



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

PROMOTING HEALTHY AGEING IN THE **WESTERN PACIFIC REGION**

IMPLICATIONS FOR HEALTH EXPENDITURE TRENDS AND ECONOMIC GROWTH

Keywords

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Acronyms

COVID-19	coronavirus disease 2019
GDP	gross domestic product
IHME	Institute for Health Metrics and Evaluation
NCD	non-communicable disease
OECD	Organisation for Economic Co-operation and Development
UN	United Nations
USD	United States Dollar
WHO	World Health Organization
WPRO	WHO Regional Office for the Western Pacific
YLD	years lived with disabilities



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Executive summary

In this report we explore how population ageing may affect public health spending and economic growth in the World Health Organization (WHO) Western Pacific Region and how future trends may change if people age in better health. We also explore potential strategies that can be adopted to help promote healthy ageing across the region. The strategies outlined align with the objectives and recommended actions of the *Regional Action Plan on Healthy Ageing in the Western Pacific*, which was endorsed at the seventy-first Regional Committee Meeting in November 2020. The action plan aims to support Member States to improve the health and well-being of older populations in the Region so they can thrive and play an active role in society.

Background

The share of older people in all countries of the Western Pacific Region is increasing. While this should be celebrated, there are also concerns that it will create significant challenges for economies, societies, governments and health systems. One major concern is that population ageing will slow economic growth by reducing the number of people of working age and lowering productivity rates if older people stay in formal work. Another hypothesis suggests that population ageing will lead to an unsustainable increase in public health and long-term care expenditures due to the greater health and social care needs, on average, of older people compared with younger people.

Recent research nevertheless suggests that these fears are likely to be unfounded. Moreover, older people can provide significant economic and societal benefits through work, volunteering and informal care giving, especially if they remain healthy and active. In this report, we develop projections to explore these hypotheses and determine how an increasing share of the population at older ages will affect future public health care spending and economic growth in several case study countries of the Western Pacific Region. We also investigate how these projections may change if people age in better health than they do currently. Case study countries are: Australia, Japan, Mongolia, New Zealand, the Republic of Korea and Viet Nam.

How will healthy ageing affect economic growth?

Using country fixed effects models, we show that, on its own, the projected increase in the share of the population aged 55–69 years is expected to coincide with a slowdown of per person real gross domestic product (GDP) growth in all case study countries. The largest negative impacts are expected to be seen in Viet Nam and Mongolia, with an increasing share of the population aged 55–69 years reducing real per person GDP growth by around 4.7% in Viet Nam and 4.1% in Mongolia over the 30-year period from 2020 to 2050. Longer-term projections suggest that the effects of an increasing share of the population aged 55–69 years will be largest in Mongolia, with real per person GDP declining by 5.2% in total between 2020 and 2100, compared with 2.7% in Viet Nam.

Taking into account the health of the population, adjusted models nevertheless suggest that healthy ageing can help to moderate any adverse effects of population ageing. In all countries, a 5% reduction in disability rates among people aged 55–69 years would contribute positively to annual real per person GDP growth. The largest positive effects would be seen in the Republic of Korea followed by Japan. For the Republic of Korea,

compared with keeping 2017 disability rates for those aged 55–69 years constant indefinitely, a hypothetical 5% reduction in disability rates is expected to add approximately 0.5% to GDP growth per year through the end of the century.

How will healthy ageing affect growth in public health care spending?

We project the contribution of population ageing to health care expenditure growth through 2060 for all case study countries using per person health spending levels by age. Projections indicate that population ageing will contribute only modestly (and slowly) to increases in public health spending as a share of GDP, adding between 0.03 and 0.08 percentage points per year to per person health spending across case study countries between 2020 and 2060. This suggests that other factors such as prices, volume of care, use of technologies, an expansion of benefits or improvements in quality of care will drive health spending growth in all countries in the future – not population ageing itself.

Importantly, healthy ageing decreases any potential growth in future spending. Adjusted models show that if people were to age in better health than currently, any increase in health expenditures as a result of population ageing would be smaller compared with the baseline scenario. The largest gains from promoting healthy ageing are expected in New Zealand, where growth in health spending as a result of population ageing between 2020 and 2060 would be 0.8 percentage points lower under a healthy ageing scenario compared with baseline projections that assume health status remains constant. In all countries, projections suggest that investing in healthy ageing strategies may lead to monetary savings ranging from US dollars (USD) 6 million per year between 2020 and 2060 in Viet Nam, up to USD 500 million per year in Japan. Expected savings in Viet Nam would likely be higher if health coverage from publicly financed schemes for older people were expanded.

What does the existing literature tell us about strategies to promote healthy ageing?

Our literature review highlights that a variety of policy actions are available to support good health at older ages, suggesting that modelled improvements to health status are achievable. These actions target improvements to health risk factors, health and long-term care systems and socioeconomic conditions to help promote health across the life course so that people can age in good health and continue to remain active and contribute to society.

Effective strategies to promote good health through the life course and into older age include “best buy” interventions such as regulations and taxes on tobacco, alcohol and unhealthy foods and drinks, as well as strategies to “nudge” individuals or groups to adopt healthier lifestyles. Measures to reduce risk of falls, prevent cognitive decline and reduce social isolation and loneliness are also needed to promote healthy ageing and can be achieved through a broad range of measures that target physical activity and use of technologies, alongside programmes to support community activities and volunteering or work opportunities. Strong health systems are central to promoting healthy ageing and it is fundamental that accessible, effective and coordinated primary care, prevention activities and social services are available. The creation of age-friendly environments and the strengthening of community-based health and long-term care are also important to support ageing in place. Broader measures to reduce ageism in society and to tackle the social determinants of health are also essential to promote healthy ageing.

Conclusion

Promoting healthy ageing is an important policy goal in the Western Pacific Region. Healthy ageing can help individuals enjoy better health and longer lives, while also having tangible economic benefits that can improve society's prosperity and the sustainability of government health budgets. To support this aim, it is important that the national evidence-base on ageing and health is strengthened in the region to help determine which strategies might be most (cost)effective in different settings and contexts. Moreover, achieving good health at older ages will require holistic national healthy ageing strategies that take a life course perspective and promote multisectoral collaboration and action. Greater investment and long-term commitment from governments will also be needed. Prioritizing investment into the most effective health sector interventions, such as strengthening primary health care and prevention, alongside increasing population coverage, will be essential to engender improvements in population health.

1. Introduction: dispelling the myths about population ageing

All countries in the World Health Organization (WHO) Western Pacific Region are experiencing population ageing in some form, with the share of older people in the population increasing (UN, 2019). While this should be celebrated, there are also concerns that it will create significant challenges for economies, societies, governments and health systems. From a macroeconomic perspective, one of the biggest concerns relates to the impact of population ageing on economic growth. Some researchers have hypothesized that an increasing share of the population at older ages may lower economic growth by reducing the number of people of working age and lowering productivity rates if older people stay in formal work, while also placing fiscal pressure on social security systems and pensions (Acemoglu & Restrepo, 2017; Aiyar, Ebeke & Shao, 2016). Another major hypothesis is that population ageing will lead to an unsustainable increase in public health and long-term care expenditures. This belief stems from the fact that per person health spending for older people is, on average, higher than for younger people because of greater health and social care needs (Williams et al., 2019). It is therefore assumed that a larger share of the population at older ages will drive an overall increase in government spending.

Recent research nevertheless suggests that these fears are likely to be unfounded. First, existing evidence suggests that population ageing will not inevitably slow economic growth. In fact, older people have accumulated much knowledge and experiences and can provide significant economic and societal benefits through work, volunteering and informal care giving, particularly if they are healthy and active (Acemoglu & Restrepo, 2017; Aiyar, Ebeke & Shao, 2016; Avendano & Cylus, 2019; Cylus, Figueras & Normand, 2019; WHO WPRO, 2020a). Second, recent models indicate that population ageing is likely to have only a modest impact on health spending growth (de la Maisonnette & Martins, 2013; European Commission, 2018; Lorenzoni et al., 2019; Williams et al., 2019). It is instead shown that other factors commonly linked to older age, but not necessarily synonymous with population ageing, such as multimorbidities, dependency or proximity to death, are instead better predictors of health expenditures than calendar age on its own.

These findings suggest that while population ageing will pose some challenges for governments in the Western Pacific region, any adverse effects are likely to be manageable and population ageing may even offer opportunities to economies and societies if people age in good health (WHO WPRO, 2020a). This fact is acknowledged in the WHO *Regional Action Plan on Healthy Ageing in the Western Pacific*, adopted in November 2020, which emphasizes that countries should take early action and invest now to improve the health of older people in the region. The urgent need to invest in health at older ages has perhaps never been more evident than during the coronavirus disease 2019 (COVID-19) pandemic, which has disproportionately affected the oldest age groups, especially those with chronic conditions.

To develop and invest in the most effective strategies to promote healthy ageing, the Regional Action Plan highlights the need to strengthen research and evidence on the potential implications of population ageing, including beyond the health sector (WHO WPRO, 2020a). This report aims to support this objective by exploring how population ageing may affect future health spending and economic growth in the region and how these trends may change if people age in better health. We do so by developing projections to show how an increasing share of people at older ages will affect future health care spending and economic growth in several case study countries of the Western Pacific Region, before adjusting these models to assume that older people age in better health than they do currently. It should be noted that our analysis was conducted without taking into account the health or economic effects of COVID-19 (see Box 1). We conclude the report by outlining some key policy options that can be implemented to help promote healthy and active ageing in the Region, based on a review of international peer-reviewed and grey literature. This section is structured to align with the objectives and recommended actions outlined in the *Regional Action Plan on Healthy Ageing in the Western Pacific*.

Box 1: COVID-19 makes calls for action on healthy ageing even more urgent

Our analysis was conducted without taking into account the recent health and economic effects of the COVID-19 pandemic. This is due to insufficient data at the time of writing on the impact of COVID-19 on mortality and morbidity for older people and economic trends in case study countries. Nevertheless, COVID-19 has not significantly changed the underlying process of population ageing. In addition, once the COVID-19 crisis is under control it is likely that spending by age will broadly return to how it was previously in most countries, if it has even changed at all. We therefore believe that our projections still provide accurate estimates of the future effects of healthy ageing on health spending and economic growth.

We nevertheless acknowledge that COVID-19 has had a significant impact on the health of older people globally. These effects are not only from the higher risk of severe morbidity and mortality from COVID-19 for older age groups; non-pharmaceutical interventions such as lockdowns have increased social isolation and reduced opportunities to remain active for many older people, leading to negative effects on physical and mental health. COVID-19 has also increased pressures in many countries for greater public spending on health and entitlements, with calls for universal population coverage for COVID-19-related care or vaccinations and higher standards of integrated primary care. The impact of COVID-19 will be felt for many years, amplifying the findings of this report and making calls for action on healthy ageing even more urgent.

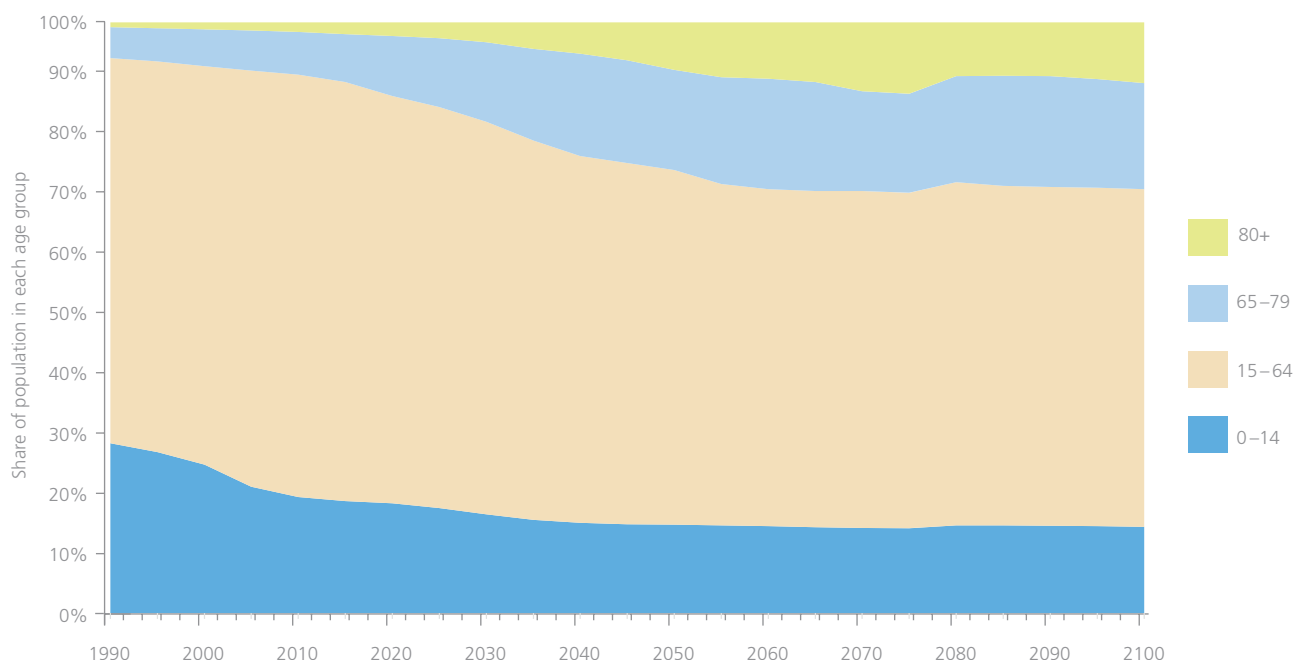
2. The Western Pacific Regional context: demographics, health and disability, and economic indicators

The Western Pacific Region contains 37 countries and areas in East Asia, Southeast Asia and the Pacific, and is home to almost one quarter of the world's population (1.9 billion people) (WHO WPRO, 2021a). The region encompasses a diverse range of countries, from big countries with large populations (for example, China with 1.4 billion inhabitants), to small island nations with fewer than 20 000 people (such as Cook Islands, Nauru, Niue, Palau, Pitcairn Islands, Tokelau, Tuvalu, and Wallis and Futuna). Demographic, economic and health contexts across the region vary substantially (see Table A1, Annex).

Almost one third of people aged over 65 years globally live in the Western Pacific, and the pace of population ageing is accelerating

The Western Pacific Region is home to over 240 million people aged 65 years and over, close to one third of the estimated number of older people globally (Kasai, 2021; UN, 2019). By 2060 this number will more than double, with the share of the population aged over 65 years increasing from 12.4% in 2020 to 28.4% in 2060 (WHO WPRO, 2020a; Fig. 1). The number of people in the oldest age groups (80 years and over) will increase even more rapidly, rising four-fold from approximately 45 million in 2020 (2.3% of the population) to over 210 million (9.6% of the population) by 2070 (UN, 2019).

Figure 1: Demographic change in the WHO Western Pacific Region, 1990–2100



Source: UN, 2019.

Notes: From 26 countries reporting data.

The share of older people in the population varies considerably between countries. More than a quarter of Japan's population (28.4%) are over 65 years, making it the most "aged" country globally, but this figure declines to less than 4% in Papua New Guinea, Solomon Islands and Vanuatu. However, the pace of population ageing is accelerating, and countries with relatively younger populations are seeing the share of older people increase more rapidly than in more aged countries. Although it took 60 years for the share of people aged 65 years and older to double from 7% to 14% in Australia and New Zealand and 24 years in Japan, the same transition will occur in less than 20 years in Viet Nam (Kasai, 2020).

Many economies in the region have reported substantial economic growth in recent decades, but economic performance has stagnated in the Pacific Island countries

Many countries in the Western Pacific Region have recorded remarkable economic growth over the past four decades. East Asian countries in particular – notably China, Malaysia, the Republic of Korea, Singapore and Vietnam – have all grown much faster than the global average. This has raised living standards, increased access to essential services such as electricity, water and education and led to a substantial reduction in poverty rates; China alone has successfully lifted more than 850 million people out of extreme poverty since 1980 (Pérez de la Fuente, 2016; World Bank, 2021a). However, this success has not been felt homogeneously. Income inequality in the Asia-Pacific¹ region has risen dramatically and more than 40% of workers live in or near to poverty levels (UN ESCAP, 2020). In addition, economic growth in Pacific Island

¹ These estimates refer to countries of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) region, which includes more countries than the WHO Western Pacific Region.

countries and areas has not kept pace with elsewhere in the region because of a number of challenges including small domestic markets, large distances to trading partner countries, lack of natural resources and vulnerability to external economic, environmental and health shocks (Kronenberg & Khor, 2016). GDP per capita in 2018 ranged markedly, from over \$50 000 in the high-income economies of Australia, Macao SAR and Singapore to less than \$2000 in the lower-middle-income countries of Kiribati and Cambodia (Table A1, Annex).

COVID-19 has posed a number of challenges for economies in the region, despite many countries so far responding to the pandemic relatively more successfully than in other regions. The World Bank estimates that GDP growth in countries of the East-Asia-Pacific Region² was only 0.9% in 2020 as a result of the pandemic, the lowest rate since 1967 (Vashakmadze, 2021). Economic output in the Pacific Island countries and areas, where tourism has been severely affected, were particularly badly hit in 2020, and was 10% below pre-crisis levels in Fiji, Palau and Vanuatu (World Bank, 2021b). By the end of 2021, economic output in the major economies of the region had only surpassed pre-pandemic levels in China and Viet Nam (World Bank, 2021b). Output levels in the region (excluding China) are expected to remain at 7.5% below pre-pandemic projections into 2022. For the first time in two decades, poverty in East Asia stopped declining in 2020 as a result of the economic fallout from COVID-19, meaning that 32 million people who would have otherwise escaped from poverty did not do so (World Bank, 2021b).

With respect to population ageing, there are no clear patterns in terms of the relationship between population ageing and the share of older people participating in the workplace. In New Zealand, for example, the share of the labour force³ over 65 years of age increased faster between 2010 and 2019 (from 4.2% to 6.9%) compared with the proportion aged between 55 and 64 years (from 15.7% to 17.2%) (ILOSTAT, 2020). In Mongolia, the share of the labour force 65 years and older remained relatively constant at just over 1.0% during the same period, while the share of 55–64 years of age increased by 2.3 percentage points (from 4.4% to 6.7%) (ILOSTAT, 2020). In Japan, which is further along in the demographic transition, the share of the labour force aged between 55 and 64 years declined from 19.5% in 2010 to 17.4% in 2019, whereas the proportion of the total labour force aged above 65 years increased by more than 50% (from 8.6% to 13.0%) (ILOSTAT, 2020).

Life expectancy has risen in recent decades, while the burden of non-communicable diseases is increasing

People in the Western Pacific Region are living longer lives than ever before. In just the last 20 years, life expectancy in the Western Pacific has increased by 5.3 years, reaching an average of 77.7 years in 2019 (74.8 years for men and 80.8 years for women) (WHO, 2021a). Life expectancy is expected to continue rising over the next 20 years, by an average of 3.8 years for women and 3.7 years for men (WHO WPRO, 2019). Healthy life expectancy⁴ at 60 years has also increased by 1.8 years since 2000, reaching 16.5 years (15.4 years for men and 17.7 years for women) in 2019 (WHO, 2021a). However, there is evidence to suggest that the proportion of years spent living in good health by older people has declined in recent years⁵, indicating that a relative expansion of morbidity is occurring (Box 2).

2 The World Bank East-Asia-Pacific Region contains different countries to the WHO WPRO Region and does not include Australia, New Zealand and Japan.

3 The labour force is defined as all persons of working age (usually 15 years and above) who are actively engaged in the labour force. This includes employed people and unemployed people seeking employment.

4 Healthy life expectancy is an estimate of how many years someone may expect to live in good health.

5 The increase in healthy life expectancy at age 60 has not kept pace with the rise in life expectancy at age 60, which rose by 2.5 years. Similarly, years lived with disability at 70 years and over in the region has increased from 275 to 280 per 1000 population (IHME, 2021).

Box 2 Considering the implications of three scenarios in which people age in better, worse or similar health to now

Three main scenarios are generally considered in terms of how the health of older people may change as life expectancies rise: an **expansion of morbidity**, **compression of morbidity** or **dynamic equilibrium** (see for example Fries, 1983; Gruenberg 1977; Kramer, 1980; Manton, 1982). These scenarios theorize that the onset of poor health and functional limitations and disability will either be delayed or occur relatively earlier, leading to older people spending either shorter or longer periods of time in ill health. A recent policy brief by Rechel and colleagues considers these scenarios, showing that each one will have differing implications for economies, public finances, and health and long-term care systems (Rechel, Jagger & McKee, 2020).

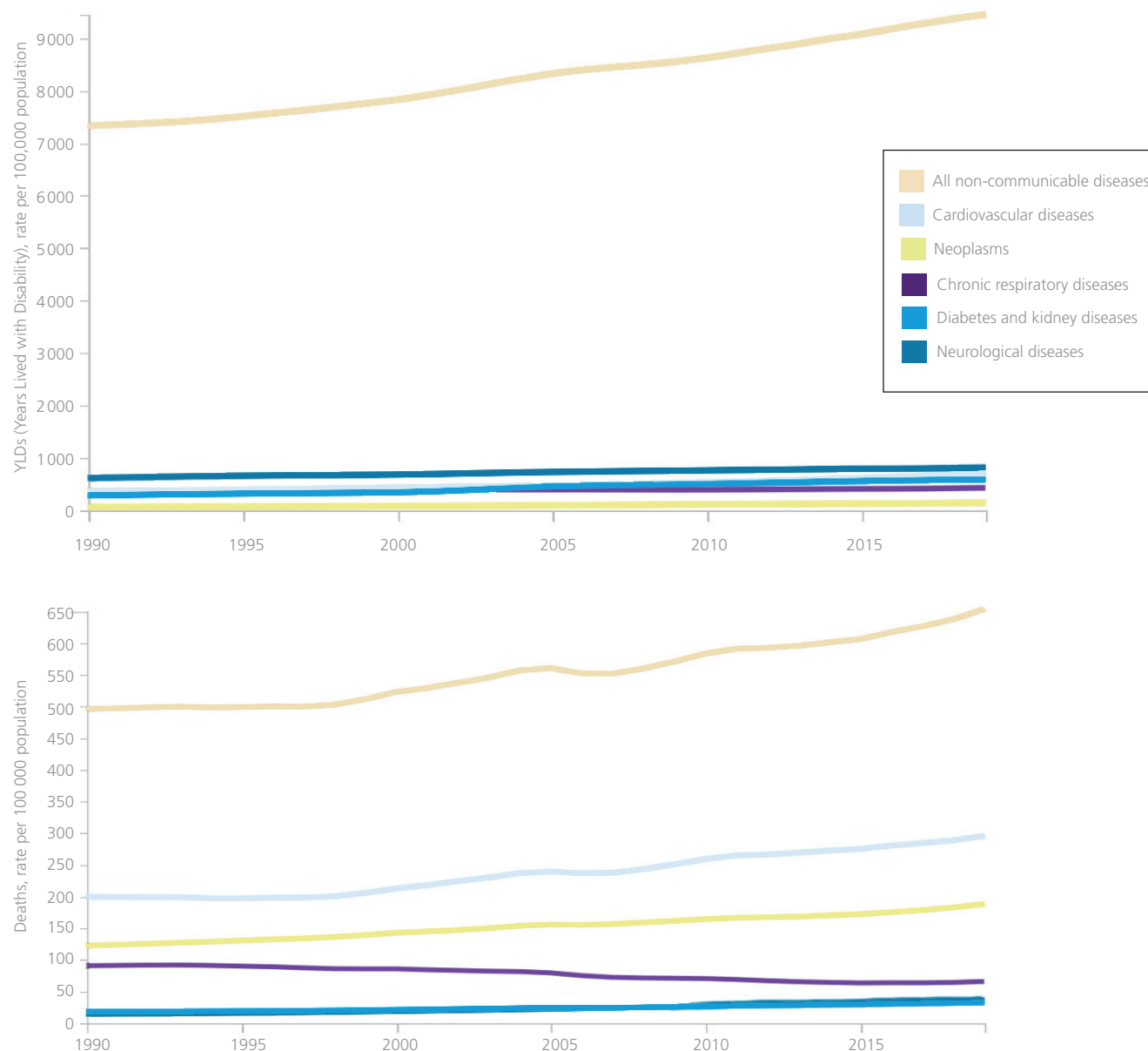
In the expansion of morbidity scenario, it is hypothesized that people will spend more years living in poor health as life expectancy increases. According to this scenario, medical progress will increase the survival of frail older people (for example, those with dementia) so that mortality will fall but morbidity will increase. Health and long-term care needs and expenditures under an expansion of morbidity would probably increase (Rechel, Jagger & McKee, 2020). In a related scenario, the relative expansion of morbidity, the onset of disease would occur at a later age so that years spent in good health are gained, but the proportion of years lived in ill health as a percentage of life expectancy will rise. There is limited evidence on the outcome of this scenario, but it is likely that it would accelerate health care use and expenditures (Rechel, Jagger & McKee, 2020).

In the compression of morbidity scenario, it is posited that rising life expectancies will be accompanied by a later onset of disease and an overall shorter period spent in ill health. In other words, gains in healthy life years will be greater than gains in life expectancy, reducing the absolute number of years spent in ill health. Health care needs and expenditure under this scenario would be likely to decline (Rechel, Jagger & McKee, 2020). In a related scenario, the relative compression of morbidity, the onset of disease would occur at a later age as life expectancy increases. Hence, although the absolute number of years spent in ill health would increase slightly, the proportion of additional years lived in ill health would decline. This scenario would probably see a decrease in health care expenditures if the additional years spent in good health were productive (Rechel, Jagger & McKee, 2020).

The dynamic equilibrium scenario is often seen as somewhere between an expansion and a compression of morbidity, with mortality and morbidity decreasing in proportion to each other. Alternatively, this scenario suggests that while there would be an increased prevalence of chronic diseases, this would be offset by a decrease in the severity of these diseases. Therefore, the prevalence of disability would increase, but the severity of disability would be mild or moderate, meaning the average level of disability would fall. Health care needs and expenditure under this scenario would probably decline (Rechel, Jagger & McKee, 2020).

Infectious diseases including HIV, malaria, dengue fever, multidrug-resistant tuberculosis and the re-emergence of measles remain important health issues in the region. However, non-communicable diseases (NCDs) now account for close to 90% of deaths in the region and are the primary cause of morbidity and mortality (WHO WPRO, 2019). Cardiovascular diseases, cancer, diabetes and chronic respiratory diseases account for the majority of the disease burden from NCDs. With the exception of chronic respiratory diseases, the rate of deaths and years lived with disabilities (YLDs)⁶ from these causes and all NCDs in total have slowly but steadily increased in the region over the past three decades (Fig. 2). The prevalence of mental health conditions is also a concern, with an estimated 100 million people living with a mental health disorder (WHO WPRO, 2019). Age-related chronic conditions are also on the rise, with an estimated 16 million people in the region living with dementia in 2016; by 2040, this figure is projected to increase by more than 100% in at least 10 countries (WHO WPRO, 2019).

⁶ Years lived with disability measures the burden of living with ill-health in the amount of years lived with disease and/or disability

Figure 2: Deaths and YLDs per 100 000 population from NCDs, Western Pacific, 1990–2019

Source: IHME, 2020.

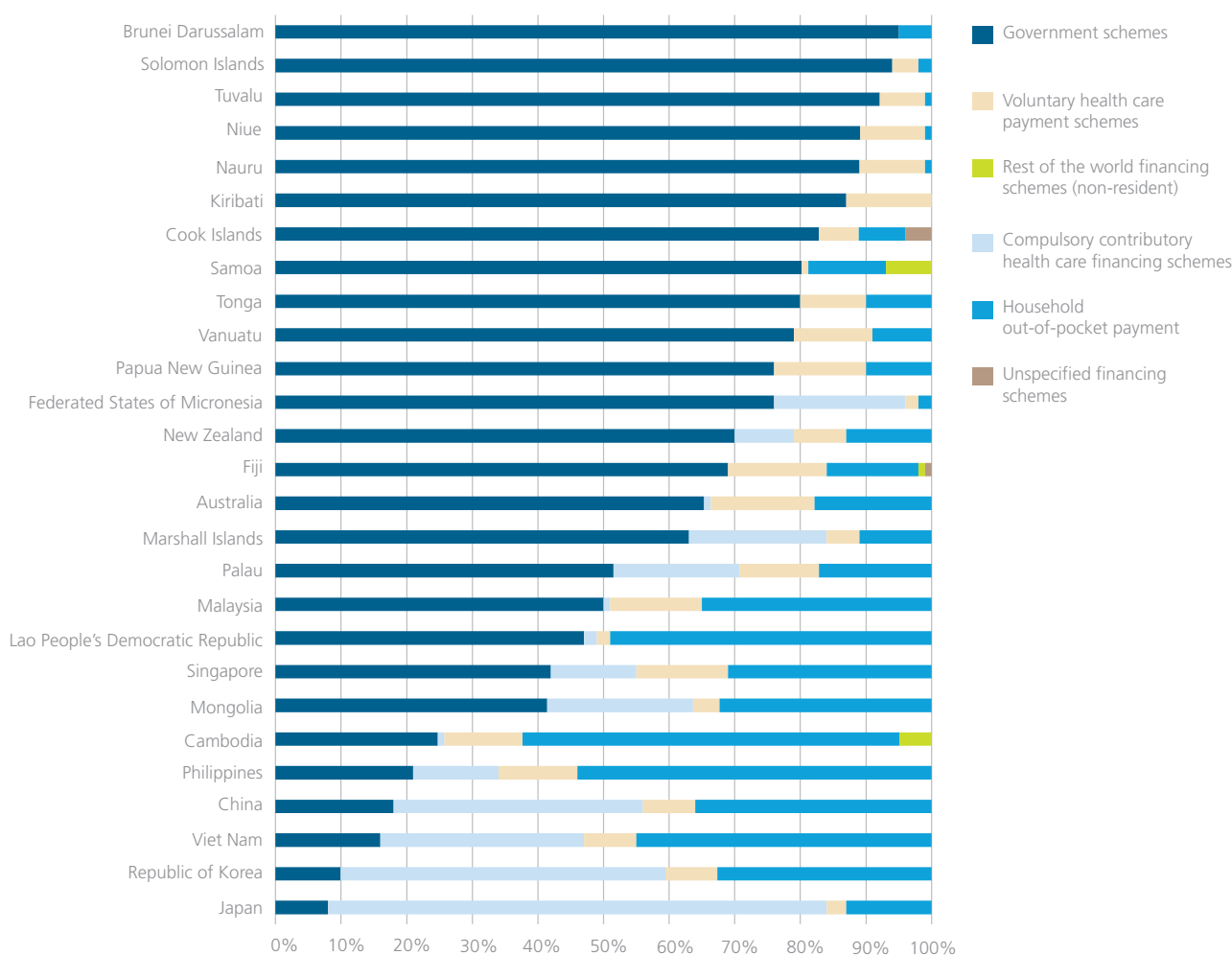
The prevalence of many of the major NCDs in the region is linked with a wide range of modifiable risk factors, including obesity and overweight, physical inactivity and smoking. Although smoking prevalence in the region has declined by 5% over the past decade, it remains high at 25% and an estimated three people die every minute from tobacco-related illnesses (WHO WPRO, 2019). Obesity rates have increased six-fold since 1975, while the rates of people who are overweight have trebled (WHO WPRO, 2019). The situation varies substantially between countries, with adult obesity prevalence ranging from less than 5% in Cambodia, Japan and Vietnam to over 60% in Niue, Samoa, Cook Islands and Tonga (World Obesity Federation, 2021). Rates of obesity in the region are higher for women, people with lower socioeconomic status and those living in urban areas. Sedentary lifestyles have also increased in recent decades, with more than a quarter of adults not sufficiently active (WHO WPRO, 2019). Levels of insufficient physical activity range from less than 10% of adults in Niue and Vanuatu to over 40% in Kiribati, Palau, Nauru, New Zealand and Marshall Islands (World Obesity Federation, 2021). Research from the Western Pacific region and elsewhere has suggested that obesity, physical inactivity and smoking at all points of the life course

from early adulthood, to mid-life and into older age, are associated with higher risk of chronic disease and lower cognitive and physical functioning for older adults (Bosnes et al., 2019; Britton et al., 2008; Capurso et al., 2019).

Health systems are predominantly financed through public funding, but high out-of-pocket spending remains a challenge in many countries

The majority of health systems in the Western Pacific region are financed predominantly through public funding (Fig. 3). Public funding is raised through taxation (for example, as the primary source of public financing in Australia, New Zealand and the Pacific Island countries and areas) or compulsory contributory health insurance (for example, as the primary source of public financing in China, Japan and the Republic of Korea), but many countries have mixed public financing arrangements (Chu, Kwon & Cowley, 2019).

Figure 3: Current health expenditures by health financing schemes in countries in the WHO Western Pacific Region, 2018



Source: WHO, 2021a (Global Health Expenditure Database).

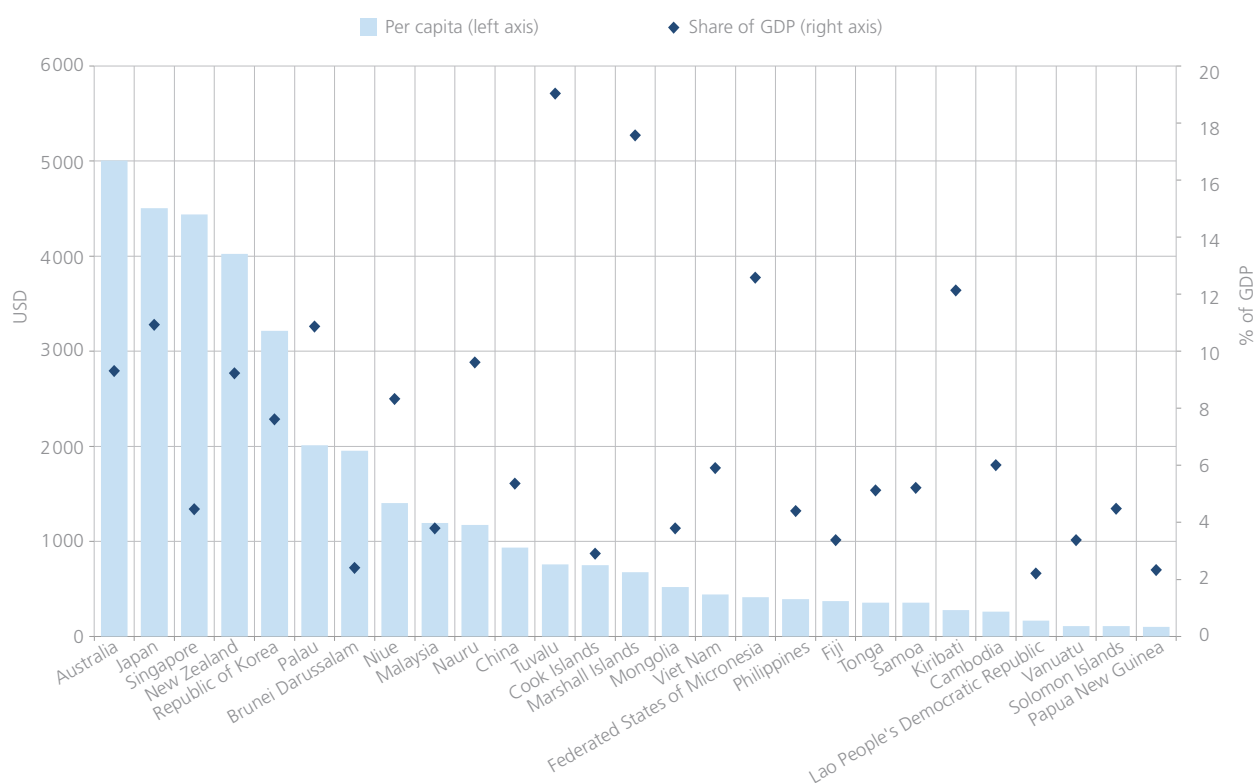
Note: Health expenditures by health financing scheme are shown as a percentage of current health expenditure (2018); some countries in the region reported no data and are not included in the analysis.

Total health expenditure as a share of GDP has increased over the past decade in most countries that regularly report health spending (Chu, Kwon & Cowley, 2019). Health spending as a share of GDP in countries reporting data averaged 7.1% in 2017, but varied widely between countries, from a low of 2% in Papua New Guinea to 19% in Tuvalu (Fig. 4).

On a per capita basis, health spending (adjusted for differences in purchasing power parity) averaged USD 1330 in 2018, slightly above the global average of USD 1000. Per person health spending ranged from USD 101 in Papua New Guinea to USD 5005 in Australia (Fig. 4).

High out-of-pocket payments are a major challenge for many health systems in the region. This is especially so in Asian countries, where out-of-pocket health payments as a share of current health expenditure are over 20% in the majority of countries reporting data (Fig. 3). Although out-of-pocket payments as a share of total health spending have declined over the past two decades in most countries (WHO, 2021a), the region still reports the highest number of households reporting catastrophic or impoverishing health expenditures globally. Out-of-pocket spending is primarily driven by the cost of medicines and/or having an older person or person living with a chronic condition in the household (Chu, Kwon & Cowley, 2019).

Figure 4: Health expenditure per capita and as a share of GDP in countries of the Western Pacific Region, 2018



Source: WHO Global Health Expenditure Database, 2021.

Note: Some countries in the region reported no data and are not included in the analysis.

In countries where national health insurance is the main source of public financing, population coverage is relatively high, with near universal coverage in Japan and the Republic of Korea, and coverage of 95% in China and 87% in Viet Nam (Chu, Kwon & Cowley, 2019). The type of services covered by public health financing differs considerably by country. In some countries such as Australia, Japan, New Zealand and the Republic of Korea, health systems are highly developed, with strong primary care sectors and availability of a wide range of specialized services. In other countries, up to 60% of people lack access to essential services, primary care remains underdeveloped and specialized hospital care is only available in urban areas (WHO WPRO, 2020b). In Pacific Island countries and areas in particular, people in need of specialized treatment often need to travel long distances and sometimes overseas to seek care (WHO WPRO, 2021b).

3. Population ageing, health expenditure trends and economic growth

In this section we present two sets of forecasts on the effects of population ageing in the Western Pacific region on: (i) economic growth and (ii) public health expenditure growth. All forecasting models are then adjusted to consider how future economic growth and health expenditure growth patterns may be moderated if countries successfully promote healthy population ageing. Models are run for the following case study countries: Australia, Japan, New Zealand, Mongolia, the Republic of Korea and Viet Nam. These countries were selected because they represent a mix of countries at different stages of the demographic transition, with varying health system and economic contexts, and where health spending data disaggregated by age was available.

3.1 How will healthy ageing affect economic growth for countries in the WHO Western Pacific Region?

In this section, we model how population ageing, through its effects on an ageing workforce, impacts economic growth in case study countries, and how better health and lower disability rates among the older working-age population (55–69 years) affects it. Data sources and methods for macroeconomic projections are described in Box 3.

Box 3 Data and methods for forecasting economic gains of healthy ageing

Data from multiple sources are used to model the effects of population ageing on economic growth and to consider effects of health and disability among the older working-age population. Data on real per capita GDP are taken from the World Bank (World Bank, 2020), historical and forecasted population by age data from the United Nations (UN) Population Division (UN, 2019), and data on YLD by age from the Institute for Health Metrics and Evaluation (IHME, 2020). Data are available from 1990 to 2017 for 180 countries. Data are aggregated into three working-age groups: young working age (20–39 years old), mid working age (40–54 years old) and older working age (55–69 years old).

Country fixed effects models are used to estimate real per capita GDP growth as a function of the shares of the working-age population in each age group and the interaction between YLDs per person and the share of the population aged 55–69 years old. To illustrate the magnitude of effects of healthy ageing, we compare GDP growth projections holding baseline (2017) YLDs per person for 55- to 69-year-olds constant to an alternative healthy ageing scenario where disability rates are held constant but at 5% lower than at baseline.

On its own, an increase in the share of the population aged 55–69 years is expected to contribute to a slowdown in potential economic growth in all case study countries

Results from baseline models, which are not adjusted to account for disability levels in the population, show that the projected increase in the share of the population aged 55–69 is expected to coincide with a slowdown of per person real GDP growth in all case study countries.

The largest increases in the share of the population aged 55–69 between 2020 and 2050 are expected to be seen in Viet Nam (rising from 12.9% to 19.8%) and Mongolia (from 9.3% to 15.3%). As a consequence, the projected impact on real economic growth is expected to be greatest in these countries, with model estimates suggesting that an increasing share of the population aged 55–69 will contribute to a reduction in real per person GDP growth of around 4.7% in Viet Nam and 4.1% in Mongolia from 2020 to 2050. Longer-term projections suggest the effects of an increasing share of the population aged 55–69 years will be largest in Mongolia, with real per person GDP declining by 5.2% between 2020 and 2100, compared with 2.7% in Viet Nam.

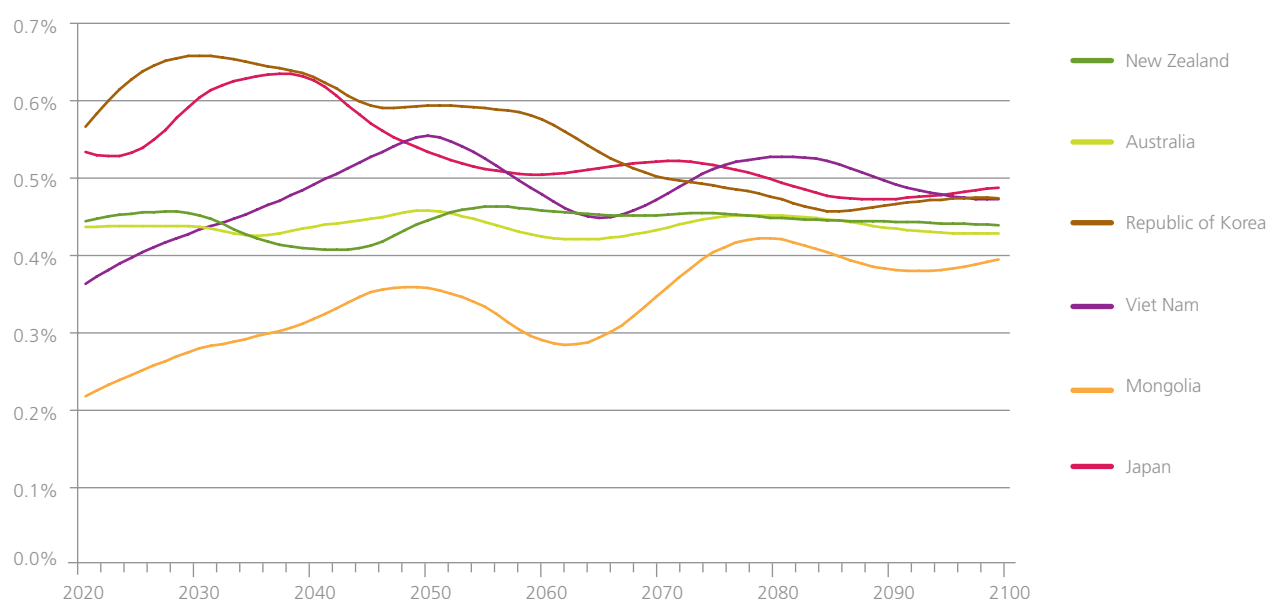
Australia, Japan, New Zealand and the Republic of Korea are at different stages of the demographic transition compared with Mongolia and Viet Nam, with more aged societies. While the share of the population aged 55–69 will increase in all four countries between 2020 and 2050, the change will be less than in Mongolia and Viet Nam, and it will then slowly decline through 2100. In shorter-term projections, an increasing share of the population aged 55–69 years will contribute to a decline in real per person GDP growth in all countries between 2020 and 2050 – by 0.9% in Japan, 0.7% in the Republic of Korea, 0.4% in Australia and 0.02% in New Zealand. In longer-term projections, the decline in the share of the population aged 55–69 is expected to increase real per person GDP in all countries, with the largest increase in the Republic of Korea (2.3%), followed by Japan (1.12%), Australia (0.20%) and New Zealand (0.16%).

Healthy ageing can moderate adverse effects of population ageing on economic growth

We now adjust models to account for the level of disability among those aged 55–69 years old. To do so, projections of per person GDP growth holding 2017 disability rates among the 55- to 69-year-old population constant in the future are compared with projections where a 5% improvement in 2017 disability rates is assumed and held constant over the forecast period.

Model estimates for all countries show that healthy ageing can help moderate any adverse effects of population ageing, with a 5% reduction in disability rates among the older population contributing positively to annual real per person GDP growth (Fig. 5). Positive effects are initially strongest in the Republic of Korea and Japan, with lower disability rates adding around 0.6% to annual real per person GDP growth in 2020, before rising above 0.6% per year through 2045 and declining to just under 0.5% per year by 2100. In Australia and New Zealand, a 5% reduction in disability rates among those aged 55–69 years is estimated to add between 0.4% and 0.5% to annual real per person GDP growth through to 2100. In Vietnam, the contribution to annual real per person GDP growth is estimated to be nearly 0.4% in 2020, rising to just under 0.6% per year around 2050, whereas in Mongolia the positive contribution to annual real per person GDP growth will be around 0.2% in 2020, rising to nearly 0.4% per year by 2080.

Figure 5: Per person GDP growth attributable to a 5% improvement in disability rates among the older population (55–69 years) compared with 2017 baseline disability rates, projections (2020–2100)



Source: Authors' projections.

In Fig. 6, we show how much additional GDP growth would be expected over time in a range of countries if disability rates among 55- to 69-year-olds were 5% lower in future years than they were in 2017. The largest effect would be in the Republic of Korea, where, compared with keeping 2017 disability rates constant indefinitely, a hypothetical 5% improvement in disability rates would result in 55.4 percentage points more GDP per person by the end of the century. The cumulative effects of healthy ageing on GDP growth are evident in other countries as well with a hypothetical 5% improvement in disability rates projected to result in 52.8 percentage points more GDP per person by the end of the century in Japan, 47.2 percentage points in Viet Nam, 42.4 percentage points in New Zealand, 41.8 percentage points in Australia and 31.1 percentage points in Mongolia.

3.2 How will healthy ageing affect health expenditure trends for countries in the WHO Western Pacific Region?

This section presents projections of the contribution of population ageing to health expenditure growth and how these effects might be reduced if people age in better health. We first run baseline models that multiply per person health expenditures for each age group (aggregated to 5-year age bands) by the respective age group's population size in case study countries. This baseline model is then adjusted to assume that people at ages 60 years and above age in better health than now, leading to lower per capita health expenditures for older age groups because of delay in the onset of chronic disease and disability (see Box 4 for methods).

Per person health spending generally increases with age, but declines for the oldest age groups in Mongolia and Viet Nam

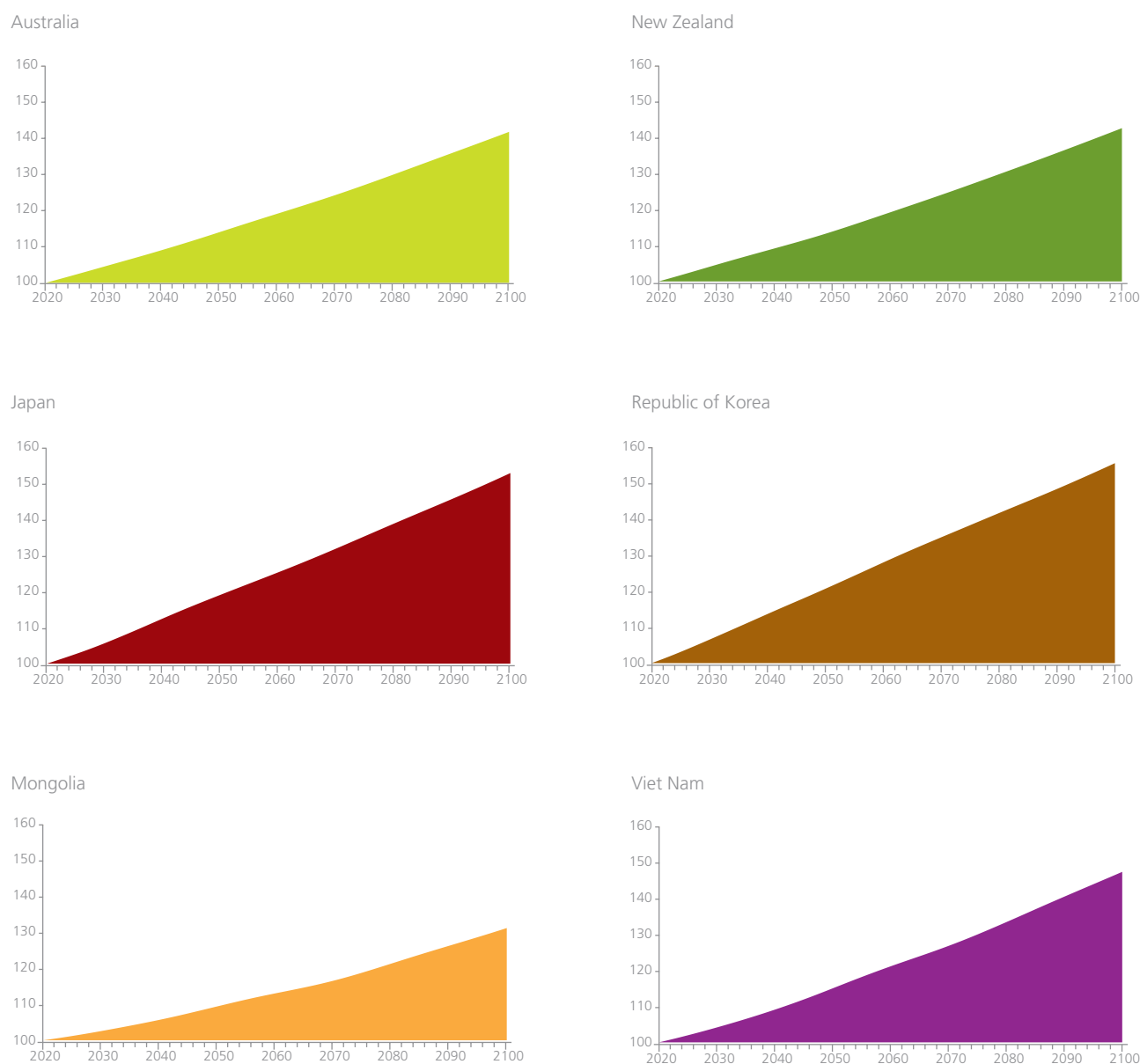
Using national data sources (Box 4) we are able to assess the relationship between calendar age and per person health expenditure in case study countries (Fig. 7). For all countries, health spending is high at birth before falling and remaining relatively constant until approximately 50 years of age. Health expenditures then start to steadily increase and continue to rise for all subsequent age groups in most countries. In Mongolia and Viet Nam per person health spending falls slightly for the 75+ age groups. However, it is important to note that data from these countries do not include all public health spending (Box 4). Moreover, private spending on health care by older people in both countries is high because they often have to pay directly out of pocket to receive care that is not covered by social health insurance. If coverage from social health insurance was expanded, health spending for older age groups in both countries would be higher than indicated in Fig. 7.

Per person spending for older age groups (65+ years) in absolute terms and relative to younger age groups is highest in the Republic of Korea, with per person health expenditures for an average 80-year-old more than 12 times higher than for an average 20-year-old. This reflects the fact that the Republic of Korea health spending data capture total health and long-term care spending, whereas data from other countries, with the exception of Japan, capture only public health spending. Spending data from Japan, however, only includes health spending and not long-term care spending. Ratios of health spending for older age groups relative to younger age groups in the remaining countries range from an average 80-year-old being more than 11 times more expensive than for an average 20-year-old in Japan to 10 times more expensive in Mongolia, 9 times higher in Viet Nam and 7 times higher in Australia and New Zealand.

Growth in health spending due to population ageing will be relatively low through to 2060 in most countries

Using per person health spending levels by age (Fig. 7), we project the contribution of population ageing to health care expenditure growth through 2060 for all case study countries (Fig. 8). Projections indicate that the additional growth in average annual per person health care spending attributable to population ageing is expected to peak between 2020 and 2025 in the Republic of Korea (at 2.2 percentage points per year) and between 2025 and 2030 in Australia (0.6 percentage points per year), New Zealand (1.2 percentage points per year), Mongolia (1.2 percentage points per year) and Vietnam (1.6 percentage points per year), before gradually decreasing through 2060. In Japan, the additional growth in average annual per person health care spending attributable to population ageing has already peaked, at 1.1 percentage points per year between 2015 and 2020, and will now steadily decline to 0.4 percentage points per year in 2060. This suggests that population ageing will not be a major driver of health spending growth in any case study country (Box 5).

Figure 6: Cumulative GDP growth attributable to a 5% improvement in disability rates among the older population (55–69 years), projections (index 2020 =100)



Source: Authors' calculations.
 Note: Assuming a 5% lower disability rate compared with 2017 baseline disability rates.

Box 4 Data and methods for population ageing and health spending projections

Data sources

Population projections by age for all countries were extracted from the United Nations Department of Economic and Social Affairs population projections website (UN, 2019). Data on health expenditures by age group were taken from different sources for each case study country. The type of expenditures captured by different sources varies; for some countries, health expenditures relate only to public health spending, in others both public and private health and long-term care expenditures are included. These important differences are explained below.

For **Australia**, data were obtained from the Australian Institute of Health and Welfare disease expenditure database for 2015–2016 (AIHW, 2020). The data capture all public expenditures on health care less dental care, as the latter are not disaggregated by age. For **Japan**, data were obtained from official statistics on National Health Care Expenditure in 2017 published by the Ministry of Health, Labour and Welfare (MHLW, 2019). The data capture all health care expenditures, including out-of-pocket expenditure, less spending on long-term care. For **Mongolia**, data on public health spending by age group in 2017 were obtained from an actuarial review of the National Health Insurance Fund of Mongolia (WHO, 2019). Baseline health spending data capture benefit expenditure per capita for services covered by the benefit package of the social health insurance fund, which includes inpatient services, outpatient care, some rehabilitative care, home care, day care, diagnostic tests provided by family or local health centres, palliative care, haemodialysis and various high-cost procedures, including chemotherapy and radiotherapy cancer treatment. Although 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 **New Zealand**, Ministry of Health data on per capita health spending by age group in 2001–2002 were extracted from a New Zealand Treasury Working Paper (Bryant et al., 2014). The data capture all public expenditures on health care, including on public health, disability support services and primary, secondary and tertiary medical care. For the **Republic of Korea**, data for 2009 were extracted from the OECD Stats website, which collects data under the system of the health accounts framework (OECD, 2020). These data capture total health expenditure on personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services as well as health administration), excluding spending on investments. For **Viet Nam**, data were obtained for social health insurance expenditures in 2017, which accounted for 23% of current health expenditure. Although these baseline data only capture one third of health spending, they provide an understanding of the distribution of per person health spending by age group in Viet Nam, which we assume applies to public health expenditure levels in total.

Methods

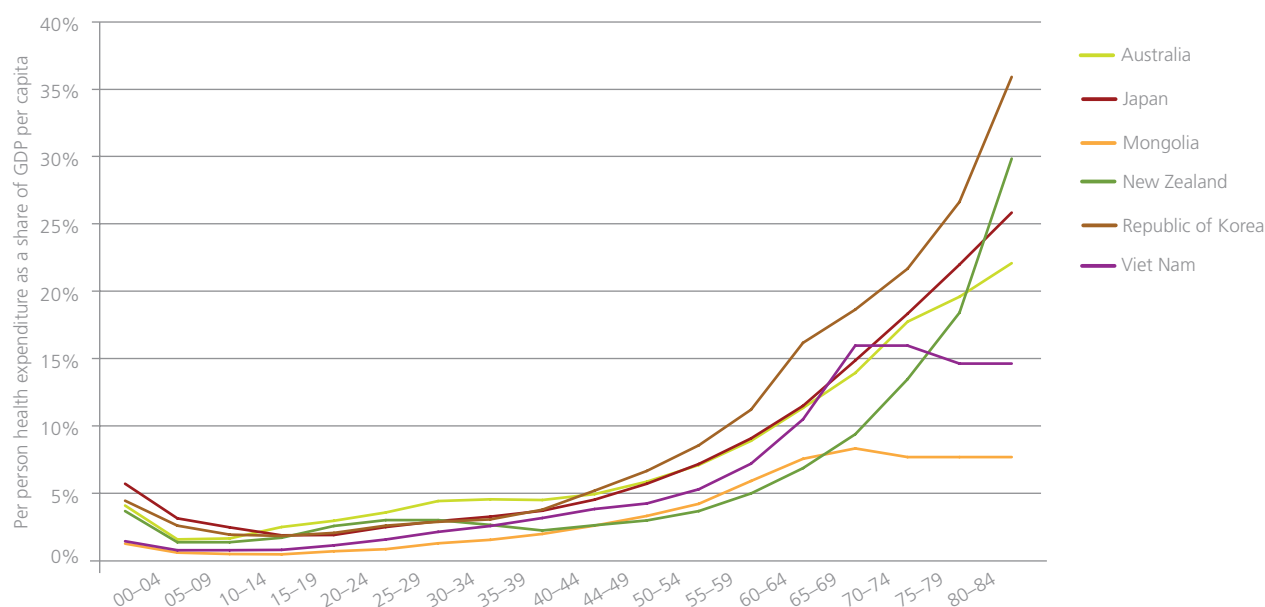
For our projections, person health expenditures by age for each country were divided by per person GDP to calculate health expenditures per capita as a share of GDP per capita by age group.

In **model 1** (*ageing baseline*), we isolate the contribution of population ageing to future health expenditure growth for each country 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 because of 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 that this is a reasonable assumption (OECD, 2020; Williams, 2019).

In **model 2** (*healthy ageing*) we adjust the baseline ageing model projections to simulate scenarios where people age in better health than indicated by current expenditure by age group. For this scenario we assume that people age in

better health than now, leading to a delay in 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 case study countries by assuming that health spending for each 5-year age group from 55 to 59 years and over is equivalent to baseline health expenditures for the respective age group that is 5 years younger.

Figure 7: Per person public health expenditure by age group in case study countries



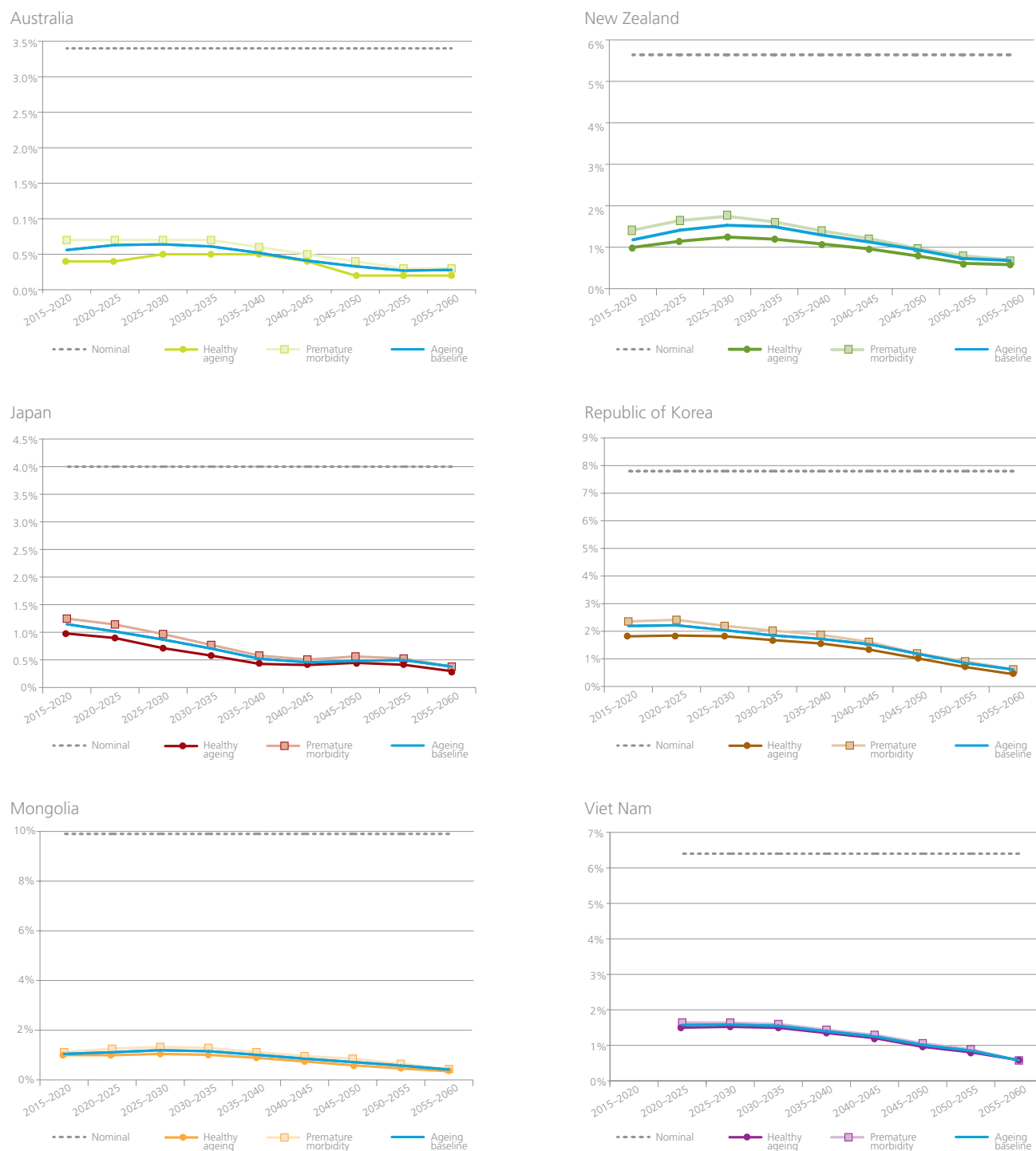
Source: National data sources (see Box 4).

Box 5 Population ageing will not be a major driver of health spending growth

To put the projected contribution of population ageing to health spending growth in context, we compare the projected additional growth in average annual per person health care spending attributable to population ageing to the actual average nominal per person annual growth rate in health expenditure in recent years (shown in Fig. 8, grey dashed line). This comparison reveals that population ageing is expected to account for one third of per person health spending growth in the Republic of Korea, about one quarter in Japan and Viet Nam, less than one fifth in Australia and New Zealand and less than one tenth in Mongolia. As has been the case historically, this suggests that growth in health spending in all countries will be driven by prices, volume of care and use of technologies and an expansion of benefits and improvements in quality of care – not by population ageing.



Figure 8: Projected additional growth in per person health expenditure attributable to population ageing, 2015–2060



Source: Authors' calculations.

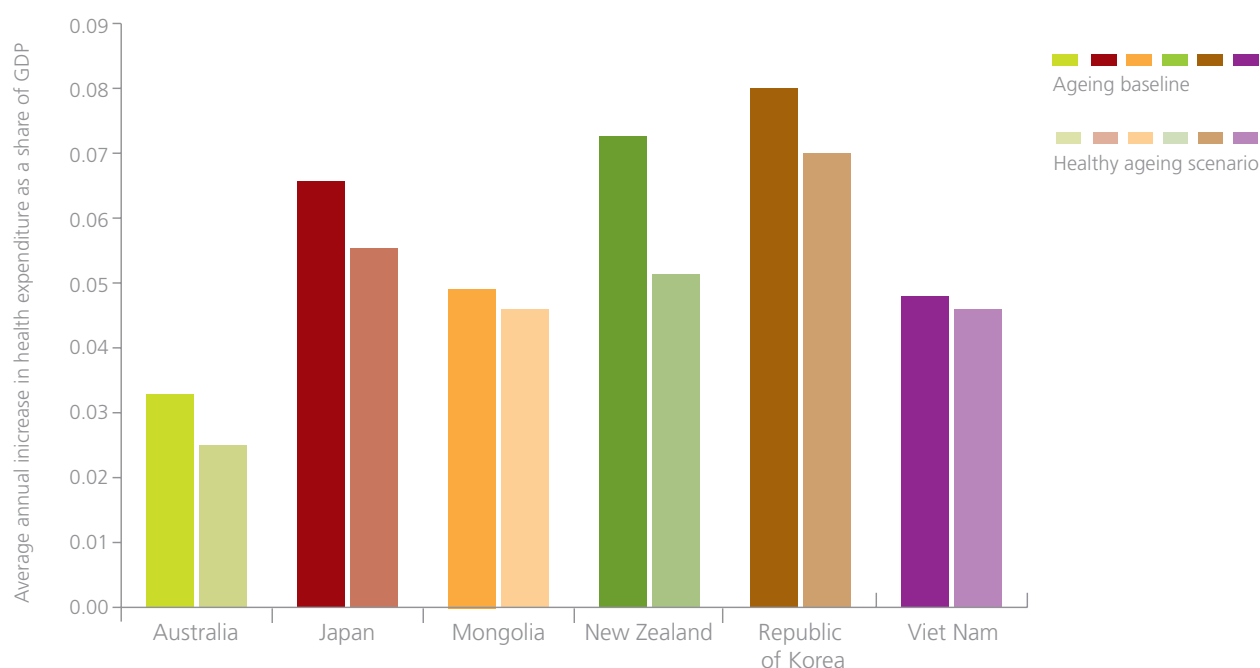
Note: Estimates for Japan and the Republic of Korea are based on total health expenditure, whereas other countries include public health spending only.

Population ageing will slowly and modestly increase public health expenditures as a share of the economy by 2060 in all countries

The projections above imply that population ageing will increase public health spending as a share of GDP by 2060 by between 1.3 percentage points in Australia, 1.8 percentage points in Mongolia and Viet Nam and 2.9 percentage points in New Zealand. In Japan and the Republic of Korea, total health spending as a share of GDP would increase by 2.6 and 5.1 percentage points, respectively, between 2020 and 2060. However, this reflects the projected growth pattern being applied to both public and private health care spending in both countries. If we apply estimates of growth from our projections to public health expenditures only, we would expect public health expenditure as a share of GDP to increase by approximately 2.2 percentage points in Japan and 3.1 percentage points in the Republic of Korea by 2060. It is important to emphasize that any increase in spending attributable to population ageing will occur slowly. For example, in the Republic of Korea, the average increase in the share of the economy spent on health as a result of population ageing over the 40-year period would be around 0.08 percentage points per year, whereas in Australia it would be just 0.03 percentage points per year (Fig. 9).

Overall, our projections indicate that population ageing is likely to contribute only modestly to health spending growth in the coming decades in all case study countries.

Figure 9: Average annual increase in health expenditures as a share of GDP between 2020 and 2060 as a result of population ageing under current health expenditure by age patterns and a healthy ageing scenario



Source: Authors' calculations.

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

Baseline models are now adjusted to estimate how people ageing in better health may affect future growth in public health spending due to population ageing. In the healthy ageing scenario, per person health expenditures are adjusted

to assume that spending for each 5-year age group above age 55 is equivalent to baseline health expenditures for the respective age group 5 years younger (see Box 4). For example, per person health spending for the average 70- to 74-year-old would be assumed in the healthy ageing scenario to be in line with actual health spending of the average 65- to 69-year-old in the baseline scenario.

Under the healthy ageing scenario, expected increases in health expenditures as a result of population ageing will be smaller compared with the baseline scenario (Fig. 8). The largest gains are expected in New Zealand, where population ageing under the healthy ageing scenario would increase health expenditures as a share of GDP by 2.1 percentage points between 2020 and 2060; this is 0.8 percentage points lower than the projection using actual baseline health expenditures (Table 1). 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 over 0.05 percentage points per year (Fig. 8). The smallest, but still positive, effect is projected to be seen in Viet Nam where healthy ageing would see population ageing contribute 0.09 percentage points lower to health spending compared with projections 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 over 0.04 percentage points per year (Fig. 8).

These results suggest that investing in healthy ageing strategies may lead to monetary savings (Table 1). In Australia, for example, health spending as a share of GDP under a healthy ageing scenario would be 0.28 percentage points lower in 2060 compared with baseline health expenditures. This suggests that investing in healthy ageing strategies may lead to savings of just under 0.01% of GDP per year over the next 40 years. Based on 2018 GDP estimates, this would amount to savings of just over USD 4.1 billion in 2060, or USD 100 million per year if averaged over the next 40 years. Estimated savings resulting from a healthy ageing scenario for all countries are shown in Table 1; nevertheless, it should be emphasized that these figures are based on potential scenarios and should not be viewed as actual forecasts of savings in future health spending. In addition, as previously noted, many older people in Vietnam have high out-of-pocket spending for health care; if social health insurance coverage was expanded over time to cover this group, these projected savings would be much larger. It is also possible that if improved coverage helped to improve the health status of older people, the cost associated with expanding access could potentially “pay for itself”, if people stay economically active.

Table 1: *Percentage point increase in health spending as a share of GDP under ageing baseline and healthy ageing scenarios, case study countries, 2020–2060*

Case study country	Total increase in public health spending as a share of GDP due to population ageing – baseline ageing scenario	Total increase in public health spending as a share of GDP due to population ageing – healthy ageing scenario	Difference in health spending growth between baseline and healthy ageing scenarios (percentage points of GDP)	Estimated real monetary savings per year 2020–2060 from healthy ageing (USD)
Australia	1.3	1.0	0.3	100 million
Japan	2.2	1.9	0.3	500 million
Mongolia	1.8	1.6	0.2	32 million
New Zealand	2.9	2.1	0.8	41 million
Republic of Korea	3.1	2.7	0.5	270 million
Viet Nam	1.8	1.7	0.09	6 million

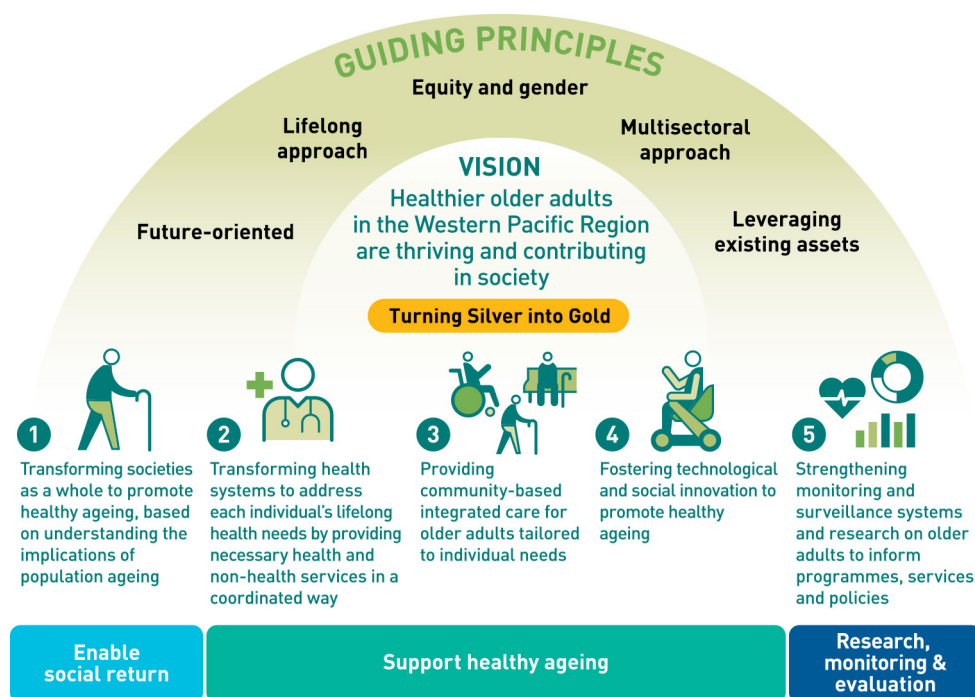
Source: Author's calculations.

4. How can countries promote healthy and active ageing to realize these economic and fiscal gains?

Findings from our models show that good health at older ages has the potential to reduce the adverse effects of population ageing on economic growth and health expenditure trends in the Western Pacific region. Investing in the health of older people and identifying effective strategies to promote healthy ageing is therefore important for all countries from a public finance perspective, as healthier older people will require less health care spending and will be more able to contribute to society. Furthermore, healthy and active ageing will help to improve quality of life for older people.

In this section we consider strategies that can be adopted to help promote lifelong good health so that people can remain active and contribute to society throughout their life, and well into older age. The section is structured to align with the objectives and recommended actions outlined in the *Regional Action Plan on Healthy Ageing in the Western Pacific*, which was developed to support Member States in improving the health and well-being of older populations in the Region so that they can thrive and contribute in society. The Plan outlines five objectives for achieving the vision of healthy ageing in the Western Pacific Region (Fig. 10). They can be broadly categorized as objectives to enable social return (Objective 1), objectives to support healthy ageing (Objectives 2–4), and objectives to enhance research, monitoring and evaluation (Objective 5). The following section briefly outlines strategies based on these five objectives. It does not attempt to cover all strategies to promote healthy ageing and we encourage you to refer to the *Regional Action Plan on Healthy Ageing in the Western Pacific* for further information and guidance.

Figure 10: Objectives and guiding principles to support healthy ageing, outlined in the *Regional Action Plan on Healthy Ageing in the Western Pacific*



Source: WHO WPRO, 2019.

Objective 1: Transforming societies as a whole to promote healthy ageing, based on understanding the implications of population ageing

Objective 1 of the *Regional Action Plan on Healthy Ageing in the Western Pacific* emphasizes transforming society as a whole to enable older people to contribute to society in diverse and unique ways. This involves understanding the broad implications of ageing for society and shifting the narrative towards recognizing the many valuable contributions that older people can make to society when they are encouraged and supported to do so. As such, addressing the broader ageism that persists in many societies and improving lifelong learning and employment opportunities for older people are key to promoting healthy ageing.

Tackling ageism in society

Ageism is prevalent in many societies. Studies have suggested that ageism is associated with higher risk of premature mortality, worse physical and mental health, and faster cognitive decline (WHO, 2021b). It can also enhance social isolation and loneliness and reduce quality of life. Developing strategies, policies and laws to counter ageism is therefore fundamental to promoting healthy ageing. Incorporating age as a protected characteristic in equal opportunity acts and implementing employment equality laws are some examples of important legislation that can counter institutional ageism (WHO, 2021b). Educational interventions targeting individuals or groups and delivered either face-to-face or remotely using digital technology can also be effective in reducing age-related discrimination in society (Burnes et al., 2019). Educational interventions may be particularly effective when combined with intergenerational contact interventions that promote interaction between older and younger people (WHO, 2021b).

Supporting employment at older ages

Strategies to enable older people to remain in employment, including beyond retirement age if desired, are important for promoting healthy ageing. Employment of older people can be facilitated through the use of legislation or through financial incentives, such as tax breaks (Avendano & Cylus, 2019). Workplace Interventions are equally important to help support older people to continue working where needed. These interventions may include flexible working hours, working from home policies and allowing partial retirement and facilitating contact with health providers and social support in the workplace (WHO WPRO, 2020a). Disability benefits can also support the integration into the workforce of older people with health issues and reduced work capacity. Opportunities to acquire new skills through life-long learning and training are also important to ensure that older people remain productive and increase their employability as working practices and job opportunities change and evolve.

Interventions in the workplace can also be used to promote healthy and active ageing. As noted by Avendano & Cylus (2019) these types of interventions are primarily focused on screening (for example ergonomic or health risk assessments) to identify potential health risks; lifestyle interventions to reduce sedentary lifestyles and healthier diets; and education programmes to encourage healthier lifestyles.

Objective 2: Transforming health systems to address each individual's lifelong health needs by providing necessary health and non-health services in a coordinated way

Objective 2 of the *Regional Action Plan* emphasizes transforming health systems to better support people throughout their lives so they can age in good health. The health status and functional ability of older adults is largely determined by an accumulation of medical conditions, individual behaviours and social environments experienced throughout their lives. Therefore, supporting healthy ageing extends beyond simply treating illness in older adults; it requires creating enabling environments and fostering lifelong healthy behaviours to improve health throughout life. As underlined by the WHO *Regional Action Plan*, tackling the causes of NCDs requires a whole-of-society, whole-of-government response (WHO WPRO, 2020a).

Strengthening primary care

The majority of the disease burden in the Western Pacific Region is caused by non-communicable diseases. As noted by the WHO, interventions for long-term management of NCDs are most cost-effectively and equitably delivered through primary

care (WHO, 2013; WHO Europe, 2016). Yet, many countries in the Western Pacific Region have weak primary care sectors and do not provide universal, free access to primary care services. Strengthening primary care should therefore be seen as a key strategy to support healthy and active ageing in the Region, as well as to meet other health system goals. This is likely to necessitate increased funding, new ways of training and deploying the health workforce, development of digital health solutions and stronger governance. Integrating primary care with secondary and tertiary health care is also important to improve quality and continuity of care. Integration can be enhanced through the introduction of multidisciplinary teams across care levels, upskilling primary care professionals, use of integrated digital health technologies to enable sharing of patient data and communication between health professionals, implementation of joint planning and financial incentives to promote integrated working (Nicholson, Jackson & Marley, 2013).

Promoting and enabling healthy lifestyles

Many NCDs are preventable and promoting behaviour change to reduce modifiable risk factors including smoking, excessive alcohol intake, unhealthy diets and sedentary lifestyles is key to facilitating healthy ageing. Many of the most successful policies to engender behaviour change have been those implemented at a population level, including legislation and regulations restricting the advertising or the sale of alcohol, tobacco products and unhealthy foods or taxes and other financial (dis)incentives that affect the price of products linked to worse health outcomes. In general, these are shown to be highly cost-effective “best buy” approaches to promote behaviour change among people of all ages (McDaid, 2018). However, they are underused policy options in many countries, with protection of commercial interests and lack of political commitment often preventing their implementation (Williams et al., 2018). Even where there is political will to take action, countries may lack data, resources and infrastructure to develop country-appropriate strategies and to enforce implementation.

Other, less forceful, strategies can also be adopted to influence individual choices and ‘nudge’ people towards adopting healthier lifestyles (Thaler & Sunstein, 2009). Strategies that have proved effective, including for older adults, include collaborative goal setting between patients and health care professionals, walking groups (Kassavou, Turner & French, 2013) and use of pedometers (Croteau & Richeson, 2006; Croteau et al., 2004; Kolt et al., 2012) to improve physical activity levels or intake of healthy diets (Chernoff, 2001; Fox, Breuer & Wright, 1997; Lafata et al., 2013). Multifaceted interventions involving personalized feedback, physician advice, educational materials and follow up may be effective in reducing excess alcohol intake (Kelly et al., 2018). Provision of cessation medications has also been found to significantly reduce smoking rates, with increased effectiveness when combined with behavioural counselling (Zbikowski et al., 2012). Any strategy is more likely to be successful if it is tailored to meet the needs, capabilities and personal preferences of individuals and any benefits outweigh the effort costs of changing behaviour. Co-designing and co-creating programmes with patients may therefore ensure they are more likely to meet behaviour-change objectives.

Promoting behaviour change requires recognition that the prevalence of these risk factors is often the product of inequalities in socioeconomic circumstances, environmental exposures and cumulative experiences across the life course. Although specific policies should be targeted towards disadvantaged populations taking account of the unique needs and barriers faced according to gender, income, (dis)ability, race, age and other characteristics that may generate exclusion and discrimination, wider actions to address the socioeconomic determinants of health across the life course are also needed.

Objective 3: Providing community-based integrated care for older adults tailored to individual needs

Objective 3 of the Regional Action plan focuses on providing greater coordination between health and long-term care, social activities and other services, to support ageing in place. An important component of this objective is training and upskilling health providers, especially health professionals in primary and community care, to have the necessary skills and knowledge to provide care to older people. This includes being able to assess and identify health and care needs and developing personal care plans that target issues facing older people such as preventing falls and slowing cognitive decline and taking actions to address loss of hearing or vision.

Preventing falls and frailty

Preventing falls and the severity of fall-related injuries in older adults is a key strategy to promote healthy ageing, with falls the leading cause of injury-related morbidity and death in older people (Haagsma, 2016; WHO, 2007b). Fall prevention activities are often multifactorial and span a range of actions that both identify and modify personal and environmental risk factors such as through the provision of assistive technologies (for example, anti-slip mats or grab-bars in showers and baths) or removal of hazards (for example, slippery surfaces, rugs or poorly lit areas to reduce fall risk). Good evidence suggests that home adaptations are cost-effective and can help reduce the risk of injuries and falls in older people (Keall et al., 2017; Powell et al., 2017; Turner et al., 2011). One of the most cost-effective strategies to reduce falls in older people is through the promotion of age-appropriate exercise and resistance training that focus on muscle strengthening and improving balance, coordination and posture (WHO, 2007b). Two notable examples of effective exercises shown to reduce the number and severity of falls in different settings and across cultural contexts include Tai Chi and the Otago Exercise Programme from New Zealand, which consists of muscle strengthening and balance training delivered by trained professionals in homes or other care settings (Huang, Feng & Li, 2017; Hwang et al., 2016; Thomas, Mackintosh & Halbert, 2010).

Reducing social isolation and loneliness

Helping older people remain socially active and socially connected are also important goals, with social isolation and loneliness linked to worse cognitive function and physical and mental health in older people (Lara et al., 2019; Marczak et al., 2019; Shankar et al., 2011). Having age-friendly environments in place is fundamental to enabling older adults to travel and participate in events. Other evidence indicates that befriending interventions, programmes to develop skills, community activities, and training on computer use and uptake of different technologies such as social media, video games, robotics and social management systems can effectively reduce isolation and loneliness (Gardiner, Geldenhuys & Gott, 2018; Poscia et al., 2018). There is evidence to suggest that group-level interventions may be more beneficial than one-to-one interventions, but effectiveness is likely to depend on cultural content, setting and groups of older people to whom they are targeted (Marczak et al., 2019). Interventions therefore need to be culturally appropriate, and co-engagement with older people to develop activities is important. Some studies also indicate that computerized brain training programmes can improve reasoning, speed and memory and slow cognitive decline in older adults (Rebok et al., 2014; Shah et al., 2017), although programmes should be adapted to be culturally relevant and steps should be taken to improve access for hard-to-reach older adults.

Strengthening home care and supporting unpaid carers

Strengthening provision of home care and supporting unpaid carers are important strategies to promote ageing in place. Efforts to improve home care in many countries have focused on enhancing “personalization of care” by facilitating self-management and greater involvement from care recipients in shaping care provision (Frisina Doetter et al., 2019). Evidence suggests that personalization can help to improve satisfaction with care and may help to improve functional abilities and well-being (Frisina Doetter et al., 2019). Different strategies can be taken to achieve personalization of care, including provision of care vouchers, personalized budgets and cash-for-care programmes, as well as introducing shared decision-making between care providers and recipients that takes into account different capabilities for self-determination. Delivering personalized care also necessitates delivering individual care pathways that take into account differing circumstances and needs.

A large proportion of home care in most countries is provided by unpaid carers such as family members or community volunteers. Unpaid care givers may be at risk of experiencing negative psychological and physical health outcomes, while caring responsibilities may reduce opportunities for formal employment and social participation (Le Bihan et al., 2019). It is therefore that unpaid carers are provided with various forms of support, including financial compensation, measures to support health and wellbeing and reconciliation measures to support continuing employment. Examples of direct forms of support that can be provided to informal carers are provided in Table 2.

Table 2: *Examples of measures to support unpaid carers*

Compensation measures	Supportive measures	Reconciliation measures
Carers' allowance	Counselling	Care leave (short/long; paid/unpaid)
Insurance or pension benefits	Training	Flexible working hours and work from home policies
Tax relief	Support groups	
	Formal assessment of carers	
	Formal definition of informal carer	
	Respite care	

Source: Adapted from Le Bihan et al, 2019.

Objective 4: Fostering technological and social innovation to promote healthy ageing

The WHO Regional Action Plan emphasizes that fostering technological and social innovation is important to promote healthy ageing and help countries adapt to demographic trends. Technological innovations can promote skill development and help maintain the workforce, support health and health systems as well as promote social connectedness and ageing in place. However, innovation is not limited to advances in technology. Social innovations for promoting healthy ageing should also be considered, particularly to address the social determinants of health and working to reduce health inequities across the life course. In this way, all members of society can age in good health, leaving no one behind.

Technologies to support ageing in place and healthy ageing

Assistive technologies are perhaps the most recognized technologies used to support older people with essential tasks or to improve their safety or mobility in the home and community. Common examples include hearing aids or speech recognition software for people with sensory or visual impairments, scooters or motorized wheelchairs for people with walking difficulties or wearable sensors that call for help in the event of a medical emergency. These technologies have been shown to improve quality of life and health outcomes for older people, while supporting independent living, maintenance of an active social life and access to local resources (Khosravi & Ghapanchi., 2016; Pettersson et al., 2016; Sund et al., 2015). Adapted housing solutions such as ramps at front doors, anti-slip mats or grab-bars in bathrooms have also been shown to effectively prevent falls, reduce accident rates and lead to improved quality of life and health outcomes (Carretero, 2015; Powell et al., 2017). Smart technologies such as sensors and automated systems that perform tasks such as switching electrical appliances and lighting and heating systems on/off when programmed can also support ageing at home (Carretero, 2015; Liu et al., 2016). However, as a relatively recent development, few studies are available on their effectiveness in facilitating ageing in place.

Technologies can also be used to promote health and well-being. The use of social media, for example, can help reduce social isolation and promote good mental health and well-being and social connectedness (Pettersson et al., 2016; Sund et al., 2015). In addition, M-health devices such as smart watches, fitness trackers and other types of wearable sensors can, among other functions, be used to monitor heart rates, physical activity levels, blood pressure and temperature. Studies have shown that these devices can enhance care, self-management and self-efficacy and promote behavioural change in older people (Changizi & Kaveh, 2017; McCaroll, Eyles & Ni Mhurchu, 2017). Careful regulation and monitoring of these devices is, however, needed to protect privacy, reduce potential harm to users and unnecessary referrals to the health sector, while more evidence on their clinical benefits are needed. eHealth technologies such as e-prescriptions, telemedicine for remote consultations and electronic health records have also been shown to improve access to health care and quality of care (Carretero, 2015).

There is nevertheless a risk that the most vulnerable older people may be left behind by technological advances, potentially widening inequalities in healthy ageing. Efforts to promote knowledge and education, affordability, ease of use and functionality as well as provision of internet and equipment are therefore needed to ensure all older adults have access to and can engage with technologies if desired (Peek et al., 2016; Wang et al., 2019; Yusuf, Soar & Hafeez-Baig et al., 2016).

Creating age-friendly environments

The ability to adopt healthier behaviours and to actively participate in community life in older age not only depends on individual circumstances, but also on the physical environment in which one lives. Redesigning cities and creating age-friendly physical environments, with safe neighbourhoods, access to affordable public transport, public spaces and physical infrastructure for safe walking and cycling can help older people remain mobile and facilitate participation in social and community activities (WHO, 2007a).

In a global guide to developing age-friendly cities, the WHO has identified eight domains containing core features of physical and social environments that should be in place to help older people remain healthy and active, recognizing that these domains overlap and interact (WHO, 2007a). These domains include: *outdoor spaces and buildings*, which are pleasant and clean and physically accessible; available, affordable and *age-friendly transport*; affordable, good quality and age-adapted *housing*; accessible and affordable community events to facilitate *social participation*; public education, positive media images and community and economic inclusion of older people to encourage *respect and social inclusion*; age-friendly employment, volunteering and training opportunities to promote *civic participation and employment*; widespread availability of *communication and information* to stay connected, to manage lives and meet personal needs; and accessible *community support and health services* (WHO, 2007a). The guide emphasizes that age-friendly environments should take into account the different capacities, resources, needs and preferences of older people and respect their opinions and lifestyle choices. Consulting older people is likely to be an effective way to ensure that physical environments are adapted and built to be age-friendly (WHO, 2007a).

Objective 5: Research, monitoring and evaluation

Objective 5 of the Regional Action Plan emphasizes the importance of strengthening monitoring and surveillance systems and conducting research on older people to ensure that programmes, services and policies designed to support healthy ageing are evidence-informed. The WHO has assembled The Baseline Report for the Decade of Healthy Ageing 2021–2030 for measuring healthy ageing, which highlights the importance for governments and other stakeholders to invest in data to monitor healthy ageing across the life course (WHO, 2020). The Baseline Report reveals that only 25% of Member states have comparable data; this creates challenges for global monitoring and local policy development for healthy ageing. As such, efforts are needed to collect and disseminate data, share findings, and track and discuss progress in order to increase the visibility of older people and create inclusive societies. Specifically, the Baseline Report highlights the need for:

- Comprehensive information on all abilities, that captures what older people value to be and to do
- More standardization of data for measuring healthy ageing and monitoring policies and programmes
- More innovation in collecting, analysing and using information
- More interoperability of data-sharing
- More involvement of older people in policy- and decision-making across sectors.

As noted in the Regional Action Plan, surveillance activities should capture specific data on target groups such as the oldest age groups, ethnic minorities, older adults experiencing declines in capacity and older adults at risk of inequalities to accessing health care and other services (WHO, 2020). Putting in place routine surveillance systems for NCDs and related risk factors that capture data by age group can help support the development of country-specific, evidence-based health policies, while developing governance structures across sectors is important to enable enactment and enforcement of legislation (Williams et al., 2018).

5. Conclusion: promoting healthy ageing can help economies and societies capture benefits from an ageing population

Population ageing is occurring at an accelerated pace in the Western Pacific Region. In contrast to some expectations, however, our projections suggest that an increasing share of older people in the population need not inevitably pose substantial challenges for health expenditures and economic growth.

We argue that population structure changes (what we call population ageing) will not be the main driver of health spending, compared with other factors such as prices, technology, volume of care and organization of health services (Williams et al., 2019). While population ageing is anticipated to increase public health spending as a share of GDP between 2020 and 2060 in all case study countries, these increases will only be modest and will occur slowly, adding between 0.03 and 0.08 percentage points per year to per person health across case study countries. Moreover, any potential increased in health spending as a result of population ageing can be reduced if populations age in good health.

Healthy ageing is also likely to have tangible economic benefits for all countries. Projections show that an increase in the share of the population aged 55–69 years on its own is associated with a slowdown of per person GDP growth in all case study countries. This is concerning, as any slow-down in economic growth may see countries lower investment in health and other social sectors in an attempt to contain or reduce public budgets, as was seen in some countries during the global financial crisis of 2008/09 (OECD, 2018). Fortunately, our scenarios show that any age-related health spending increases or slowdown in economic growth are not inevitable. If older people age in better health than they do currently, projected increases in health spending as a result of population ageing will be lower than anticipated; just a 5% improvement in disability rates for the 55- to 69-year-old population will help to offset any adverse effects of population ageing on economic growth.

Promoting healthy ageing should therefore be an important policy goal for all countries in the Western Pacific region. A number of strategies are available to achieve this aim, ranging from those that target individual or population-level behaviour changes to those that seek to create age-friendly environments and workplaces. Developing strong health systems with accessible, effective and coordinated primary care, prevention activities and social services are also important, alongside broader measures to reduce ageism in society and to tackle the social determinants of health. However, although there is much global evidence on effective strategies to promote healthy ageing, there is often a lack of national data to help guide which strategies might be most (cost-)effective in different settings and country contexts in the Western Pacific Region. More research studies and routine surveillance on ageing and health that capture data by age group and other key characteristics (for example, ethnicity) are needed to inform the development of country-specific, evidence-based health policies that will provide the best value for money (Williams et al., 2018). Data should also capture private expenditures on health and long-term care, which can be high for older people who are not covered by publicly funded health care.

Achieving good health at older ages in the Western Pacific Region will require greater investment and long-term commitment from governments, now. Prioritizing investment into the most effective health sector interventions, such as strengthening primary health care and prevention, alongside increasing population coverage, will be important to help improve population health with constrained resources. Promoting good population health can nevertheless not be achieved by health sectors acting in silo; holistic healthy ageing strategies are instead needed that take a life course perspective and promote multisectoral collaboration and action. It is important that all countries, even those with a relatively young population, consider investing and promoting healthy ageing now, as unhealthy behaviours and environmental and socioeconomic exposures accumulate over time to cause ill health and increase health care needs for older people. Investing in healthy ageing will have long-run societal and economic benefits, with individuals able to enjoy better health and longer lives, while society's prosperity and the sustainability of public budgets will be enhanced.

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Annex

Table A1: Demographic, economic and health indicators across the WHO Western Pacific Region

Country	Population 2020, thousands (2060 projection)	2020 share of the population (%) 15–64 and 65+ years old	2018 GDP per capita (USD)	2018 life expectancy (years)	2018 total health expenditure per capita (PPP)	2018 total health expenditure as a share of GDP (%)
Western Pacific	1 940 738 (1 889 602)	15–64: 69.0% 65+: 12.4%		77.7	–	6.89
American Samoa (USA)	55 (52)	–	11 466.7	–		
Australia	25 500 (34 950)	15–64: 64.5% 65+: 16.2%	57 355.0	83	5005	9
Brunei Darussalam	437 (482)	15–64: 72.2% 65+: 5.3%	31 628.3	76	1953	2
Cambodia	16 719 (22 640)	15–64: 64.2% 65+: 4.9%	1512.1	70	261	6
China	1 439 324 (1 333 031)	15–64: 70.3% 65+: 12.0%	9976.7	77	935	5
Hong Kong SAR (China)	7497 (7912)	15–64: 69.1% 65+: 18.2%	48 543	85	–	–
Macao SAR	649 (875)	15–64: 73.7% 65+: 12.0%	87 209	84	–	–
Cook Islands	18 (17)	–	–	–	752	3
Fiji	896 (1099)	15–64: 65.2% 65+: 5.7%	6318	67	372	3
French Polynesia (France)	281 (307)	15–64: 69.0% 65+: 8.5%	–	77	–	–
Guam (USA)	169 (193)	15–64: 66.1% 65+: 10.1%	35 713	80	–	–
Japan	126 476 (98 326)	15–64: 59.2% 65+: 28.4%	39 159	84	4505	11
Kiribati	119 (194)	15–64: 61.0% 65+: 3.4%	1698	68	278	12
Lao People's Democratic Republic	7276 (9706)	15–64: 63.8% 65+: 4.3%	2543	68	167	2
Malaysia	32 366 (41 732)	15–64: 69.4% 65+: 7.2%	11 378	76	1194	4
Marshall Islands	59 (78)	–	3788	65	677	18
Micronesia (Federated States of)	115 (141)	15–64: 64.3% 65+: 4.3%	3568	68	414	13

Mongolia	3278 (4738)	15–64: 64.6% 65+: 4.3%	4135	70	519	4
Nauru	11 (10)	–	9762	–	1174	10
New Caledonia (France)	285 (354)	15–64: 68.2% 65+: 9.4%	–	77	–	–
New Zealand	4822 (5727)	15–64: 64.2% 65+: 16.3%	42 949.93	82	4024	9
Niue	2 (2)	–	–	–	1405	8
Northern Mariana Islands (USA)	58 (61)	–	23 259	–	–	–
Palau	18 (17)	–	15 661	69	2012	11
Papua New Guinea	8947 (15 785)	15–64: 61.3% 65+: 3.6%	2801	64	101	2
Philippines	109 581 (150 220)	15–64: 64.4% 65+: 5.5%	3252	71	394	4
Pitcairn Islands (UK)	<1 (<1)	–	–	–	–	–
Republic of Korea	51 269 (42 702)	15–64: 71.7% 65+: 15.8%	33 423	83	3214	8
Samoa	198 (285)	15–64: 58.0% 65+: 5.0%	4189	73	355	5
Singapore	5850 (6265)	15–64: 74.4% 65+: 13.3%	66 189	83	4439	4
Solomon Islands	687 (1523)	15–64: 56.3% 65+: 3.6%	2442	73	108	4
Tokelau	1 (2)	–	–	–	–	–
Tonga	106 (140)	15–64: 59.6% 65+: 5.8%	4741	71	355	5
Tuvalu	12 (17)	–	3701	–	758	19
Vanuatu	307 (647)	15–64: 58.1% 65+: 3.6%	3125	70	109	3
Viet Nam	97 339 (109 363)	15–64: 68.9% 65+: 7.9%	2567	75	440	6
Wallis and Futuna (France)	11 (8)	–	–	–	–	–

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