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THE FUTURE OF HEALTH AND AGED CARE EXPENDITURE IN AUSTRALIA

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ABSTRACT

We investigate the pure effect of ageing on total health and aged care expenditure in the next 20 years. We find that the pure effect has been relatively small and its effect on disposable income and fiscal balance has been mitigated by increased labour force participation among the elderly and increased savings. This may change in the future but a focus on greater efficiency in health production and finance is more likely to be effective in delivering high-quality care than trying to restrain the demand for health and aged care among the elderly through finance reform.

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The future of health and aged care expenditure in Australia

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Abstract

Aim:

We estimate the pure effect of ageing on total health and aged care expenditure in Australia in the next twenty years.

Methods: We use a simple demographic projection model for the number of people in older age groups along with a needs based estimate of changes in the public and private cost of care per person in each group. We adjust per person costs at each age by expected changes in morbidity and associated expenditure. The proportion of the population aged over 65 years is projected to increase from 14% in 2016 to 18% in 2035 for males and from 16% to 20% for females, although the average annual rate of increase will slow down post 2021 from 1.6% to 0.82%.

Results: A pure ageing model of expenditure growth predicts an increase in per person health expenditure from \$7439 in 2015 to \$9594 in 2035 and an increase in total expenditure from \$166 billion to \$320 billion (an average annual growth of 3.33%). If people live longer without additional morbidity then total health expenditure only grows at an average annual rate of 0.48%. If only some of those additional years are in good health then the average year on year growth is 1.87%. In common with the literature to date we show that since health costs per person have grown in every age group non demographic factors have been the main drivers of expenditure growth in the past 25 years.

Conclusion: The pure effect of ageing has been relatively small and its effect on disposable income and fiscal balance has been mitigated by increased labour force participation among the elderly and increased savings. This may change in the future but a focus on greater efficiency in health production and finance is more likely to be effective in delivering high quality care than trying to restrain the demand for health and aged care among the elderly through finance reform.

Introduction

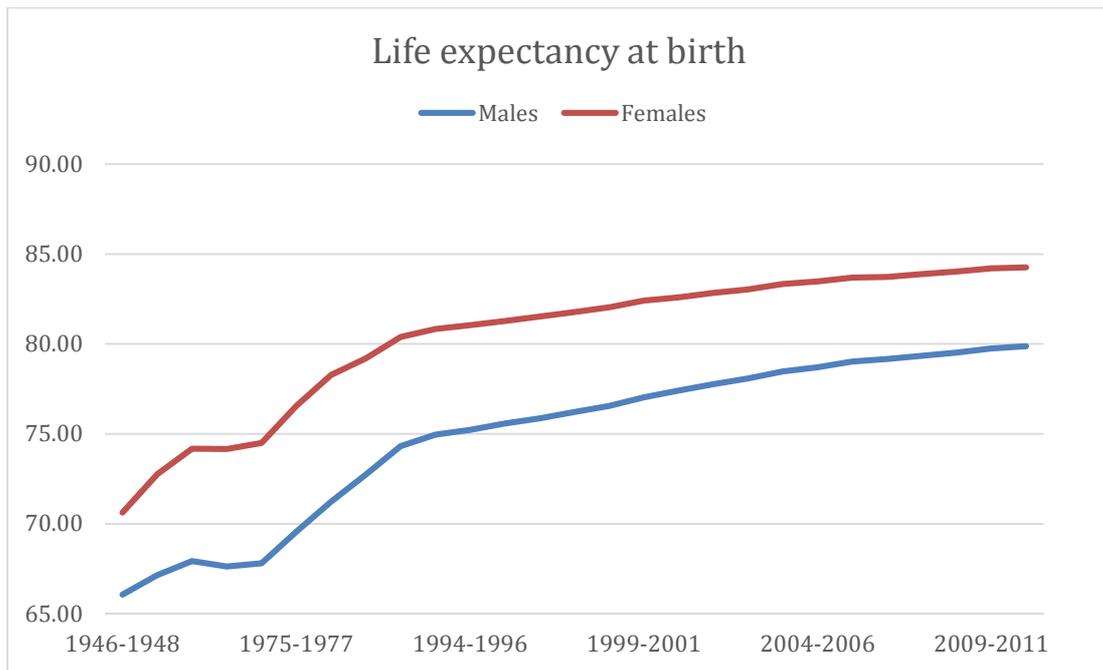
Demographic change

There is a popular perception in many developed countries that ageing of the population will increase the cost of health services to the point where it challenges the willingness of the public to continue to subsidise high quality health care for everyone. This paper estimates the effect of changes in the age distribution of the population on the cost of health and aged care in Australia in the medium term (next 20 years). In particular we focus on changes in the cost per person directly due to ageing, the share of rising total costs caused by increased life expectancy, and factors that might restrain the age related increase in health and aged care costs.

Economic development, along with advances in medical technology, has resulted in large increases in the quality and length of life across the industrialised world in the last 30 years. In Australia we have seen remarkable increases in life expectancy in the last 50 years. (Figure 1) In Australia, life expectancy at birth in 2014 for males was 81.8 years and 84.4 year for females. At the same time there has been a dramatic fall in fertility since the end of the baby boom in the late 1960s. Together these developments have meant that the proportion of the population that is elderly will increase in the coming decades. Since the elderly currently have a higher health cost per capita it seems reasonable to assume that their share of the health expenditure will rise in coming decades.

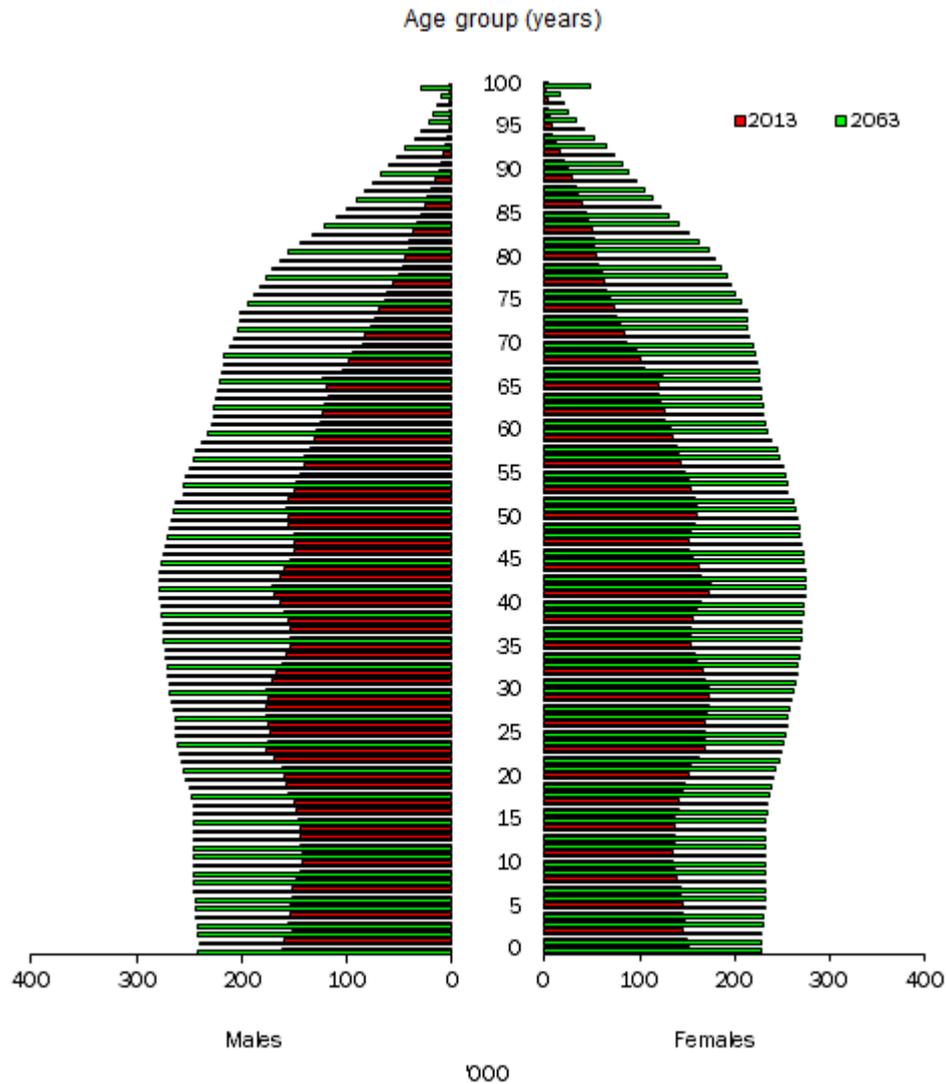
Figure 2 illustrates one typical projection of the size and age distribution of the Australian population [2]. By 2063 the population of Australia is projected to be 42 million. On this projection the proportion of people aged 65 and over will rise from 15% in 2014 to 23% in 2063. The working age population (15-64) will decrease from 66% to 61% of the population, and the age dependency ratio will be 28%.

Figure 1: Life expectancy at birth



Source [Australian Historical Population Statistics 2014](#) (ABS cat. no. 3105.0.65.001)

Figure 2: Australia population in 2063 with current trends



(a) 2013 numbers are estimated resident population at December 2013. 2063 projections reflect Series B of ABS Population Projections (2012 base): a total fertility rate of 1.8 births per woman by 2025-26; life expectancy increasing to reach 85.2 years for men and 88.3 years for women by 2061; and net overseas migration of 240,000 per annum.

Source: Australian Demographic Statistics, Dec 2013 (cat. no. 3101.0); and Population Projections, Australia, 2012 (base) to 2101, (cat. no. 3222.0)

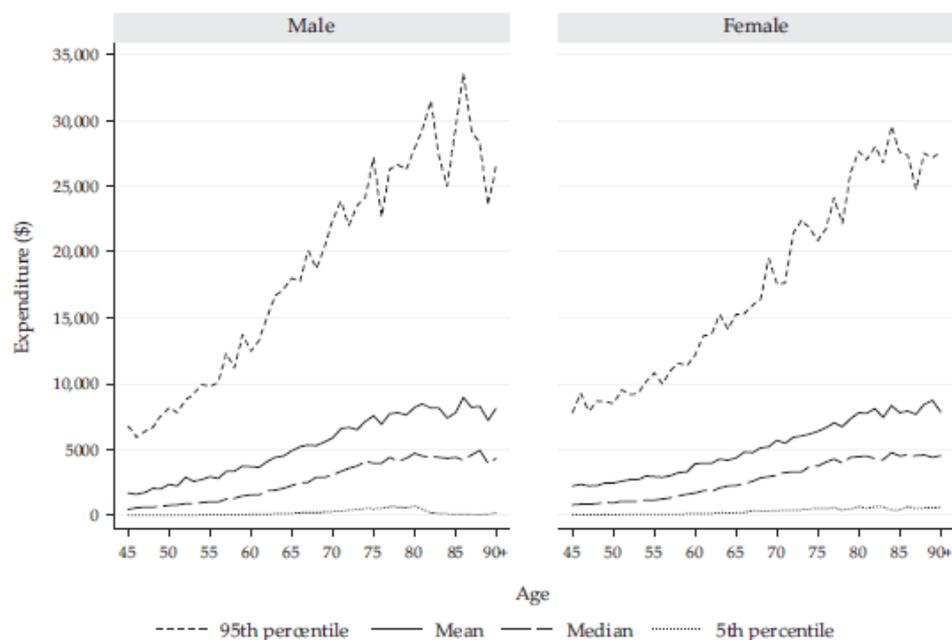
One might expect *a priori* that an ageing population would be associated with an increase in health care expenditure per person. If the share of older people in the population is growing faster than that of any other age group, both as a result of longer lives and a lower birth rate, an automatic increase in the average health expenditure seems inevitable. However, this intuition finds little support in the empirical economics literature. Assessing the effect of population ageing on health and health care has proved to be far from straightforward [3] and problematic to extrapolate into the future. The long term econometric evidence from many countries generally suggests that pure ageing (longevity) is not a major contributor to the historical growth in per capita health expenditure but that service volume and unit cost are the main contributors [4]. In Switzerland for example Breyer et al [3] find that population ageing accounts for only a 0.5 percent annual growth rate of health-care expenditure. Rossen and Faroque [5] conclude that much of the growth of health care spending in Canada has been driven by progress in medical technology and increasing per capita income. The process of ageing has been just too slow to explain much of the historical growth in annual per capita expenditure on health in countries in Europe, Canada or Australia. The pure effect of ageing on health spending has been so weak that as source of policy concern it has been described as a “red herring” [6]. Of course even if pure ageing has not been the main cause of health expenditure growth in the past, it may be that more substantial changes in demographic structure combined with increased longevity might put pressure on future total health care costs.

In this paper we largely ignore other causes of health care expenditure growth and any market or non-market responses that might mitigate continuous growth, focussing instead on the direct contribution of an ageing population to health and aged care expenditure in the coming decades. In effect we ask the more restricted question of to what extent is ageing *per se* likely to be a major determinant of the future growth of health and aged care expenditure per person. In the discussion we return to the alternative explanations of expenditure growth and future behavioural, market and policy responses to that growth.

The needs based method of predicting health costs

At the most fundamental level total health expenditure growth arises from an increase in prices (potentially associated with quality or cost), an increase in service volume per capita of treatment, an increase in population, or some combination of these three elements. A redistribution of private and public health expenditure towards the elderly could happen only if a) there is a greater number of older people with a higher than average cost of care or b) the cost per case rises faster in the elderly.

Figure 3: Total health hospital, pharmaceutical and medical expenditure NSW 45 and Up survey

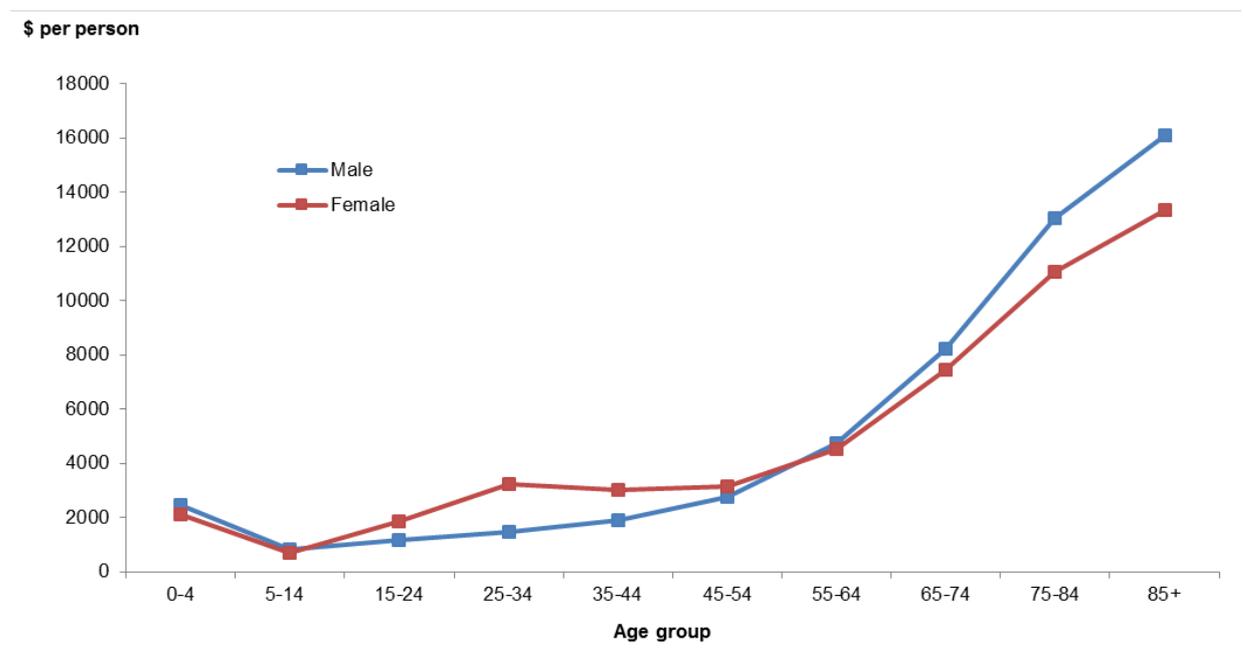


Source: Johar et al [1]

Across the population, at a point in time, we can observe a correlation between age, health status and spending on health (including or excluding aged care). For example using a survey of those aged over 44 living in the NSW linked to hospital, pharmaceutical and medical costs Johar et al [1] (Figure3) show that within the current population individual expenditure increases with age until about 80 when it tapers off. Figure 3 shows the pattern of health costs by age, but underestimates these costs as it includes only hospital, medical and prescription drug costs. There is no published national data on total expenditure on health care by age group over time, and only one study report trends in government expenditure on

households where the head of household is over 65 years. [7] As an alternative we have calculated health expenditure by age by allocating total health expenditure [8] to age groups based on weights by age from 2008-09 disease allocations (AIHW 2010). This ensures that we have captured all health costs public and private including out of pocket costs, non-subsidised clinical treatments and therapies and over the counter drugs. A limitation of this approach is that the attribution by age group is based on an earlier study of disease costs that attributes costs on the basis of disease prevalence. It is not clear that this accurately reflects the pattern of actual expenditure. The estimated pattern by age and gender is shown in Figure 4. These average costs are considerably higher than those reported in the literature.

Figure 4 Total health expenditure 2008-09 per person, allocated by age



source: AIHW [9]

Simple prediction based on current age specific costs

Any future prediction of the effect of ageing on health care expenditure needs to distinguish between increased life expectancy and demographic change i.e.

between the effect of the average person living longer and potentially using more resources (because of illness) and change in the number of people at each age. As Cutler and Sheiner usefully categorise it, health and care expenditure at any time is the sum over all ages of the product of (1) the number of people alive in each group (2) the average health status at each age and (3) the per capita spending conditional on health status, which also varies according to age [10].

The simplest approach to predict future health expenditure on the elderly is to first predict the number of people who will be alive at each age in future and then multiply it by per capita spending on health assuming that average health status and per capita spending for a given health status is constant over time in real terms. A movement along the curve in Figure 3 illustrates this pure ageing effect on average health expenditure. Those aged 55 in 2015 have health expenditure per person of about \$4000 but when they are 75 in 2035 they cost about \$12,000. As the population ages like this so average health expenditure is expected to rise. As longevity increases over time a question is whether the average person aged 75 in 2015 has the same spending on health as someone who is 75 in 2035. As longevity increases are the costs of health care over a person's lifetime spread over the additional years of life and perhaps even compressed into the last years of life. A related question is whether these additional years of life created are spent with compromised health status or whether morbidity is similarly postponed or compressed. These alternatives are sometimes referred to as the compression, postponement or expansion of morbidity. Future lives of the elderly may be largely healthy with ill health and dependence confined largely to the last few years of life. That period of morbidity may be shorter, the same or longer than the equivalent period for those born in an earlier cohorts. [11]

Method

We use three alternative empirical models to estimate future healthcare costs and make predictions. The approach is similar to that in Caley and Sidhu. [12] The first model uses age specific public and private health care cost obtained from data reported by AIHW and applies it to projected population from 2015 to 2035 from the ABS series B projection which uses the cohort-component method to predict

future population. This method assumes a total fertility rate of 1.8 births per woman by 2025-26; life expectancy increasing to reach 85.2 years for men and 88.3 years for women by 2061; and net overseas migration of 240,000. The annual population growth rate is projected to be 1.7% from 2010, although we note that the latest growth rates for 2014-2015 are lower than this at 1.4%.

The second model adjusts the age specific health care cost for life expectancy and the third model projects future health care costs by including adjustments for both life expectancy and changes in morbidity.

The first crucial step for estimating health expenditure projections is determining the age and gender specific per capita health care costs which are then multiplied by projected population of a specific year to get the health expenditure for that particular year. We use the latest edition (2008-09) of Disease Expenditure database published by AIHW that reports the estimates of expenditure by disease category, age group and sex for each of the following areas of expenditure: admitted patient hospital services, out-of-hospital medical services, prescription pharmaceuticals, optometric and dental services, community mental health services and public health cancer screening. The data is mainly sourced from [National Hospital Morbidity Database \(NHMD\)](#), the [National Public Hospitals Establishments Database \(NPHEd\)](#), the [Health expenditure database](#), the National Hospital Cost Data Collection (NHCD) and the Bettering the Evaluation and Care of Health (BEACH) survey. However, disease expenditure database provides a conservative estimate (around 70%) of recurrent health expenditure and thus will underestimate our predictions. We instead use an alternative method to determine per capita health care costs by age and gender. We first derive proportions of health expenditure by age and gender using the disease expenditure database. We then take the latest estimate of total health expenditure reported by AIHW publication Health Expenditure Australia (2012) which is \$147 billion for 2012 and allocate it to each age and gender category using the proportions discussed earlier. This gives the health expenditure for each age-gender category. We then take the ABS reported population corresponding to each age-gender category and divide the expenditure by population to derive per capita

health cost for each age-gender combination for year 2012. These estimates are then converted to 2015 prices by using the Health Price Index.

Model 1

This is the most basic model which derives predicted healthcare expenditure as a product of age and gender specific per capita health care costs and population projection corresponding to that age and gender. We initially use per capita health cost by age and gender at 2015 prices and multiply it with 2015 population by age and gender to get total health expenditure for 2015. We then change the age-gender distribution to that which is forecast to prevail in next 20 years till 2035 and multiply the average expenditure of each age group by the new age distribution for each year. All other factors are kept fixed, (including GDP, quality and volume of care and average health care costs for a given age). The average annual health care costs for a 1 year old male and female are \$4780 and \$4249; \$2814 and \$6258 for 25 year old males and females; and \$25380 and \$22757 for 80 year old males and females.

Model 2

One drawback of Model 1 is that it assumes the annual health care cost of say 80 year old today will be the same in next twenty years. However, this might not be the case. There is evidence to suggest that health care costs for elderly people are more strongly related to their proximity to death rather than their calendar age. [13] This proximity will change across cohorts due to changes in life expectancy. An 80 year old today will be relatively closer to death compared to an 80 year old 20 years from now due to increased life expectancy. Ignoring this will overestimate future annual health care expenditure predictions. Model 2 makes a simple adjustment to the annual health care expenditure projection for changes in life expectancy. We attribute the cost of care of an earlier age group to the actual age. We use annual increase in life expectancy of 0.25 and 0.19 years for males and females respectively as in the ABS Series B projections. This adjustment will result in a slower rate of annual growth in health expenditure compared to that derived from Model 1.

Model 3

The main assumption in model 2 is that morbidity is delayed by the same amount of time as the increase in life expectancy. This is a reasonable assumption if all health costs in Figure 1 are simply shifted to the left but not if the additional years of life result in greater exposure to additional illnesses. In model 3 we adjust the change in life expectancy for changes in morbidity (expansion or compression) using a measure of disability free life expectancy. Dividing the increase in disability by the increase in life expectancy provides the proportion of gain in healthy life expectancy and a proxy for the years free of morbidity and higher health care costs. Based on the data ABS survey data the AIHW estimated that in 2009 44% of the years beyond age 65 were disability free.[14] Based on this we assume that there will be an expansion of morbidity with 44% of the extra years spent free of disability. This figure is then used to adjust the age bands in Model 2 by multiplying increase in the life expectancy by 0.44. The value of estimates derived from model 3 lie between those derived in model 1 and model 2.

Results

The ABS projections of the population for next 20 years show the average annual growth rate in elderly population will be 2.76% compared to 1.2% in the cohort aged below 65 years. The proportion of elderly population is projected to increase from 14% in 2016 to 18% in 2035 for males and from 16% to 20% for females, although the average annual rate of increase will slow down post 2021 from 1.6% to 0.82%.

Illustrative predictions

We use the product of per capita health expenditure and population projections by age and gender to predict total health expenditure for elderly population for next 20 years. The yearly predictions for demographic induced total health expenditure and expenditure per person, based on the three different models, are shown in Figure 5 and Figure 6.

Figure 5: Age related projected health expenditure per person for those over 65 years of age

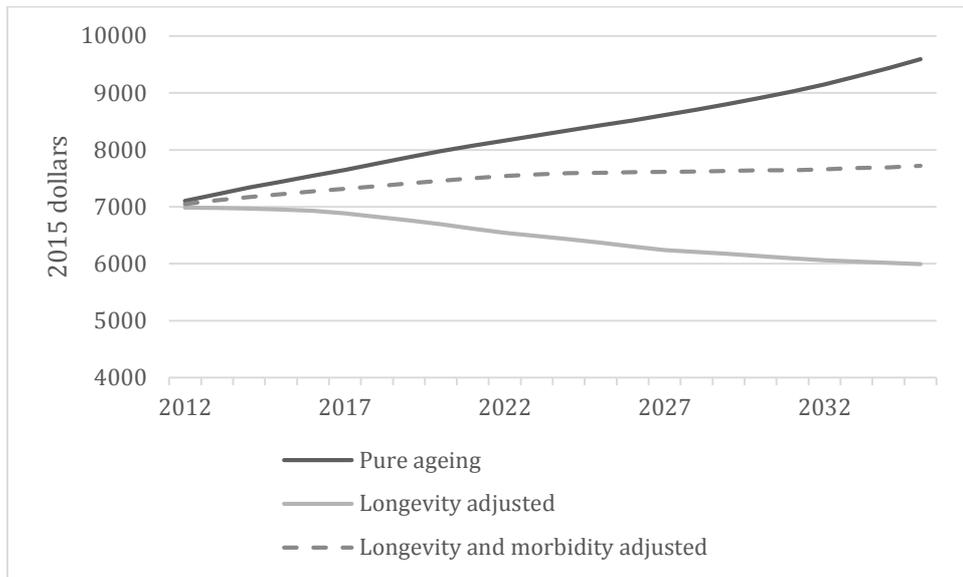
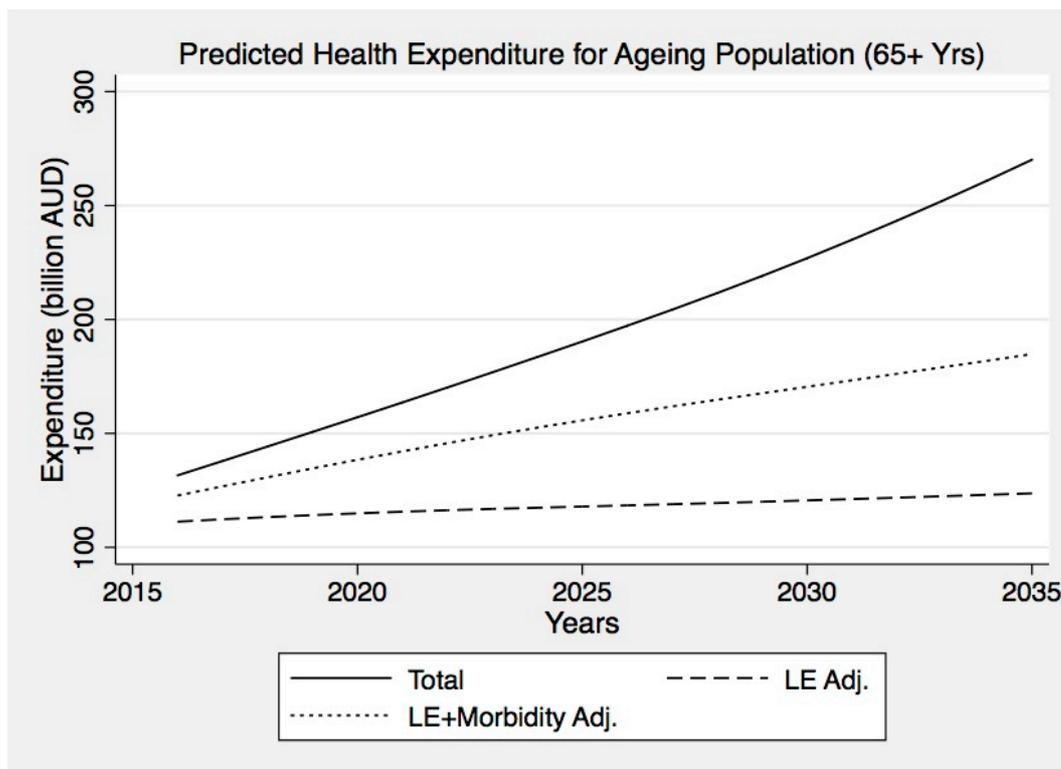


Figure 6: Age related projected health expenditure for those over 65 years of age



The pure ageing model of expenditure growth (model 1) predicts an increase in per person health expenditure from \$7439 in 2015 to \$9594 in 2035 and an increase in total expenditure from \$166 billion to \$320 billion (an average growth of 3.33%). Allowing for an improvement in life expectancy (model 2) with no additional morbidity in those extra years predicts an increase in total health

expenditure from \$152 billion to \$168 billion (average annual growth of 0.48%) but a fall in per person health expenditure from \$6951 to \$5994 from 2015 to 2035. Adjusting for both life expectancy and morbidity (model 3) predicts an increase in health expenditure per person from \$7220 to \$7719. Total health expenditure increases from \$162 billion in 2015 to \$232 billion in 2035 (an average year on year growth of 1.87%). The demographic driven change in health expenditure is thus a consequence of a change in the distribution of the population towards the elderly and a change in their expenditure per person at each age. Different assumptions on these two factors mean not only substantial differences in total expenditure but also in the share of health expenditure spent on the elderly. For example model 1 predicts an increase of 10 percentage points in the share of total health expenditure for those aged 65 and over (74% in 2015 to 84%); model 3 predicts an increase in the share of 6 percentage points; while model 2 predicts an increase of only 2 percentage points.

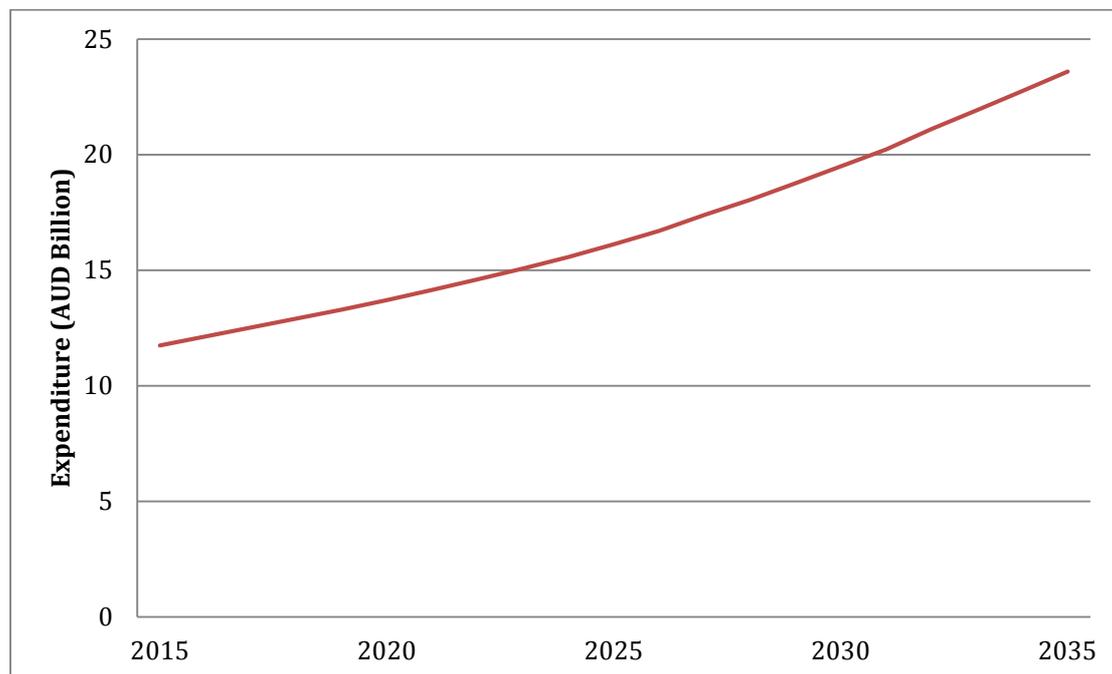
Demographic change in the next 20 year although by no means the main driver of health expenditure growth will be associated with a significant change in the structure of the spending. However even this projected growth may be further mitigated by improvements in longevity and reductions in age related morbidity over time.

Aged care

Aged care historically has been provided through three major programs in Australia: i) Residential aged care in an aged care facility which in 2012-13 costs government around \$54,362 per resident each year; ii) Extended aged care at Home (EACH) program which cost government \$44,410 and \$48,494 per non-dementia and dementia patient respectively and iii) Home and Community care program (HACC) which cost government \$13,517 per person. [15] In addition many individuals make contributions to their care (reported by the Henry review (2010) as 26% to 53% of the total for residential low and high care places). Those who live in their own home pay for their own living costs (including implicit rent) some of which comes from state pension income. In the absence of accurate

information on these components of total cost, we use the government recurrent expenditure figures as estimates of the average cost of care by need category along with population projections for those aged 65 years and over to predict total expenditure on care in the next twenty years. It is not clear living costs increase or fall with age nor how that pattern will change in the coming decades. In this study we ignore personal living costs associated with ageing in the community and focus on the cost to government of caring for the elderly in residential aged care facilities. We use population projections as before, attributing the 2012-13 cost of care per person in residential care. In parallel to model 3 above we adjust for the increase in longevity and reduced morbidity by assuming that annual entry to care is delayed by 44% of the increase in longevity. Figure 9 reports the annual predicted expenditure on aged care to 2035. The trends show a consistent average year on year growth of around 3.55% doubling the expenditure from 11 billion in 2015 to around 23 billion in 2035.

Figure 7: Residential aged care expenditure to 2035



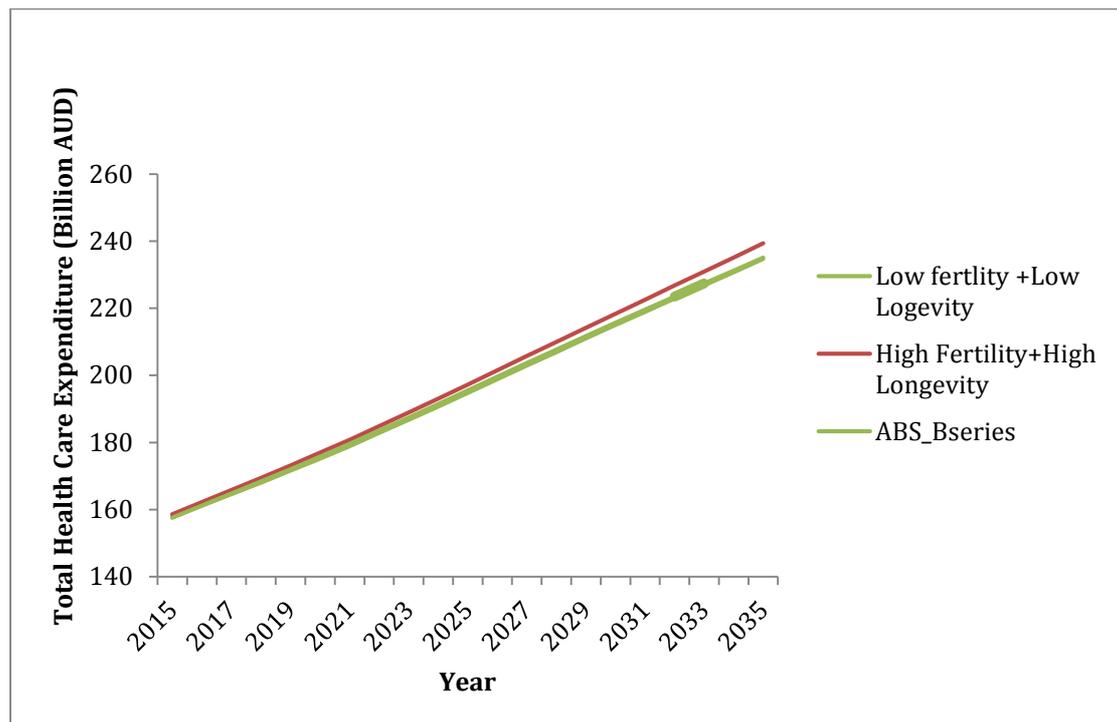
While this represents a high growth rate it is not a significant component of overall health and aged care expenditure. Indeed as a proportion of total health expenditure on the elderly (65+ years) expenditure on residential aged care is

predicted to decrease slightly from 9.6% in 2015 to 8.6% in 2026 before moving up to 8.8% in 2035.

How robust are the results to alternative assumptions

As a robustness check we used alternative assumptions on longevity and fertility changes in the next 20 years. We used the Productivity Commission’s approach (ref here) to generate population projections under three scenarios of low and high fertility rates with higher longevity and found no significant change in our expenditure projections. Figure 11 plots total health care expenditure projections under three scenarios (using method 1): population projection based on ABS series B, Low fertility rate (1.5) and high fertility rate (1.9), high fertility and higher longevity.

Figure 8: Health expenditure under alternative population projections



Limitations

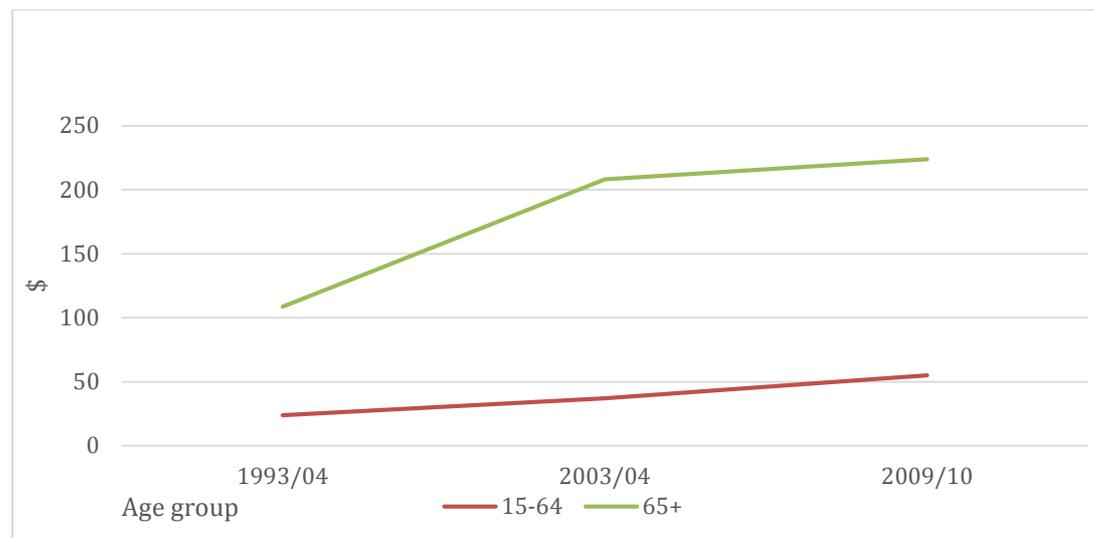
Factors that influence cost per person

A major confounder of any attempt to predict future health care costs by age group from past behaviour is the expected general rise in the cost of care for many illnesses independent of age. A significant part of that increase has been from an increased use of technologies and treatments, often involving new more expensive tests, procedures and drugs. Although this will likely mean that later cohorts of the elderly will have higher costs this is not the consequence of ageing *per se*. Not all health technologies are cost enhancing, but it is possible that the rising number of elderly with a perceived demand for care will induce new possibly more expensive treatments. It is possible that this technological change targeted for example at chronic diseases of the elderly will improve quality of life but result in higher average costs at older ages.

There are no comprehensive longitudinal individual data on health care costs in Australia nor even by cohort averages over time for Australia. As an illustration we have used available ABS household expenditure and fiscal incidence data to illustrate changes in average expenditure on health for individuals over a 20 year period. Figure 9 shows the average weekly expenditure on health per person living in the community by age group of the primary survey respondent in the 1989/90, 2002/03 and 2009/10 Australian Household Expenditure Surveys[16]. The data includes not only direct spending on health by the household reported but also government direct and tax expenditure on public and private care attributed to the household [17]. Members of the survey population were allocated benefits according to the average utilisation rates for their age, sex, state or territory of residence groups. Additionally, for people with a disability or long term health condition, a higher utilisation rate was applied. This higher utilisation rate was estimated using data on the frequency of GP visits collected in the 2007–08 ABS National Health Survey (cat. no. 4364.0). We have combined these categories and divided by the average number of persons in each household by age group. There is a degree of error in these estimates when household composition has changed over time and particularly in younger age groups where our attribution within the

household is inexact however in the older households the vast majority of people live alone or with someone of a similar age and the change in per person average cost is likely to be more precise. The results confirm that real health care costs per person have been rising particularly in the 1990s and early 2000s but have slowed since then. Average spending by those aged over 65 years was higher than the younger groups and went up faster in the earlier period (average 6.5% per annum compared to 4.3%). Since 2003/04 however the rate of growth of expenditure per person has slowed and particularly those over the age of 65 on average have experienced a much slower rate of growth (1% per annum on average). Since costs per person have grown in every age group history suggests that non demographic factors have been the main drivers of expenditure growth in the past 25 years. The gap between the cost of care between the young and the old has widened as incomes have risen and providers have targeted the growing segments of the market with new products and services. The ABS data in the later period does allow us to disaggregate household spending for the over 65 age group into those 65-74 and 75 and over. Those households with a primary respondent aged over 75 had a slightly faster annual growth in household spending per person in the household (at 3.6% per annum compared to those 65-74 at 2.8%) but slower than any other age group (average all households 4%).

Figure 9: Weekly public and private health care expenditure per person in household by age group of primary person 1993-2010 in 2010 prices



Source: Australian Bureau of Statistics cat. No. 6530.0 Household Expenditure Survey Summary of Results; and cat 6537.0 - Government Benefits, Taxes and Household Income, Australia 1993/4, 2003/4, 2009/10

Separating out these influences is important for the public policy response. If we believe that future expenditure growth is largely caused by changing demographics, we might consider policies targeted at the elderly, for example, increasing the efficiency of the delivery of care for chronic disease. If on the other hand the rise in expenditure is due more to exogenous technical change then we might focus on the assessing the effectiveness and cost effectiveness of new technology in improving the quality of care. If we believe it is largely the result of illnesses or behaviours that are preventable we might focus on targeted interventions that reduce the risk of chronic illness. Of course these are not mutually exclusive, but we should be conscious of the risk of introducing policy measures that focus on one of these suspected causes that may have adverse effects on one of the others. For example constraining demand for care through direct patient payments or insurance requirements may have perverse effects on health outcomes while not significantly slowing expenditure growth and having consequences for health equity.

Behavioural response in the elderly population

We have forecasted future expenditure taking account of the direct pathways by which ageing affects growth in expenditure per person. It is worth emphasizing that while these kind of forecasts are plausible demographic futures they do not determine economic futures. They are silent with respect to the behavioural changes and market responses that demographic change can induce. In recent decades we have already seen a rise in labour force participation for women alongside a decline in fertility, and a fall among older men as a response to more generous retirement income options. The participation rate of Australians aged 55 and over has increased from 25% to 38% over the past 30 years, with most of the increase occurring in the past decade. [18] The labour force participation rate for women has increased by five percentage points from 2001-02 to 2010-11 with most of the increase achieved in the older age groups.[19] While around 40% of women work part time and this has only increased slightly in the last decade. In April 2016, the participation rate for women aged over 65 was 9.2% compared with 3% in April 1986; the corresponding rates for men were 19.2% and 16.7%. [18] As Chomik and Piggot [20] argue if the total participation rate in the economy (a proxy for the dependency ratio) could be stabilised for example by increasing the participation rate of those aged 50-69 and by enabling all inactive people aged 55 who say they want to work to do so this would go a large part of the way to counteract the pure economic and fiscal cost of ageing. Even in the absence of public policy to change incentives for workforce participation among older people, we might expect increased longevity to change behaviour with respect to consumption and labour supply with people being more likely to enter the labour market, to increase savings, be more productive and remaining in the labour market for longer. In terms of the effect of longer working lives on health it is unclear what the impacts of these changes will be. A longer attachment to the labour force may improve mental and physical health for some, but for others in less amenable jobs it may reduce future physical health.

The actual size of the change in composition of health expenditure towards the elderly will depend not just on the change in population numbers by age, but how

the elderly, care providers and government respond in the future. An expectation of rising wealth among elderly will lead providers to offer additional or higher quality services. To the extent that that people can be induced to use these services at similar or higher cost we might expect to see greater expenditure per capita. In addition we might expect to see political lobbying from the elderly or providers to subsidise these new technologies or to provide additional income to pay for them. These indirect effects of an expansion of the elderly in the population may well be more powerful in increasing health and aged care expenditure than the demographic effects that we have discussed so far.

In a forecast of the effects of ageing based on historical data the OECD estimates that public health care expenditure to GDP ratio in Australia will rise by 1.5 percentage points by 2030 and 2.4 percentage points by 2060 of which only 0.4 percentage point is due to demographic effects.[4] The remainder is due to non-demographic effects of cost pressures and income. However while many studies have documented this strong association between income, health care labour market costs, and health care expenditure the precise mechanism that translates higher income and wealth into greater health care expenditure is not clear and restricts our ability to make convincing forecasts.

Conclusions

We have made a number of spending projections for the next 20 years but whether any of them become a reality will depend on policy responses, attitudes to spending overall on health and aged care and in part on who pays for health and aged care. Research suggests that there is a considerable amount of savings to be made in reducing unnecessary and inappropriate health care and it seems likely that there are opportunities in the health and aged care sectors to offset to a considerable degree any additional financial cost of ageing. [21] A major part of the growth of health care expenditure to date has been about providing better care that has improved longevity and quality of life. That demand will continue to increase and with it the demand for spending more in later years of life on health care even if the return at the margin falls.

If the projected compositional change in expenditure in the next 20 years comes to pass there is a political question of the willingness to continue a tax based social insurance system that redistributes current consumption between younger and older cohorts in the population. In 2012, 71% of health expenditure was directed to people aged 65, and over, with these persons representing 14% of the population. In 2035, nearly 84% of health expenditure will be directed to people aged 65 and over while they will represent 19% of total population. This has led to discussion of proposals to change the way in which health and aged care are financed with a shift towards self-financing through subsidised saving and later retirement. However there are clearly potential problems meeting the equity objectives of a universal health care system with greater personal payments from the elderly on the one hand and subsidising savings among those with high income and wealth.[22] It is possible that behaviour in the market will achieve some of this irrespective of policy change as people save more and work longer to pay for their expected living costs in longer lives. In a recent paper use a lifecycle behavioural approach within a very long term macroeconomic general equilibrium economic model to allow for responses to demographic change Kudrna *et al* assume that people will supply more labour (increased working hours, stay longer in the labour force) to pay for their longer lives, and then save more for their retirement. In world of perfect markets (and with no exogenous technical change or investment driven by ageing) the result would be that wages and GDP would fall while assets held by the elderly would rise.[23] In other words national income and a change in longevity are not independent and in the absence of major policy change we might expect to see adjustments in behaviour that affect future expenditure and the distribution of assets across generations. There is an opportunity cost in health care for the elderly insofar as those resources could be used by younger people. Consumption expenditure by the elderly at a point in time represents an intergenerational transfer of resources that could become an economic or political problem in the future. While it is true that the elderly consume more health and personal services per person and contribute less to production of goods and services than those of working age, they also consume less in general and retain accumulated assets (particularly housing) that in the longer run will be transferred to the next generation.

All of this suggests that appropriate policy settings on health and aged care expenditure cannot be derived from simple demographic models. To the extent that the growth in per person expenditure is largely driven by supply side factors, and only indirectly by demand, then policies that focus on saving and the demand for care will be counterproductive. If the main cause of health growth is technology and producer interests then increasing savings and wealth or encouraging savings for health expenditure will result in greater expenditure, not necessarily better health, and no less future income transfers.

There is no immediate crisis in health care and a focus on greater efficiency in health production and finance is more likely to be effective in delivering high quality care and improving quality of life than trying to restrain the demand for health and aged care among the elderly through finance reform.

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