LTC expenditure may reflect a broader range of expenditures, including in-cash support or in-kind for instrumental activities of daily living (IADL) services.
- Data for the Czech Republic only reflect expenditures of the public health insurance funds and do not include expenditures on the attendance allowances.
- For the projection, unit costs are indexed to GDP per worker and do not reflect the current German legislation under which all long-term care benefits are indexed to prices.

Source: OECD calculations based on European Commission (2009), *Ageing Report*, Statistical Annex; OECD (2006), "Projecting OECD Health and Long-term Care Expenditure: What are the main Drivers"; and Duval and de la Maisonnette (2009).

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### Pure ageing scenario: LTC spending doubles

Under the *first baseline scenario* – often referred to the pure demographic or pure ageing scenario – the future demand for long-term care is projected according to the prevalence of disability in the reference year. This is equivalent to assuming that the number of years with disability will increase in line with future gains in life expectancy. LTC spending is projected to double from around 1.2 to 2.4% for OECD-EU member countries and to about 2.9% of GDP for the selected number of non-European OECD countries in 2050.

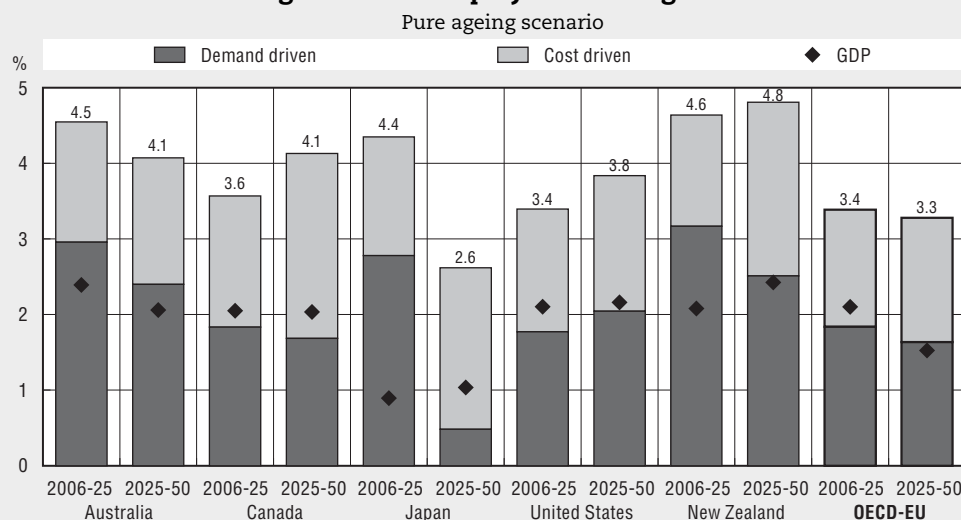
It should be noted that – because of different demographic structures – the period over which LTC cost pressures are expected to peak varies across countries. In addition, the relative intensity of factors driving cost growth – such as the age structure or wage levels – varies across country and over time, as explained in Box 2.4).

#### Box 2.4. Some countries face more immediate long-term care costs

For cross-country comparison purposes, LTC expenditure projections are typically presented as a ratio of projected gross domestic product (GDP). Projections can also examine the composition of the underlying rate of growth of key LTC components, relative to GDP growth.

As shown in Figure 2.9, while real public LTC expenditure is expected to grow consistently at a faster rate than real GDP, for some countries cost pressures associated with LTC are going to be more immediate compared to others.

Figure 2.9. **The average annual growth of LTC expenditure will be significantly higher than real projected GDP growth**



Source: OECD calculations based on OECD Health Data 2010; European Commission (2009), *Ageing Report*; OECD Labour Force and Demographic Database, 2010; and Duval and de la Maisonnette (2009).

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For instance, over the 2006 and 2025 period, Japan's real public LTC spending is expected to grow at an average annual growth rate of 4.4%, compared to 2.6% over the period of 2025 and 2050. On the other hand, LTC spending in the United States is expected to grow at an average annual growth rate of 3.4% before 2025, and 3.9% between 2025 and 2050, while the growth in total LTC spending in OECD-EU countries is expected to remain fairly stable over the whole projection period at just below 3.5% per year.

**Box 2.4. Some countries face more immediate long-term care costs (cont.)**

Generally, at least half of the increase in public LTC expenditure stems from the expected rise in the demand (volume) of care due to population ageing. The only exception is Japan for the period from 2025 to 2050, during which most of the growth is expected to come from the expected rise in the cost of care (e.g. wage pressures due to a shrinking workforce).

**Healthy ageing mitigates some of the rise in LTC spending**

The *second scenario* is a variant of the first one, often referred to as the healthy ageing scenario. It assumes that gains in life expectancy will lead to a delay in the onset of disability, with half of the increase in lifespan considered to be years with lower dependency.

According to this scenario, total public LTC cost could decrease by about 5 to 10% by 2050, relative to the baseline scenario. The projected change in the size and distribution of the population is at the heart of any LTC projections (Wiener *et al.*, 2007). That being said, demand, and hence expenditure, on long-term care ultimately depends on the functional status of the population and especially of the elderly people. The prevalence of dependency (disability) by age is therefore often used as a proxy to project the number of individuals that will likely require long-term care services. Most of the benefits of healthy ageing arise as a result of the oldest of the old (those aged over 80 years) getting healthier and thereby lowering their likelihood of requiring LTC services (Lafortune *et al.*, 2007).

**Productivity gains could compensate for future increases in LTC cost**

The *third and the fourth scenarios* examine the sensitivity of expected public LTC expenditure to a change to the LTC cost structure. LTC cost structures encompass a number of factors such as the range of services available, the intensity of care provided, the set of eligibility criteria, the existing formal care setting (institutional *versus* home care) as well as the quality of care.

For both the pure ageing and healthy ageing scenarios, the cost of providing LTC is assumed to grow in line with wages in the rest of the economy (i.e., real GDP per worker). Since LTC is a labour-intensive sector, this is a reasonable assumption, to ensure the ability of the sector to retain its workers.

Under the third scenario, on the other hand, it is assumed that the cost of providing LTC grows at a slower rate than real GDP per worker. Specifically, it is assumed that the real cost of providing LTC grows at a rate of 1 percentage point below real GDP per worker, over the first ten years of the projection.<sup>5</sup> Such a change could take place, for instance, as a result of the implementation of a new reform or the introduction of new technologies allowing for more care being provided for the same cost. This would bring a decrease of about 10% in projected public LTC expenditure, relative to the pure demographic scenario.

**But increasing demand for LTC and declining labour supply may put pressures on wages in the LTC sector**

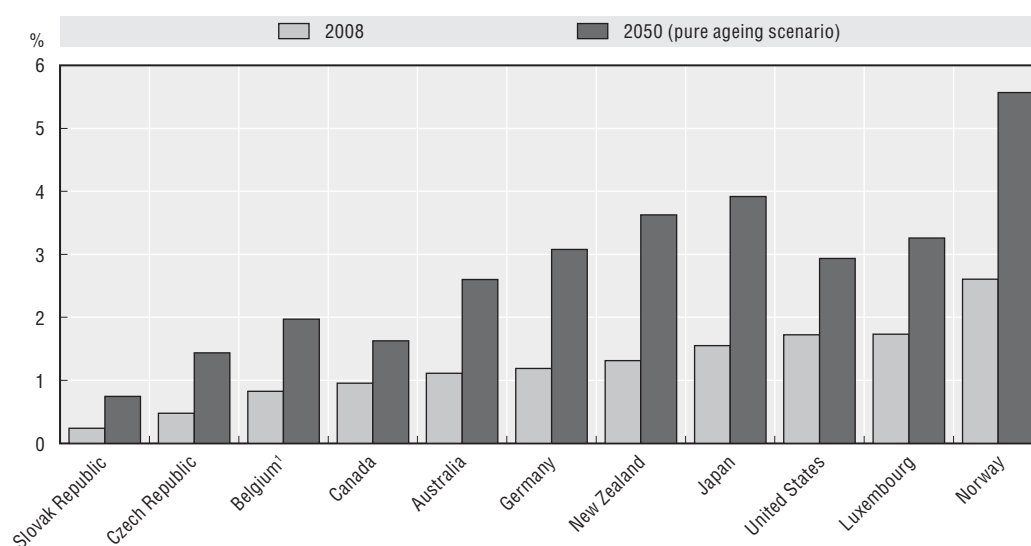
On the other hand, Scenario 4 examines the impact of LTC cost growing at a faster pace than the average wage level in the economy as a result, for example, of a revaluation of levels of pay in the sector. The real cost of providing LTC is assumed to be growing at a rate of 1 percentage point above real GDP per worker over the first ten years of the



projection period (see endnote 5). This scenario results in an increase of about 10% in projected public LTC expenditure, relative to the baseline scenario.

This scenario is very relevant if one considers that meeting the expected demand for LTC services by increasing the supply of workers may be difficult, given that it will take place in the context of a shrinking workforce. As discussed earlier, even though in some countries the overall size of the working-age population may still be expected to grow in the coming years, projections until 2050 show a significant reduction in the share of the working-age population in most OECD countries. This reduction is, in some countries, coupled with an absolute reduction in population size. Recruiting and retaining LTC workers in the future may be a challenge and could exacerbate pressures on wages in the sector. The data below exemplify these pressures.

Figure 2.10. **The demand for LTC workers is expected to at least double by 2050**  
Percentage of FTE nurses and personal carers to total projected working population



Note: For the purposes of the analysis, the number of LTC workers includes nurses and personal carers working in an institution or at home, express on a full-time equivalent (FTE) basis. The analysis is limited to employed LTC workers and generally does not include other LTC workers under different working arrangements, such as self-employed individuals. The range of occupations considered as nurses and personal carers, as well as the definition of full-time equivalent may vary across countries. Data for Australia, New Zealand and the United States refer to 2007. Data for Canada and Luxembourg refer to 2006.

1. Refers to institutions only.

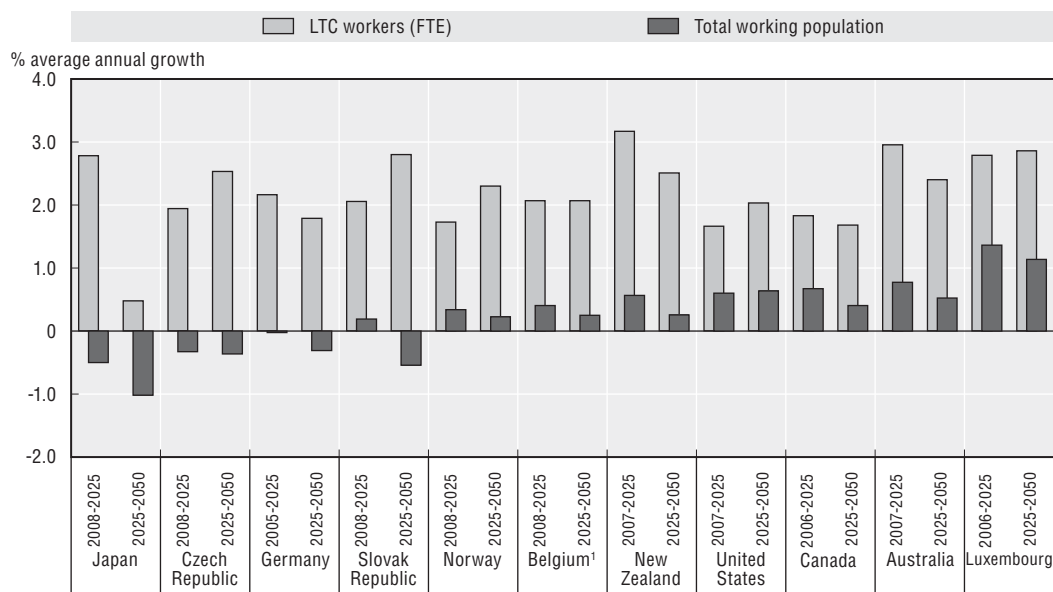
Source: OECD calculations based on OECD Health Data 2010; European Commission (2009), *Ageing Report*; OECD Labour Force and Demographic Database, 2010; and Duval and de la Maisonneuve (2009).

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First of all, the share of the workforce employed in the LTC sector is relatively small and is set to increase significantly. For the eleven OECD countries for which information is available, the total number of full-time equivalent nurses and personal carers working in the LTC sector currently ranges between 1 and 2% of the total workforce, on average. For many countries, this share could more than double by 2050, assuming no changes in the current ratio of LTC workers per recipient (Figure 2.10). This reflects the expected rise in the number of dependents requiring formal care (demand for care).

Second, the growth in the demand for LTC workers, and the expected stagnation – or even decline – of the total workforce, will result in a significant increase in the share of the total workforce employed in the LTC sector, as shown in Figure 2.11. The demand for LTC


Figure 2.11. **Change in demand for LTC workers and working-age population by 2050**



FTE: Full time equivalent.

1. Refer to FTE nurses and personal carers in institutions only.

Source: OECD calculations based on OECD Health Data 2010; European Commission (2009), *Ageing Report*; OECD Labour Force and Demographic Database, 2010 (pure ageing scenario); and Duval and de la Maisonneuve (2009).

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workers is expected to grow at an average rate ranging between 2 to 3% per year, over the projected period – with the exception of Japan, for which the projected demand for LTC workers is expected to slow down between 2025 and 2050. In absolute terms, by 2050, the demand for LTC workers (on a full-time equivalent basis) is expected to about double in Japan, the United-States and Canada and about triple in Australia, New-Zealand, Luxembourg and Slovak Republic. As to the total workforce in the economy, this is projected to grow at less than 1% per year for most of these countries, over the projection period. It is projected to stagnate in Finland, and it is set to decline in Germany, Czech Republic, Japan and Slovak Republic (after 2025).

### ***Declining availability of family care is expected to exacerbate the rise in LTC spending***

Under all the projection scenarios examined above, it is assumed that the availability of informal care would remain stable over time. However, as discussed earlier in the section entitled “The pool of family carers is likely to decrease”, there is a great deal of uncertainty with respect to the future availability of family care and the consequences this will have on increased demand for formal care.

The *fifth and sixth scenarios* shown in Table 2.1 examine the impact of a shift from family to formal care occurring, for example, because of a decline in the availability of informal care or as a result of a change in policy. These scenarios assume that the number of dependants relying on family or no care will decline at an annual rate of 1% during the first ten years of the projection period (see endnote 5). Under the fifth scenario, all “new” beneficiaries would receive care at home and under the sixth scenario, all “new” beneficiaries would receive care in an institution.

Relative to the projected impact of healthy ageing or slower cost-growth scenarios, the impact of a shift from family to formal care on projected public LTC expenditure varies significantly more across OECD countries. Variations mainly reflect differences in the share of the country's dependent population relying on family or no care, as well as their respective average cost of providing care at home or in an institution.

On average, for the OECD-EU countries, the projected decline in the dependant population relying on family or no care is expected to increase public LTC cost in the range of about 5 to 20%, compared to a range of about 10 to 35% for the other five non-EU OECD countries.

### ***Changing the mix of public/private financing of LTC services has large implications for users' budgets***

While most international studies tend to focus solely on the public share of LTC expenditure due to data limitation and concerns regarding the fiscal sustainability of governments in a context of population ageing, the mix of public and private financing determines how much individuals have to pay for LTC services (Kaye et al., 2010). It has major implications for individual's ability to pay for LTC services.

Many OECD countries have introduced in recent years policies that might alter the mix of public and private coverage of LTC cost. Public coverage pools the risk of dependency over a large share of a country's population, thereby significantly reducing the cost incurred by LTC users. On the other hand, universal public schemes inevitably reduce cost incurred by some users who could afford to fully or partially pay for care on their own. Over the years, public coverage has increased in some countries (e.g. France, Japan, Spain, Korea) while in others the share of LTC spending financed publicly has gone down or has been further targeted (e.g. Germany, Sweden, Netherlands).

The projections presented above are elaborated so that the share of public financing of LTC services unchanged over the projection period. As a result, the private portion of LTC expenditure as a share of GDP can be expected to move in line with the public portion of LTC expenditure, i.e., to at least double and possibly triple by 2050. For those countries which report some information on private LTC spending in *OECD Health Data*, the private share of LTC expenditure generally falls between 0.1 and 0.4% of GDP in 2006 (with the exception of Switzerland with a share above 1% of GDP).

However, policies might also change the public-private mix (e.g. higher/lower co-payments), with significant repercussions on the overall share of the cost born by LTC users. As the share of LTC spending which is born privately is relatively low, the private share of LTC would be more sensitive to increases or decreases in the level of public LTC spending (see Box 2.5). The distributional impact of such a change has to be examined carefully in order to mitigate unintended outcomes such as the risk for catastrophic LTC expenditures.

### Box 2.5. Potential shifts between public and private financing of LTC expenditure

Table 2.2 shows the potential impact of a shift in the public/private share of LTC expenditure resulting from a policy changing the comprehensiveness of public coverage. Two scenarios are examined. Under the first scenario, the public share of total LTC cost increases by 5 percentage points, while under the second scenario the share is reduced by 5 percentage points. Under both scenarios, total LTC (public and private) expenditures remain unchanged.

Table 2.2. Potential impact of changing the mix of public/private financing of LTC

Percentage of GDP, in 2006 prices

Case study	Base year	2050		
		Baseline scenario	Shifts in public/private mix	
	2006	Pure ageing	Lower public coverage (-5 percentage points)	Higher public coverage (+5 percentage points)
Australia	Public LTC: 78%			
Public	0.8	1.8	1.7	1.95
Private	0.2	0.6	0.7	0.45
Canada	Public LTC: 83%			
Public	1.2	2.7	2.55	2.85
Private	0.2	0.55	0.7	0.4
Japan	Public LTC: 89%			
Public	1.4	4	3.8	4.2
Private	0.2	0.5	0.7	0.3
New Zealand	Public LTC: 92%			
Public	1.4	3.9	3.7	4.1
Private	0.1	0.3	0.5	0.1
United States	Public LTC: 69%			
Public	1	1.9	1.8	2.1
Private	0.4	0.9	1	0.7

Source: OECD calculations based on OECD Health Data 2010; OECD Labour Force and Demographic Database, 2010; and Duval and de la Maisonneuve (2009). Totals may not add due to rounding.

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As shown in Table 2.2, among the five selected OECD countries, the relative importance of the public share of total LTC expenditure varies from about 70% in the United States to about 90% in Japan and New Zealand.

An increase/decrease of 5 percentage points in the public share of LTC would result in an increase/decrease of about 5% in the level of public LTC spending. However, because of its relatively smaller size, the level of private LTC spending would be more sensitive to such a change. For instance, the impact of an increase/decrease of 5 percentage points in the public share of LTC on private LTC spending could range between an increase/decrease of more than 15% in the United States to about 65% in New Zealand.

This analysis is a simplification of reality, as the elasticity of public and private spending may not be the same, resulting in different total LTC spending, depending on whether a measure increases public or private spending. Nevertheless, the analysis suggests that a change in the financing mix could have significant repercussions on the level of private LTC expenditure incurred by LTC users and their household, which could have a disproportional impact on those living on low and moderate income and those with relatively high care needs.

## 2.4. Conclusions: Policies to address future pressures on long-term care systems

OECD countries will experience a high need for long-term care due to increase of the share of those aged over 80 years in the populations. While the demographic transition is likely to have different outcomes across countries, the increased shares of those in need for care will likely add pressures on family members to become family carers, the more so as the pool of those potentially able to provide care will likely shrink and become older.

Family care projections suggest that, given the existing rate of caregiving and population ageing, the availability of family carers is expected to decline, even when taking into account the impact of men living longer. To palliate this, i) either a higher proportion of the population will need to be involved in unpaid care over time; or ii) those involved in unpaid care will be pressured to increase their care effort; or iii) pressure will increase to shift some care to the formal sector. An increase in the proportion of the population involved in caregiving, particularly with increasingly older and frail spouses becoming more important as the primary source of family care, may have additional implications in terms of health for such population (see Chapter 3). Chapter 4 assesses to what extent counselling and respite care and other policies support carers. Such policies are likely to help both elderly spouses to remain as long as possible in the community and better recognise and encourage the availability of family carers.

The analysis also points to a significant rise in formal LTC use and expenditure by 2050. *Ceteris paribus*, this would translate in higher demand for LTC workers, raising the question of how many LTC workers supply care across OECD, and in what working conditions (Chapter 6). Initiatives directed at the formal LTC workforce, with a view to improve recruitment, retention and productivity will be needed. It also raises the question of how cost will be shared within and across generations, and between the public and private sectors (Chapters 7 to 9).

The expected growth in need and expected decline in both the working-age and the caregiver's populations suggest that addressing future LTC challenges will require a multi-pronged approach focussing on both formal and family care arrangements, as well as their co-ordination. For instance, increasing the supply of LTC workers may be difficult to achieve in a context of a shrinking workforce. Recruiting and retaining LTC workers in the future will be a greater challenge and will likely exacerbate future pressures on wages. Productivity gains could increase the supply of care at a given cost. This is a promising area for government intervention. Healthy ageing policies would help mitigating growth in health or long-term care spending, but also increase the potential size of the labour force and the supply of family carers. In addition, care recipients themselves could take increasing responsibilities towards their own care (*i.e.*, self-caring), through better prevention as well as with the support new technologies (Chapter 10). Policies discussed in the next chapters of this report will offer a menu of possible interventions.

### Notes

1. The UK projections are based on the probabilities to provide informal care by gender, age and marital status in 2000 and use projections of changes in marital status and the number of people by age and gender.

2. Changes in mortality are better explanatory factors of the probability to live with a partner than pair formation or dissolution and suggest that the number of elderly living with a partner will increase faster than the total number of elderly (Keilman and Christiansen, 2009).
3. The researchers examine the impact of a 20% reduction in the number of women becoming carers between 1998 and 2013 using information on full-time and part-time labour force participation and on the number of hours of work while providing care and prior to providing care. Compared with the baseline scenario, the reduction in female carers is likely to lead to 1% fewer carers aged 25-59.
4. This section refers to expenditure for *formal* LTC services.
5. Consistent with the methodology used in the European Commission 2009 *Ageing Report*. This is a reasonable assumption since such a change to the LTC cost structure would not be expected to apply over the whole projection period.

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