World Population Ageing 2019

Highlights

Department of Economic and Social Affairs
Population Division

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Notes

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Front cover photo credit: "Family vacation at Cameron Highlands, Malaysia", 2019, UN/Nicole Mun Sim Lai

Back cover photo credit: "Two chess players enjoying an outdoor game in New York City's Central Park ", 1976,

UN Photo/Grunzweig

Rethinking population ageing in the SDG era

According to *World Population Prospects 2019* (United Nations, 2019), by 2050, 1 in 6 people in the world will be over the age of 65, up from 1 in 11 in 2019.

All societies in the world are in the midst of this longevity revolution—some are at its early stages and some are more advanced. But all will pass through this extraordinary transition, in which the chance of surviving to age 65 rises from less than 50 per cent—as was the case in Sweden in the 1890s—to more than 90 per cent at present in countries with the highest life expectancy. What is more, the proportion of adult life spent beyond age 65 increased from less than a fifth in the 1960s to a quarter or more in most developed countries today.

These changes for individuals are mirrored in societal changes: older persons are a growing demographic group in society. Older people account for more than one fifth of the population in 17 countries today, and the United Nations Department of Economic and Social Affairs Population Division's projections to the end of the century indicate that this will be the case in 2100 for 155 countries, covering a majority (61 per cent) of the world's population.

Traditionally, the United Nations and most researchers have used measures and indicators of population ageing that are mostly or entirely based on people's chronological age, defining older persons as those aged 60 or 65 years or over. This provides a simple, clear and easily replicable way to measure and track various indicators of population ageing.

However, there has been increasing recognition that the mortality risks, health status, type and level of activity, productivity and other socioeconomic characteristics of older persons have changed significantly in many parts of the world over the last century, and, in particular, in the last few decades. This has led to the development of alternative concepts and measures to offer a more nuanced perspective of what population ageing means in different contexts.

New measures and concepts of population ageing have significant implications for assessing the living conditions and living arrangements of older persons, their productive and other contributions to society and their needs for social protection and health care.

These new approaches to understanding and measuring ageing also carry important implications for the review of internationally agreed development goals, including those contained in the Programme of Action of the International Conference on Population and Development (ICPD), the Madrid International Plan of Action on Ageing (MIPAA) and, most recently, the 2030 Agenda for Sustainable Development.

Contents

World Population Ageing 2019:
Key messages

1.   Population ageing is a global phenomenon: Virtually every country in the world is experiencing growth in the size and proportion of older persons in their population. There were 703 million persons aged 65 years or over in the world in 2019. The number of older persons is projected to double to 1.5 billion in 2050. Globally, the share of the population aged 65 years or over increased from 6 per cent in 1990 to 9 per cent in 2019. That proportion is projected to rise further to 16 per cent by 2050, so that one in six people in the world will be aged 65 years or over.

2.   Population ageing has been fastest in Eastern and South-Eastern Asia and Latin America and the Caribbean. The percentage of the population aged 65 years or over almost doubled from 6 per cent in 1990 to 11 per cent in 2019 in Eastern and South-Eastern Asia, and from 5 per cent in 1990 to 9 per cent in 2019 in Latin America and the Caribbean. Between 2019 and 2050, the share of older persons is projected at least to double in four regions: Northern Africa and Western Asia, Central and Southern Asia, Latin America and the Caribbean, and Eastern and South-Eastern Asia.

3.   Throughout most of the world, survival beyond age 65 is improving. Globally, a person aged 65 years in 2015-2020 could expect to live, on average, an additional 17 years. By 2045-2050, that figure will have increased to 19 years. Between 2015-2020 and 2045-2050, life expectancy at age 65 is projected to increase in all countries. Women currently outlive men by 4.8 years, but this global gender gap is expected to narrow over the next three decades.

4.   Conventional indicators of population ageing that are based on chronological age (years since birth), with a fixed threshold of "old age" at age 65, show that populations are becoming older in all regions of the world. The old-age dependency ratio, the number of persons aged 65 years or above relative to number of persons aged 20 to 64 years, is projected to more than double in Eastern and South-Eastern Asia, Latin America and the Caribbean, Northern Africa and Western Asia, and Central and Southern Asia.

5.   New measures of population ageing based on prospective age (years of life remaining), with a dynamic threshold of "old age" that rises progressively with increasing life expectancy, point toward a slower process of population ageing than what is indicated by the conventional measures. For example, the prospective old-age dependency ratio is rising more slowly than the old-age dependency ratio in all regions of the world.

6.   Indicators that incorporate both demographic and economic information suggest that the extent of population ageing depends on age-patterns of production and consumption. The economic old-age dependency ratio, which integrates measured levels of consumption and production by age, shows that population ageing has the greatest impact in countries or regions with high proportions of older people and high levels of old-age consumption, such as in Europe and Northern America and in Australia and New Zealand.

7.   The consumption of older persons is financed in various ways around the world, including through public transfers, private transfers and income from assets and labour. Older persons in Europe and Latin America rely heavily on public transfers and fund more than two thirds of their consumption with those transfers. However, assets are the primary means of financing consumption in countries

where public transfers are relatively low, such as in Southern Asia and South-Eastern Asia, as well as in Australia, the United Kingdom and the United States.

8. Population ageing will put increased financial pressure on old-age support systems. In countries where public transfers are high, including many in Europe and Latin America, population ageing will increase the fiscal pressure on public transfer systems, especially if patterns of taxation and benefits remain unchanged. In countries where public transfers are relatively low, such as many in Southern Asia and South-Eastern Asia, individuals and families face greater pressure to finance their consumption during old-age. It is important to establish social protection programmes that can be sustained over the long term to prevent poverty, reduce inequality and promote social inclusion among older persons.

9. Population ageing does not lead inevitably to macroeconomic decline—with well-chosen policies, just the opposite may be true. To maximize the benefits and manage the risks associated with population ageing, governments should support continuing and lifelong education and health care for all; encourage savings behaviour and healthy lifestyles throughout the life course; promote employment among women, older persons and others traditionally excluded from the labour force, including through a gradual increase in the official retirement age; and support family-friendly policies to facilitate work-life balance and increased gender equality in both public and private life.

Introduction

Population ageing is a human success story, a reason to celebrate the triumph of public health, medical advancements, and economic and social development over diseases, injuries and early deaths that have limited human life spans throughout history.

Population ageing has been recognized as one of the four global demographic "megatrends"—population growth, population ageing, international migration and urbanization—with continued and lasting impacts on sustainable development.[1] Declining fertility and increasing longevity lead to rising numbers of older persons as well as a continuously growing share of older persons in the population. Preparing for the economic and social shifts associated with an ageing population is essential to ensure progress towards the achievement of the Sustainable Development Goals (SDGs) included in the 2030 Agenda for Sustainable Development.[2] Trends in population ageing are particularly relevant for the Goals on eradicating poverty (SDG 1), ensuring healthy lives and well-being at all ages (SDG 3), promoting gender equality (SDG 5) and full and productive employment and decent work for all (SDG 8), reducing inequalities between and within countries (SDG 10), and making cities and human settlements inclusive, safe, resilient and sustainable (SDG 11).

To describe changes in the population age structure, demographers apply measures that compare the relative sizes of different age groups. In discussions around the challenges of social protection associated with population ageing, the most common measure is the old-age dependency ratio, which equals the number of persons aged 65 years or over divided by the number of persons aged 20-64 years. This measure is often used as a proxy for the economic dependency of the older population. Given the diversity among older persons with respect to

economic activity and functional capacity,[3] and the fact that not all persons in the traditional working ages are economically active, researchers have proposed alternative measures to track changes in economic dependency as a result of population ageing. Some of these alternative measures featured in this present document, focus on measures for which comprehensive data are available at the global level or at least for a large number of countries.

This publication presents the highlights of the report *World Population Ageing 2019* and draws on the latest population estimates and projections as published in the *World Population Prospects 2019* (United Nations 2019). These *Highlights* are organized into four parts. The first part provides an overview of key global and regional trends and dynamics of population ageing based on conventional measures. The second part elaborates alternative measures of population ageing that offer a more nuanced view of changes over time in the population age structure. This section describes the conventional old-age dependency ratio based on chronological age; an alternative "prospective" measure that adjusts the threshold of old age based on years of remaining life expectancy; and an economic measure that incorporates information about age patterns of consumption and production. Additionally, the third part discusses how older persons in various countries and regions finance their consumption, both currently and in the future, through public transfers, private transfers, assets and work. Finally, these *Highlights* conclude with evidence-based recommendations to assist policy makers in addressing both the challenges and the opportunities of population ageing in the context of the 2030 Agenda for Sustainable Development.

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[1] Report of the Secretary-General on the review and appraisal of the Programme of Action of the International Conference on Population and Development and its contribution to the follow-up and review of the 2030 Agenda for Sustainable Development (E/CN.9/2019/2).
[2] Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1).

[3] Functional ability is about having the capabilities that enable all people to be and do what they have reason to value. This includes a person's ability to meet their basic needs to learn, grow and make decisions; to be mobile; to build and maintain relationships; and to contribute to society (World Health Organization, 2015).

Interviews for the Multi Indicator Survey on Ageing (MISA) in Malawi, 2017, UN/Karoline Schmid

Global and regional trends in population ageing

The world's older population is growing in absolute and relative terms.

Globally, there were 703 million older persons aged 65 or over in 2019.[4] Eastern and South-Eastern Asia was home to the largest number of the world's older population (260 million), followed by Europe and Northern America (over 200 million) (table 1).

Over the next three decades, the global number of older persons is projected to more than double, reaching over 1.5 billion persons in 2050. All regions will see an increase in the size of their older population between 2019 and 2050.[5] The largest increase (+312 million persons) is projected to occur in Eastern and South-Eastern Asia, growing from 261 million in 2019 to 573 million persons aged 65 years or over in 2050. The number of older persons is expected to grow fastest in Northern Africa and

Western Asia from 29 million in 2019 to 96 million in 2050 (+226 per cent). The second fastest rise in the number of older persons is foreseen in sub-Saharan Africa (+218 per cent), with an expected growth from 32 million in 2019 to 101 million in 2050. In contrast, the projected increase is relatively small in Australia and New Zealand (+84 per cent) and Europe and Northern America (+48 per cent), regions where the population is already significantly older than in other parts of the world.

Among development groups,[6] less developed countries excluding the least developed countries will be home to more than two-thirds of the world's older population (1.1 billion) in 2050. The fastest increase of the older population between 2019 and 2050 is projected to happen in the least developed

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[4]   This publication defines "older persons" as persons aged 65 years or over.

[5]   In this report, data for countries or areas have been aggregated in six continental regions: Africa, Asia, Europe, Latin America and the Caribbean, Northern America, and Oceania (as illustrated in annex table). Countries or areas are also grouped into geographic regions based on the classification being used to track progress towards the Sustainable Development Goals of the United Nations (see: https://unstats.un.org/sdgs/indicators/regional-groups/).

[6]   The designation of "more developed" and "less developed" regions is intended for statistical purposes and does not express a judgment about the stage reached by a particular country or area in the development process. More developed regions comprise all regions of Europe plus Northern America, Australia and New Zealand and Japan. Less developed regions comprise all regions of Africa, Asia (excluding Japan), and Latin America and the Caribbean as well as Oceania (excluding Australia and New Zealand). The group of least developed countries includes 47 countries: 32 in Sub-Saharan Africa, 2 in Northern Africa and Western Asia, 4 in Central and Southern Asia, 4 in Eastern and South-Eastern Asia, 1 in Latin America and the Caribbean, and 4 in Oceania. Other less developed countries comprise the less developed regions excluding the least developed countries.

Table 1.
Number of persons aged 65 years or over by geographic region, 2019 and 2050

Region	Number of persons aged 65 or over in 2019 (millions)	Number of persons aged 65 or over in 2050 (millions)	Percentage change between 2019 and 2050
World	**702.9**	**1548.9**	**120**
Sub-Saharan Africa	31.9	101.4	218
Northern Africa and Western Asia	29.4	95.8	226
Central and Southern Asia	119.0	328.1	176
Eastern and South-Eastern Asia	260.6	572.5	120
Latin America and the Caribbean	56.4	144.6	156
Australia and New Zealand	4.8	8.8	84
Oceania, excluding Australia and New Zealand	0.5	1.5	190
Europe and Northern America	200.4	296.2	48

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*

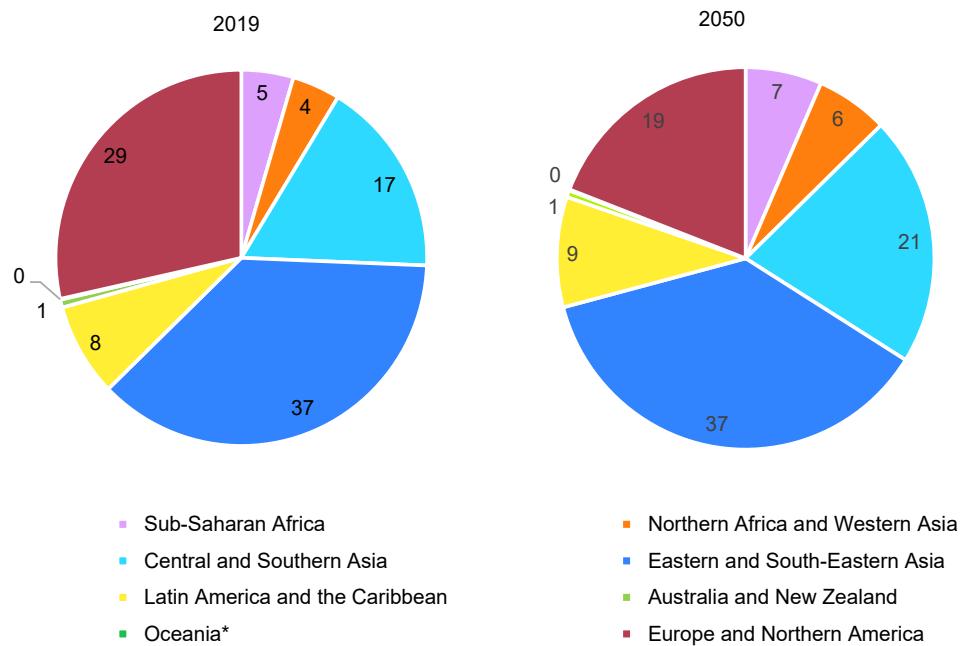*Excluding Australia and New Zealand.

countries (+225 per cent), rising from 37 million in 2019 to 120 million persons aged 65 years or over in 2050.

About one in three older persons is living in Eastern and South-Eastern Asia today and in 2050.

Eastern and South-Eastern Asia are home to the largest share (37 per cent) of the world's older population in 2019 and this is expected to remain so in 2050 (figure 1). The second largest share of older persons currently lives in Europe and Northern America (28.5 per cent), which is expected to shrink to 19.1 per cent in 2050. Central and Southern Asia host one-sixth of the global older population (16.9 per cent) in 2019, a figure that is foreseen to increase to one fifth (21 per cent) in 2050. Between 2019 and 2050, Latin America and the Caribbean will see an increase in its share of the world's older population from 8 per cent in 2019 to 9 per cent in 2050. Sub-Saharan Africa and Northern Africa and Western Asia will also experience a rise in their share of older persons, from 5 to 7 per cent, and from 4 to 6 per cent, respectively.

As populations age, shares of working-age (25 to 64 years) and older (65+ years) persons rise, while shares of children (0 to 14 years) and youth (15 to 24 years) fall.

In 1990, the working age population (25 to 64 years) constituted the largest share of the global population (42 per cent), followed by children aged 0 to 14 years (33 percent), youth aged 15 to 24 years (19 per cent) and older persons aged 65 years or over (6 per cent) (figure 2). Between 1990 and 2050, the share of the older as well as the working age population will increase to 16 per cent and to 49 per cent of the world's population respectively, while the share of children and youth will drop to 21 per cent and 14 per cent respectively.

The speed of population ageing is fastest in Eastern and South-Eastern Asia.

Between 2019 and 2050, 9 out of the 10 countries with the largest percentage point increase in the share of older persons in the world will be in Eastern and South-Eastern Asia (figure 3). The

Figure 1.
Distribution of population aged 65 years or over by region, 2019 and 2050 (percentage)

- ■ Sub-Saharan Africa
- ■ Central and Southern Asia
- ■ Latin America and the Caribbean
- ■ Oceania*
- ■ Northern Africa and Western Asia
- ■ Eastern and South-Eastern Asia
- ■ Australia and New Zealand
- ■ Europe and Northern America

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*
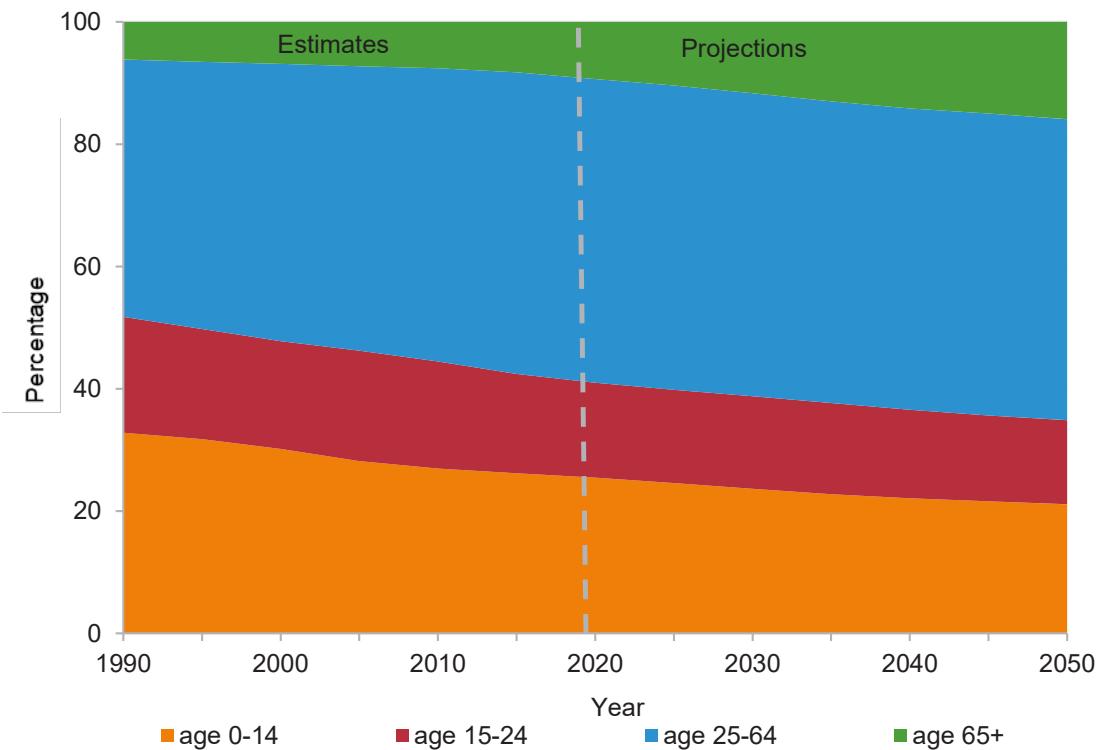*Excluding Australia and New Zealand.

Figure 2.
Global population by broad age groups, 1990-2050 (percentage)

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*

largest increase is foreseen in the Republic of Korea (23 percentage points), followed by Singapore (20.9 percentage points) and Taiwan Province of China (19.9 percentage points). Spain will be the only country in Europe to remain among the 10 countries with the largest increase in the share of older persons by 2050.

All regions have experienced an increase of life expectancy, with the largest gains in sub-Saharan Africa.

In addition to the significant role of fertility decline, improvements in survival into older ages have also contributed significantly to population ageing (Lee and Zhou, 2017; Murphy, 2017; Preston and Stokes, 2012). This refers not only to improvements in life expectancy at birth, but also to the even more rapid improvements in life expectancy at older ages. Between 1990-1995 and 2015-2020, the global average life expectancy at birth has increased by 7.7

years (12 per cent) and is projected to increase by an additional 4.5 years (6 per cent) between 2015-2020 and 2045-2050 (figure 4). Sub-Saharan Africa has experienced the largest increase from 49.1 years in 1990-1995 to 60.5 years in 2015-2020 (11.4 years) and is projected to encounter a further gain of 7.6 years between 2015-2020 and 2045-2050.

Throughout most of the world, survival beyond age 65 is improving.

Life expectancy at age 65 reflects the average number of additional years of life a 65-year-old person would live if subjected to the age-specific mortality risks of a given period throughout the remainder of his or her life. Globally, a person aged 65 could expect to live an additional 17 years in 2015-2020 and an additional 19 years by 2045-2050. The life expectancy at age 65 is presently highest in Australia and New Zealand at 17.5 years and it is expected to increase further to 23.9 years in

Figure 3.
Countries or areas with the largest percentage point increase in the share of older persons aged 65 years or over between 2019 and 2050
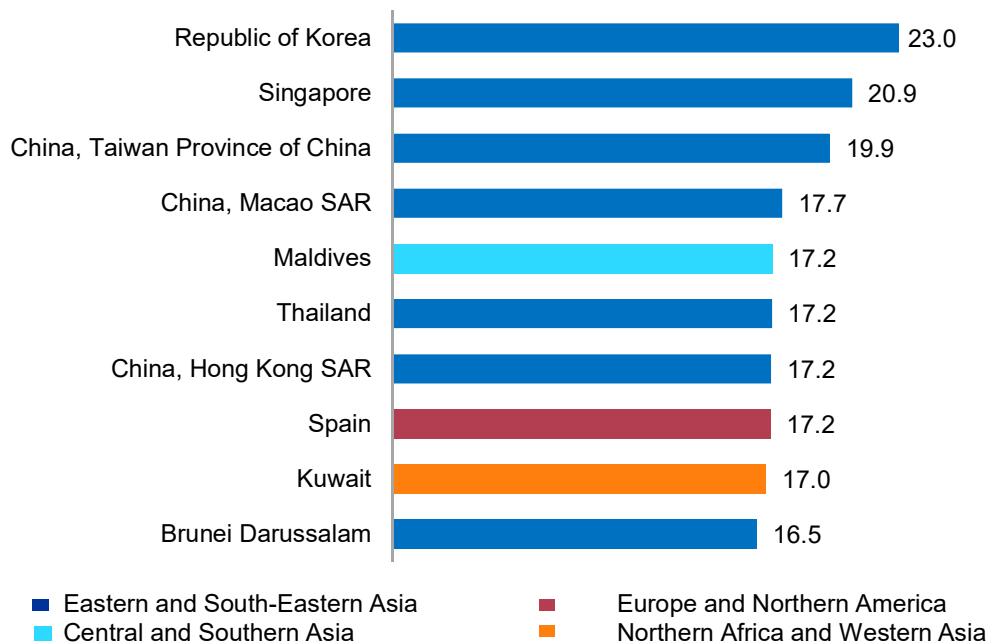
Country	Value
Republic of Korea	23.0
Singapore	20.9
China, Taiwan Province of China	19.9
China, Macao SAR	17.7
Maldives	17.2
Thailand	17.2
China, Hong Kong SAR	17.2
Spain	17.2
Kuwait	17.0
Brunei Darussalam	16.5

- ■ Eastern and South-Eastern Asia
- ■ Central and Southern Asia
- ■ Europe and Northern America
- ■ Northern Africa and Western Asia

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*

Figure 4.
Life expectancy at birth by region, both sexes combined (years), 1990-2050
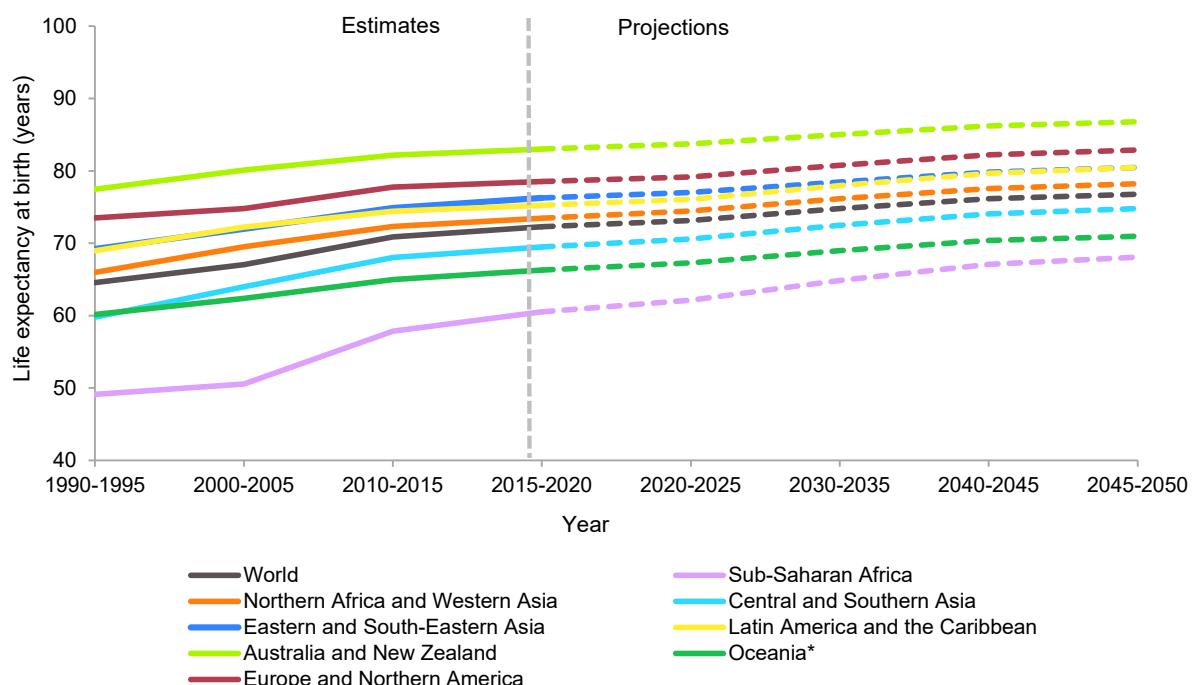
- World
- Northern Africa and Western Asia
- Eastern and South-Eastern Asia
- Australia and New Zealand
- Europe and Northern America
- Sub-Saharan Africa
- Central and Southern Asia
- Latin America and the Caribbean
- Oceania*

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*
*Excluding Australia and New Zealand.

United Nations, Department of Economic and Social Affairs, Population Division

2050. At the lower end, older persons in Oceania* and sub-Saharan Africa are foreseen to only live an additional 14.0 and 14.2 years respectively in 2050.

Women's longevity advantage over men leads to a predominately female older population.

Women tend to live longer than men. At the global level, in 2015-2020, women's life expectancy at birth exceeds that of men by 4.8 years (table 2). The female advantage in average longevity was largest in Latin America and the Caribbean (6.5 years), Europe and Northern America (6.1 years), and Eastern and South-Eastern Asia (5.3 years). In contrast, the female advantage is smaller in Central and Southern Asia (2.7 years), Oceania (3.0 years), and sub-Saharan Africa (3.5 years). The female survival advantage persists into older ages.

Globally, women at age 65 are expected to live another 18 years, while men at the same age add on

the average an additional 16 years to their lives in 2015-2020. The gender gap in life expectancy at age 65 is largest in regions with high life expectancy at birth, such as Eastern and South-Eastern Asia (3.4 years), Europe and Northern America (3.1 years), and Latin America and the Caribbean (2.8 years). In contrast, the gender gap is smallest in regions with generally low life expectancy at birth, such as Oceania (0.6 years), Central and Southern Asia (1.1 years), and sub-Saharan Africa (1.3 years).

Projections indicate that in 2050 women will comprise 54 per cent of the global population aged 65 or over. Since the gender gap in survival rates between men and women is narrowing, the sex balance among persons aged 80 years or over will become more even. In 2050, the proportion of women among the total population aged 80 years or over is projected to slightly decline to 59 per cent from 61 per cent in 2019.

Table 2.
Life expectancy at birth and at age 65 by sex, world and regions, 2015-2020 (years)

	Life expectancy at birth (years)				Life expectancy at age 65 (years)			
Region	*Both sexes*	*Female*	*Male*	*Difference between female and male*	*Both sexes*	*Female*	*Male*	*Difference between female and male*
World	**72.3**	**74.7**	**69.9**	**4.8**	**17.0**	**18.3**	**15.6**	**2.7**
Sub-Saharan Africa	60.5	62.3	58.8	3.5	12.8	13.4	12.1	1.3
Northern Africa and Western Asia	73.5	75.7	71.3	4.4	16.0	17.1	14.8	2.3
Central and Southern Asia	69.5	70.9	68.2	2.7	14.7	15.2	14.1	1.1
Eastern and South-Eastern Asia	76.3	79.0	73.7	5.3	17.2	18.9	15.5	3.4
Latin America and the Caribbean	75.2	78.5	72.0	6.5	18.2	19.5	16.7	2.8
Australia and New Zealand	83.0	85.0	81.1	3.9	21.2	22.6	19.9	2.7
Oceania, excluding Australia and New Zealand	66.3	67.8	64.9	3.0	12.6	12.9	12.3	0.6
Europe and Northern America	78.5	81.6	75.4	6.1	19.1	20.5	17.4	3.1

Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*
*Excluding Australia and New Zealand.

A group of older persons seated outside a tourist hotel in Gueong-Ju, 1981, UN Photo/ Hanns Maier

Measures of population ageing

The percentage of older persons is often used as the main indicator to analyse population ageing. In understanding the socioeconomic implications of population ageing, several measures have been developed to account for the diversity of capacities and dependencies across ages. While earlier concepts focused on the simple relationship between older and younger age-groups, more recently developed measures take into consideration increased life-expectancies or combine economic and demographic data to analyse the interrelationships between economic contribution and dependency and age structure. The latter have become possible with the increased availability of data necessary to assess the socio-economic realities of ageing societies. There are three measures of population ageing that are used to examine the shifting population age structures for intergenerational support systems, namely, old-age dependency ratio, the prospective old-age dependency ratio and the economic old-age dependency ratio.

A. Population ageing seen from a conventional perspective: the old-age dependency ratio

The old-age dependency ratio (OADR) is defined as the number of old-age dependents (persons aged 65 years or over) per 100 persons of working age (aged 20 to 64 years). This metric approximates the implied economic dependency associated with a growing share of the population at older ages. The OADR is one of the most commonly used indicators for monitoring changes in the age structure of populations. With declining fertility and increased longevity, the relative size of older age groups is increasing while the proportion of younger age groups is declining. Indeed, another way to assess population ageing is to consider the dependency ratio associated to the younger population, defined as the number of persons under age 20 relative to the number of persons aged 20-64. The long-term decline of this child dependency ratio is another indicator of population ageing.

The old-age dependency ratio is projected to increase in all regions of the world, particularly in Eastern and South-Eastern Asia and Latin America and the Caribbean.

Figure 5 presents the estimated and projected OADR for the world and by region. Since 1990s, the OADR has continuously increased across all regions, although the level and speed of this increase vary. Globally, there were 16 persons aged 65 years or over per 100 persons aged 20-64 years in 2019. In 2050, the global OADR is projected to increase to 28 older persons for every 100 working-age persons.

In Europe and Northern America, there were 30 older persons per 100 working age persons in 2019, a ratio that is projected to rise sharply, reaching 49 in 2050. In Australia and New Zealand, the OADR is projected to increase from 27 in 2019 to 42 in 2050.

The OADR is expected to more than double between 2019 to 2050 in Eastern and South-Eastern Asia, Latin America and the Caribbean, Northern Africa and Western Asia, and Central and Southern Asia. In Eastern and South-Eastern Asia, the OADR will rise from 18 older persons per 100 workers in 2019 to 43 in 2050, while in Latin America and the Caribbean it will increase from 15 in 2019 to 33 in 2050. In Northern Africa and Western Asia as well as in Central and Southern Asia the ratios are also expected to more than double from around 10 in 2019 to 22 per 100 in 2050.

In contrast, the OADR is relatively low in Oceania (excluding Australia and New Zealand) and sub-Saharan Africa but is expected to increase gradually from 8 and 7 persons in 2019 to 14 and 9 in 2050, respectively.

Figure 5.
Estimated and projected old-age dependency ratios by region, 1990-2050
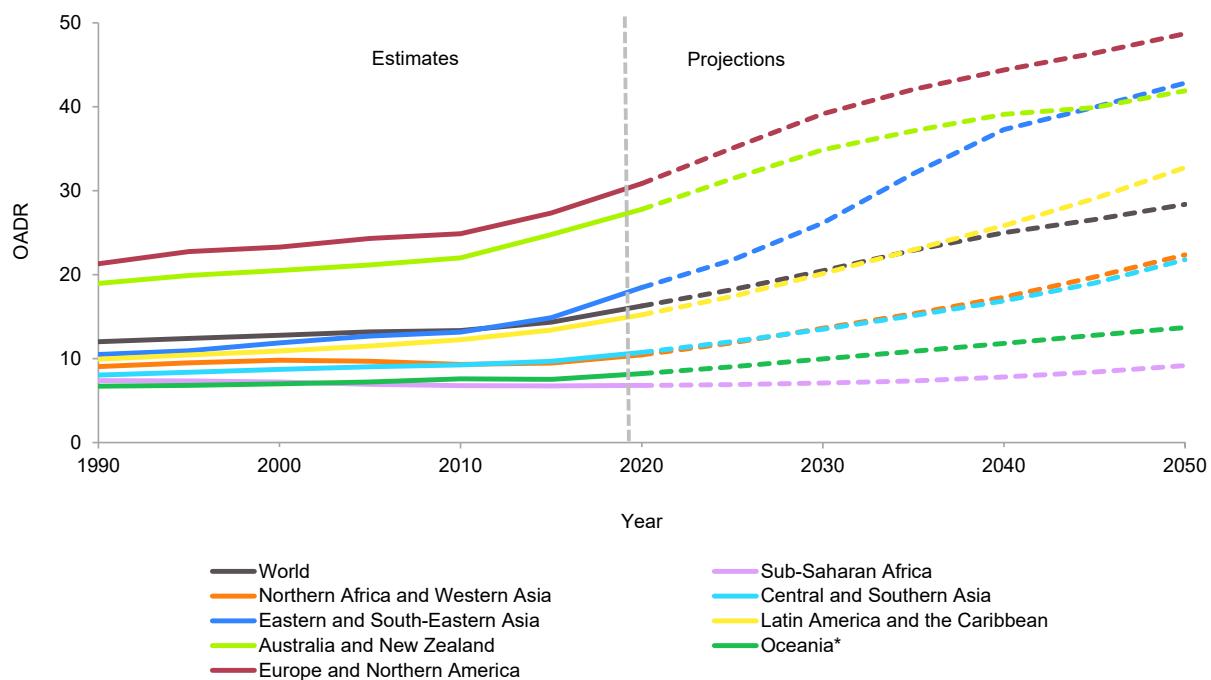
Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*
*Excluding Australia and New Zealand

Figure 6.
Ten countries or areas with the highest old-age dependency ratio (65+/20-64), 2019 and 2050
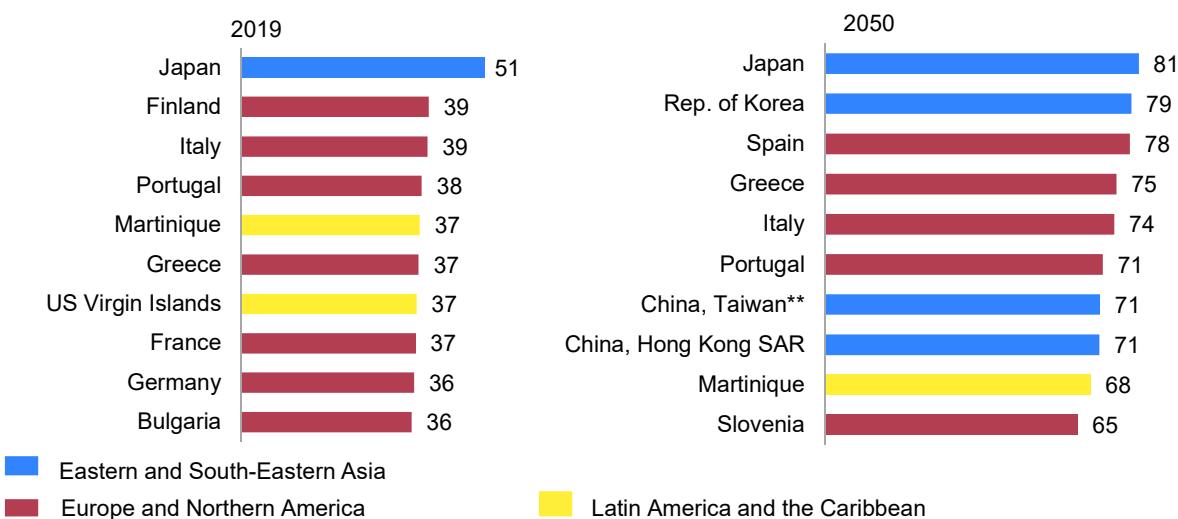
Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*
*Excluding Australia and New Zealand.
** China, Taiwan Province of China.

While the countries or areas with the highest old-age dependency ratio are predominantly European at present, more Asian countries and areas will be among this group in 2050.

Figure 6 presents the 10 countries or areas with the highest OADR in 2019 and 2050. With 51 persons aged 65 years or over per 100 persons aged 20 to 64 years, Japan currently has the highest OADR in the world.

Among the countries with the highest OADR today, seven countries are in Europe, and two countries or areas are in Latin America and the Caribbean. All of the ten most aged countries or areas in the world have at present an OADR above 35.

Projections indicate that in 2050, Japan will remain the country with the highest OADR (81), followed by countries or areas in Eastern and South-Eastern Asia (3), Europe and Northern America (5), and Latin America and the Caribbean (1).

B. Measuring population ageing considering remaining years to live: The prospective old-age dependency ratio

While the OADR is useful as a simple metric to describe changes in the population structure, it is based on chronological age, usually using a set threshold of age 65 or older. However, the OADR is a poor proxy for the level of dependency experienced in a population and it does not take into account that, first, older persons are quite diverse with respect to both economic activity, including labour force participation and functional capacity, and, second, not all persons in the traditional working ages are active in the labour force with some being economically dependent themselves.

Prospective measures that redefine population ageing based on remaining life expectancy instead of basing it on the number of years lived, capture increases in life expectancy in a population over time. One such measure is the prospective old age dependency ratio (POADR) that defines old age based on remaining life expectancy of 15 years (Sanderson and Scherbov, 2005 and 2007).[7] The

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[7] $Prospective\ old\ age\ dependency\ ratio = \frac{Number\ of\ persons\ above\ the\ age\ closet\ to\ a\ remaining\ life\ expectancy\ of\ 15\ years}{Number\ of\ persons\ between\ age\ 20\ and\ that\ age}$

POADR is calculated as the number of persons above the age closest to a remaining life expectancy of 15 years relative to the number of persons between age 20 and that age.[8]

Trends in the prospective old-age dependency ratio suggest slower increases in dependency in many countries compared to the traditional old-age dependency ratio.

Trends in the POADR suggest slower increases or even declines in dependency in many countries with substantial older populations compared to the projections of the traditional old-age dependency ratio (figure 5). This pattern can be observed at the global level, where the prospective old-age dependency ratio has slightly declined from 12.9 in 1990 to 11.6 in 2019, (-10 per cent), but it is projected to increase from 11.6 in 2019 to 17.3 by 2050 (+50 per cent) (figure 7). Compared to the OADR, the POADR generally increases at a slower pace. For example, while the global OADR is projected to increase by 79 per cent from 2019 to 2050 (figure 8), the global POADR will increase only by about 50 per cent (figure 10).

The fastest increase will occur in Eastern and South-Eastern Asia, where the POADR is projected to increase from 12 in 2019 to 25 in 2050 (+107 per cent). The slowest increase will occur in sub-Saharan Africa, where the POADR remains almost unchanged at around 10 in both 2019 and 2050.

Countries or areas with the highest prospective old-age dependency ratio are predominantly in Europe.

Figure 8 presents the 10 countries or areas with the highest prospective old-age dependency ratios in 2019 and 2050. In 2019, 9 out of 10 countries with prospective old-age dependency ratios above 21 were in Europe. Bulgaria has the highest POADR with a value of 30 in 2019 and will maintain in the lead with a ratio of 36 in 2050. Among the 10 countries or areas with a POADR of over 32 in 2050, 7 are projected to be in Europe, 1 (Republic of Korea) will be in Eastern and South-Eastern

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[8] A detailed description of the methodology to calculate the prospective old age dependency ratio can be found in Sanderson and Scherbov (2005 and 2007).

Estimated and projected prospective old-age dependency ratios by region, 1990-2050
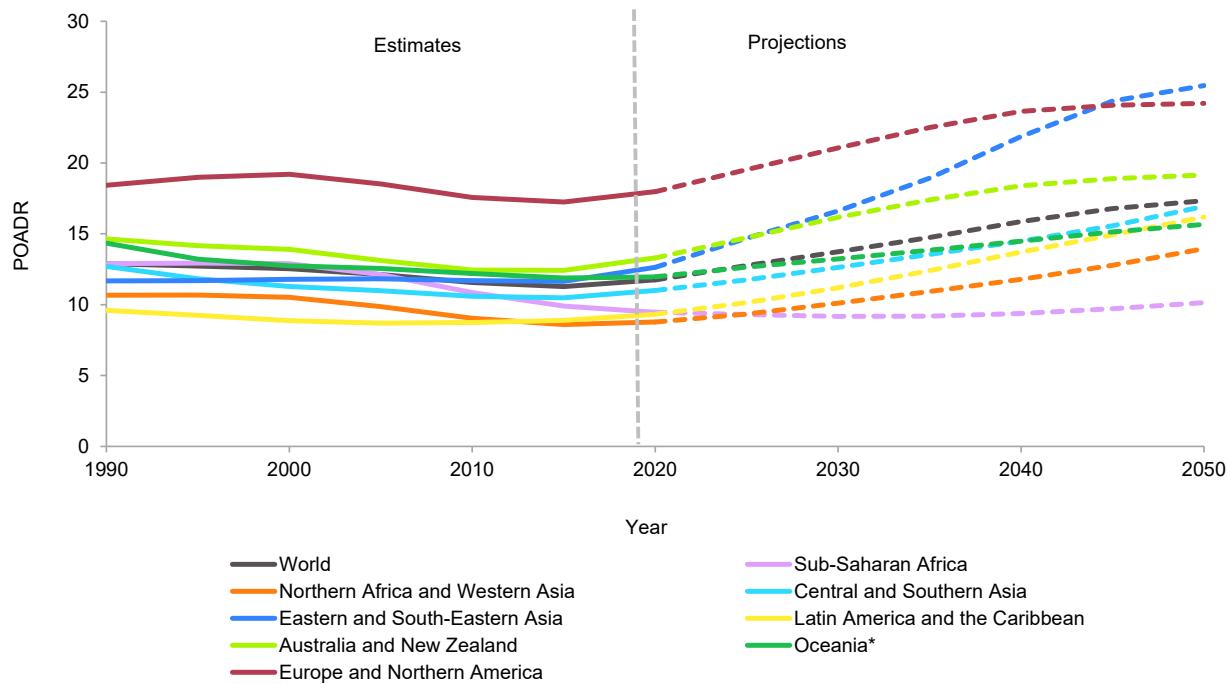
Source: Calculations provided by Warren Sanderson and Sergei Scherbov using *World Population Prospects 2019* data based on the methods developed by Sanderson and Scherbov (Sanderson and Scherbov, 2005, 2010, 2015).

Figure 8.
Ten countries or areas with the highest prospective old-age dependency ratio, in 2019 and 2050
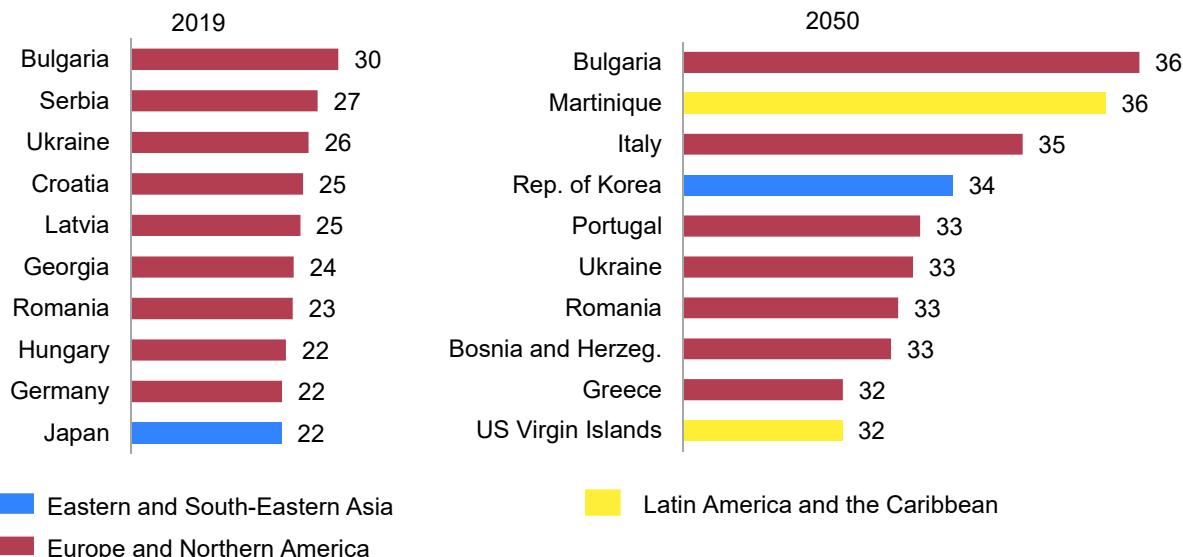
Source: provided by Warren Sanderson and Sergei Scherbov based on the methods outlined in Sanderson and Scherbov (2005, 2010, 2015).

Asia, and 2 (Martinique and United States Virgin Islands) in Latin America and the Caribbean.[9]

C. Measuring population ageing from an economic perspective: The economic old-age dependency ratio

In addition to chronological age and prospective age measures discussed earlier, population ageing can also be understood and measured from an economic perspective. Economic measures related to population ageing use labour force participation rates or full lifecycle economic behaviour of National Transfer Accounts, abbreviated as NTA

[9] Sanderson and Scherbov explain these differences as follows: When looking across countries in one time period, the age structure underlying the OADR and the POADR is the same. Differences in the values of both measures arise from differences in the old-age threshold. The OADR assumes old-age begins at age 65 while the POADR assumes that it begins at the age when the remaining life-expectancy is 15 years. Eastern European and Central Asian countries with lower life expectancy at older ages do worse when the prospective OADR is used (e-mail correspondence 2 July 2019).

(United Nations, 2013; Lee and Mason, 2011; Mason and others, 2017) (box 1). This section employs the concepts of NTA, which is a comprehensive system of age-based accounting of economic flows that draws from analytical methods of demography and economics to examine how economic resources are reallocated across individuals of different ages through the family, the government and the market.

In capturing the interactions between demography and economy, the economic old-age dependency ratio (economic OADR) uses information about the population, consumption and production in a given economy, disaggregated by age. The economic OADR is defined as the effective number of consumers aged 65 years or over divided by the effective number of workers at all ages (in practice, the ratio is often multiplied by 100).[10]

[10]
$$\text{Economic old age dependency ratio} = \frac{\sum_{x=65}^{w} c(x)N(x)}{\sum_{x=0}^{w} y(x)N(x)}$$

where $c(x)$ is the per capita consumption at age x; $y(x)$ is the per capita labour income at age x; and $N(x)$ is the population of age x.

Box 1. What are national transfer accounts (NTA)?

The national transfer accounts (NTAs) provide a linkage between population and the economy. It examines economic lifecycle of individuals and analyses the interaction between various support mechanisms of individuals, such as public and private transfer systems, capital markets or own work. This body of work has become increasingly important for policy makers as they are looking for responses on how to address concerns about the consequences for standards of living and the sustainability of government programmes arising from the fertility decline and population ageing.

Individuals go through extended periods of dependency at the beginning and end of their life: children and older persons consume more resources than they produce through their own labour. Conversely, working-age adults produce more than they consume. The relative size of these age groups as well as the extent of their dependency determine the support needed from the working-age population. What makes this economic lifecycle possible is the flow of resources over time and across generations through a complex system of social, economic and political institutions. NTA provides methodologies to improve the understanding of how population growth and changing age structures influence economic growth, gender and generational equity, public finances and other important macro-economic features.

In analysing changing age structures in relation to the economy, the NTA creates age profiles of labour income and consumption across countries using a standardized approach (United Nations, 2013). One important feature of NTA is the estimation of economic resource flows between age groups, which shows how each age group relies on sharing and saving to support consumption at all stages of life-transfers and assets.

NTAs are compiled from a variety of data sources, ranging from national income and product accounts, government financial statistics and administrative records to nationally representative income and expenditure surveys, labour-force surveys, health-expenditure surveys and special purpose household surveys. Details on the methodology are explained in the National Transfer Accounts Manual (United Nations, 2013) and other publications (Lee and Mason, 2011, 2010, 2006). By 2018, more than 90 countries had research teams to create NTA estimates that map the generational economy, with teams located at universities, research organizations and government agencies.

One of the advantages of this measure is that it incorporates age-specific variations in labour income and consumption that result from differences across countries in labour force participation, unemployment, hours worked, productivity and consumption. The ratio reflects the resource needs (namely, the consumption) of older persons relative to the resources (namely, labour income) produced by all workers irrespective of their age. An increasing economic OADR means that the number of effective older consumers per effective worker is increasing. This in turn can change the demand for and the financing of goods and services, such as pensions and health care. To sustain a given level of old-age consumption, older persons have in principle the following options: 1) work (i.e., earn labour income); 2) draw income from their assets, 3) get economic support from their families and/or from public transfer programmes. As an alternative or complementary financial strategy, older person may decide to reduce their consumption.

The economic old-age dependency ratio is increasing around the world.

According to the latest NTA calculations, population ageing leads to a global increase from 20 effective older consumers (age 65+) per 100 effective workers (all ages) in 2019 to 33 by 2050 (figure 9). Currently, two regions, namely Europe and Northern America, and Australia and New Zealand, have the highest economic OADR of 43 and 36, respectively. These high ratios are explained by the high consumption at older ages relative to younger ages, and by an increasing share of older persons in the population. Similar high ratios at around 40 effective older consumers for every 100 effective workers are projected for two other regions: Eastern and South-Eastern Asia by 2040 and Latin America and the Caribbean by 2050.

Sub-Saharan Africa and Oceania* are currently experiencing the lowest economic OADR at 7 and 9 respectively, although these ratios are projected to increase gradually to 10 (sub-Saharan Africa)

Figure 9.
Estimated and projected economic old-age dependency ratios by region, 1990-2050
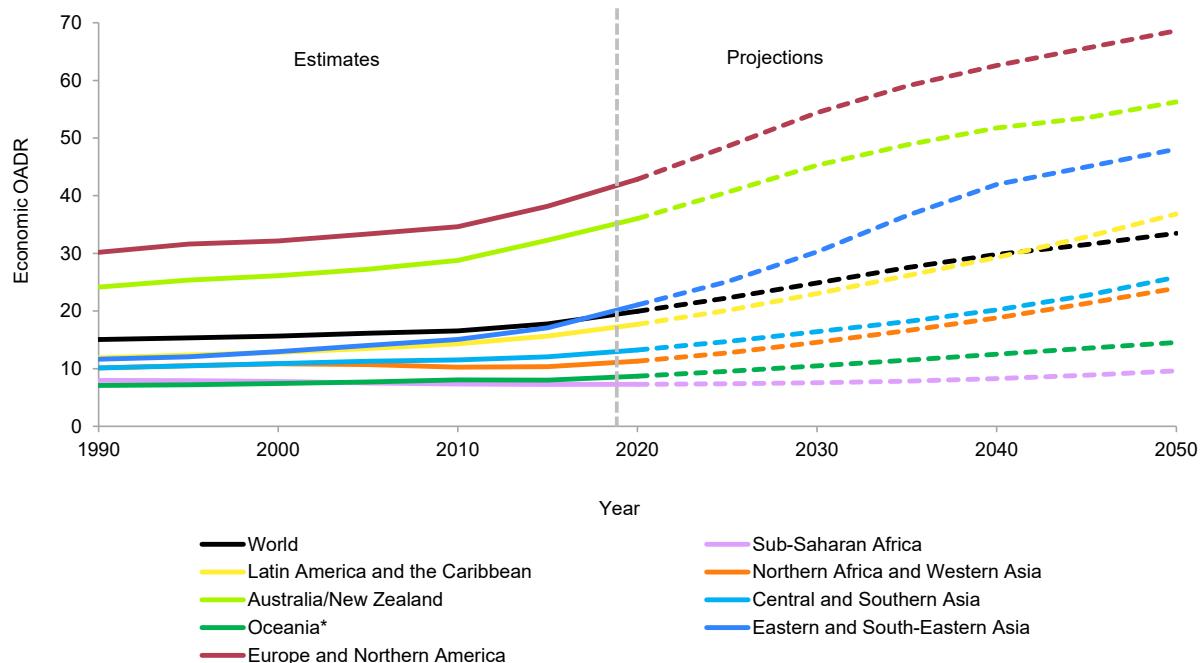
Source: Andrew Mason and Ronald Lee, based on the method outlined in Mason and others (2017). *Support ratios and demographic dividends: Estimates for the world*. United Nations Population Division Technical Paper No. 2017/1.

Note: These economic ratios employ population estimates and projections from United Nations World Population Prospects 2019 and consumption and labour income age profiles from 60 countries with NTA plus 106 modelled countries, yielding NTA estimates for 166 countries.

and 15 (Oceania*) in 2050 (figure 9). Policies such as increasing employment opportunities for young people, enhancing the productivity of the current workforce, investing in health and education, and creating conditions conducive to sustained economic growth are imperative to maintain or even increase standards of living of all.

Countries or areas with the highest economic old-age dependency ratio are mostly located in Europe and Northern America.

Countries or areas with the highest economic OADR are mostly found in Europe and Northern America. Japan is the most aged country in the world and will continue to hold this lead by 2050, based both on the conventional OADR (figure 6) and the economic OADR (figure 10). Other countries or areas in the list of 10 countries with the highest economic OADR are Finland, France, Germany, Denmark, Greece, Sweden, Italy, the Netherlands and the United States Virgin Islands (figure 10). All these countries have economic ratios of 50 or more effective older consumers per 100 effective workers in 2019. By 2050, the economic OADRs in these countries or areas are projected to reach values of 89 or higher. By mid-century, Slovenia, Spain, Puerto Rico, Portugal, Switzerland and the Republic of Korea are expected to replace Finland, France, Denmark, Sweden, the Netherlands and the United States Virgin Islands among the 10 countries with the highest economic OADRs, while Japan, Germany, Greece and Italy are expected to remain in this group.

Figure 10.
Ten countries or areas with the highest economic old-age dependency ratio, 2019 and 2050
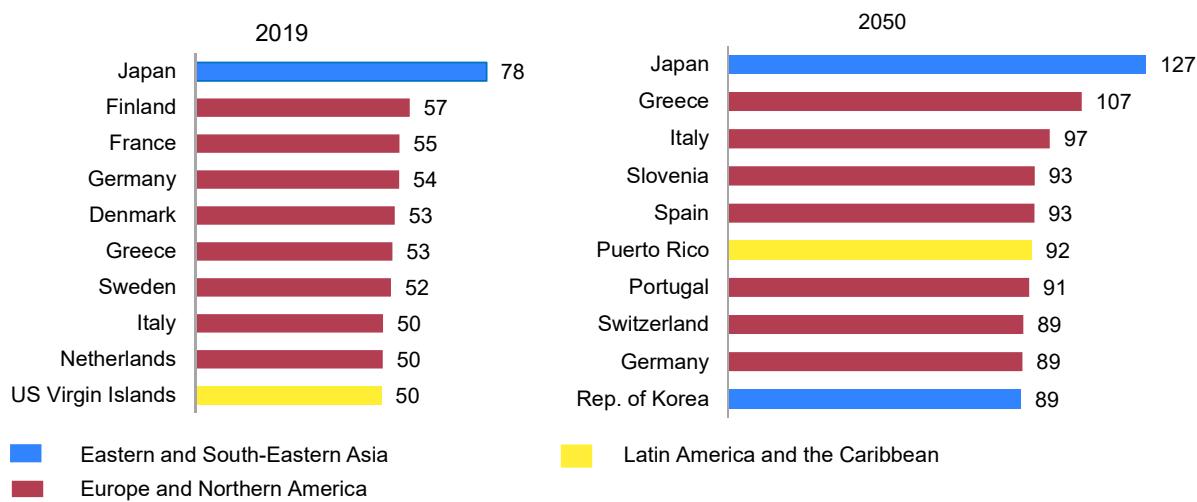
2019

Country	Value
Japan	78
Finland	57
France	55
Germany	54
Denmark	53
Greece	53
Sweden	52
Italy	50
Netherlands	50
US Virgin Islands	50

2050

Country	Value
Japan	127
Greece	107
Italy	97
Slovenia	93
Spain	93
Puerto Rico	92
Portugal	91
Switzerland	89
Germany	89
Rep. of Korea	89

■ Eastern and South-Eastern Asia
■ Europe and Northern America
■ Latin America and the Caribbean

Source: Andrew Mason and Ronald Lee, based on the method outlined in Mason and others (2017). *Support ratios and demographic dividends: Estimates for the world.* United Nations Population Division Technical Paper No. 2017/1.

Note: These economic ratios employ population estimates and projections from United Nations World Population Prospects 2019 and consumption and labour income age profiles from 60 countries with NTAs plus 106 modelled countries, yielding NTA estimates for 166 countries.

Box 2. How much do we consume and produce over our lifecycle?

The economic life cycle is a universal feature of all contemporary societies. At the beginning and the end of our lives when we generally consume more than we produce through own labour, while in the middle years of our lifecycle, we generally produce more than we consume.

Figure 11 compares the per capita consumption and labour income of Sweden and Republic of Korea. The labour income age profile, an inverse U-shape, is broadly similar for Sweden and the Republic of Korea, with labour income rising steeply for those in their 20s, reaching a peak around age 40 and declining thereafter. The largest differences in labour income by age between the two countries occur at older ages. In Sweden, labour income is more concentrated within the later middle years, between age 40 and 60, while it is concentrated in earlier life cycle between age 30 and 50 in the Republic of Korea.

Consumption patterns also vary substantially. In Sweden, consumption increases at older ages as a consequence of high healthcare costs. In contrast, consumption remains flat at older ages in the Republic of Korea at about 60 per cent of a prime working-age adult's labour income. Consumption among children in the Republic of Korea takes up a higher proportion of labour income than in Sweden, with about 80 per cent in the Republic of Korea compared to about 60 per cent in Sweden.

When do we become economically independent?

One way to determine when we become economically independent is to examine at what age we produce more than we consume. Figure 11 shows that individuals become economically independent between age 26 and 63 in Sweden, while it is between age 28 and 56 in the Republic of Korea (the age range between the first and second crossing of the two lines).

Figure 11.
Per capita consumption and labour income across the lifecycle, Sweden (2003) and Republic of Korea (2012)
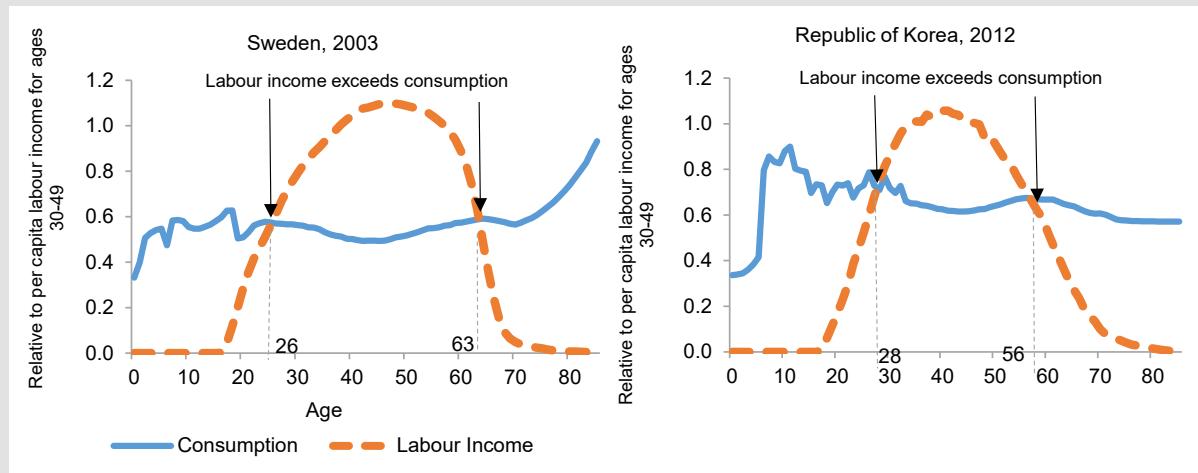
Source: NTA Database. Available from www.ntaaccounts.org. Accessed on 3 June 2019. NOTE: NTA defines labour income comprehensively to include the value of most productive work: the earnings of employees, employer-provided benefits, taxes paid to the government by employers on behalf of employees, the proportion of entrepreneurial income that is a return to labour, and the estimated value of unpaid family labour. Consumption in NTA includes goods and services from both public and private sources.

D. Comparing the three measures: The OADR, POADR and economic ratios

The three measures presented above, old-age dependency ratio (OADR), prospective old age dependency ratio (POADR) and the economic old-age dependency ratio examine population ageing from different perspectives applying different methods resulting at different levels and pace of population ageing. Depending on the objectives of users, each measure offers a different perspective and serves a different purpose. The following paragraphs present a comparative analysis of the results of the three measures discussed.

Comparing the POADR with the OADR, the POADR is found to be lower in all regions, except in sub-Saharan Africa and Oceania* (table 3). In 2019, the POADR ratio is only half of the ratio of the OADR in Australia and New Zealand, and more than half (60 percent) of the OADR in Europe and Northern America, and Latin America and the Caribbean. POADR values are the same as the OADR values for Central and South-Eastern Asia in 2019. That is, the POADR shows that population ageing is less severe than computed by using the OADR in these regions when lifespans lengthen. Similar trends are found in the coming decades in all regions except sub-Saharan Africa and Oceania.

The economic old-age dependency ratio is slightly higher than the OADR in all regions (table 3).

Europe and Northern America, and Australia and New Zealand have larger economic OADRs than others, implying that from an economic perspective, population ageing is more advanced in these regions than compared to other regions (table 3). This result is not surprising given the relatively high old-age consumption in these regions. In contrast, population ageing in sub-Saharan Africa, Northern Africa and Western Asia, Eastern and South-Eastern Asia and Oceania at present is relatively less severe economically compared to other regions and will remain so for the foreseeable future. This is because older persons in most countries in these regions continue to work longer[11] and consume relatively less than other age groups.

Measures of population ageing inform policy makers about the shift of population age structures towards older populations over time and allow for comparisons across countries and regions, spurring the development of public policy. Each measure offers different perspectives and fits different purposes, with its own advantages and disadvantages.

The OADR is an indicator of the changing population age structure that is simple to compute and easy to comprehend. The data for calculating this indicator are available for all countries and

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[11] NTA measures work in both formal and informal sectors. The labour income measure is comprehensive to take into account of full time and part-time employment in both formal and informal sectors, unemployment, and productivity.

Table 3.
A comparison of the different methods of old-age dependency ratios by region, 2019 and 2050

Region	POADR divided by OADR		Economic OADR divided by OADR	
	2019	*2050*	*2019*	*2050*
World	**0.7**	**0.6**	**1.2**	**1.2**
Sub-Saharan Africa	1.4	1.1	1.1	1.0
Northern Africa and Western Asia	0.9	0.6	1.1	1.1
Central and Southern Asia	1.0	0.8	1.2	1.2
Eastern and South-Eastern Asia	0.7	0.6	1.1	1.1
Latin America and the Caribbean	0.6	0.5	1.2	1.1
Australia and New Zealand	0.5	0.5	1.3	1.3
Oceania*	1.5	1.1	1.1	1.1
Europe and Northern America	0.6	0.5	1.4	1.4

Source: OADR is tabulated from United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*. POADR is provided by Warren Sanderson and Sergei Scherbov based on the methods outlined in Sanderson and Scherbov (2005, 2010 and 2015). Economic ratio is provided by Andrew Mason and Ronald Lee based on the method outlined in Mason and others (2017).

*Excluding Australia and New Zealand.

areas of the world over a long period of time. The OADR, however, does not fit well with studying a particular health or pension reforms nor should it be used as a measure of strict economic dependency.

The POADR examines population ageing in the context of increasing life expectancies. It suggests that population ageing is not as advanced and is not proceeding as fast as the conventional measure of population ageing (the OADR), especially in high-income countries. While the average life expectancy in a population increases, lower income groups and certain disadvantaged groups may not have the same experience, for example, in the United Kingdom and the United States. A number of studies have found that better-educated, higher-income people enjoy longer life expectancies than less-educated,

lower-income people (Auerbach and others, 2017; Bennet and others, 2018; NASEM, 2015; Waldron, 2007) and have suggested that policy reforms should consider the longevity gaps within countries.

The economic OADR integrates the patterns of consumption and production and the changes of the population age structure into a synthetic "economic" dependency ratio. This approach allows for an explicit linkage between population ageing and the generational economy, providing useful information for fiscal and social planning. The use of NTAs has been expanding during the last few decades (the current membership includes 90 countries), and an increasing number of countries have been generating multiple country data estimates, for different points in time.

How does population ageing affect assets, transfers and work?

The objective of this section of these highlights is to illustrate how older persons finance their consumption in different countries through transfers, assets and work. It investigates the effect of demographic change on each of the financing mechanisms by employing the National Transfer Accounts (NTA) projections on transfers, assets and work for 29 countries with available data.[12,][13] The present analysis assesses the impact of population ageing on assets, transfers and work should the current old-age funding mechanisms in these countries remain in place. While it provides useful insights of changes across space and time, it does not substitute for country-specific analysis and forecasting.

A. How older persons fund their consumption: Transfers, assets, and work

Consumption of older persons is funded in different ways around the world.

Older persons fund their consumption from four different sources: (1) Public programmes such as pensions, health care and other social welfare programmes, (2) transfers from family members or other private sources (3) own assets and wealth, and (4) their own labour income.

Figures 12a and 12b illustrate the shares of consumption of persons aged 65 or over according to four sources of funding mentioned above, clustered into four groups: (1) *Public transfer dominant*, where old-age financing relies predominantly on public transfers, mainly found in Europe and Latin America; (2) *Asset dominant*, where old-age financing depends mainly on income from assets, prevalent in countries in Southern Asia and South-Eastern Asia; (3) *Dual balanced*, where old-

age financing is based on assets and either public transfers or private transfers, found in Australia, Mexico, Spain, United Kingdom, United States as well as in Jamaica and Singapore; (4) *Balanced*, where old-age consumption is financed by drawing on all four sources, namely assets, labour income, both public and private transfers, consisting of countries found mainly in Eastern Asia.

Older persons in Europe and Latin America rely on public transfers to fund more than two thirds of their consumption.

In *Public transfer dominant* countries (figure 12a) the contribution of public transfers to finance consumption in old age ranges from slightly more than 50 per cent in the case of Chile and Uruguay to almost 100 per cent in Sweden. Net public transfers, that is, the net of transfer inflows and outflows, support about 70 per cent or more of old-age consumption in many European countries such as Austria, Germany, France, Finland, Hungary, Italy and Sweden. In Latin America, net public transfers fund about two thirds of old-age consumption in Costa Rica, Ecuador and Peru. The exception is Brazil, where the generous public transfer systems (social security and others) finance about 90 per cent of old-age consumption.

Assets are the primary source of support for older persons in countries where transfers are low, such as in Southern Asia and South-Eastern Asia.

In the *Asset dominant* cluster, countries rely only to a limited extent on transfers and thus assets become the primary source for support in old age. When public transfer systems are less established and private transfers are limited, individuals need to save and accumulate assets for retirement. This phenomenon is found in several countries in Southern Asia and South-Eastern Asia such as Cambodia, India, Indonesia, Philippines, and Thailand (*Asset dominant* cluster in figure 12a). In addition, El Salvador and South Africa face similar experiences.

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[12] The calculations were generously provided by Andrew Mason and Ronald Lee (2018) using estimates and projections from the World Population Prospects and NTA age-profiles for the 29 countries.
[13] Australia and New Zealand (1 country), Central and Southern Asia (1 country), Eastern and South-Eastern Asia (8 countries and areas), Europe and Northern America (11 countries), Latin America and the Caribbean (7 countries), Sub-Saharan Africa (1 country).

Figure 12a.
Income sources to finance old-age consumption at ages 65 years or over, public transfer dominant and asset dominant clusters, circa 2005 (percentage)
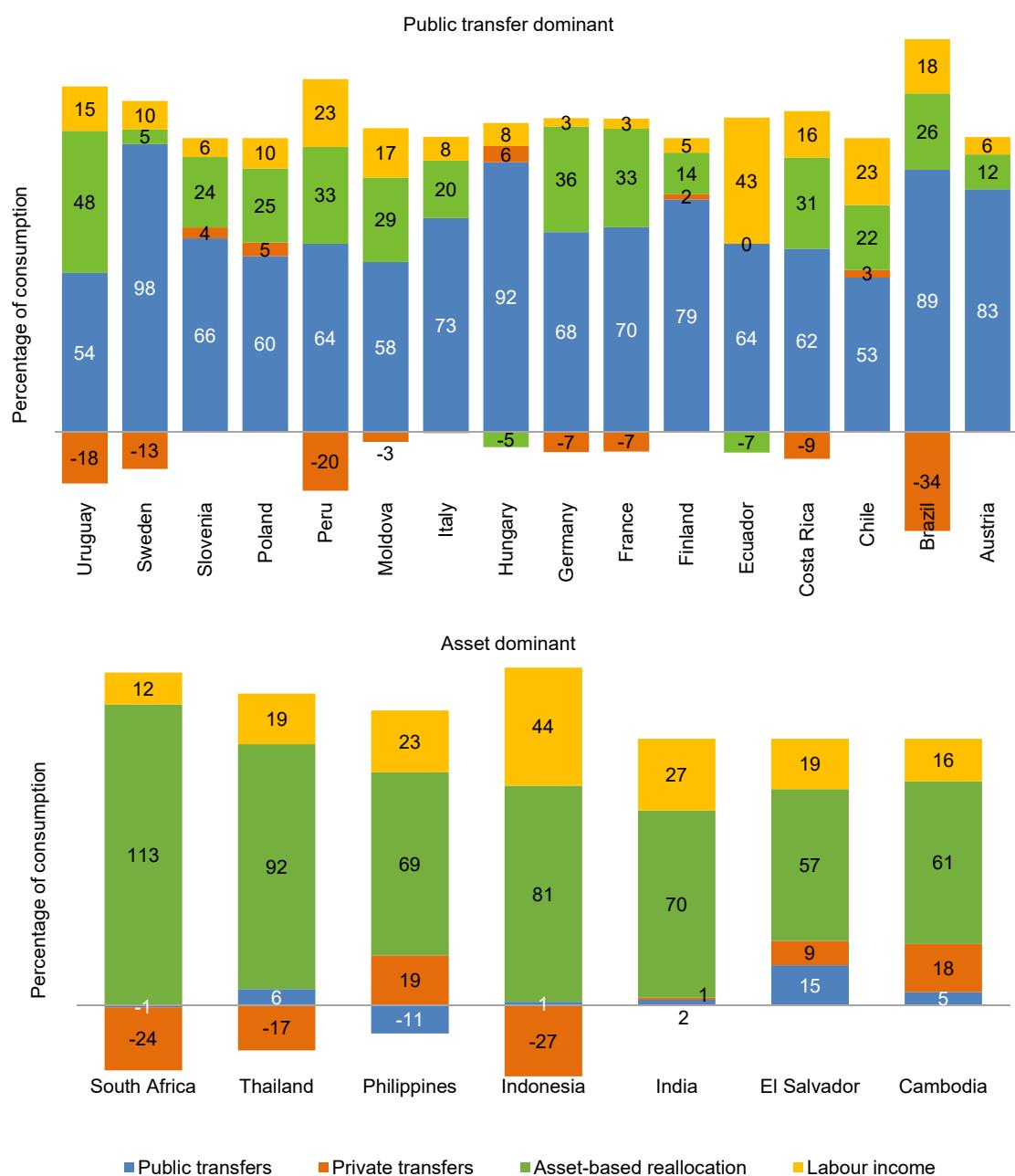
Public transfer dominant

Asset dominant

■ Public transfers ■ Private transfers ■ Asset-based reallocation ■ Labour income

Source: Computed using data obtained from the NTA database. Available from www.ntaccounts.org. Accessed on 3 June 2019.

Note: Both public and private transfers are net of inflows and outflows. Private transfers include both interhousehold and intrahousehold transfers. Data are based on the latest available year, ranging from 1998-2015.

Figure 12b.
Income sources of old-age consumption at aged 65 or over, dual balanced and balanced clusters, circa 2005 (percentage)
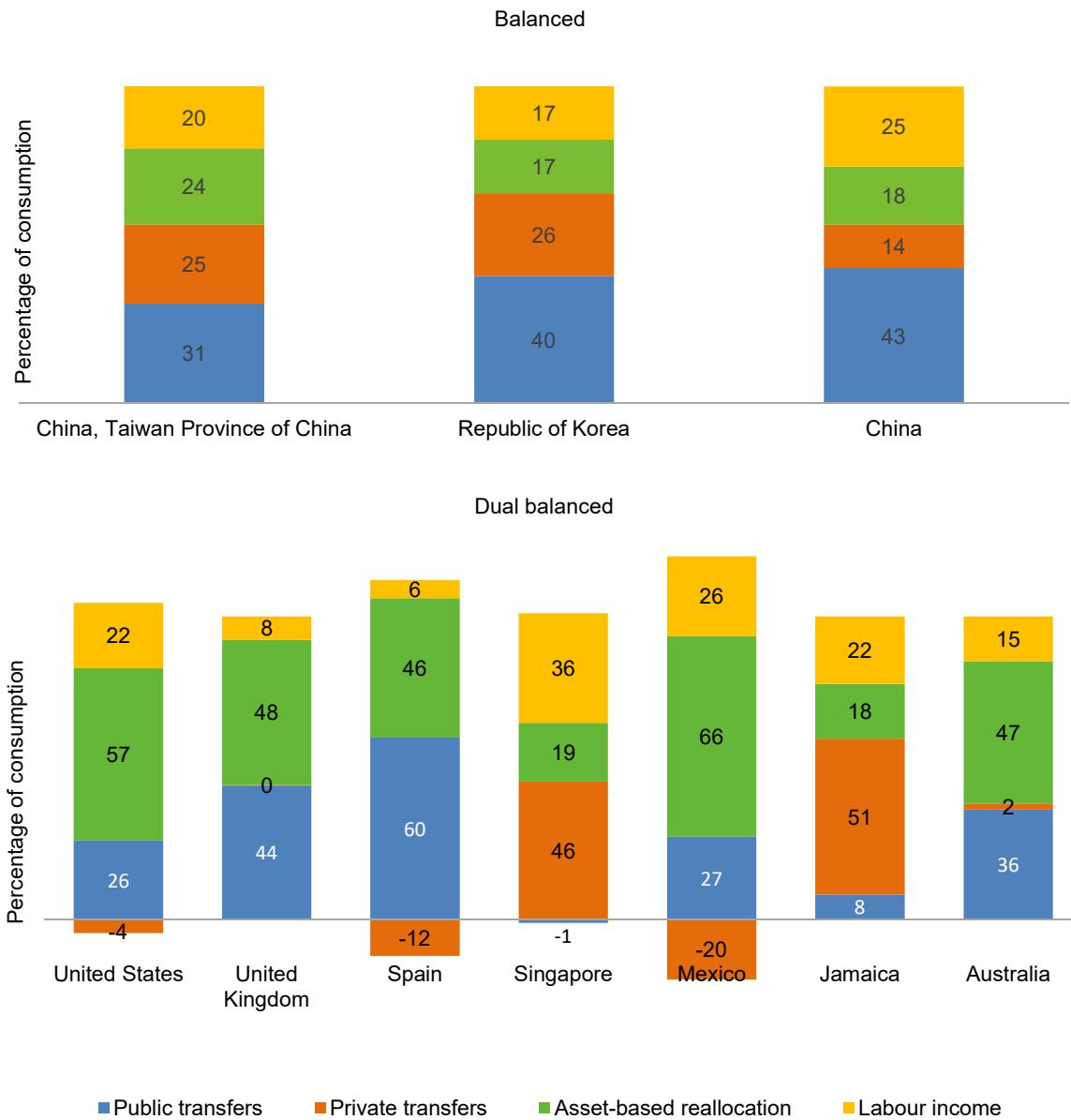
Source: computed using data obtained from the NTA database. Available from www.ntaccounts.org. Accessed on 3 June 2019.

Note: Both public and private transfers are net of inflows and outflows. Private transfers include both interhousehold and intrahousehold transfers. Data are based on the latest available year, ranging from 1998-2015. Negative private transfers occur when individuals gave private transfers more than receiving them.

Assets and public transfers finance the bulk of old-age consumption in some high-income countries.

In selected high-income countries in the *Dual balanced* cluster, assets play an important role, while public transfers play a more moderate role funding old-age consumption. More specifically, assets support about half of the consumption of older persons in Australia, Mexico, Spain, United Kingdom and United States, as presented in the *Dual balanced* cluster (figure 12b). In addition to public transfers and assets, labour income is an important mechanism in this cluster.[14]

[14] Singapore is a special case with private transfers and labour income as the two main funding mechanisms due to low public transfers and low accumulated assets for old-age.

Private transfers finance as much as one fourth of the consumption of older persons in Eastern Asia, while such transfers are mostly small or negative in other regions.

In the *Balanced cluster*, private or familial transfers play an important secondary role in Eastern Asia where the fiduciary duty of supporting older parents continues to hold. Older persons in the Republic of Korea and in Taiwan, Province of China, on average, have about one-fourth (25 per cent) of their consumption financed by their families, while the proportion in China is about 14 per cent (*Balanced cluster* in figure 12b). Private transfers are also important in South-Eastern Asia, financing about one fifth of consumption in Cambodia and the Philippines. In Jamaica and Singapore private transfers are the main sources of income for older persons.

Elsewhere in other regions such as Europe and Northern America, and Latin America and the Caribbean, private transfers are minimal in supporting old-age consumption.[15] In fact, older persons are giving to the younger generations in many countries, including Brazil, Costa Rica, Germany, Indonesia, France, Mexico, Republic of Moldova, Peru, South Africa, Spain, Sweden, Thailand, and United States (*Public transfer dominant, Dual balanced* and *Asset dominant* clusters in figure 12a and 12b).

Labour income is an important tertiary or quaternary source that funds about 15 to 25 per cent of consumption of older persons in most countries and regions, except Europe.

Labour force participation typically declines as people age. Older populations in Europe are less likely to be in the labour force than populations in other regions, due to its more developed and generous social security systems (World Bank, 2014). Therefore, it is not a surprise that labour income is low, and that it finances 10 per cent or less of old-age consumption (figure 12a). However, labour income in other regions is quite substantial across all clusters (figure 12a and 12b). Some cases

of relatively high labour income at the older ages are those of Ecuador, India and Singapore, where about one-third of old-age consumption is financed through own work (figure 12a and figure 12b).

B. Financing old-age in coming decades: Projecting transfers, assets, and work

In countries with low intergenerational transfers, population ageing will put substantial pressure on older persons to be self-reliant.

As populations age, countries in the *Asset dominant* cluster (Cambodia, El Salvador, India, Indonesia, Philippines, South Africa, and Thailand) will experience increasing asset reallocations to finance consumption in old-age (figure 13). Specifically, asset reallocations are projected to double from 8 per cent of total labour income in 2019 to 17 per cent in 2050. In addition, labour income, a secondary source of income will gain proportional importance, while the shares of private and public transfers are projected to remain modest.

In Europe and Latin America, population ageing will test the fiscal sustainability of public transfer systems in the long run.

Public systems of countries in the *Public dominant* cluster (Austria, Brazil, Costa Rica, Ecuador, Finland, France, Germany, Hungary, Italy, Peru, Slovenia, Sweden, and Uruguay) will face mounting pressure from the rising importance of public transfers to finance old-age consumption (figure 13). As illustrated in the *Public dominant* cluster, the share of public transfers per total labour income is projected to almost double from 18 per cent in 2019 to 34 per cent in 2050 (figure 13). The shares of assets and private transfers will remain relatively small at around 7 percent and negative 3 percent[16], respectively. Measures such as increasing tax revenue through raising the effective retirement age, adjusting benefits, or increasing other (non-tax) public revenues, could balance the fiscal budget and dampen the adverse macroeconomic effects of population ageing.

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[15] The exception is El Salvador and Jamaica, where private transfers are important.

[16] Negative private transfers occur when older persons are giving more than they receive in private transfers.

In Eastern Asia, where private transfers are important, population ageing will create budgetary pressures for families.

Countries or areas in the *Balanced* cluster (China, Republic of Korea, and Taiwan Province of China) will continue to rely on all sources, with public transfers contributing the largest share to finance old-age, followed by assets, private transfers and work. Public transfers as a share of the total labour income of all ages is forecasted to more than double from 10 percent in 2019 to 22 percent in 2050, while the asset share will double from 8 percent to 17 percent (*Balanced* cluster in figure 13). The largest percentage increase is projected to occur in the private transfer share; it is projected to triple from 3 percent in 2019 to 10 percent in 2050.

In countries where public transfers are moderate, both public transfers and assets are projected to primarily finance old-age.

Countries in the *Dual balanced* cluster (Australia, Mexico, Spain, United Kingdom and United States) continue to have assets and public transfers as the main support sources. Assets and public transfers are projected to double from 12 percent to 21 percent, and from 10 percent to 19 percent respectively between 2019 and 2050 (figure 13).

More realistically, it is expected that current age profiles for tax and benefit purposes will shift due to pension reforms that can be expected to be implemented in many countries in Europe and in Latin America, including increases in

Figure 13.
Estimated and projected sources of consumption of (persons aged 65 or over) as a percentage of total labour income of all ages, 1950-2100
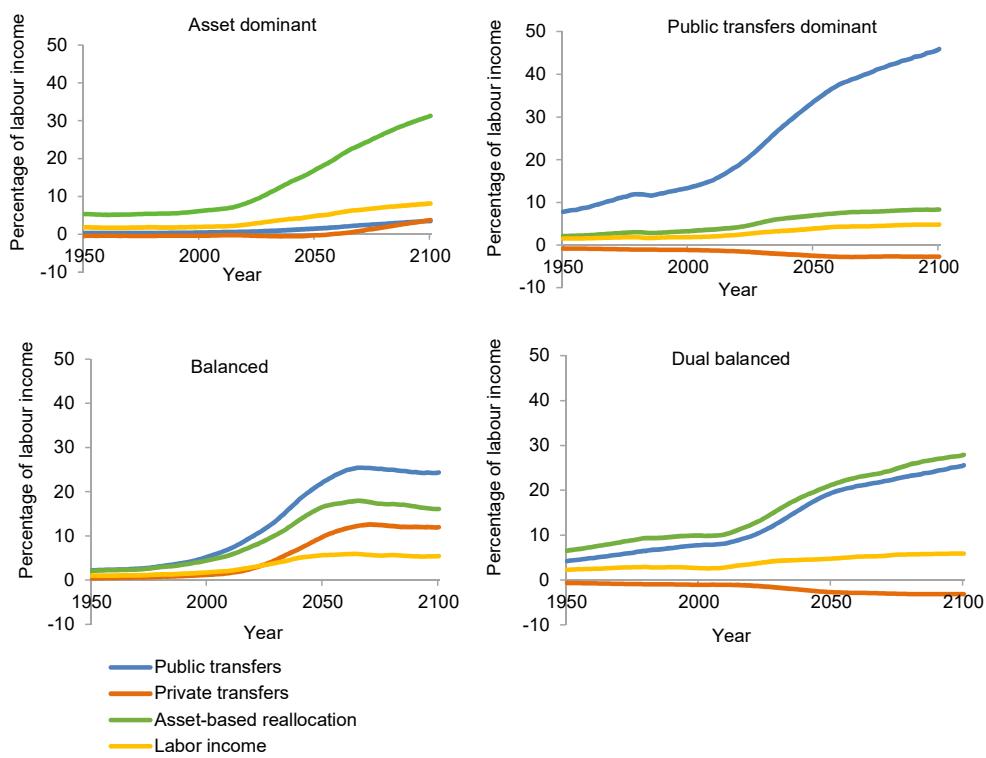
Source: Estimates and projections provided by Andrew Mason and Ronald Lee using the population estimates and medium variant projections of *World Population Prospects 2019* and the latest available age profiles of National Transfers Accounts. The method is outlined in Mason and Lee (2018). *Intergenerational transfers and the older population.*

Note: Asset dominant cluster: Cambodia, El Salvador, India, Indonesia, Philippines, South Africa and Thailand. Public Dominant cluster: Austria, Brazil, Costa Rica, Ecuador, Finland, France, Germany, Hungary, Italy, Peru, Slovenia, Sweden and Uruguay. Dual balanced cluster: Australia, Mexico, Spain, United Kingdom and United States. Balanced cluster: China, Japan, Republic of Korea and China, Taiwan Province of China.

retirement age and adjustments in pension benefits (European Union 2018; ECLAC 2016). These reforms will lead to a significant shift in the burden of population ageing away from public programmes and toward individual labour earnings, savings and family resources. In addition, the age profiles of healthcare and education may be shifting in some countries due to additional investments as the population ages.

Policy implications for achieving the Sustainable Development Goals

Progress toward the achievement of the Sustainable Development Goals (SDG) is closely linked to demographic trends. The present analysis has shown that countries or areas across the various regions of the world have reached different stages of population ageing. Forward-looking policies and programmes that take into account current and future population dynamics are needed to attain sustainable development as articulated in the 2030 Agenda for Sustainable Development, including to fulfil the pledge to leave no one behind.

Key policy issues and recommendations include the following:

1. Population ageing can spur economic growth while maintaining fiscal sustainability, but policies and behaviour play critical roles. There is no single best policy response ("silver bullet") to respond to population ageing in all countries. How countries address population ageing depends on the fiscal space available to implement their tax and benefit programmes, the extent to which societies agree on the values of redistribution and intergenerational equity, and the role they assign to government, families and individuals in financing consumption, particularly during old-age.

2. Promoting gender equality in employment and adopting family-friendly policies can improve labour force participation and lead to more rapid economic growth (SDGs 5 and 8). Increasing women's participation in the formal labour market can compensate, at least partially, for the expected reduction in the growth of the workforce caused by population ageing. In many countries, cultural, legal, and structural barriers prevent women from entering and continuing in the formal workforce at the same level as men. Policies to enhance female labour force participation include implementing family-friendly programmes such as affordable child-care, paternal and maternal leave, and part-time and flexible employment opportunities for both men and women.

3. Eliminating age-related discrimination, including age barriers in employment, can reduce inequality, increase productivity and promote economic growth (SDGs 8, 10 and 16). Provided that older persons are covered by social protection programmes, ensuring access to employment opportunities to those who want to work is a key policy priority in promoting and protecting the rights and dignity of older persons. Policies in this area include those aimed at eliminating age barriers in the formal labour market, promoting the recruitment of and flexible employment opportunities for older workers, as well as facilitating access to microcredit and providing other incentives for self-employment.

4. Investing in education and health and well-being for all, including lifelong learning, can improve productivity and maintain economic growth even as the share of working-age population shrinks (SDGs 3 and 4). Public investments in children and youth need to be maintained or increased, especially in countries at the initial or intermediate stages of the demographic transition, while governments respond to rising fiscal pressures for the health care and social security systems linked to the growing numbers of older persons. These investments in human capital for all generations, including children and youth, are needed to maintain and strengthen present and future economic prosperity and well-being. As employment is shifting towards jobs that require high-level cognitive and socio-emotional skills in this digital age, more emphasis will need to be placed on lifelong learning to keep up with changes in technology and maintain flexibility in skills.

5. Promoting retirement savings can improve financial independence of individuals and increase aggregate capital accumulation (SDGs 3 and 8). In many middle and low-income countries, individuals secure their financial wellbeing in old age mainly through their accumulated savings and family transfers. In fostering life-cycle savings, governments should ensure equal opportunity to

access financial products that are safe, properly designed and actuarially fair, starting at young ages. Enhancing financial literacy, providing incentives for saving and easy or default enrolment schemes can greatly enhance retirement savings.

6.   Adopting social security reforms that consider the widening gap in longevity by socioeconomic status can help to reduce inequality (SDG 10). Increasing the retirement age as life expectancy increases is a well-known tool to promote the fiscal sustainability of retirement pension systems. It can also support labour force participation at the older working ages. When reforming social security systems, it is equally important to consider the welfare implications of a widening gap in life expectancy by socioeconomic status. Governments may wish to consider indexing the statutory age at retirement by socioeconomic status, whereby the better-educated, higher income groups that enjoy longer life expectancies can expect to pay contributions longer and receive pensions later compared to the less educated, lower income populations.

7.   Establishing universal social protection with adequate benefits is key to reducing poverty and inequality and to promoting social inclusion (SDGs 1, 8 and 10). Although comprehensive social protection systems require significant investments, the recurrent costs of providing basic social protection floors are affordable in most countries. Universal coverage can be achieved through either contributory and non-contributory schemes or a mix of the two, and a minimum set of tax-financed schemes available to all throughout the life cycle. Special measures tailored to the needs of certain disadvantaged groups may be necessary to ensure effective coverage and sufficient benefits for all.

8.   Promoting lifelong health and preventive care to maintain maximum functional capacity of individuals can improve health and wellbeing (SDG 3). As populations age, it is essential to ensure continued and equitable access to disease prevention, treatment and rehabilitation during all stages of life. Healthy ageing is more than the absence of disease, but also entails the maintenance of functional ability throughout the lifespan. Health and long-term care systems need to be aligned to meet the needs of ageing populations by providing age-appropriate integrated care and by focusing on maintaining the intrinsic capacity of older persons.[17]

9.   Fostering a balanced approach to financing old-age consumption can help to ensure generational equity and fiscal sustainability (SDGs 8 and 10). Public policies affect both current and future generations. Current generations bequeath future generations a wealth of tangible assets and knowledge. At the same time, current generations pass onto future generations public debt they will be responsible for. Balanced approaches to financing old-age consumption include a mixture of public transfers, private transfers, work and savings in order to spread the fiscal stress associated with population ageing over time and across institutions.

10. Improving data collection and analysis of population and economic linkages can provide vital new evidence for policy making (SDG 17). Because economic activity varies by age, the shift in the age distribution of populations is bound to have significant economic effects. In order to achieve inclusive and sustainable development as societies undergo this demographic transformation, new types of data must be collected and analysed. National economic data, such as those routinely collected in national accounts and similar accounting systems, should be disaggregated by age, sex and socio-economic group to serve as a basis for developing evidence-based policies responding to the challenges of population ageing.

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[17]   Functional capacity is being explained in footnote 3. Intrinsic capacity comprises all the mental and physical capacities that a person can draw on and includes their ability to walk, think, see, hear and remember. The level of intrinsic capacity is influenced by a number of factors such as the presence of diseases, injuries and age-related changes. (World Health Organization, 2015).

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Annex table

Region, development group country or area	Population aged 65 years or over (thousands)		Percentage aged 65 years or over		Old-age dependency ratio (65+ /20-64) [a]		Prospective old-age dependency ratio [b]		Economic old-age dependency ratio [c]	
	2019	2030	2019	2030	2019	2030	2019	2030	2019	2030
WORLD	**702 935**	**997 488**	**9.1**	**11.7**	**15.9**	**20.5**	**11.6**	**13.7**	**19.5**	**24.9**
Sub-Saharan Africa	31 867	46 535	3.0	3.3	6.8	7.1	9.5	9.2	7.3	7.6
Northern Africa and Western Asia	29 375	46 452	5.7	7.6	10.2	13.6	8.7	10.1	11.1	14.6
Central and Southern Asia	119 046	178 841	6.0	8.0	10.5	13.5	10.9	12.6	13.0	16.5
Eastern and South-Eastern Asia	260 582	383 337	11.2	15.8	17.8	26.2	12.3	16.6	20.2	30.2
Latin America and the Caribbean	56 411	84 577	8.7	12.0	14.8	20.1	9.2	11.2	17.0	22.7
Oceania (excluding Australia and New Zealand)	504	779	4.2	5.3	8.1	10.0	11.9	13.2	8.4	10.4
Australia and New Zealand	4 778	6 507	15.9	19.5	27.1	34.9	13.1	16.2	35.4	45.5
Europe and Northern America	200 372	250 461	18.0	22.1	30.1	39.2	17.7	21.1	41.8	54.4
Developed regions	240 674	294 247	18.9	22.9	32.0	40.7	18.0	21.3	45.2	57.5
Less developed regions	462 261	703 242	7.2	9.7	12.6	16.9	10.8	13.0	14.1	19.0
Less developed regions, excluding least developed countries	425 440	647 924	7.9	10.9	13.3	18.5	11.1	13.8	15.0	20.9
Less developed regions, excluding China	292 807	448 424	5.9	7.8	10.8	13.9	9.8	11.3	13.6	17.9
Least developed countries	36 821	55 318	3.6	4.2	7.6	8.5	8.8	8.9	8.0	8.9
Land-locked Developing Countries (LLDC)	19 505	29 848	3.7	4.5	8.0	9.1	9.1	9.4	8.3	9.4
Small island developing States (SIDS)	6 228	9 312	8.7	11.9	15.2	20.8	10.3	12.3	16.5	22.3
High-income countries	226 626	285 952	18.0	22.0	30.2	38.7	16.0	19.0	43.8	55.7
Middle-income countries	451 110	674 261	7.9	10.8	13.5	18.4	11.6	14.2	15.1	20.6
Upper-middle-income countries	275 611	409 445	10.4	14.8	16.7	24.6	12.6	16.5	18.0	27.1
Lower-middle-income countries	175 499	264 816	5.7	7.6	10.4	13.3	10.8	12.5	12.3	15.6
Low-income countries	24 878	36 780	3.3	3.7	7.4	7.8	9.1	8.7	7.7	8.0
AFRICA	**45 526**	**67 750**	**3.5**	**4.0**	**7.6**	**8.4**	**9.5**	**9.4**	**8.2**	**9.0**
Eastern Africa	12 583	18 979	2.9	3.3	6.6	7.0	7.9	7.7	6.5	6.9
Burundi	267	455	2.3	2.9	5.5	6.5	7.4	7.7	5.3	6.1
Comoros	26	41	3.1	3.8	6.5	7.6	8.9	9.9	6.9	8.1
Djibouti	45	72	4.6	6.4	8.1	10.8	8.7	10.6	8.7	11.3
Eritrea	158	179	4.5	4.2	10.3	8.6	12.7	9.7	9.6	8.2
Ethiopia	3 941	5 546	3.5	3.8	7.9	7.7	8.3	7.6	7.6	7.4
Kenya	1 274	2 276	2.4	3.4	5.1	6.5	6.0	7.1	5.9	7.6
Madagascar	821	1 329	3.0	3.7	6.7	7.7	8.2	8.5	6.4	7.3
Malawi	492	702	2.6	2.8	6.2	6.0	8.0	7.1	5.5	5.3
Mauritius*	152	229	12.0	18.0	19.0	29.0	13.0	18.6	19.7	29.4
Mayotte*	11	18	4.1	5.2	9.0	10.3	4.9	4.9	..	..
Mozambique	874	1 170	2.9	2.8	6.9	6.3	9.6	8.2	4.9	4.5

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Region, development group country or area	Population aged 65 years or over (thousands)		Percentage aged 65 years or over		Old-age dependency ratio (65+ /20-64) [a]		Prospective old-age dependency ratio [b]		Economic old-age dependency ratio [c]	
	2019	2030	2019	2030	2019	2030	2019	2030	2019	2030
Réunion*	108	174	12.2	18.2	21.4	33.1	10.0	13.5	..	..
Rwanda	382	709	3.0	4.4	6.5	8.8	7.0	8.3	5.8	7.8
Seychelles	8	13	7.8	12.6	12.6	21.7	11.0	16.3	..	..
Somalia	446	624	2.9	2.9	7.4	7.0	10.0	9.1	7.9	7.5
South Sudan	374	495	3.4	3.6	7.6	7.5	9.7	9.4	8.6	8.5
Uganda	869	1 388	2.0	2.3	4.9	5.1	6.7	6.6	4.4	4.6
United Republic of Tanzania*	1 520	2 375	2.6	3.0	6.1	6.6	7.9	8.0	6.6	7.2
Zambia	378	598	2.1	2.5	5.0	5.3	6.4	6.5	6.4	6.8
Zimbabwe	437	585	3.0	3.3	6.8	6.8	9.1	8.8	8.3	8.5
Middle Africa	4 817	7 033	2.8	3.0	6.7	6.7	9.1	8.5	7.0	7.0
Angola	700	1 115	2.2	2.5	5.4	5.8	8.7	8.3	6.9	7.4
Cameroon	705	977	2.7	2.9	6.2	6.1	9.7	9.2	7.0	6.9
Central African Republic	134	172	2.8	2.9	6.9	6.3	12.1	10.2	5.3	4.9
Chad	397	554	2.5	2.6	6.3	5.9	9.0	7.9	6.9	6.4
Congo	146	242	2.7	3.4	6.0	7.2	8.2	9.6	7.3	8.9
Democratic Republic of the Congo	2 618	3 814	3.0	3.2	7.5	7.4	9.1	8.4	7.1	7.1
Equatorial Guinea	33	41	2.4	2.2	4.7	4.2	7.2	6.3	5.3	4.6
Gabon	77	107	3.5	3.9	7.0	7.6	8.5	9.2	8.0	8.3
Sao Tome and Principe	6	10	3.0	3.9	6.8	8.2	7.9	8.6	7.2	8.9
Northern Africa	13 659	21 215	5.6	7.4	10.6	13.8	9.9	11.3	11.5	14.7
Algeria	2 821	4 504	6.6	8.9	11.6	16.4	7.6	9.7	12.2	16.9
Egypt	5 297	7 711	5.3	6.4	10.1	12.2	11.5	12.2	10.8	12.7
Libya	302	481	4.5	6.3	7.5	10.2	7.8	9.2	9.4	13.0
Morocco	2 663	4 563	7.3	11.2	12.7	19.6	10.4	13.9	14.2	21.4
Sudan	1 553	2 318	3.6	4.2	8.0	8.6	8.8	9.1	8.7	9.3
Tunisia	1 005	1 594	8.6	12.5	14.2	21.5	11.4	14.7	15.7	23.2
Western Sahara	19	43	3.2	5.8	5.2	9.4	6.5	9.8	..	..
Southern Africa	3 512	4 864	5.3	6.5	9.3	11.1	12.1	13.5	10.2	11.8
Botswana	101	157	4.4	5.6	8.3	10.1	7.8	9.3	10.1	11.9
Eswatini	46	50	4.0	3.8	8.5	7.2	10.9	9.0	8.1	6.7
Lesotho	105	129	4.9	5.6	9.4	10.2	14.5	13.8	10.8	11.5
Namibia	90	124	3.6	4.1	7.3	8.0	10.0	10.1	7.8	8.4
South Africa	3 171	4 404	5.4	6.7	9.4	11.4	12.3	13.9	10.3	12.0
Western Africa	10 955	15 659	2.8	3.0	6.5	6.6	11.1	10.6	7.7	7.9
Benin	385	565	3.3	3.6	7.4	7.7	8.9	8.9	8.1	8.4
Burkina Faso	489	738	2.4	2.7	5.7	6.0	8.9	8.6	5.4	5.7
Cabo Verde	26	44	4.7	7.2	8.1	11.8	8.0	9.9	9.1	12.9
Côte d'Ivoire	739	1 027	2.9	3.0	6.5	6.5	11.4	10.4	7.6	7.5

Region, development group country or area	Population aged 65 years or over (thousands)		Percentage aged 65 years or over		Old-age dependency ratio (65+ /20-64) [a]		Prospective old-age dependency ratio [b]		Economic old-age dependency ratio [c]	
	2019	2030	2019	2030	2019	2030	2019	2030	2019	2030
Gambia	60	85	2.6	2.7	6.0	5.9	9.1	8.8	5.4	5.4
Ghana	942	1 585	3.1	4.2	6.3	8.1	9.6	11.6	7.2	9.1
Guinea	376	523	2.9	3.1	7.0	6.6	10.9	9.4	8.9	8.2
Guinea-Bissau	55	73	2.9	3.0	6.4	6.3	10.8	9.6	5.7	5.5
Liberia	162	241	3.3	3.8	7.3	7.8	9.2	9.4	7.8	8.4
Mali	490	651	2.5	2.4	6.4	5.7	9.6	8.4	7.3	6.7
Mauritania	143	220	3.2	3.7	6.7	7.5	8.7	9.4	7.6	8.3
Niger	605	905	2.6	2.6	7.1	6.7	9.9	8.7	10.1	9.8
Nigeria	5 513	7 629	2.7	2.9	6.4	6.4	12.4	11.7	7.8	7.9
Senegal	505	729	3.1	3.4	7.1	7.2	9.0	8.4	8.0	8.1
Sierra Leone	230	302	2.9	3.1	6.5	6.3	11.3	10.4	8.0	7.6
Togo	233	341	2.9	3.3	6.4	6.7	10.2	10.2	6.9	7.3
ASIA	**395 344**	**587 415**	**8.6**	**11.8**	**14.3**	**19.7**	**11.4**	**14.2**	**16.7**	**22.8**
Central Asia	3 791	6 717	5.2	8.0	9.1	14.4	9.8	13.7	9.7	14.9
Kazakhstan	1 420	2 284	7.7	11.1	13.3	20.4	11.5	15.8	13.8	21.1
Kyrgyzstan	295	538	4.6	7.2	8.3	13.5	10.7	14.3	8.9	14.0
Tajikistan	288	585	3.1	5.1	6.0	10.1	8.1	11.1	6.2	10.1
Turkmenistan	273	480	4.6	7.1	8.1	12.7	9.2	13.2	10.5	15.6
Uzbekistan	1 516	2 829	4.6	7.6	7.8	13.0	9.3	13.6	8.4	13.4
Eastern Asia	215 204	308 392	12.9	18.1	20.0	29.8	13.4	18.4	23.4	35.9
China*	164 487	246 986	11.5	16.9	17.7	27.4	13.9	19.1	18.7	30.9
China, Hong Kong SAR*	1 301	2 072	17.5	25.8	26.3	46.4	10.6	15.3	41.8	70.4
China, Macao SAR*	72	148	11.2	20.3	15.8	33.5	5.6	11.3	26.3	53.3
China, Taiwan Province of China*	3 594	5 611	15.1	23.4	22.7	39.2	11.1	16.9	26.9	44.8
Dem. People's Republic of Korea	2 376	3 383	9.3	12.7	14.6	20.6	16.3	19.3	14.9	20.5
Japan	35 524	37 278	28.0	30.9	51.0	57.7	21.8	27.9	77.7	90.5
Mongolia	135	255	4.2	6.9	7.2	12.4	8.3	12.1	7.5	13.2
Republic of Korea	7 715	12 658	15.1	24.7	22.4	41.0	11.2	16.5	26.0	46.4
South-Eastern Asia	45 378	74 945	6.9	10.3	11.5	17.3	9.4	12.6	12.1	18.2
Brunei Darussalam	23	48	5.2	10.2	8.1	16.0	5.7	10.0	9.6	18.9
Cambodia	778	1 256	4.7	6.7	8.5	11.8	9.8	11.9	8.0	11.2
Indonesia	16 374	27 438	6.1	9.2	10.2	15.4	10.5	13.8	10.5	15.6
Lao People's Democratic Republic	299	464	4.2	5.6	7.8	9.8	9.7	11.1	6.8	8.5
Malaysia*	2 211	3 620	6.9	10.0	11.4	16.4	8.5	11.0	12.6	17.5
Myanmar	3 249	4 984	6.0	8.5	10.2	14.0	13.1	16.6	11.4	15.5
Philippines	5 746	9 407	5.3	7.6	9.7	13.3	8.0	10.3	12.3	16.6
Singapore	719	1 409	12.4	22.5	17.6	36.6	6.3	12.9	21.4	42.6
Thailand	8 638	13 797	12.4	19.6	19.3	32.3	10.9	15.8	20.1	33.7

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Region, development group country or area	Population aged 65 years or over (thousands)		Percentage aged 65 years or over		Old-age dependency ratio (65+ /20-64) [a]		Prospective old-age dependency ratio [b]		Economic old-age dependency ratio [c]	
	2019	2030	2019	2030	2019	2030	2019	2030	2019	2030
Timor-Leste	55	78	4.3	5.0	9.2	9.8	11.0	10.8	12.5	13.0
Viet Nam	7 286	12 446	7.6	11.9	12.1	20.0	7.4	10.6	11.3	19.4
Southern Asia	115 255	172 124	6.0	8.0	10.6	13.5	10.9	12.6	13.2	16.5
Afghanistan	995	1 508	2.6	3.1	6.1	6.3	8.2	7.9	5.9	6.0
Bangladesh	8 446	13 332	5.2	7.4	8.9	12.1	8.1	8.5	9.3	12.6
Bhutan	47	66	6.1	7.8	10.3	12.3	7.3	7.5	11.6	13.5
India	87 149	128 877	6.4	8.6	11.0	14.1	11.5	13.5	14.1	17.8
Iran (Islamic Republic of)	5 272	8 849	6.4	9.6	10.2	15.8	9.3	12.0	14.1	20.8
Maldives	19	35	3.6	6.7	5.1	9.9	4.1	5.2	7.9	14.4
Nepal	1 654	2 362	5.8	7.1	10.8	11.6	12.4	11.7	12.8	13.1
Pakistan	9 361	13 697	4.3	5.2	8.5	9.8	9.6	10.6	9.2	10.4
Sri Lanka	2 311	3 397	10.8	15.4	18.9	27.4	13.7	18.0	19.9	29.2
Western Asia	15 716	25 237	5.7	7.9	9.9	13.5	7.8	9.2	10.8	14.5
Armenia	340	501	11.5	16.9	18.5	29.2	16.4	22.5	19.8	29.8
Azerbaijan*	648	1 266	6.4	11.8	10.1	19.6	10.5	17.8	10.9	20.3
Bahrain	41	112	2.5	5.6	3.4	7.7	3.0	5.5	4.0	9.1
Cyprus*	168	232	14.0	18.2	22.3	29.5	14.6	17.0	24.1	30.5
Georgia*	602	714	15.1	18.5	25.3	33.4	23.6	27.5	31.4	40.6
Iraq	1 336	1 899	3.4	3.8	7.1	7.3	7.8	7.8	7.7	7.9
Israel	1 040	1 361	12.2	13.6	23.4	26.1	11.3	13.4	33.2	37.4
Jordan	393	591	3.9	5.6	7.4	9.5	7.2	7.9	8.0	10.3
Kuwait	116	360	2.8	7.6	3.9	11.0	5.1	11.7	4.5	13.8
Lebanon	499	743	7.3	12.0	12.4	20.0	8.4	11.4	13.1	20.4
Oman	122	263	2.4	4.4	3.5	6.5	2.2	3.1	4.2	7.7
Qatar	43	157	1.5	4.7	1.9	6.0	0.9	2.2	2.3	7.1
Saudi Arabia	1 169	2 379	3.4	6.0	5.2	9.3	5.2	7.7	6.0	10.7
State of Palestine*	158	263	3.2	4.1	6.6	8.0	6.5	6.8	7.5	8.9
Syrian Arab Republic	801	1 614	4.7	6.0	8.5	10.8	7.5	8.1	10.5	12.8
Turkey	7 280	11 003	8.7	12.3	14.8	20.8	10.0	12.1	14.2	19.4
United Arab Emirates	113	548	1.2	5.1	1.4	6.8	1.0	3.3	1.7	8.4
Yemen	846	1 231	2.9	3.4	6.2	6.5	8.2	8.2	7.1	7.2
EUROPE	**140 410**	**170 273**	**18.8**	**23.0**	**31.3**	**40.6**	**19.2**	**22.6**	**41.5**	**54.1**
Eastern Europe	48 187	58 346	16.4	20.5	26.5	35.6	20.6	26.1	30.9	41.1
Belarus	1 437	1 899	15.2	20.5	24.1	36.2	20.1	26.4	24.9	37.4
Bulgaria	1 488	1 504	21.3	23.4	35.6	40.6	30.1	32.3	39.5	45.3
Czechia	2 117	2 387	19.8	22.2	33.0	38.5	20.9	24.7	43.6	51.6
Hungary	1 907	2 053	19.7	22.0	32.4	37.3	22.5	26.7	43.8	50.4
Poland	6 864	8 579	18.1	23.2	29.2	40.2	16.1	22.6	41.4	56.5

Region, development group country or area	Population aged 65 years or over (thousands)		Percentage aged 65 years or over		Old-age dependency ratio (65+ /20-64) [a]		Prospective old-age dependency ratio [b]		Economic old-age dependency ratio [c]	
	2019	2030	2019	2030	2019	2030	2019	2030	2019	2030
Republic of Moldova*	486	659	12.0	17.0	17.9	26.8	19.4	25.7	20.1	28.4
Romania	3 639	3 851	18.8	21.0	31.1	35.5	23.5	26.9	30.7	35.7
Russian Federation	22 019	28 101	15.1	19.6	24.3	34.7	19.3	25.9	27.3	38.6
Slovakia	883	1 134	16.2	21.0	25.5	35.6	17.3	23.5	37.1	51.5
Ukraine*	7 349	8 179	16.7	20.0	26.6	33.3	25.7	29.5	28.6	35.0
Northern Europe	19 845	24 004	18.8	21.8	32.2	39.1	18.5	20.4	47.6	58.2
Channel Islands*	30	41	17.6	22.1	28.4	37.9	14.9	17.4	..	..
Denmark*	1 152	1 357	20.0	22.6	34.6	40.5	20.3	22.6	53.4	64.5
Estonia	265	301	20.0	23.5	33.9	42.3	21.0	24.3	50.5	63.0
Finland*	1 225	1 450	22.1	26.0	39.2	47.5	19.2	24.5	57.2	70.4
Iceland	52	72	15.2	20.1	25.8	35.4	13.2	17.0	40.4	54.7
Ireland	694	952	14.2	18.1	24.4	31.1	12.5	15.9	36.7	48.6
Latvia	388	430	20.3	25.0	34.5	46.4	24.6	28.9	47.7	63.9
Lithuania	556	655	20.2	26.4	33.5	50.4	21.8	26.0	51.8	75.8
Norway*	929	1 191	17.3	20.3	29.1	35.0	15.4	17.9	45.4	55.1
Sweden	2 027	2 355	20.2	22.2	35.5	40.3	19.2	21.2	52.2	61.4
United Kingdom*	12 499	15 166	18.5	21.5	31.7	38.5	18.5	19.9	46.5	56.5
Southern Europe	32 111	38 564	21.1	26.0	35.1	45.4	19.7	22.3	44.2	58.2
Albania	409	578	14.2	20.7	23.2	36.0	16.7	22.6	28.1	40.2
Bosnia and Herzegovina	568	753	17.2	24.1	27.4	40.8	20.9	27.9	34.2	49.4
Croatia	862	972	20.9	25.1	35.0	44.2	25.0	28.5	50.2	62.9
Greece	2 298	2 630	21.9	26.5	37.1	46.0	20.9	22.4	51.2	64.8
Italy	13 934	16 462	23.0	27.9	39.0	49.5	20.9	23.1	50.1	65.9
Malta	92	114	20.8	25.3	34.7	45.6	17.5	23.7	50.5	66.4
Montenegro	97	120	15.4	19.2	25.6	33.1	21.3	25.0	31.3	39.5
North Macedonia	293	374	14.1	18.2	22.1	29.9	20.1	24.7	..	..
Portugal	2 286	2 681	22.4	27.0	37.8	47.8	21.1	24.0	43.9	55.1
Serbia*	1 644	1 747	18.7	21.2	31.3	35.6	27.1	29.0	35.4	39.6
Slovenia	420	524	20.2	25.5	33.5	45.9	18.5	23.6	46.7	65.4
Spain*	9 183	11 575	19.6	25.0	32.2	43.2	16.9	19.1	37.8	52.4
Western Europe	40 267	49 358	20.6	24.9	35.3	45.5	19.4	21.7	52.7	68.5
Austria	1 708	2 174	19.1	23.7	31.0	41.7	18.7	20.0	40.4	54.9
Belgium	2 193	2 734	19.0	23.0	32.5	41.5	18.0	20.2	50.5	64.2
France*	13 281	16 094	20.4	24.1	36.5	44.9	17.0	20.6	54.5	67.9
Germany	18 009	21 767	21.6	26.2	36.1	47.7	21.9	23.0	54.4	72.0
Luxembourg	88	125	14.3	18.0	22.2	29.5	12.3	13.6	35.1	46.1
Netherlands*	3 352	4 295	19.6	24.6	33.5	44.6	17.9	22.3	50.4	68.4
Switzerland	1 618	2 148	18.8	23.4	30.8	41.2	15.5	18.2	47.7	64.5

Region, development group country or area	Population aged 65 years or over (thousands)		Percentage aged 65 years or over		Old-age dependency ratio (65+ /20-64) [a]		Prospective old-age dependency ratio [b]		Economic old-age dependency ratio [c]	
	2019	2030	2019	2030	2019	2030	2019	2030	2019	2030
LATIN AMERICA AND THE CARIBBEAN	**56 411**	**84 577**	**8.7**	**12.0**	**14.8**	**20.1**	**9.2**	**11.2**	**17.0**	**22.7**
Caribbean	4 495	6 298	10.4	13.7	18.1	23.9	11.7	13.6	19.5	25.5
Antigua and Barbuda	9	14	9.1	13.7	14.7	23.1	10.9	14.6	..	..
Aruba*	15	23	14.1	20.7	22.9	36.6	18.3	25.9	..	..
Bahamas	29	50	7.5	11.8	12.1	18.8	10.3	14.2	14.9	23.0
Barbados	47	64	16.2	22.1	27.0	38.7	14.0	18.2	28.2	39.3
Cuba	1 764	2 413	15.6	21.7	24.9	37.0	15.3	18.2	24.7	36.8
Curaçao*	28	39	17.2	22.9	29.8	41.7	16.2	20.7	..	..
Dominican Republic	784	1 205	7.3	10.2	13.0	17.9	7.5	9.6	13.0	17.5
Grenada	11	14	9.7	12.4	16.2	21.3	16.6	19.7	..	..
Guadeloupe*	75	103	18.8	25.7	34.1	49.7	14.6	19.1	..	..
Haiti	570	804	5.1	6.3	9.7	11.4	9.3	10.5	10.9	12.7
Jamaica	263	365	8.9	12.0	15.1	20.2	12.3	14.6	16.1	21.3
Martinique*	79	107	21.0	29.2	37.3	56.7	17.6	22.2	..	..
Puerto Rico*	578	731	19.7	25.2	34.1	42.7	16.8	20.3	50.2	66.6
Saint Lucia	18	28	10.0	14.6	15.6	23.0	10.2	12.9	16.5	23.0
Saint Vincent and the Grenadines	11	15	9.7	13.4	16.3	22.3	14.6	17.6	19.8	26.6
Trinidad and Tobago	155	228	11.1	16.1	17.8	26.8	13.2	18.8	26.4	39.7
United States Virgin Islands*	21	26	19.9	26.1	36.7	51.6	21.4	28.2	49.5	73.5
Central America	12 574	19 157	7.1	9.6	12.5	16.4	8.2	9.6	13.1	17.0
Belize	19	33	4.9	7.1	8.8	12.0	5.4	6.5	8.9	11.8
Costa Rica	499	826	9.9	15.1	16.0	25.1	8.0	10.6	19.9	30.3
El Salvador	547	722	8.5	10.6	15.3	18.5	10.6	11.7	18.2	21.5
Guatemala	867	1 299	4.9	6.1	9.8	11.1	6.2	6.6	9.5	10.6
Honduras	471	763	4.8	6.7	9.1	11.5	5.4	6.3	9.5	11.8
Mexico	9 462	14 367	7.4	10.2	12.9	17.2	8.7	10.4	13.2	17.4
Nicaragua	357	590	5.5	8.0	9.8	13.8	6.4	8.0	11.1	15.3
Panama	353	557	8.3	11.3	14.7	19.9	6.8	8.3	19.1	25.2
South America	39 343	59 122	9.2	12.8	15.4	21.3	9.4	11.6	18.3	24.8
Argentina	5 035	6 249	11.2	12.7	20.0	22.3	14.0	14.5	24.3	26.9
Bolivia (Plurinational State of)	845	1 163	7.3	8.8	14.1	15.8	7.9	8.9	15.1	16.6
Brazil	19 526	30 413	9.3	13.6	14.9	22.0	8.6	11.4	18.2	26.2
Chile	2 252	3 338	11.9	17.2	19.2	28.8	10.1	13.2	26.2	38.2
Colombia	4 413	6 962	8.8	13.0	14.6	21.5	8.1	10.9	17.0	24.6
Ecuador	1 281	2 001	7.4	10.1	13.2	17.7	7.4	9.0	13.6	17.8
French Guiana*	15	31	5.3	8.1	10.0	15.1	5.5	7.8	..	..
Guyana	53	85	6.7	10.3	12.1	18.6	7.4	11.4	13.8	20.5
Paraguay	466	678	6.6	8.5	12.1	15.0	8.3	10.2	12.5	15.0

Region, development group country or area	Population aged 65 years or over (thousands)		Percentage aged 65 years or over		Old-age dependency ratio (65+ /20-64) [a]		Prospective old-age dependency ratio [b]		Economic old-age dependency ratio [c]	
	2019	2030	2019	2030	2019	2030	2019	2030	2019	2030
Peru	2 729	4 123	8.4	11.4	14.3	19.6	9.3	11.1	17.8	24.1
Suriname	41	63	7.0	10.0	12.2	17.3	11.6	14.6	14.5	20.4
Uruguay	517	612	14.9	17.2	26.0	30.0	16.5	16.9	33.5	38.0
Venezuela (Bolivarian Republic of)	2 171	3 405	7.6	10.1	13.5	17.2	10.6	12.4	11.8	15.0
NORTHERN AMERICA	**59 962**	**80 188**	**16.4**	**20.5**	**27.7**	**36.4**	**14.4**	**18.0**	**42.5**	**54.8**
Canada	6 602	9 317	17.6	22.8	28.9	40.0	13.8	17.9	44.2	60.1
United States of America*	53 340	70 842	16.2	20.3	27.6	36.0	14.4	18.0	42.3	54.2
OCEANIA	**5 282**	**7 286**	**12.5**	**15.2**	**22.1**	**27.5**	**11.7**	**13.8**	**28.4**	**35.3**
Australia and New Zealand	4 778	6 507	15.9	19.5	27.1	34.9	13.1	16.2	35.4	45.5
Australia*	4 013	5 445	15.9	19.3	27.1	34.5	12.8	15.8	34.4	43.8
New Zealand*	765	1 062	16.0	20.5	27.5	37.0	13.9	17.5	41.2	55.9
Melanesia	420	643	3.8	4.9	7.5	9.1	12.2	13.4	7.8	9.5
Fiji	50	79	5.6	8.1	9.9	14.5	14.7	19.3	11.7	17.0
New Caledonia*	27	42	9.4	13.4	15.6	22.1	11.8	14.1	20.4	29.2
Papua New Guinea	308	468	3.5	4.4	6.9	8.2	12.5	13.6	7.0	8.3
Solomon Islands	24	38	3.6	4.4	7.9	9.3	7.3	7.8	8.9	10.5
Vanuatu	11	16	3.6	4.2	7.5	8.3	11.0	11.4	8.6	9.7
Micronesia	36	61	6.6	10.1	12.1	18.4	9.6	13.1	25.2	37.0
Guam*	17	27	10.2	14.6	17.8	26.1	10.6	13.4	25.2	37.0
Kiribati	5	9	4.1	6.2	7.9	12.0	7.3	10.2	..	..
Micronesia (Fed. States of)	5	8	4.2	6.3	7.7	11.3	15.1	18.1	..	..
Polynesia*	48	75	7.1	10.3	13.1	18.6	11.5	13.9	15.5	22.1
French Polynesia*	24	40	8.7	13.4	14.2	22.1	10.1	13.4	17.9	27.3
Samoa	10	15	4.9	6.8	10.4	13.8	11.8	14.1	11.1	15.2
Tonga	6	8	5.9	6.7	12.3	13.0	14.7	14.7	14.0	15.1

Notes

The designations employed in this publication and the material presented in it do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The term "country" as used in this publication also refers, as appropriate, to territories or areas.

In this table, data for countries or areas have been aggregated in six continental regions: Africa, Asia, Europe, Latin America and the Caribbean, Northern America, and Oceania. Further information on continental regions is available from https://unstats.un.org/unsd/methodology/m49/. Countries or areas are also grouped into geographic regions based on the classification being used to track progress towards the Sustainable Development Goals of the United Nations (see: https://unstats.un.org/sdgs/indicators/regional-groups/).

The designation of "more developed" and "less developed" regions is intended for statistical purposes and does not express a judgment about the stage reached by a particular country or area in the development process. More developed regions comprise all regions of Europe plus Northern America, Australia and New Zealand and Japan. Less developed regions comprise all regions of Africa, Asia (excluding Japan), and Latin America and the Caribbean as well as Oceania (excluding Australia and New Zealand).

The group of least developed countries includes 47 countries located in sub-Saharan Africa (32), Northern Africa and Western Asia (2), Central and Southern Asia (4), Eastern and South-Eastern Asia (4), Latin America and the Caribbean (1), and Oceania (4). Further information is available at http://unohrlls.org/about-ldcs/.

The group of Landlocked Developing Countries (LLDCs) includes 32 countries or territories located in sub-Saharan Africa (16), Northern Africa and Western Asia (2), Central and Southern Asia (8), Eastern and South-Eastern Asia (2), Latin America and the Caribbean (2), and Europe and Northern America (2). Further information is available at http://unohrlls.org/about-lldcs/.

The group of Small Island Developing States (SIDS) includes 58 countries or territories located in the Caribbean (29), the Pacific (20), and the Atlantic, Indian Ocean, Mediterranean and South China Sea (AIMS) (9). Further information is available at http://unohrlls.org/about-sids/.

The classification of countries or areas by income level is based on the gross national income (GNI) per capita as reported by the World Bank (June 2018). These income groups are not available for all countries or areas.

Two dots (..) indicate that data are not available or are not reported separately

* For country notes, please refer to: https://population.un.org/wpp/Download/Metadata/Documentation

[a] Old-age dependency ratio: Number of persons aged 65 or over per 100 persons of working age 20-64.

[b] Prospective old-age dependency ratio: Number of persons above the age at which the remaining life expectancy is 15 years relative to the number of persons between age 20 years and the age at which the remaining life expectancy is 15 years.

[c] Economic old-age dependency ratio: Effective number of consumers aged 65 or over relative to the effective number of workers of all ages.

Accurate, consistent and timely data on population ageing are critical for setting policy priorities to promote the well-being of the growing number of older persons. This is particularly important in the framework of the 2030 Agenda for Sustainable Development, which pledges to leave no one behind. This publication presents the highlights of World Population Ageing 2019, which draws on the latest population estimates and projections published in World Population Prospects 2019. This Highlights report provides an overview of key global and regional trends and dynamics of population ageing and discusses different measures of ageing that include conventional measures as well as prospective and economic measures. A set of Annex tables provides global, regional and national data for selected indicators discussed in the report.