ECONOMICS DEPARTMENT POLICY NOTE No. 19

WHAT FUTURE FOR HEALTH SPENDING?

OECD

Economics Department

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**Main findings**

- Rising spending on health and long-term care will continue to put pressure on public budgets over the next decades. Starting from around 6% of GDP in 2006-10, the combined public health and long-term care expenditure for OECD countries is projected to reach 9.5% in 2060 even assuming that policies act more strongly than in the past to rein it in. Without such policy action, spending could reach 14% of GDP. In BRIICS countries, spending ratios will also increase significantly from the current low levels, reaching around 10% of GDP by 2060 unless cost-containment policies are implemented.

- Different spending growth across OECD countries reflect differences in demographic trends, initial income levels and current reliance on informal long-term care. For example Korea and Chile, due to rapid ageing, or Turkey and Mexico, due to high current reliance on informal care, are projected to experience above average increases in public health expenditures. By contrast, the Nordic countries, as well as the United States and the United Kingdom, display lower than average growth over the next 50 years.

- Although they are important for cross-country differences, demographic and income effects play only a relatively modest role for overall spending growth. Health care spending will be driven by a combination of new technology and rising relative prices whereas, especially in OECD countries, pressures on long-term care costs will originate mostly from the latter, given weaker productivity gains than in the economy as a whole.

- There are a number of upside risks to the spending projections. These relate to an extension of the typical pre-death period of ill health as longevity increases; higher than expected costs as technical progress makes it possible to meet new demands; and increased dependency due to obesity trends or dementia..

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Spending on health and long-term care has been putting pressure on public budgets

1.   Spending on health and long-term care (henceforth LTC) has long been a first-order policy issue for most governments. Public health and LTC expenditure has been rising steadily relative to GDP for several decades. Since 1970, on average across OECD countries, the expenditure to GDP ratio has increased by 3.5 percentage points to reach around 6 % in 2006-2010. In the past decade it has increased by more than a fifth (Figure 1).

Figure 1. The rising share of public health and long-term care expenditures in OECD countries[1]

Share of health and LTC spending in % of trend GDP[2]
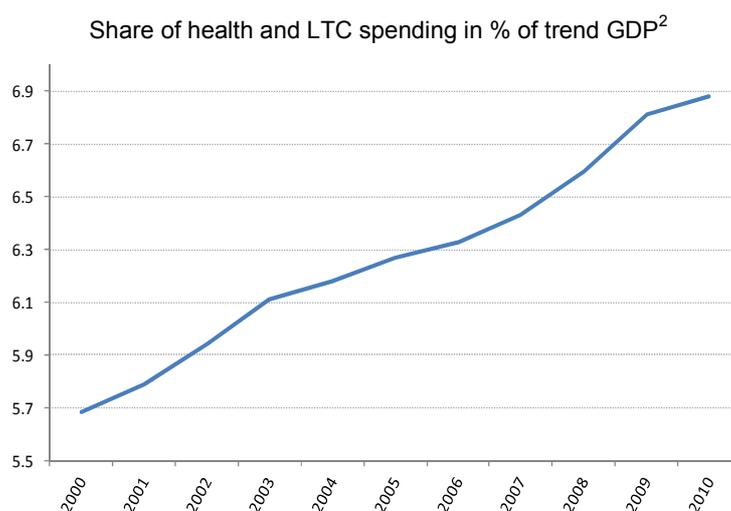
1. Unweighted average of available OECD countries.
2. To focus on the structural factors and smooth the effect of GDP variations, the ratio displayed in this figure uses trend instead of actual GDP (from the OECD Economic Outlook, No.91) in the denominator.
Source: OECD Health Database (2011) and OECD Economic Outlook database No.91.

Over the next 50 years, health and long-term care spending will continue to rise

2.　　　Health and LTC expenditures are projected to increase significantly as a percentage of GDP over the next decades in both OECD countries and the BRIICS (Brazil, Russia, India, Indonesia, China and South Africa).[1] A cost-pressure scenario is based on the assumption that spending growth will continue to outpace the contributions from income growth and demographic developments by the same margin as in the past. The result is that total health and LTC expenditure more than double as a share of GDP, increasing to almost 14% of GDP among OECD countries in 2060. In a cost-containment scenario, based on the assumption that policy action is undertaken to curb pressures on expenditure, the ratio would still increase by more than half, to reach 9.5% (Table 1). For the BRIICS, starting from a much lower level of around 2.5% of GDP, total public health expenditure will increase to about 10% in the cost-pressure scenario and above 5% in 2060 in the cost-containment scenario - close to levels currently observed in OECD countries.

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[1]　　　OECD (2006) had already provided long-term projections of public health spending for OECD countries. This study updates and refines those projections and extends the coverage to the BRIICS.

Table 1. Rising public health and long-term care expenditure over the next decades

(As a % of GDP)

		Expenditure as a % of GDP			Percentage point deviations from starting period
		2006-2010	2030	2060	2060
Total					
OECD	Cost-containment	6.2	8.1	9.5	3.3
	Cost-pressure	6.2	8.8	13.9	7.7
BRIICS	Cost-containment	2.5	3.9	5.3	2.8
	Cost-pressure	2.5	4.4	9.8	7.3
Health care					
OECD	Cost-containment	5.5	7.0	7.9	2.5
	Cost-pressure	5.5	7.5	11.8	6.3
BRIICS	Cost-containment	2.4	3.5	4.4	2.1
	Cost-pressure	2.4	4.0	8.3	5.9
Long-term care					
OECD	Cost-containment	0.8	1.1	1.6	0.8
	Cost-pressure	0.8	1.3	2.1	1.4
BRIICS	Cost-containment	0.1	0.3	0.9	0.8
	Cost-pressure	0.1	0.4	1.4	1.3

3.   There are striking differences across countries (Figure 2). Some of them experience a 4 to 5 percentage point increase in total spending to GDP ratios over the period 2010-2060 in the cost-containment scenario. Driving factors are rapid ageing (Korea and Chile) or rising labour force participation especially of women, which will raise the demand for *formal* long-term care (Spain and Mexico). By contrast, in the United States, the United Kingdom and the Nordic countries the projected increase is below 3 percentage points of GDP. In these countries demographic trends look more stable and the share of formal long-term care is already relatively high. On average, spending ratios in the BRIICS will remain lower than in OECD countries. However, they will rise significantly under both scenarios. For instance, even in the cost-containment scenario, ratios will more than double by 2060.

Figure 2. Total public health and long-term care spending ratio to GDP

As a % of GDP
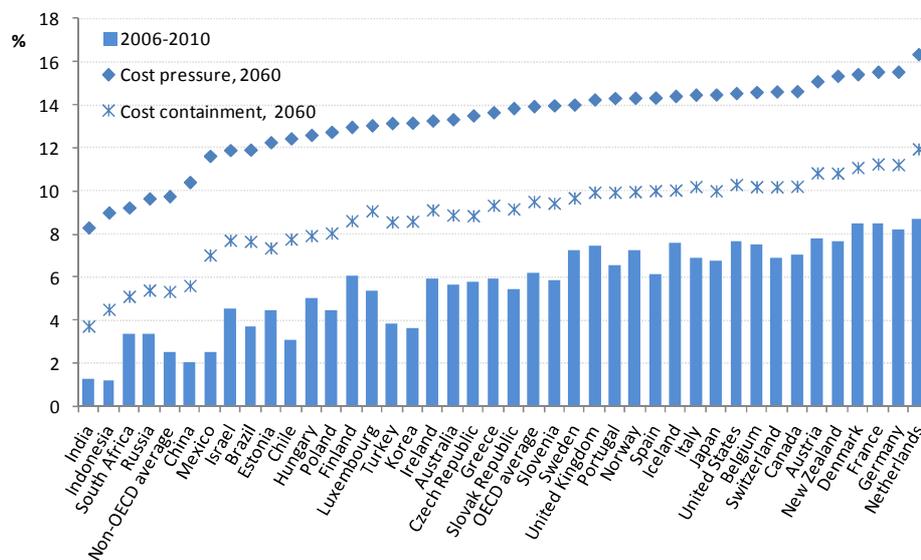
Source: de la Maisonneuve and Oliveira Martins, 2013.

Health-care expenditure is driven by a number of factors

Learning from the past…

4.   The drivers of public health-care expenditure are both demographic and non-demographic (Figure 3). Demographic drivers relate broadly to the age structure of the population and the evolution of its health status, while a major non-demographic driver is income. The responsiveness of health expenditures to income remains an unsettled issue (de la Maisonneuve and Oliveira Martins, 2013), but independent of the precise relationship, the combination of demographic and income effects fails to explain a large part of the total growth in public health-care expenditure in the past. Rising relative prices and technological progress --interacting with health policies and institutions-- are the most likely candidates for explaining this drift in spending.

Figure 3. The determinants of public health expenditure
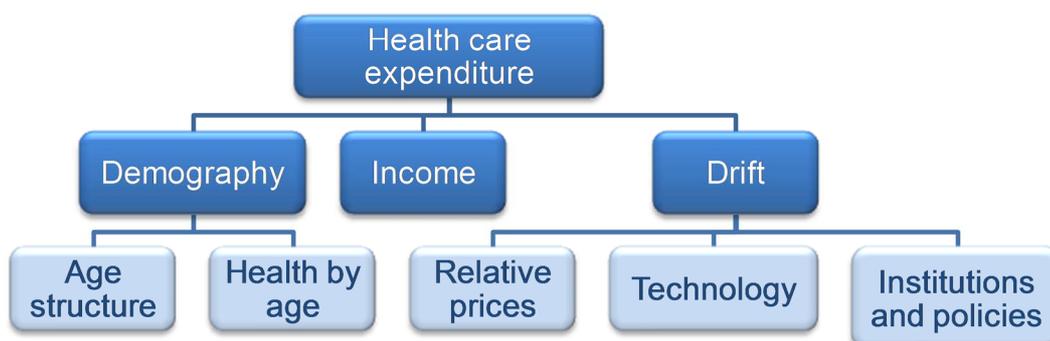
5.   The relative contribution of each driver of public health expenditures over the past 15 years can be estimated by considering actual changes in the population age structure during the period 1995-2009 and the effects of changes in income.[2] On this basis, demographic drivers appear to explain relatively little of past average developments in health spending. Between 1995 and 2009, public health spending grew on average about 2 percentage points faster than GDP per year in OECD countries, of which only 0.5 percentage points can be attributed to 'pure demographic' developments. Assuming that health spending rises slightly less than proportionately with income, income effects reduce on average the spending ratio by 0.4 percentage points almost offsetting the increase in ratio attributable to demographics. Therefore, a spending drift of around 2 per cent per year on average across OECD countries remains to be explained.[3] Similar analysis for the BRIICS suggests that they experienced an even more important drift beyond demographic and income developments. More details on projections of future health spending developments are provided in Box 1.

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[2]   Based on recent research, as well as OECD estimations (see de la Maisonneuve and Oliveira Martins, 2013), it was assumed that public health spending rises slightly less than proportionately with real income gains (i.e. a real income elasticity equal to 0.8) and the sensitivity of the projections to this assumption was subsequently tested.

[3]   Additional econometric estimates carried out for this survey confirmed this order of magnitude by pointing to an average 1.7% annual drift in spending.

Box 1. Projecting future health spending developments

Future public health expenditures were projected based on likely long-term trends in both demographic and non-demographic drivers. More specifically, demographic influences reflect consensus population projections (UN and Eurostat), the effect of income growth is based on the baseline OECD long-term income growth scenario (OECD, 2012) and, in the absence of cost-containment policies, the expenditure drift is assumed to continue unabated at rates observed on average in the past. The factors that may explain the spending drift observed in the past -- developments in relative prices, technological progress and the features of health institutions and policies – and their interplay are subject to too many uncertainties for them to be projected individually. Therefore, the drift is projected as a whole and sensitivity to different assumptions is subsequently tested. Moreover, while such drift has differed across countries in the past, a common average was assumed for the future in order to avoid extrapolating country-specific idiosyncrasies over the next 50 years.[1]

Public health spending depends on demographic developments because it varies by age group (Figure 4): it is relatively high on average for young children; it is low and stable for most of the prime-age period; and it increases rapidly in older age, the health-care cost of people aged 90 and over being six times that of young people. Thus, populations that are ageing, as a result of longer lives and a lower birth rate, should see a priori increasing aggregate per capita public health care expenditures. However, this intuition finds little support in the data and assessing the effect of population ageing on both health and health spending has proved to be far from straightforward (Breyer et al., 2011).

Figure 4. Public health care expenditure varies by age group[a]

(Cross-country ranges, % of GDP per capita)
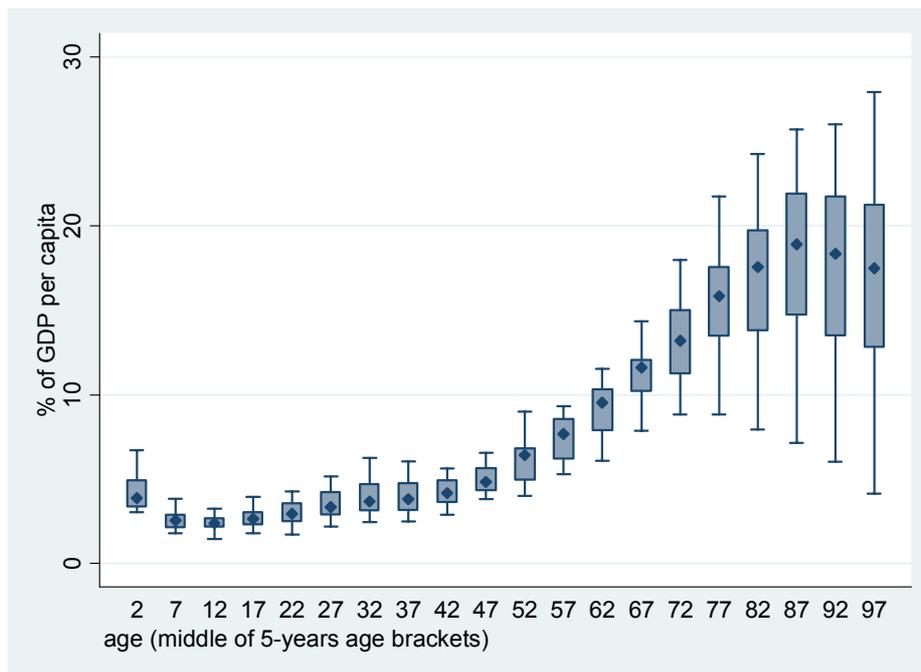
a. The graph shows the dispersion of health care expenditure across countries by age groups. The diamonds represent the median. The boxes are the 2nd and 3rd quartiles of the distribution of expenditure across countries. The whiskers are the 1st and 4th quartiles.

Source: European Commission, 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060); national statistics for non-EU countries.

Consistent with a large number of previous studies, this paper assumes that what matters for health spending is not ageing per se but the proximity to death: the so-called "death-related costs" hypothesis. This interpretation is consistent with the observed fact that health-care expenditure tends to increase in a disproportionate way when individuals are close to death. Given that these death-related costs are not related to age they also imply that when longevity increases, the concentration of spending shifts over the life cycle. Accordingly, increases in life expectancy

should be accompanied by an equivalent gain in the number of years spent in good health which corresponds to assuming "healthy ageing". For example, the health status of a 64-year old person today is assumed to be the same as a 67-year old person in 2025 and a 70-year old person in 2050. Hence, aggregate health care spending is only driven by a rising share of the population close to death and not by an increase in the average age of the population.

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1. The projections use a benchmark residual expenditure growth of 1.7% per year (see de la Maisonneuve and Oliveira Martins, 2013 for details).

… to project future health spending developments

6.　　Two main scenarios for the future evolution of public health spending have been considered: a "cost-pressure scenario" in which growth in expenditures unrelated to demographics or income (i.e. the spending drift) is assumed to continue at the same average rate as observed in the past; and a "cost-containment scenario" in which some (unspecified) policy action makes the spending drift fade away over time.[4] Cost-containment policies can be thought of as actions to limit the pressures arising from excessive relative health prices, *e.g.*, by monitoring more closely the adoption of new technologies or modifying incentives to take up excessively costly technologies via changes in the governance of health institutions. Indeed, for instance, better user information on the quality and price of health care services would be a reform option to consider in many OECD countries (OECD, 2010).

7.　　As in the past, on average, the demographic effect accounts for a relatively small increase in future public health spending ratios to GDP (Figure 5). It pushes up spending in OECD countries by 0.8 percentage points between 2010 and 2060, while in the BRIICS it increases spending by one percentage point over the same period. The underlying increase in income has a depressing effect on public health spending ratios, as spending is assumed to rise slightly less than proportionally with income. On average, the negative effect of income growth completely compensates spending pressures from demographics in the OECD area and more than offsets these pressures in the BRIICS, reflecting stronger growth due to catch-up to living standards of advanced countries.

8.　　However, entirely due to continuing pressure from non-demographic, non-income drivers, in the cost-pressure scenario, the OECD average health expenditure to GDP ratio is projected to more than double between 2010 and 2060 whereas in the BRIICS it is set to more than triple (Table 1). With the non-demographic, non-income drivers assumed to be reined in by policies, in the cost-containment scenario spending pressures will be less strong, though still very significant: the health expenditure to GDP ratio for OECD countries would increase by 2.5 percentage points between 2010 and 2060 while the increase in BRIICS countries would average around 2 percentage points.

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[4]　　Empirically, the drift is assumed to decline from 1.7% to 0% in 2060. Both scenarios also assume that gains in life expectancy translate in additional years of good health and that health spending increases slightly less rapidly than real income (i.e. an income elasticity of 0.8). Sensitivity analysis to these assumptions was carried out in the context of the cost-containment scenario, suggesting that results are relatively robust to changes in assumptions (see de la Maisonneuve and Oliveira Martins, 2013, for details).

Figure 5. Public health care expenditure will continue to rise significantly

(Expenditure to GDP ratio, percentage point deviations from 2006-2010)
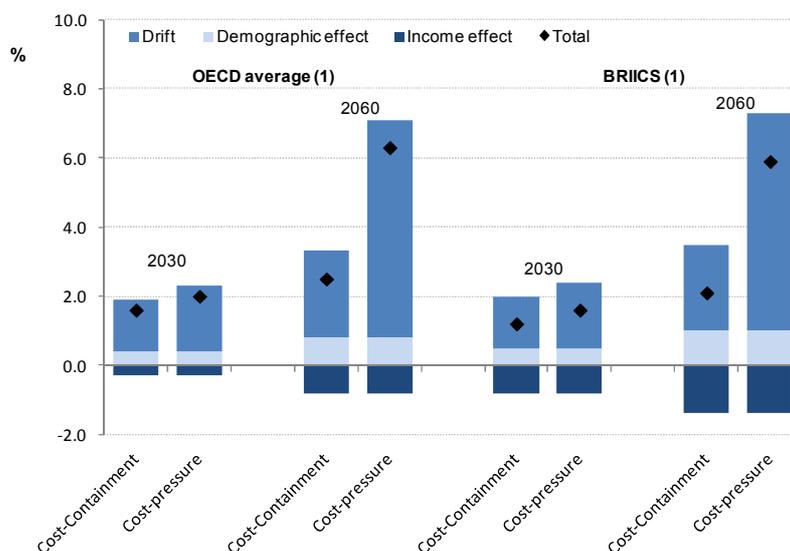
1. Unweighted average.

Note: Both scenarios assumed an income elasticity of 0.8 as well as healthy ageing. In the cost-pressure scenario, the spending drift is assumed to be 1.7% annually over the projections period while in the cost-containment scenario this drift is assumed to decline from 1.7% in the initial years to 0% in 2060.

Source: de la Maisonneuve and Oliveira Martins (2013).

Pressures on long-term care costs originate mostly from weak productivity gains

9.   Long-term care differs radically from health care. While health care services aim at changing the health condition (from unwell to well), LTC merely aims at making the current condition (unwell) more bearable. Individuals need LTC due to disability, chronic condition, trauma, or illness, which limit their ability to carry out basic self-care or personal tasks that must be performed each day. Another difference between spending on health and LTC is that the cost of helping a dependent person is more or less the same irrespective of the age of the dependant (Figure 6). Moreover, while potentially the entire population may benefit from health care, only dependent persons will directly benefit from LTC. As for health care, drivers of LTC expenditure can be separated in demographic and non-demographic (Figure 7).

Figure 6. Public long-term care expenditure per beneficiary is independent of age[1]

(Cross-country ranges, % of GDP per capita)
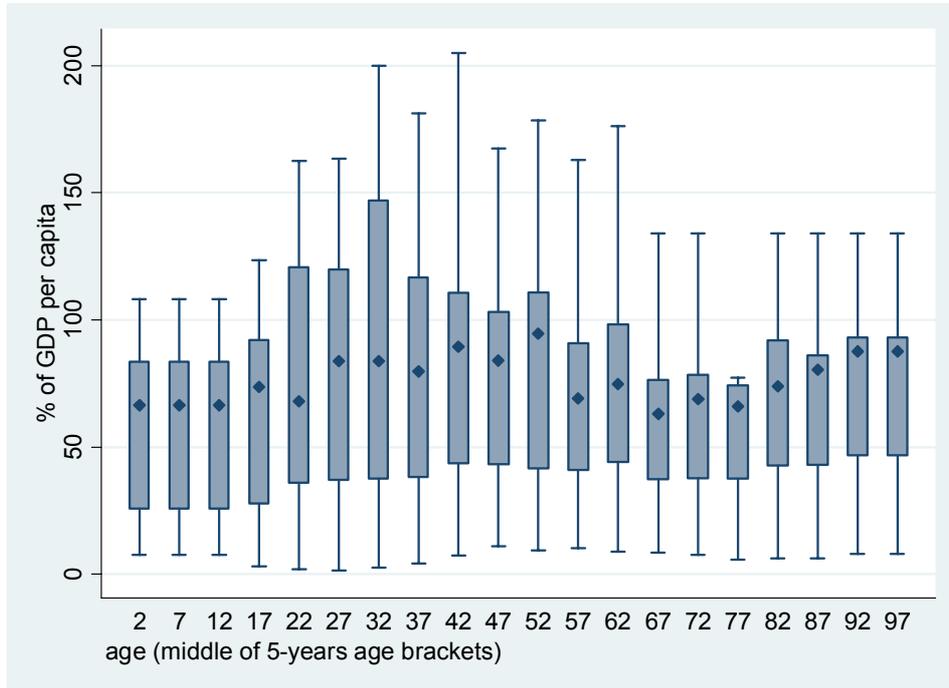
1. The graph shows the dispersion of long-term care expenditure across countries by age groups. The diamonds represent the median. The boxes are the 2nd and 3rd quartiles of the distribution of expenditure across countries. The whiskers are the 1st and 4th quartiles.

Source: European Commission, 2009 Ageing Report: Economic and budgetary projections for the EU-27 Member States (2008-2060).

Figure 7. The determinants of public LTC expenditure
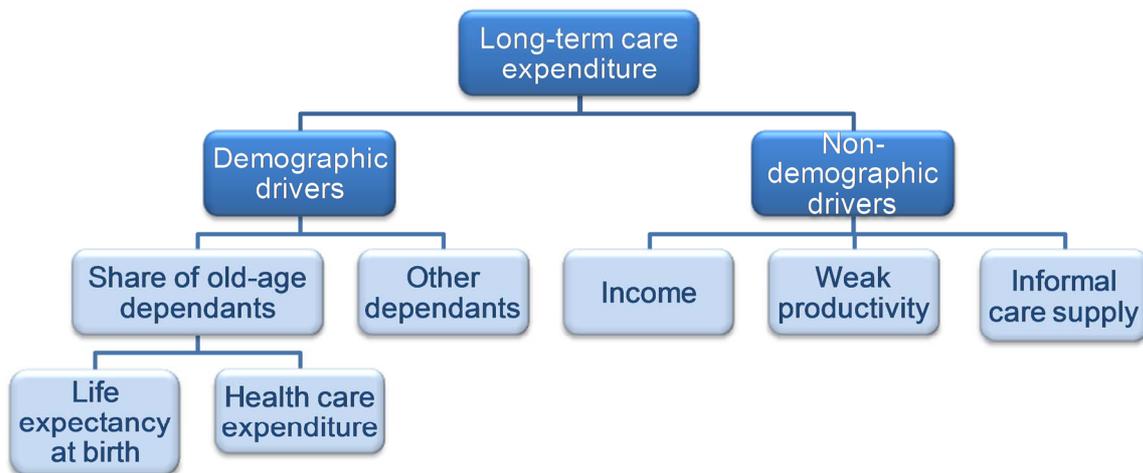
Demographic features have conflicting effects on LTC expenditures

10.   Overall, LTC expenditure depends on the number of dependent people in the population. In turn, this number depends on the evolution of longevity and spending on health care. As the age-specific dependency ratio rises sharply after the age of 75, any increase in life expectancy above that threshold can increase significantly the number of old-age dependants, thereby putting pressure on LTC spending. Moreover, as health care spending improves the probability of survival at old-age, it can also push up LTC spending. This will be the case, for instance, if survival at older ages translates into an increase in the prevalence of chronic diseases. However, if improvements in life expectancy at birth translate into additional years in good health, the increase in dependency occurs later in life. Therefore the initial spending pressures from higher longevity are mitigated by such healthy ageing. The projections, which incorporate these conflicting factors, suggest that this mitigating effect on spending broadly balances the effects of the increase in the sheer number of old age dependents. As a result, for most countries, demography is not the major driver of projected LTC spending increases, except where ageing is fast enough to increase significantly the share of very-old people in the population (*e.g.* Korea, China, Indonesia).

Rising unit labour costs will be an important driver of LTC spending

11.   Apart from the evolution of the number of dependants in the population, three non-demographic factors also have an impact on LTC expenditure growth: changes in the relative price of LTC, income effects and changes in the demand for public-financed LTC, which in turn depends on the availability of informal care. Income growth plays an essential role in LTC spending. It has a direct effect via increases in living standards because, when real incomes rise, demand may be directed at higher quality services (Colombo *et al.*, 2011). The projections assume that LTC spending increase fully in line with income. It has also an indirect effect via the so-called "cost-disease" phenomenon: with the general wage level driven by growth in average productivity, unit labour costs increase faster in sectors with low productivity growth, such as LTC (Baumol, 1967; 1993). Indeed, the LTC sector is highly labour-intensive and the room for productivity gains is often seen as more limited than elsewhere in the economy. With equalisation of wages for comparable categories of labour across sectors, this implies that the relative price of LTC *vis-à-vis* other goods and services in the economy, tends to rise as aggregate productivity and GDP per capita increase.

12.   Public LTC expenditure depends also, albeit to a lesser extent, on the availability of informal long-term care. Since there is evidence that informal elderly care is associated with lower female labour force participation (Viitanen, 2005), the labour force participation of women aged 50-64 is taken as a proxy for projecting the future evolution of informal care and the corresponding demand for public spending on LTC. Indeed, as female labour force participation increases, the demand for public-financed (formal) LTC services can be expected to grow.

Long-term care expenditure will also increase significantly over the next 50 years

13.   As for health care, a cost-pressure and a cost-containment scenario are envisaged.[5] In the cost-pressure scenario, for OECD countries, the cost-disease effect is assumed to be strong, meaning that relative unit labour costs in LTC increase fully in line with aggregate labour productivity. For the BRIICS, abundant labour supply especially in the non-tradable sector suggests weaker wage pressures than in the OECD countries, and therefore only half of the increase in aggregate productivity is assumed to translate into an increase of relative unit costs of LTC. The cost-containment scenario is based on the assumption

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[5]   Both scenarios are based on the "healthy ageing" hypothesis and assume that LTC spending evolve in line with income. Sensitivity analysis to these assumptions was carried out in the context of the cost-containment scenario, suggesting that results are relatively robust to changes in assumptions (see de la Maisonneuve and Oliveira Martins, 2013, for details).

that policy to some degree mitigates the relative cost increases of public LTC providers.[6] For example, action to curb expenditure could be aimed at facilitating access to LTC provision by low-skilled migrants, at providing incentives to balance institutional and home-based LTC, or at raising productivity in institutionalised care.

14.   In the cost-pressure scenario, the ratio of public LTC expenditure to GDP is projected to increase by 1.4 percentage points between 2010 and 2060 for the OECD on average (Figure 8). For non-OECD countries, which start from much lower levels of formal LTC, the increase in LTC spending is projected to be, on average, slightly lower than that experienced by OECD countries. In the cost-containment scenario, on average for OECD countries, the public LTC spending ratio increases by 0.8 percentage point between 2010 and 2060. Non-OECD countries will experience on average the same increase as OECD countries. As with projections of public health-care spending, non-demographic drivers account for the lion's share of future expenditure increases in OECD countries, while demographic changes exert a relatively minor influence on future public LTC expenditures. Regarding the BRIICS, which on average experience faster ageing of populations, the demographic effects play a relative larger role.

Figure 8. Public long-term care expenditure will continue to increase

(Expenditure to GDP ratio, percentage point deviations from 2006-2010)
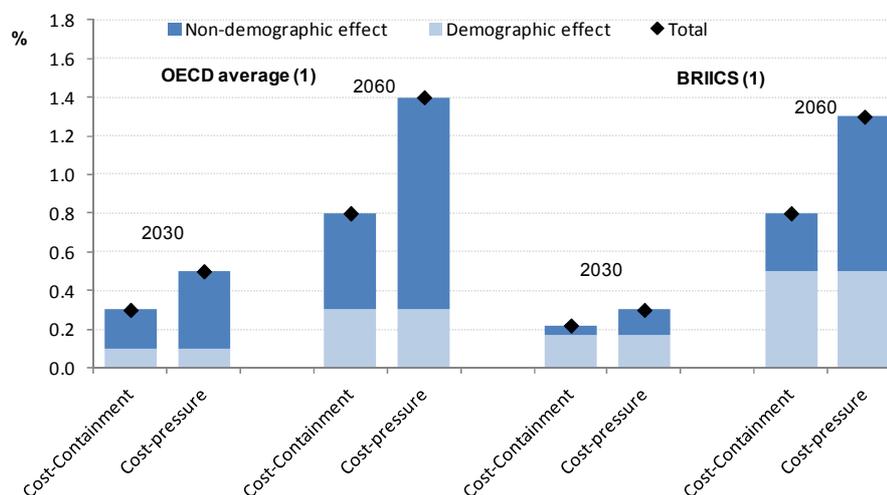
1. Unweighted average.

Note: Both scenarios assume that gains in life expectancy translate in additional years without dependency and that long-term care spending increases in line with real income (*i.e.* an income elasticity of 1). The cost-pressure scenario assumes, for OECD countries (the BRIICS), a full (half) cost-disease effect whereas the cost-containment scenario assumes a half (a fourth) cost-disease effect.

Source: de la Maisonneuve and Oliveira Martins (2013).

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6   Empirically, the responsiveness of LTC spending to productivity increases is set at half the value of the cost-pressure scenario (0.5 for OECD countries and 0.25 for non-OECD countries).

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