



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

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

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Acronyms

DALY	disability-adjusted life year
GDP	gross domestic product
NCD	non-communicable disease
SHI	social health insurance
WHO	World Health Organization

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***“Changes
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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 death. 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 of age 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 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 over 80 years of age 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 Mongolia. 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.

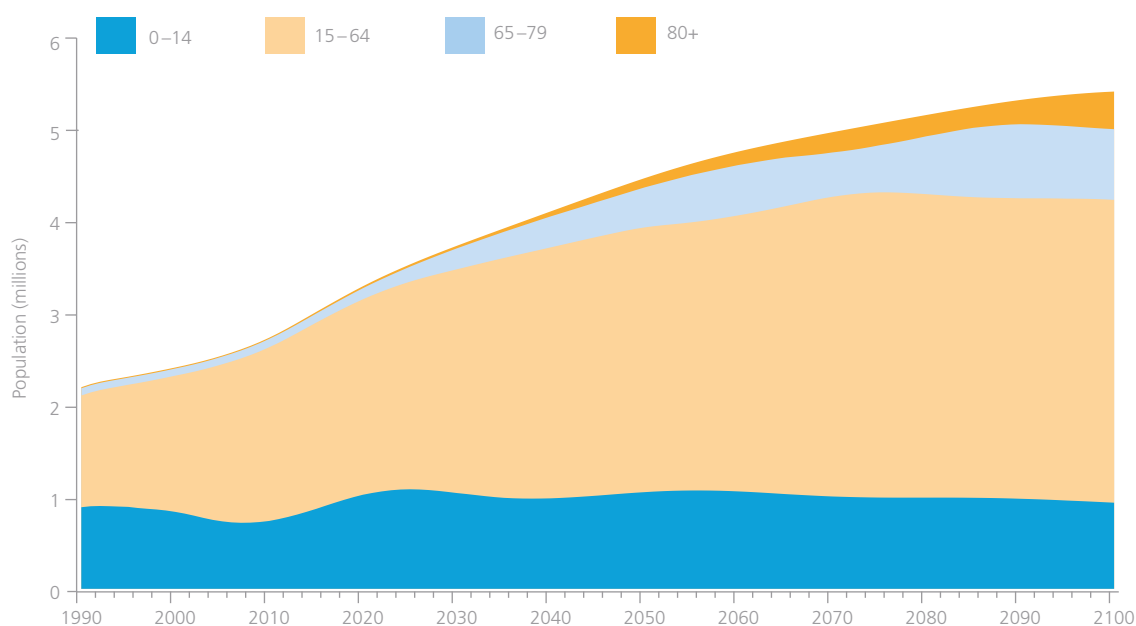
Population ageing, health and health spending in Mongolia

2020 Population	2020 Share of the population 65 years and above	2018 Total health expenditure per capita (USD)	2018 Total health expenditure as a share of GDP	2017 Life expectancy (years at birth)	2016 Severe dependence in activities daily living
3.3 million	4.3%	149	4.0%	69.5	7.0%

Mongolia's population is relatively young, but will age rapidly in the coming decades

Mongolia's population is projected to increase by almost 45% over the next four decades, reaching 4.7 million people in 2060. The population is still relatively young, with one-third of the population under 15 years of age, 4.3% aged 65 years or above and less than 1% of people aged 80 years and over. These proportions are similar to those recorded in 1960. However, the share of people in older age groups is expected to increase rapidly in the coming decades; by 2060, 14.6% of the population will be 65 years or above, with 3.1% over the age of 80. The economic old-age dependency ratio (ratio of population aged over 65 to population aged 20–64 years) is expected to increase from 52% in 2020 to 83.3% in 2060, although the share of the population at working age is expected to remain relatively stable at around 64.0% (UN, 2019).

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



Source: UN, 2019.

Mongolia has seen a substantial improvement in life expectancy, although it remains relatively low

Life expectancy at birth in Mongolia has increased by more than 20 years since 1960. At 69.5 years in 2017 (73.8 years for women and 65.5 years for men), it nevertheless remains below the global (72 years) and WHO Western Pacific Region (76.6 years) averages (World Bank, 2020). The increase in life expectancy can partly be linked to a fall in deaths from infectious diseases as a result of high immunization coverage and other public health initiatives (Tsilaajav et al., 2013). In the last two decades, mortality and morbidity from cardiovascular diseases, some cancers (notably liver cancer) and injuries have increased and now account for a substantial proportion of the disease burden in the country. It is likely that much of the rising disease burden from non-communicable diseases (NCD) can be linked to lifestyle factors, especially high rates of smoking and alcohol use among men (Public Health Institute of the Ministry of Health and Sports, 2013; Tsilaajav et al., 2013). In 2013, 36.9% of the adult population was estimated to be at high risk of developing an NCD due to exposure to at least three common risk factors, including smoking, physical inactivity, insufficient fruit and vegetable intake, being overweight or obese, and raised blood pressure (Public Health Institute of the Ministry of Health and Sports, 2013). This proportion rose to 53.2% for people aged 45–65 years. An estimated 25% of people aged 60 years and over in 2016 were estimated to be moderately or severely dependent on others to perform instrumental activities of daily living (ADB, 2020).

Health spending per capita in Mongolia has increased over the last decade and will increase further as a result of an expansion in the benefits package

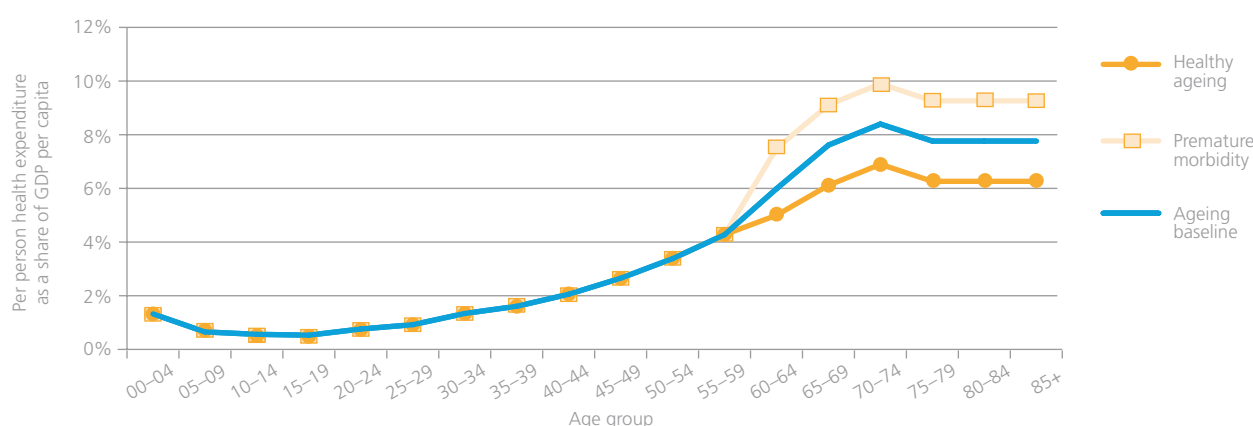
Mongolia's health system has gradually transitioned over the past three decades from a centralized, Semashko model that existed during the Soviet Union era, to a more decentralized system funded by general taxation and social health insurance (Tsilaajav et al., 2013). Tax-financed government expenditure on health, which accounted for 41.0% of current health expenditure in 2017 (WHO, 2020), covers the provision of an essential package of services in primary health care to address priority health issues and some services at the secondary and tertiary care levels. Social health insurance (23.0% of current health expenditure in 2017) covers most outpatient services, major inpatient services and a proportion of the cost of medicines and, following reforms in 2018, a proportion of day care, home care, rehabilitation care and some diagnostic tests in primary health care (Dorjdagva et al., 2016). Direct out-of-pocket payments are high as a result of user charges and cost-sharing for outpatient and inpatient care, and accounted for approximately one-third of total health spending in 2017. Per capita health spending has more than doubled from USD 74 in 2005 to USD 149 in 2017, with spending as a share of gross domestic product (GDP) rising slightly from 3.8% to 4.0% over the same period (WHO, 2020). Recent reforms in 2018 that aim to progress the health system towards universal coverage by strengthening primary health care, introducing innovative technology and increasing financial protection have seen an increase in the public funding committed to health (WHO, 2019a).

How will population ageing in Mongolia affect health expenditure trends?

Health expenditures in Mongolia generally increase until 70 years of age and then slightly decline for older age groups

Using data on annual benefit expenditure per capita for social health insurance, we are able to assess the relationship between calendar age and per person health spending in Mongolia (Figure 2, solid blue line; see annex for details on health spending data) (WHO, 2019b). It should be emphasized that these data are a proxy for health spending by age and do not represent the whole population or all public health expenditure, but are the only data available for this note. 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 until 70 years of age, before declining for those in the 75 years and above age group. Expenditure data for Mongolia is not disaggregated for age groups beyond 75 years of age; however, it is worth noting that in many countries with more developed health systems, per capita health expenditure often continues to rise until 80–89 years of age, before declining slightly for the very oldest (Williams et al., 2019).

Figure 2. Per person health expenditure by age group (baseline and two alternative scenarios), 2017, Mongolia



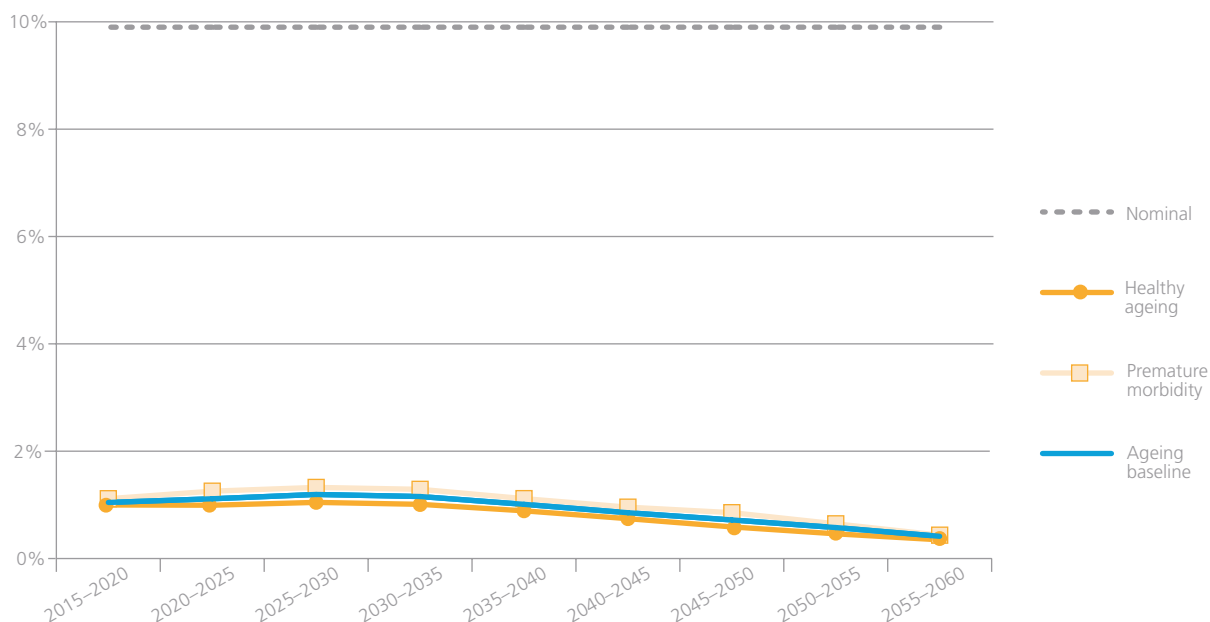
Source: WHO, 2019b.

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

Using 2017 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 Mongolia (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 1.19 percentage points per year between 2025 and 2030, before steadily declining to 0.41 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 9.9% in Mongolia from 2013–2017. From this, one could infer that population ageing in Mongolia will account for just over one-tenth 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, Mongolia, 2015–2060*



Source: Authors' calculations.

Population ageing on its own in Mongolia 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 Mongolia will result in an increase in public health expenditures as a share of GDP by 1.84 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 just under 0.05 percentage points per year (Figure 4).

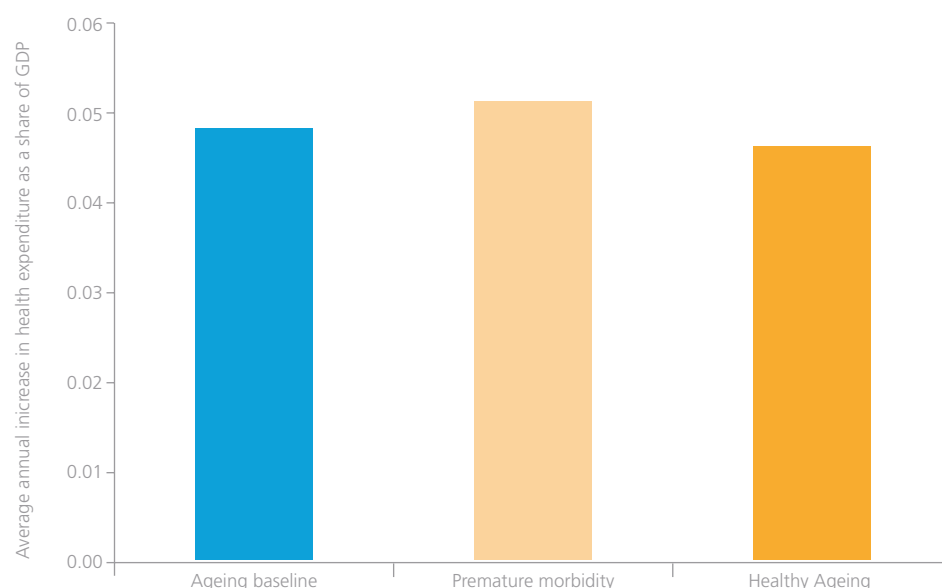
Overall, the estimates suggest that population ageing is likely to contribute only modestly to annual health spending growth in Mongolia in the coming decades.

Growth in health spending due to population ageing would be lower if people age in good rather than poor 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 1.33 percentage points per year between 2025 and 2030, before declining to 0.44 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 2.08 percentage points between 2020 and 2060. This represents an increase of 0.24 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 over 0.05 percentage points per year (Figure 4).

Figure 4. Average annual increase in public health expenditures as a share of GDP in Mongolia 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 1.05 percentage points per year between 2025 and 2030, before declining to 0.35 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 1.60 percentage point between 2020 and 2060; this is 0.24 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 around 0.04 percentage points per year (Figure 4).

Comparing the two scenarios, people ageing in good health would see health spending consume 0.48 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 over 0.01% of GDP per year over the next 40 years. While this seems small, based on 2018 GDP estimates, it would amount to savings of almost USD 63 million per year from 2060. 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 Mongolia will result in an increase in health expenditures as a share of GDP by 1.84 percentage points between 2020 and 2060, an average increase of 0.05 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 Mongolia. 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 2.08 percentage points between 2020 and 2060, but healthy ageing would see growth of 1.60 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 public health spending by age group in 2017 was obtained from an actuarial review of the National Health Insurance Fund of Mongolia (WHO, 2019b). Baseline health spending data capture benefit expenditure per capita for services covered by the benefit package of the social health insurance (SHI) fund, which includes inpatient services, outpatient care, some rehabilitative care, home care, day care, and diagnostic tests provided by family or local health centres, palliative care, haemodialysis, and various high-cost procedures, including chemotherapy and radiotherapy cancer treatment. While these baseline data only capture one-third of public health spending, they provide an understanding of the distribution of per person health spending by age group in Mongolia, which we assume applies to public health expenditure levels in total. For our projections, 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 Mongolia, 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 which 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, 2019).

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 Mongolia by assuming that health spending for each age group from 60–69 years is 1.00 percentage point higher than currently and 1.50 percentage points higher for age groups of 70 years and above (Figure 2, line with square).

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 Mongolia by assuming that health spending for each age group from 60–69 years is 1.00 percentage point lower than currently and 1.50 percentage points lower for age groups 70 years and above (Figure 2, line with circle).

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