



The economics of healthy and active ageing series
New evidence for the Western Pacific Region
Australia

HOW WILL POPULATION AGEING AFFECT HEALTH EXPENDITURE TRENDS IN AUSTRALIA AND WHAT ARE THE IMPLICATIONS IF PEOPLE AGE IN GOOD HEALTH?

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Acronyms

AIHW	Australian Institute of Health and Welfare
GDP	gross domestic product
OECD	Organisation for Economic Co-operation and Development
THE	total health expenditure
WHO	World Health Organization

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“Changes in people’s needs due to population age-mix shifts have consequences”

Introduction

Countries around the world are experiencing population ageing in some form, with the share of older people in the population increasing (UN, 2019). This is driven by rising life expectancy, which results from declines in infant mortality, fertility and premature deaths. Low- and middle-income countries are experiencing some of the most rapid rates of increase in the number of people aged 65 years and older, while high-income countries are seeing a substantial rise in the number of the so-called ‘oldest old’ (people aged 80 years and above).

In the World Health Organization (WHO) Western Pacific Region, home to 1.9 billion people, substantial diversity exists in terms of the population age-mix. While 28.4% of the population in Japan in 2020 is estimated to be over 65 years of age, this falls to below 4% in other countries, including Papua New Guinea, Solomon Islands and Vanuatu. Overall, the share of the population aged over 65 years in the region is expected to more than double from 12.4% in 2020 to 28.4% in 2060, while the proportion of people aged over 80 years will see a four-fold increase from 2.3% to 9.6% over the same period (UN, 2019).

Changes in people’s needs due to population age-mix shifts have consequences for health and long-term care systems. Data from most countries show that, on average, older people have higher health expenditures than younger people. This often leads to the assumption that health expenditure growth will accelerate as older people make up an increasing share of the population, potentially challenging the sustainability of health systems. Yet, while providing appropriate health and social care to an increasing number of older persons does place additional pressure on the health system, (calendar) ageing is not the main driver of expenditure growth. Many argue instead that factors such as organization of care, technology, price regulation, proximity to death and health status are more important drivers of health care spending.

In this note we assess the role of population ageing as a determinant of future health expenditure growth in Australia. We also consider how ageing in better or worse health impacts these projections. Data and methods for the projections used in this report are outlined in the annex.

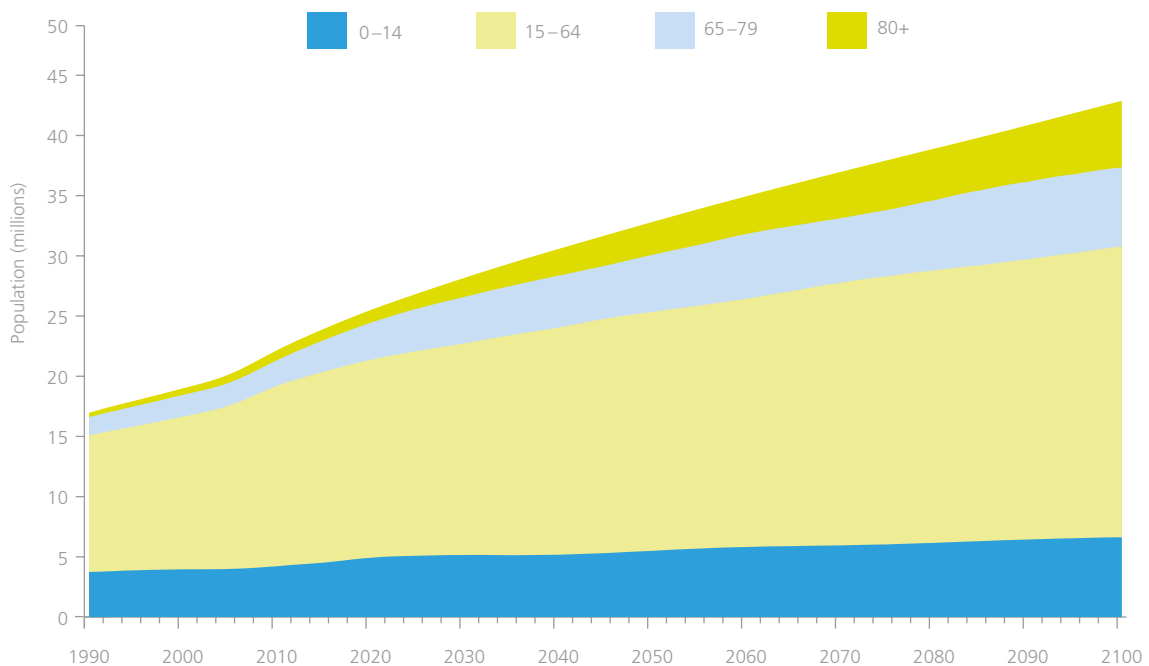
Population ageing, health and health spending in Australia

2020 Population	2020 Share of the population 65 years and above	2019 Total health expenditure per capita (USD)	2019 Total health expenditure as a share of GDP	2017 Life expectancy (years)	2018 % of 65+ reporting at least one chronic condition
25.5 million	16.2%	5 187	9.3%	82.6	60.0%

The share of people in the oldest age groups in Australia is expected to increase substantially in the coming decades

Australia’s population is projected to increase by more than 10 million over the next four decades, from 25.5 million in 2020 to 35 million in 2060 (UN, 2019). The proportion of the population over 65 years of age is expected to increase from 16.2% in 2020 to 24.4% over the same period, while the share of the population in the oldest age group (80 years and over) will more than double (Figure 1). At the same time, the working-age population (20–64 years) will fall by 9.4%, causing the economic old-age dependency ratio (ratio of population aged over 65 to population aged 15–64 years) to rise from 27.7% in 2020 to 45.8% in 2060.

Figure 1. Population age-mix in Australia, historical and projections, 1990–2100



Source: UN, 2019.

Australians are living longer than ever before, partly as a result of effective public health interventions and improved health care

Life expectancy at birth in Australia has increased by more than 11.5 years over the past six decades, rising from 70.8 years in 1960 to 82.6 years in 2017 (84.6 years for women and 80.5 years for men) (OECD, 2020; World Bank, 2020). The rate of increase in life expectancy gains was most rapid between 1981–2003, driven by a substantial reduction in deaths from cardiovascular diseases and, among young men, road traffic accidents (Lopez & Adair, 2019). This was largely a result of effective public health interventions, such as those targeting tobacco use, and improved health care treatments (Lopez & Adair, 2019). Growth in life expectancy gains have slowed since this time, increasing by 0.8 years from 2010 to 2017 (OECD, 2020). While this slowdown is caused by many factors, including natural life expectancy limits, it may partly be linked to rising rates of obesity in Australia, which are now the third highest in the world (AIHW, 2019; Lopez & Adair, 2019).

Women aged 65 years in 2017 could expect to live for another 22.3 years, with the corresponding figure for men 19.7 years (OECD, 2020). Gains in life expectancy have been matched by time spent living in good health, meaning that time spent living in poor health has remained relatively constant; in 2011, men and women lived for an average of 9.0 and 9.9 years respectively in poor health, a similar proportion to 2003 (AIHW, 2018). Half of the population in 2014–15 reported having at least one chronic condition, while 1.4 million people had a severe or profound limitation in core activities of daily living such as mobility or self-care activities (AIHW, 2018).

Health spending per capita and as a share of GDP in Australia has increased over the last decade

Australia's health system offers all Australians (and some immigrants and overseas visitors) coverage for a comprehensive basket of services at low or no cost through Medicare, a universal health insurance scheme (AIHW, 2018). The health system is predominantly publicly funded through general taxation and a small mandatory tax-based health insurance levy. About two-thirds (67%) of total health expenditure (THE) was funded by public sources (AUD 115 billion or USD 81 billion) in 2018. The remaining one-third of THE came from non-government sources, with more than half of this amount contributed by individuals (AIHW, 2018).

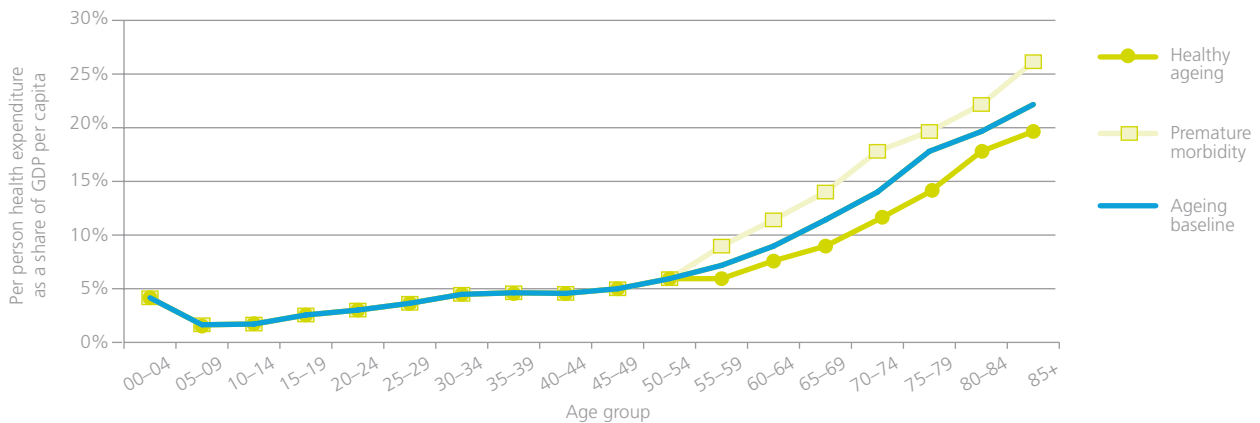
In 2018, Australia spent 9.3% of gross domestic product (GDP) on health, 0.9 percentage points higher than in 2010 (8.4% of GDP) and above the Organisation for Economic Co-operation and Development (OECD) average of 8.8% (OECD, 2020). Measured on a per capita basis, health spending increased by 44% between 2010 and 2019, to reach AUD 7523 (USD 5187), well above the OECD average of AUD 5662 (USD 3994) (OECD, 2020). Overall, THE in real terms increased from AUD 113 billion (USD 79.7 billion) in 2006–07 to AUD 170 billion (USD 120 billion) in 2015–16, representing a 4.8% average increase per year over the period (AIHW, 2018). According to the Australian Institute of Health and Welfare (AIHW), much of the rise in health spending is attributed to non-demographic factors, such as increasing population expectations over health care treatments and 'the development of new technologies, pharmaceuticals and diagnostic and treatment techniques, which enable a wider range of health conditions to be managed more effectively' (AIHW, 2014).

How will population ageing in Australia affect health expenditure trends?

Health expenditures in Australia generally increase with age

Using AIHW data on public health and health-related long-term care expenditures for 2015–16, we are able to assess the relationship between calendar age and per person health spending in Australia (Figure 2; solid blue line) (AIHW, 2020). As expected, health expenditures are relatively high at birth until 1 year of age. At about 50 years of age, health expenditures start to steadily increase and continue to rise for all subsequent age groups. Per capita health expenditure for an average 80-year-old is almost 7 times higher than for an average 20-year-old. For people aged 65 years and older, average per capita health spending as a share of GDP per capita was 17.0%, a smaller share than in Japan (18.6%, based on 2017 data) and the UK (24%, 2016 data), but slightly more than Germany (16.2%, 2016 data) and the Netherlands (16.1%, 2016 data) (EU Working Group on Ageing Populations and Sustainability, 2018; MHLW, 2019). Expenditure data for Australia is not disaggregated for the oldest age groups (90 years of age and over); however, it is worth noting that in many countries per capita health expenditure often peaks for the 80–89-year age group, before declining slightly for the very oldest (Williams et al., 2019).

Figure 2. Per person public health expenditure by age group (baseline and two alternative scenarios), 2015–2016, Australia



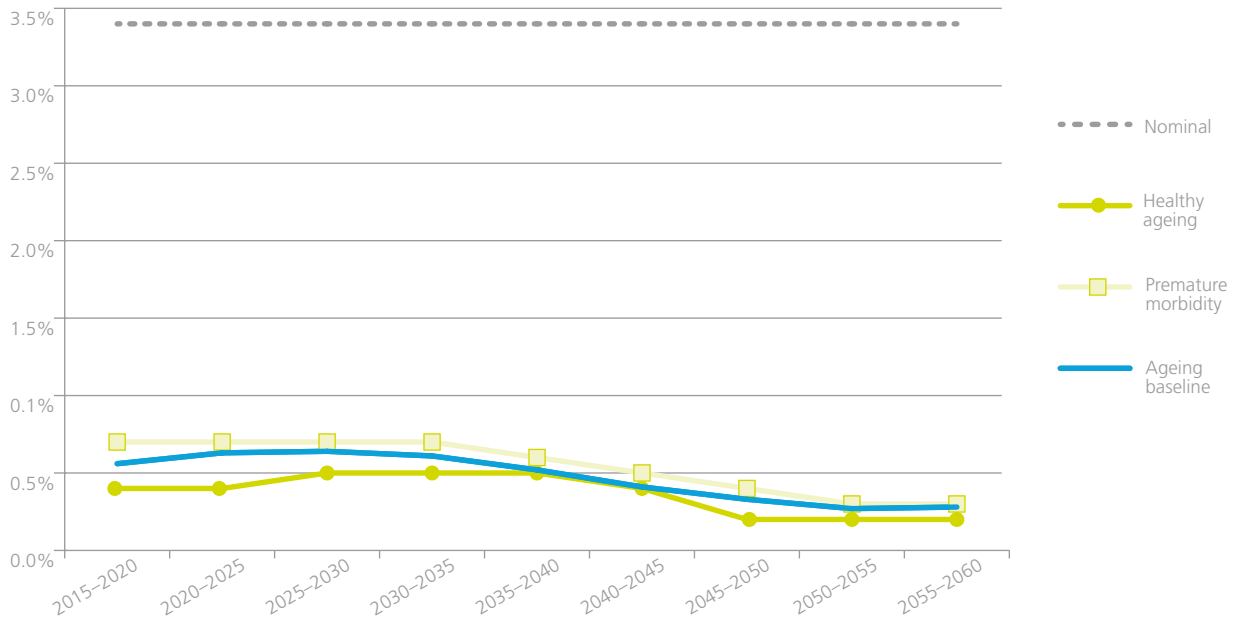
Source: AIHW, 2020.

Growth in health expenditure due to population ageing in Australia is expected to be relatively low through 2060

Using 2015–16 per person spending levels by age (Figure 2, solid blue line), we project the contribution of population ageing to health care expenditure growth through 2060 for Australia (Figure 3). Our projections indicate that the additional growth in average annual per person health care spending attributable to population ageing is expected to peak at 0.64 percentage points per year between 2025 and 2030, before steadily declining to 0.28 percentage points per year in 2060.

To place this in context, the average nominal per person annual growth rate in health expenditure due to all causes including population ageing (shown in Figure 3, grey dashed line) was approximately 3.4% in Australia from 2012–17 (WHO, 2020). From this, one could infer that population ageing in Australia accounts for less than one fifth of per person health spending growth, with the remaining expected growth driven by prices, volume of care and technology.

Figure 3. Projected additional growth in per person public health expenditure attributable to population ageing, Australia, 2015–2060



Source: Authors' calculations.

Population ageing on its own is expected to slowly (and only modestly) increase health spending as a share of the economy between now and 2060

The projections above imply that population ageing in Australia will result in an increase in public health expenditures as a share of GDP by 1.29 percentage points between 2020 and 2060. This is not an insignificant additional share of the economy; however, it is important to note that this increase will occur slowly. Over the 40-year period, the average increase in the share of the economy spent on health as a result of population ageing would be around 0.03 percentage points per year.

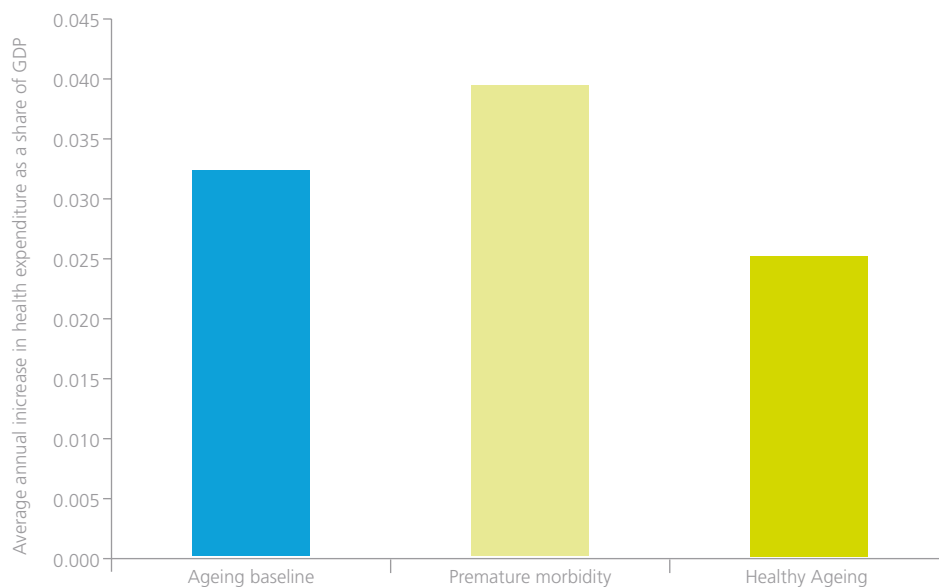
Overall, the estimates suggest that population ageing is likely to contribute only modestly to health spending growth in Australia in the coming decades.

Growth in health spending would be comparatively lower between 2020 and 2060 if people age in better health

In two hypothetical scenarios we project how future health expenditure growth will differ depending on whether people age in better or worse health than predicted, leading to lower or higher per capita health expenditures respectively than currently (see annex).

Under a **premature morbidity** scenario, where people age in worse health, the additional growth in average annual per person spending attributable to population ageing would peak at 0.74 percentage points per year between 2030 and 2035, before declining to 0.29 percentage points per year in 2060 (Figure 3, line with square). This scenario would see population ageing increase health expenditures as a share of GDP by 1.57 percentage points between 2020 and 2060. This represents an increase of 0.28 percentage points above the projection using actual baseline health expenditures. Over the 40-year period, the average increase in the share of the economy spent on health as a result of population ageing under a premature morbidity scenario would be just under 0.04 percentage points per year (Figure 4).

Figure 4. Average annual increase in public health expenditures as a share of GDP in Australia between 2020 and 2060 as a result of population ageing under current health expenditure by age patterns (baseline) and healthy ageing and premature morbidity scenarios



Source: Authors' calculations.

Under a **healthy ageing** scenario, where people age in better health, the additional growth in average annual per person spending attributable to population ageing would peak at 0.51 percentage points per year between 2030 and 2035, before declining to 0.24 percentage points per year in 2060 (Figure 3, line with circle). This scenario would see population ageing increase health expenditures as a share of GDP by 1.00 percentage point between 2020 and 2060; this is 0.28 percentage points lower than the projection using actual baseline health expenditures. Over the 40-year period, the average increase in the share of the economy spent on health as a result of population ageing under a healthy ageing scenario would be just under 0.025 percentage points per year (Figure 4).

Comparing the two scenarios, people ageing in good health would see health spending consume 0.57 fewer percentage points of GDP by 2060 than if people age in poor health. This suggests that investing in healthy ageing strategies may lead to savings of just under 0.02% of GDP per year over the next 40 years. Based on 2018 GDP estimates, this would amount to savings of just over AUD 11.0 billion (USD 8.2 billion) in 2060, or AUD 268 million (USD 200 million) per year if averaged over the next 40 years. However, it should be emphasized that these figures are based on hypothetical scenarios and should **not** be viewed as forecasts of savings in future health spending.

Discussion

Our analysis finds that population ageing in Australia will result in an increase in health expenditures as a share of GDP by 1.29 percentage points between 2020 and 2060, an average increase of 0.03 percentage points per year. This suggests that population ageing on its own is not, and will not become, a major driver of growth in health expenditure in Australia. Nevertheless, our projections rely on current health expenditure patterns that reflect what has been achieved with the existing levels of health systems capacity and utilization rates. If per capita health spending levels for older age groups were to increase in the future, it is possible that the impact of population ageing in health expenditures may be greater than anticipated.



One factor that may cause health spending by age patterns to change in the future is the health of people at older ages. If the population on average ages in better health than currently, per person health spending for older age groups may be less than it is now. Conversely, people ageing in worse health may cause health expenditures for older age groups to be even higher. In recognition that variations in health status matter for spending by age patterns, we simulate two scenarios assuming healthy or unhealthy population ageing in the future. Our findings indicate that premature morbidity in the population would see health spending as a share of GDP increase by 1.57 percentage points between 2020 and 2060, but healthy ageing would see growth of 1.00 percentage point over the same period. This suggests that policies to promote healthy ageing can help to reduce growth in health spending as a result of population ageing.

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Annex: Data and methods for population ageing projections

Data on health spending by age group were obtained from the Australian Institute of Health and Welfare (AIHW) disease expenditure database for 2015–16 (AIHW, 2020). The data capture all public expenditures on health care less dental care, as the latter are not disaggregated by age. Per person health expenditures by age are divided by per person GDP to calculate health expenditures per capita as a share of GDP per capita by age group. Population projections by age were extracted from the United Nations Department of Economic and Social Affairs population projections website (UN, 2019).

In model 1 (*ageing baseline*), we isolate the contribution of population ageing to future health expenditure growth for Australia, by multiplying per person health expenditures for each age group by the respective age group's population size, with the resulting expenditure across all age groups added together; we then divide by the total population size. This leaves us with a per person health expenditure level that varies from year to year only due to changes in the age-mix of the population.

This model assumes that relative per person spending patterns by age remain constant. That is, any changes in other drivers of health care expenditures, such as prices, technology, quality and volume of care, affect all age groups equally in the future. Doing this allows us to isolate the effects of population ageing on expenditure trends. As a result, if people aged 65 years and over currently spend four times as much on health care as younger age groups, it is assumed that this continues in the future, even if the actual level of spending has increased. Historical data from other countries suggest this is a reasonable assumption (OECD, 2020; Williams et al, 2020).

In models 2 (*premature morbidity*) and 3 (*healthy ageing*), we adjust the baseline ageing model projections to simulate scenarios where people age in worse and better health respectively than indicated by current expenditure by age group. In model 2, older people age in worse health and therefore have a greater demand for and use a greater volume of health services. We assume that such an increase might occur because of an expansion of morbidity leading to the early onset of care for chronic conditions. In this scenario, we modify actual per person health expenditures in Australia by assuming that health spending for each age group from 55–60 years and until 80 years is equivalent to baseline 2015–16 health expenditures for the respective age group 5 years older (Figure 2, line with square). For example, health spending for 60–64-year-olds in this scenario would equal the actual spending for 65–69-year-olds from the baseline data. Spending for the 85 years and above age group relative to the 80–84 years age group in the hypothetical scenario is assumed to remain the same as in the actual Australian spending data.

For model 3, we assume the reverse scenario: people ageing in better health means prevention and delay in the onset of chronic disease and disability, and thus a lower utilization of health care services and lower per capita health spending for older age groups than currently. We modify baseline per person health expenditures in Australia by assuming that health spending for each age group from 55–60 years and over is equivalent to baseline 2015–16 health expenditures for the respective age group 5 years younger (Figure 2, line with circle).

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