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MCB Focus

Mauritius Inc.: Rising up to the demographic time bomb

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Table of contents	PAGE
Introduction	5
Background	5
Scope and methodology of the report	5
Delineating and appraising population trends	6
Definitions and significance	6
Ageing of the world's population	8
Demographic trends in Mauritius	10
Economic consequences of demographic shifts	14
Overview	14
Impact of population ageing on economic growth	14
Impact of the ageing burden on the fiscal position	22
Way forward: Planning for an ageing population	29
General orientations	29
Specific policy moves	30
Concluding remarks	36
Annex	37
<u>Figures</u>	
Figure 1: Demographic drivers of population change	6
Figure 2: Demographic projections for the Republic of Mauritius	11
Figure 3: Evolution of fertility rates	12
Figure 4: Evolution of life expectancy at birth and infant mortality	13
Figure 5: Evolution of the Mauritian labour force	15
Figure 6: Evolution of saving and capital	16
Figure 7: Evolution of key productivity-related measures	18
Figure 8: Scenarii for the impact of the ageing of the population of Mauritius	19
Figure 9: Examples of policy mix to achieve our potential growth	21
Figure 10: Projections of BRP beneficiaries and pension support ratio as per Statistics Mauritius	24
Figure 11: Projections of public spending related to Basic Retirement Pension	25
<u>Boxes</u>	
Box I: Snapshot of demographic terminologies and methodologies	7
Box II: World demographic trends and drivers	9
Box III: Overview of the pension system in Mauritius	23
Box IV: Impact of an ageing population on fiscal balance	27

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BACKGROUND

Over the last decade, the Mauritian economy has found it difficult to sustain the momentum of its socio-economic progress, with real GDP growth averaging 3.7%, compared to an average growth rate of 4.3%, registered during the 1999-2008 period. As the situation stands, the evolution of our main macroeconomic indicators continues to warrant close attention, with the domestic economy remaining exposed to key challenges. In particular, the country's intrinsic ability to capitalise on growth-enhancing avenues is being stymied by the prevalence of entrenched structural bottlenecks on the domestic front and mounting uncertainties in the global economy, notably in the wake of prominent geopolitical shifts.

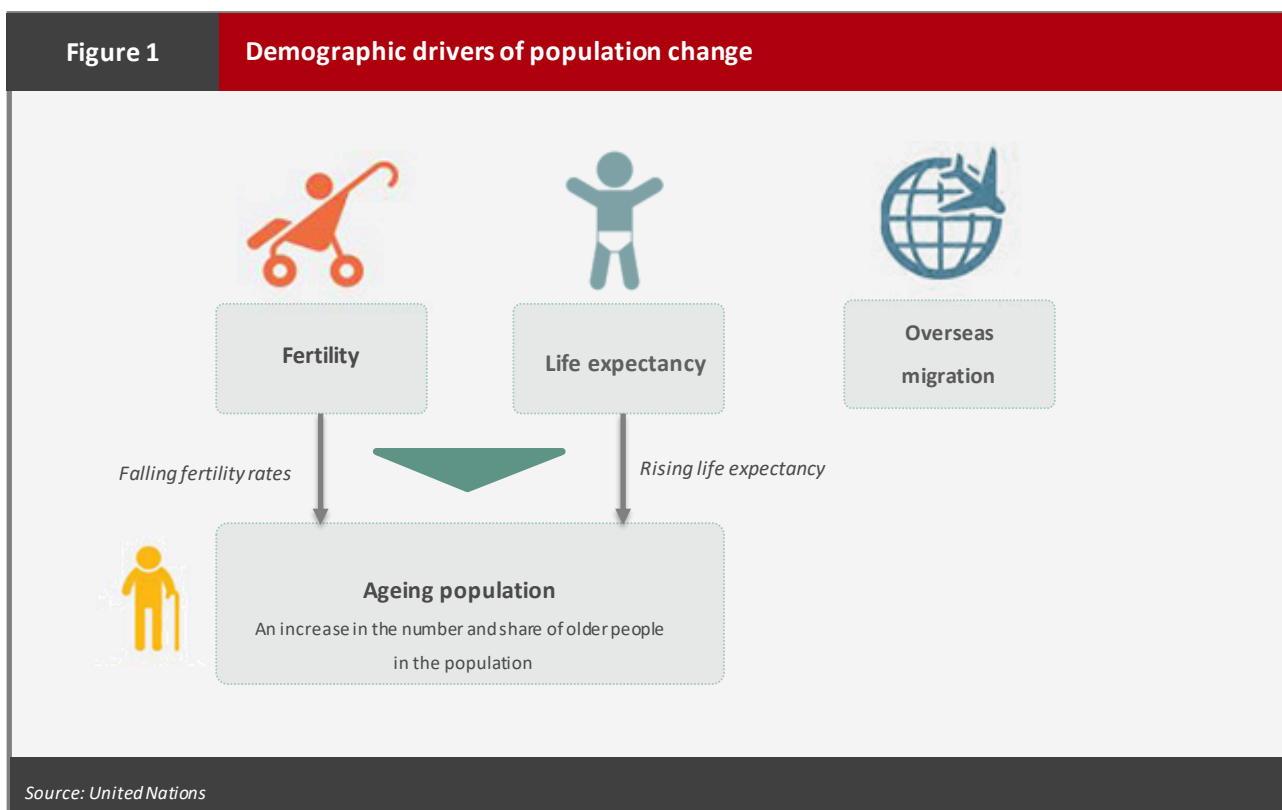
Over the medium to longer run, it would be important to watch out for the implications, on the country's growth trajectory, of several global interconnected megatrends, including shifts in global economic power, technological breakthroughs, evolving consumer habits and preferences, climate change as well as demographic transitions. In particular, the latter phenomenon is capturing increasing attention on the local scene in view of the projected ageing of the country's population over the coming decades. This would, *ceteris paribus*, lead to a potential decline in labour input, which could, in turn, exert a drag on economic activity, while higher social welfare expenditures would yield adverse pressures on public finances.

SCOPE AND METHODOLOGY OF THE REPORT

In essence, the report attempts to identify and investigate the macroeconomic implications of the anticipated ageing of the country's population, with a view to properly preparing for and tackling the associated challenges. To begin with, after taking stock of the drivers of demographic change and projected population trends worldwide, the report provides a description of the extent and pace of the anticipated demographic shift of Mauritius. It then discusses the challenges posed by the growing elderly population, *per se*, on the macroeconomic position, with a focus on economic growth performance and potential ramifications on the fiscal front. Finally, the document lays out the general orientations that can be taken on board to deal with the ageing conundrum, with specific policy priorities identified, based on insights gathered from other nations that are experiencing similar demographic transitions. A list of measures and initiatives deployed in the latter economies is included in the Annex section. In the course of its analysis, the report leverages national and international statistical databases to appraise and benchmark the impact of the country's ageing population, while resorting to empirical references and models.

DEFINITIONS AND SIGNIFICANCE

Population ageing, also known as demographic ageing, entails shifts in the age distribution of a population toward older ages. This phenomenon is measured in terms of a rise in the median age of a country or region, a decline in the proportion of the population composed of children, and an increase in the proportion of the old-aged cohort to the overall population. As per the United Nations, a population is classified as ageing when older people account for a proportionately larger share of the total population. While it generally reflects the noteworthy advances in health and quality of life in societies worldwide, ageing population could give rise to multifaceted challenges, extending far beyond the individual older persons and the immediate family, and touching broader society and the global community in unprecedented ways.



A number of quantitative metrics have been used to assist in monitoring and appraising population and other demographic trends, as well as facilitating comparisons and benchmarking. In that respect, the main terminologies and techniques leveraged in the context of the report are outlined in Box I.

Box I: Snapshot of demographic terminologies and methodologies

Population growth rate (%): population growth has two components: natural increase (number of births minus the number of deaths) and net international migration (net international movement of residents). It is calculated as simple annual growth rate.

De facto population: a population enumerated or estimated on the basis of those present at a particular time, including temporary visitors but excluding residents temporarily absent.

Total fertility rate: the average number of children born to an average woman assuming that she survives to the end of her child-bearing age and is subjected to a fixed schedule of age-specific fertility rates.

Sub-replacement fertility: a total fertility rate that (if sustained) leads to each new generation being less populous than the older, previous one in a given area. Of note, the sub-replacement fertility level varies across countries. For instance, in most countries, sub-replacement fertility is any rate below approximately 2.1 children born per woman, but the threshold can be as high as 3.4 in some developing countries due to higher mortality rates.

Gross reproduction rate: the average number of daughters born to an average woman assuming that she survives to the end of her child-bearing age and is subjected to a fixed schedule of age-specific fertility rates.

Net reproduction rate: the extent to which an average woman will replace herself, assuming a fixed schedule of age-specific mortality and fertility rates to prevail through her reproductive span of life.

Median age: the age which divides the population into two equal size groups, one of which is younger and the other older than the median.

Dependency ratio: the number of dependents per 1,000 persons of working age (15-64) as per Statistics Mauritius. The formula is given below. Based on UN definition, it refers to number of dependents per 100 persons of working age (15-64).

$$\text{Dependency ratio} = \frac{\text{child population } (< 15 \text{ yrs}) + \text{population } (65 + \text{ yrs})}{\text{population } (15 - 64 \text{ yrs})} \times 1000$$

Crude birth rate: the number of live births in a year per 1,000 mid-year population.

Mortality:

Crude death rate: the number of deaths in a year per 1,000 mid-year population.

Infant mortality rate: the number of deaths in a year of infants aged under one year per 1,000 live births during the year.

Expectation of live at birth: the average number of years that a new born child would be expected to live if subjected to the mortality conditions expressed by a particular set of age-specific death rates.

Net migration rate: the net migration (difference between international arrivals and departures of residents) in a year per 1,000 mid-year population.

Sources: Statistics Mauritius and United Nations

AGEING OF THE WORLD'S POPULATION

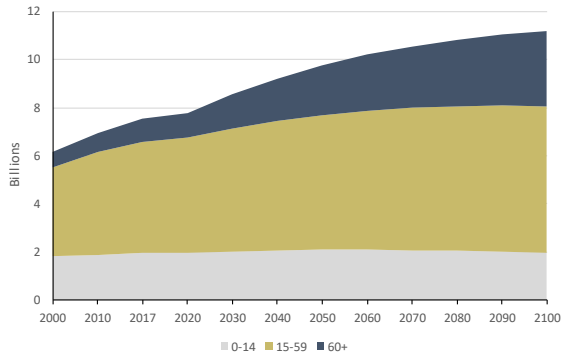
Population trends have always shaped the world, but today, there is wide consensus that the world is experiencing a profound transformation, with the ageing of populations poised to become one of the most significant megatrends of the twenty-first century, giving rise to complex socio-economic challenges. Indeed, except for a few cases, notably in Africa, most countries in the world, at various levels of socio-economic development, are experiencing steady increases in the number of older adults, both in absolute terms and as a share of the total population. In fact, the number of people in the world aged 60 and above in 2017 reached 962 million in 2017, i.e. more than twice the corresponding amount in 1980. As long as fertility continues to fall or remains low and old age mortality keeps on declining, the proportion of older-aged cohort is set to grow at a pace that is higher than for any other age group. Looking ahead, on the heels of continuous inroads in the health and pharmaceutical sector, people are expected to live even longer, while the ageing of the world's population could occur at an even faster pace than currently envisioned.

The world's shifting demographics are reflected in the following stylised facts that have been extracted from the projections made by the United Nations in the context of its World Population Ageing report 2017:

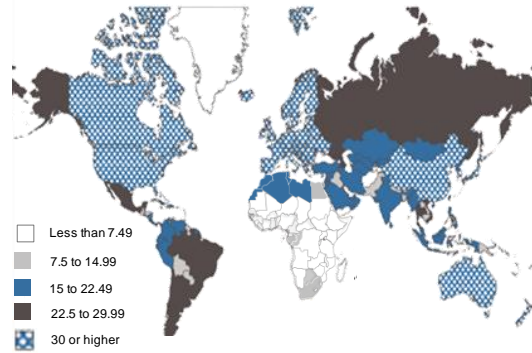
- The number of old persons - those aged 60 years or over, is expected to more than double by 2050, when it is projected to reach nearly 2.1 billion – this would represent about 21% of the world population, up from around 13% in 2017.
- The number of people aged 80 years or over is growing even faster. Projections indicate that the number of people in this category will increase more than threefold between 2017 and 2050, rising from 137 million to 425 million.
- By 2030, older persons will outnumber children aged 0-9 years (1.41 billion versus 1.35 billion); by 2050, there will be more people aged 60 years or over than adolescents and youth aged 10-24 years (2.1 billion versus 2.0 billion).
- While population ageing is currently more pronounced in advanced economies - Japan is home to the world's most aged population with 33 % of persons aged 60 years or over in 2017 - two thirds of the world's older persons live in the developing regions, and the old-aged cohort is projected to grow at a faster pace than in the developed regions.
- Across continents, between 2017 and 2050, the number of older persons is expected to grow by 161% in Latin America and the Caribbean and 132% in Asia. As for Africa, the number of old-aged is forecast to grow by 229% over the period, mainly reflecting the significantly low base. On a positive note, however, the total population in Africa would double to 2.5 billion in 2050, with a sizeable young population.

Box II: World demographic trends and drivers

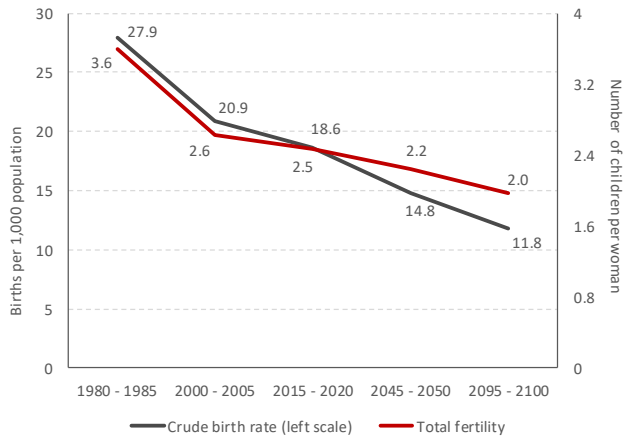
Evolution of world population



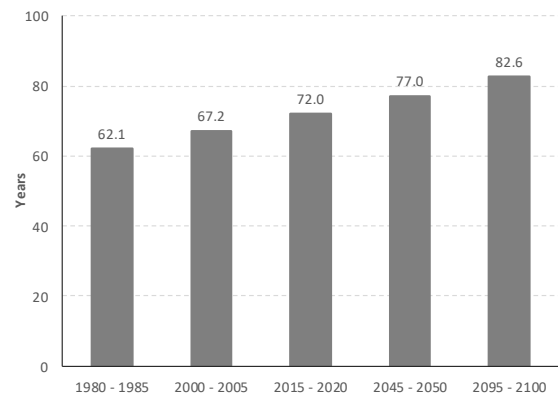
Percentage of elderly people (65+) in the world, 2050



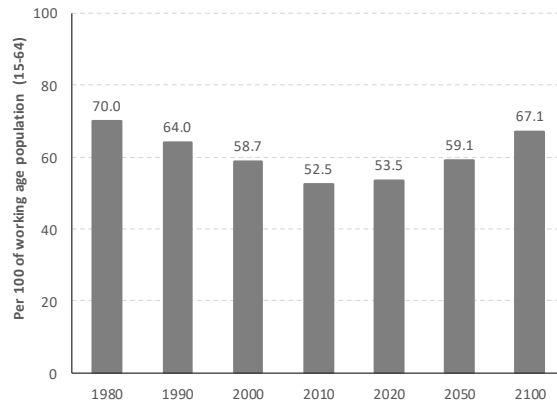
Total fertility and crude birth rate



Life expectancy at birth



Dependency ratio



Source: United Nations - World Population Prospects 2017 revision data

DEMOGRAPHIC TRENDS IN MAURITIUS

Evolution of main demographic indicators

In line with the afore-mentioned trends being projected worldwide, Mauritius is also expected to witness a major social transformation, with its demographic outlook pointing to a rising share of the old aged cohort and a decline in the overall population. This is illustrated by the shrinking base and thickening body of its population pyramid for decades ahead. Specifically, as per official projections by Statistics Mauritius, the total population of the Republic of Mauritius, which stood at 1,264,613 in 2017 is expected to embark on a downtrend as from year 2027 to reach around 1 million in 2057. Meanwhile, the median age will, *ceteris paribus*, rise from 36.2 in 2017 to 40.3 in 2027 and further to 50.8 in 2057. Fundamentally, the ageing of the country's population can be gauged by the growing proportion of its old-aged cohort. In that respect, the proportion of persons aged 60 and above is projected to rise to 23% of total population in 2027 and further to 35% in 2057 compared to 16% in 2017. Moreover, the proportion of persons aged 65 and above would rise by 5 percentage points to reach 16% of the total in 2027, before climbing to stand at nearly 27% in 2057.

As for the working age population, i.e. those aged 15-64, it will, as per Statistics Mauritius, start to fall as early as 2022 and pursue a downtrend over the coming decades, with its share of the country's total population dropping by nearly 3 percentage points, relative to 2017, to stand at 68.7% in 2027. By 2057, this ratio is forecasted to fall to 61%. Additionally, while in 2017, there were an estimated 6.7 persons of working age for each elderly (65+), this ratio would stand at only 3.2 persons in 2037 and fall further to 2.3 in 2057. Consequently, the dependency ratio is forecast to undergo a significant rise from its estimated level of 408 in 2017 to reach 456.5 in 2027 and 631 in 2057.

Overview of main factors underpinning population trends

By and large, declining fertility rates combined with higher life expectancy have reduced the natural growth in the country's population and are contributing to the ageing of our demographic landscape.

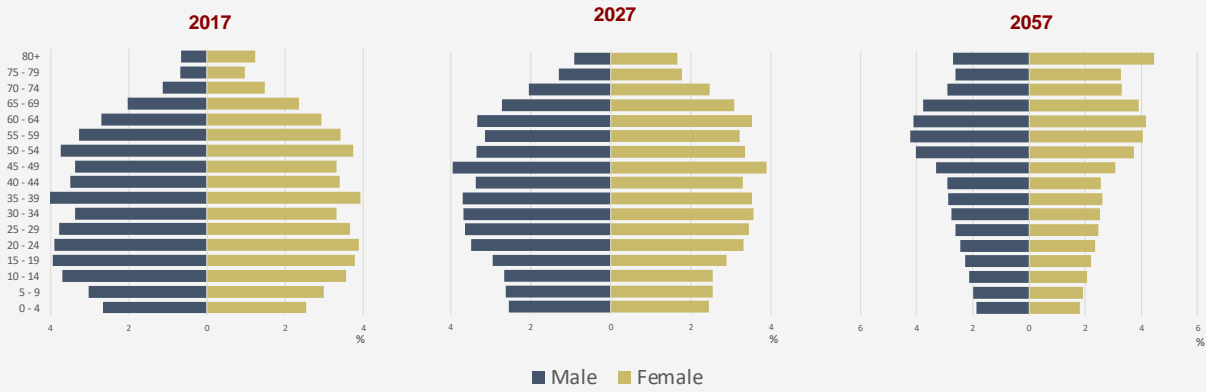
Fertility rate

The total fertility rate in Mauritius has dropped sharply from 2.2 births per woman in 1984 to 1.4 births per woman in 2017, thereby leading to a marked decline in the country's rate of population growth during the

Figure 2

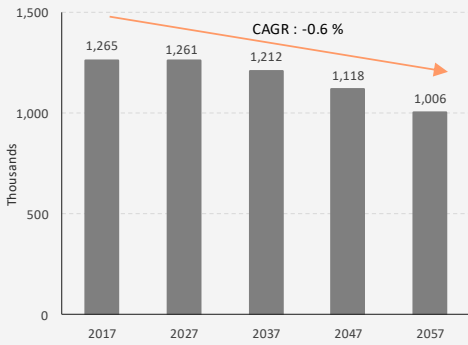
Demographic projections for the Republic of Mauritius

Population pyramids

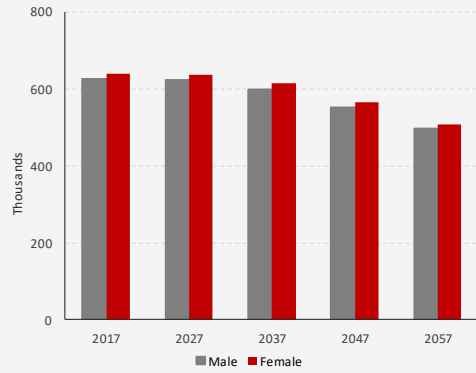


Overview of key indicators

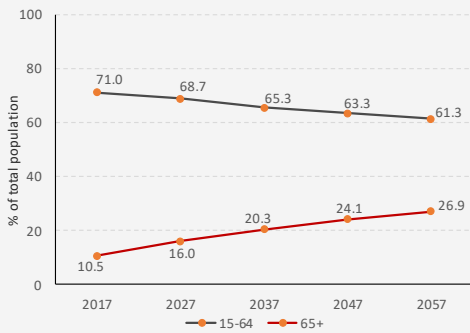
Evolution of population



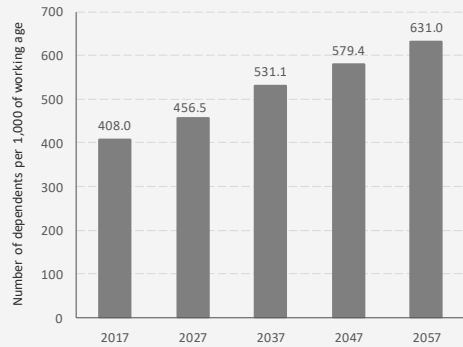
Population (by gender)



Proportion of working & elderly population

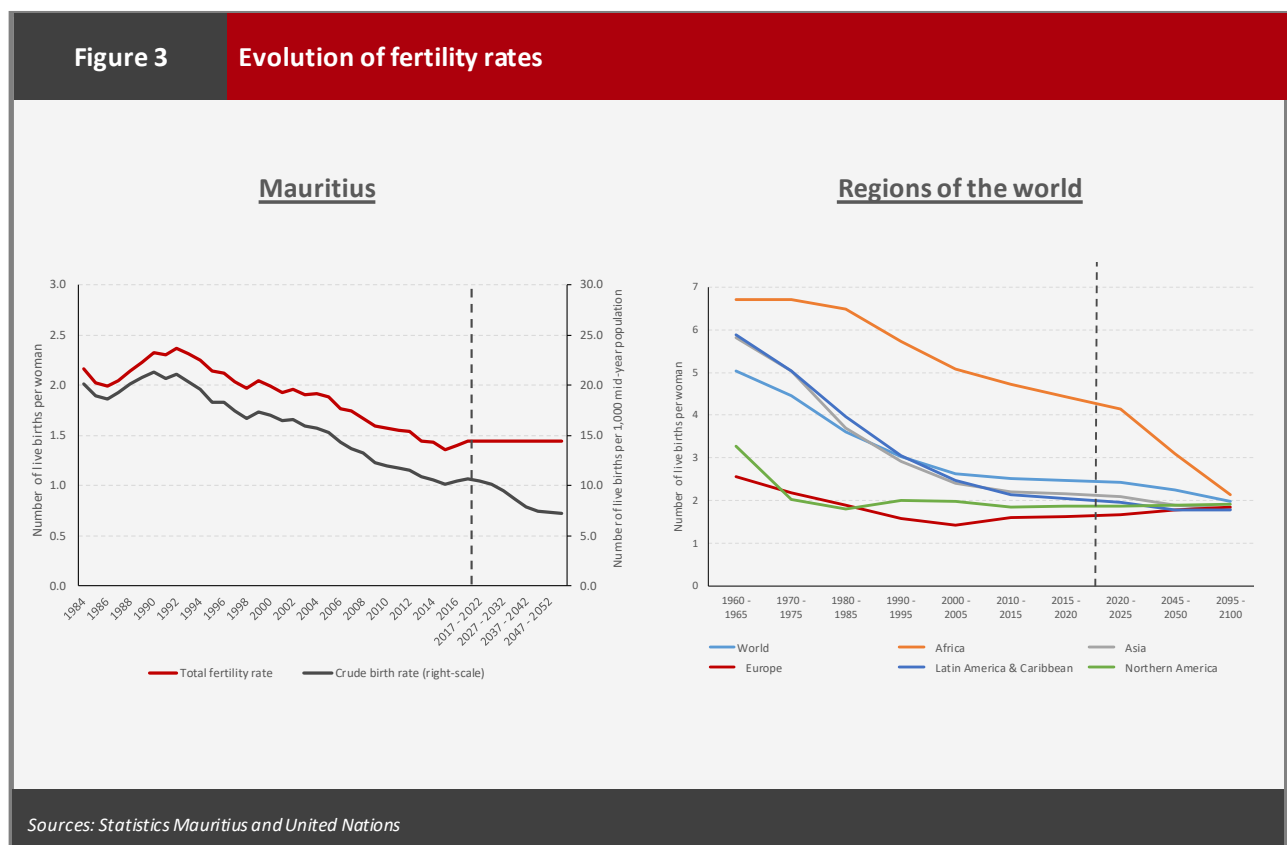


Dependency ratio



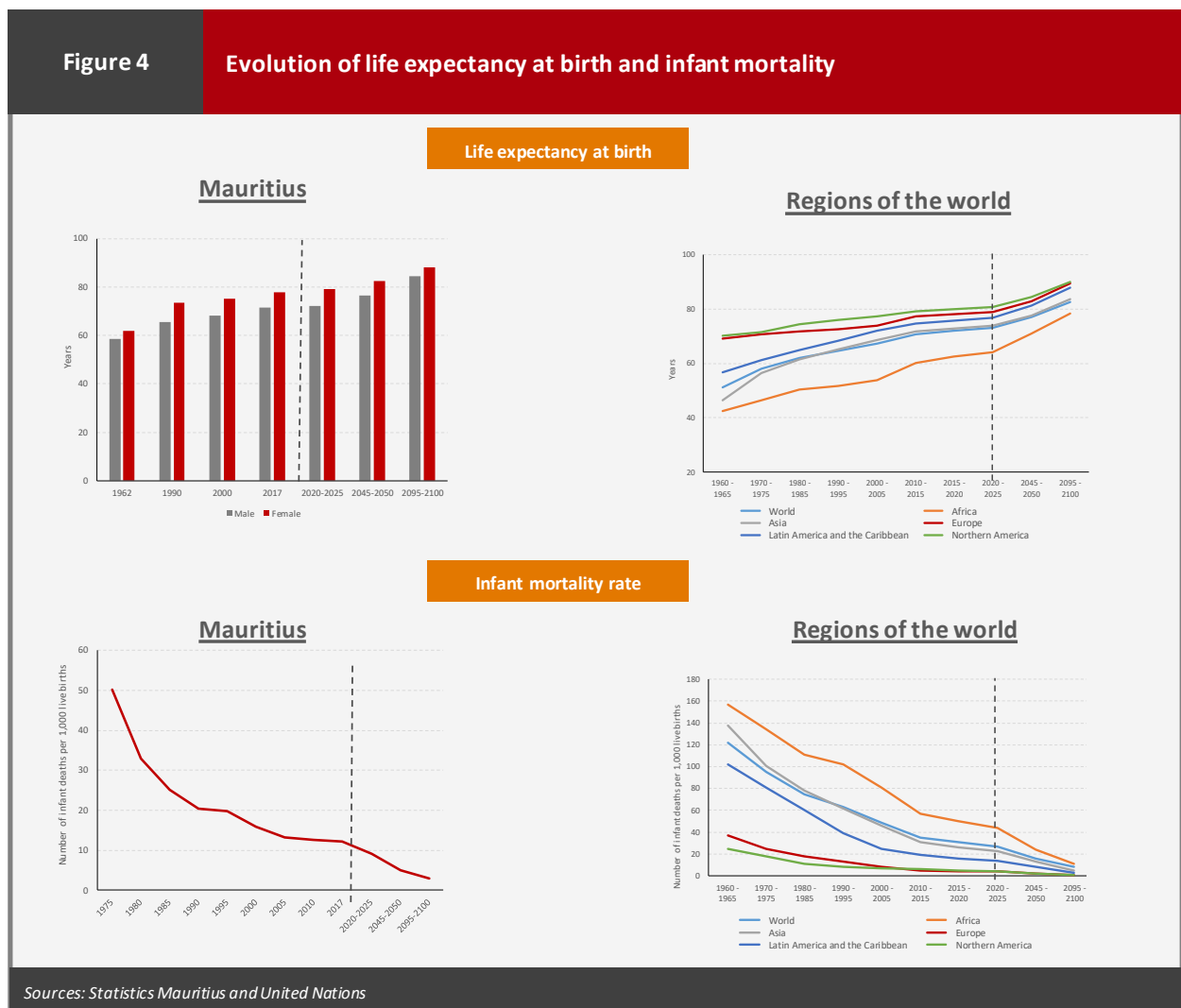
Source: Statistics Mauritius

past decades. Moving forward, the overall fertility rate is, according to Statistics Mauritius figures, projected to remain flat at around 1.4 over the coming years, i.e. below the current replacement level of 2.1 children born per woman. Of note, if sustained, sub-replacement fertility could lead to each new generation being less populous than the previous one. Furthermore, net reproduction rate is anticipated to stand at below 1.0 over the coming periods, thereby restraining the country’s population growth. The trends characterising fertility rate in Mauritius mirror those being observed on the international front, with the indicator having plummeted in various regions lately. In particular, Asia and Latin America and the Caribbean have experienced the sharpest fertility decline over the past four decades with fertility levels now close to the replacement level. Elsewhere, Africa fertility levels are the highest, with 4.4 births per woman in 2015-2020, and lowest in Europe and Northern America where total fertility are estimated to be lower than 2 births per woman. On current trends, by the middle of the century (2045-2050), about 70% of the world’s population would be living in countries with low fertility levels staying below their respective replacement rates, with the exception being Africa. According to studies, declining fertility rates stem from a confluence of factors, including improved education and employment opportunities for women, broader access to modern contraceptives and awareness campaigns as well as changes in personal preferences, lifestyles and social value systems. Generally speaking, families are now investing more significantly in their children’s education, and opting to raise fewer better-educated children instead of having a larger number of children.



Life expectancy

Another key factor contributing to population ageing in Mauritius is the marked increase in life expectancy observed during the past decades. This reflects the reduction in old-age and infant mortality rates. The latter trends have been notably driven by the sustained rise in average living standards – GDP per capita has magnified manifold over time to stand at above USD 11,000 lately - with the nation having graduated from the lower middle income group to the upper middle income status in 1992 as per World Bank classification - and access to quality health services allowing illness to be tackled at early stages. As a result, as per Statistics Mauritius, life expectancy at birth in Mauritius rose from around 60.4 years in 1962 to 74.8 years in 2017. Particularly, life longevity rates for female improved from 62 years to 78.1 years over the period while male life expectancy increased from 58.7 years in 1962 to 71.5 years in 2017. On current trends, and reflecting further inroads in access to quality health services, overall life expectancy in Mauritius would rise further in the decades ahead. From a comparative angle, as per the United Nations, average life expectancy around the world, on overall, jumped from 47 years in 1950-55 to around 71 years today. By 2045-2050, new-borns are expected to live up to 83 years in developed regions and up to 76 years in developing ones.



OVERVIEW

The demographic transition projected in Mauritius for the coming decades would, *ceteris paribus*, pose serious economic challenges, through various channels, with a case in point being the drag on growth exerted by the projected fall in labour force. In the latter respect, the IMF has, in the context of its latest assessment for Mauritius issued in April 2019, stressed that: “*Mauritius faces several challenges in its structural transformation into high value-added sectors. The authorities’ Vision 2030 foresees Mauritius join the ranks of higher-income countries over the next decade by a fundamental transformation of the economy to a more economically diversified and sophisticated economy. However, dwindling productivity, rising unit labor costs...and unfavorable demographic trends in the form of an aging population and a potentially declining labor force, pose significant challenges in achieving this goal.*” Specifically, the country’s real growth performance and long term potential growth rate could be undermined if the anticipated decline in working age population in relation to the growing cohort of seniors is not offset by: (i) sustained improvements in productivity levels; and (ii) an increase in labour input associated to higher labour participation, notably of women, and/or further recourse to foreign expertise and talents. Furthermore, higher spending on the welfare state system including on pension, transport, health care and long-term care would lead to additional pressures on the country’s fiscal balance and public debt sustainability.

IMPACT OF POPULATION AGEING ON ECONOMIC GROWTH

Broadly speaking, as extensively documented in the theoretical literature and demonstrated via empirical research, in the absence of prompt responses, ageing of the population associated with higher life expectancy and a narrowing fertility rate would exert downward pressures on the future levels of economic output and a country’s long term economic potential. Leveraging the principles of a simple Cobb-Douglas framework, the ramifications of population ageing on growth can be dissected along the following metrics:

$$Y = AK^{\alpha} L^{1-\alpha}$$

where:

- Y is the real growth rate of the economy;
- A is the rate of growth of total factor productivity;
- K is the accumulation of capital; and
- L is the growth of the effective supply of labour and the rate of utilisation of that labour

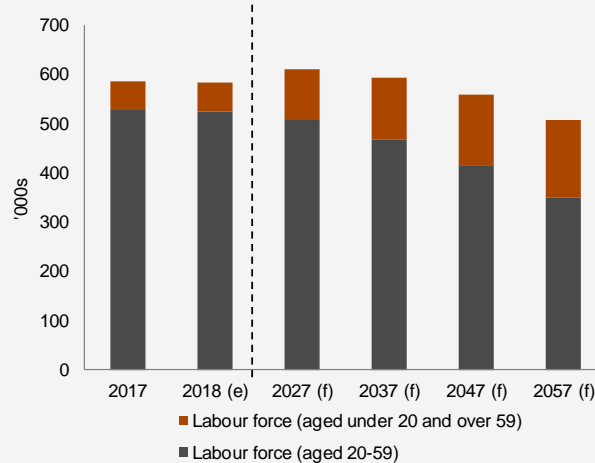
In the following sections, the potential implications of the projected ageing of the country’s population on each independent variable of the afore-mentioned Cobb-Douglas equation, i.e. (i) Labour (L); (ii) Capital (K); and (iii) Total Factor Productivity (A) is dissected, with a view to gauging the overall impact on growth.

Labour input (L)

Assuming nationwide unemployment rate remains broadly stable, a decline in the rate of growth of the labour force would lead to a reduction in the rate of growth of output in the economy and eventually of per capita income, as can be inferred from the Cobb-Douglas framework. According to the Ageing Report published by the European Commission in 2018, the share of the working-age population – aged 15-64 - in EU countries, is expected to shrink significantly between 2016 and 2070, from 65.2% to 56.2%, due to fertility rates below natural replacement level and shrinking cohorts of women in childbearing ages. This is likely to rub off an annual average of 0.2% in growth in the group of EU countries over the period under review. Coming back to Mauritius, based on projections by Statistics Mauritius, the overall labour force – aged 16 and above - is, as illustrated in Figure 5, forecast to be broadly stable over the short term but start to dip as from 2037 until the end of the forecast period to stand at 508,000. Of concern, the prime working age cohort – defined as those aged 20-59 – has already started to tick down and is anticipated to be slashed by more than 20,000 relative to 2017 to stand at around 508,000 in 2027. The latter trends, which are expected to accentuate over the longer run, reflect the fall in fertility rate which has contributed to a gradual narrowing in the younger workforce cohort while an increasing number of people who were previously in their ‘prime-age’ are shifting into the retirement age cohort, thereby curtailing the domestic labour supply.

Figure 5

Evolution of the Mauritian labour force



Note: As per historical trends, activity rate for total labour force is assumed to stay at around 60% over the forecast period, while activity rate for the prime working age segment, defined as those aged 20-59, is assumed to stay at 72% over the forecast period.

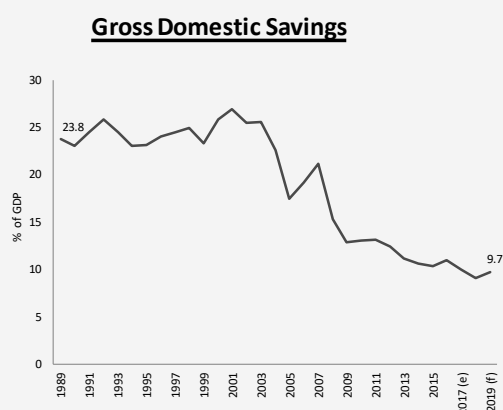
(e) Estimates (f) Forecast

Sources: Statistics Mauritius and MCB Staff estimates

Capital accumulation (K)

As per the life cycle hypothesis, young households borrow against their future income, middle-aged households save for servicing debts and retirement, and old-aged households dissave. Accordingly, savings is more likely to fall in countries with a relative old population. In that respect, as stressed in 2017 IMF Article IV report for Singapore, a one percentage point increase in the share of elderly people in the population of Singapore lowered the private saving rate by about 4 percentage points. As regards Mauritius, a marked decline has been observed in domestic savings over the past decade. Indeed, after oscillating around the 25% mark in the mid-2000s, the gross domestic saving to GDP ratio has pursued a downtrend lately, with the indicator having dropped below the 10% mark in 2018, for the first time in several decades. Conspicuously, as per the latest IMF article IV on Mauritius, private savings is estimated to be 3% below potential. Considering the empirical evidence afore-mentioned, the ageing of our population is likely to worsen the recent trends characterising domestic saving. Given that savings is generally viewed as the supply side of future capital investment, this, *per se*, does not augur well for the country's physical capital stock over the longer term. Further, and as a dent on the country's external competitiveness levels, real growth in capital input for manufacturing and export oriented enterprises has, on average, deteriorated over the past decade. That being said, while the increased number of people entering the retirement age bracket is likely to raise the level of dissaving in the economy, the actual impact of ageing on private savings, and in turn capital, would ultimately depend on how households and firms react to any incentives put in place to encourage people to save more in their working age.

Figure 6 Evolution of saving and capital



Capital input

	Annual average growth rate (%)		
	1986-1996	1997-2007	2008-2018
Total Economy	8.1	5.4	3.7
Manufacturing	6.5	3.9	-2.4
Export oriented enterprise	6.7	4.9	-3.3

Note:

- 1) Capital input refers to the net stock of investment in reproducible fixed assets. Reproducible fixed assets are investments in residential and non-residential building (excluding land), infrastructural work, machinery and equipment
- 2) Annual average growth rate for capital input for the periods displayed are estimates from multiple bases

(e) Revised estimates (f) Forecast

Source: Statistics Mauritius

Total factor productivity (A)

Population ageing can also have an adverse impact on aggregate total factor productivity in the economy - i.e. the portion of economic growth that is not the result of changes in capital and labour inputs - and therefore on nationwide output per worker. For instance, as per a study by the IMF, entitled 'The Impact of Workforce Aging on European Productivity' a 1 percentage point increase in the 55–64 age cohort of the labour force in Europe is associated with a reduction of about 0.8 percentage point in total factor productivity. Extrapolating this result forward, the report indicates that ageing could reduce total factor productivity growth in Europe by an average of 0.2 percentage point per annum over the next twenty years. Moreover, several other studies found evidence of a decline in worker productivity and innovation starting between ages 50 and 60. Specifically, by investigating the age distribution of the workforce and productivity through the recourse to a cross-country panel on OECD and low-income countries, Feyrer (2007) found evidence of an inverted U-shaped relationship between the age distribution and total factor productivity, with the 40–49 age group identified as the most productive, and productivity potentially declining thereafter.

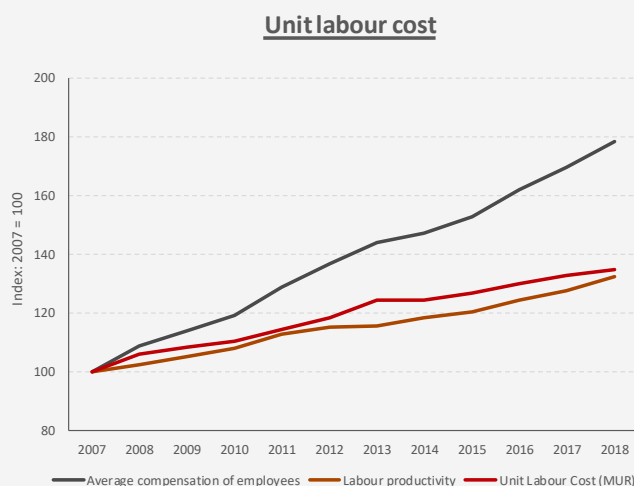
With regard to Mauritius, the domestic economy has, in recent years, been confronted by a restrained evolution of its productivity metrics. Indeed, it can be observed that multifactor productivity – which takes into account the efficiency of labour and capital resources as well as qualitative factors such as better management and the improved quality of inputs – witnessed only a marginal average annual growth rate of 0.9% during the 2008-2018 period. Particularly, this outcome has been ushered by trends characterising the country's stock of physical resources, with capital productivity declining, albeit marginally, during the period under review. For its part, while benefiting, to some extent, from capital deepening, growth in labour productivity slowed to 2.6% during the 2008-2018 period compared to more appreciable growth rates of 4.8% and 3.8% posted over 1994-2000 and 2001-2007 respectively. Further, unit labour cost, which is impacted by both labour productivity and the average compensation of employees, has pursued a continuous upward trajectory over the period. A noticeable observation is that the average annual growth in unit labour cost stood at 2.4% during the 2008-2018 period. On the basis of empirical findings highlighted above, the anticipated ageing of the country's population could contribute to a worsening of our productivity metrics, and thus, constitute an increasingly influential source of concern for the competitiveness of Mauritius across foreign markets moving forward.

Figure 7

Evolution of key productivity-related measures

Productivity	Average annual growth rates (%)		
	1994-2000	2001-2007	2008-2018
Labour	4.8	3.8	2.6
Capital	0.0	-0.7	-0.1
Multifactor	3.1	1.2	0.9

Unit Labour cost	Average annual growth rates (%)		
	1994-2000	2001-2007	2008-2018
MUR	3.0	4.3	2.4
USD	-3.2	3.0	0.5



Source: Statistics Mauritius

Mauritius: Alternative scenarii for assessing the impact of ageing population

Methodological approach

In order to gauge the macroeconomic effects of the ageing of our population, a simple and adjusted Cobb-Douglas production function framework is used to project growth over the long-term. In this particular setting, based on a study by McKinsey & Company, entitled ‘Global growth: Can productivity save the day in an aging world?’, real GDP growth is assumed to be driven by long-term developments in labour input and labour productivity, as depicted below:

$$Y = \alpha x L$$

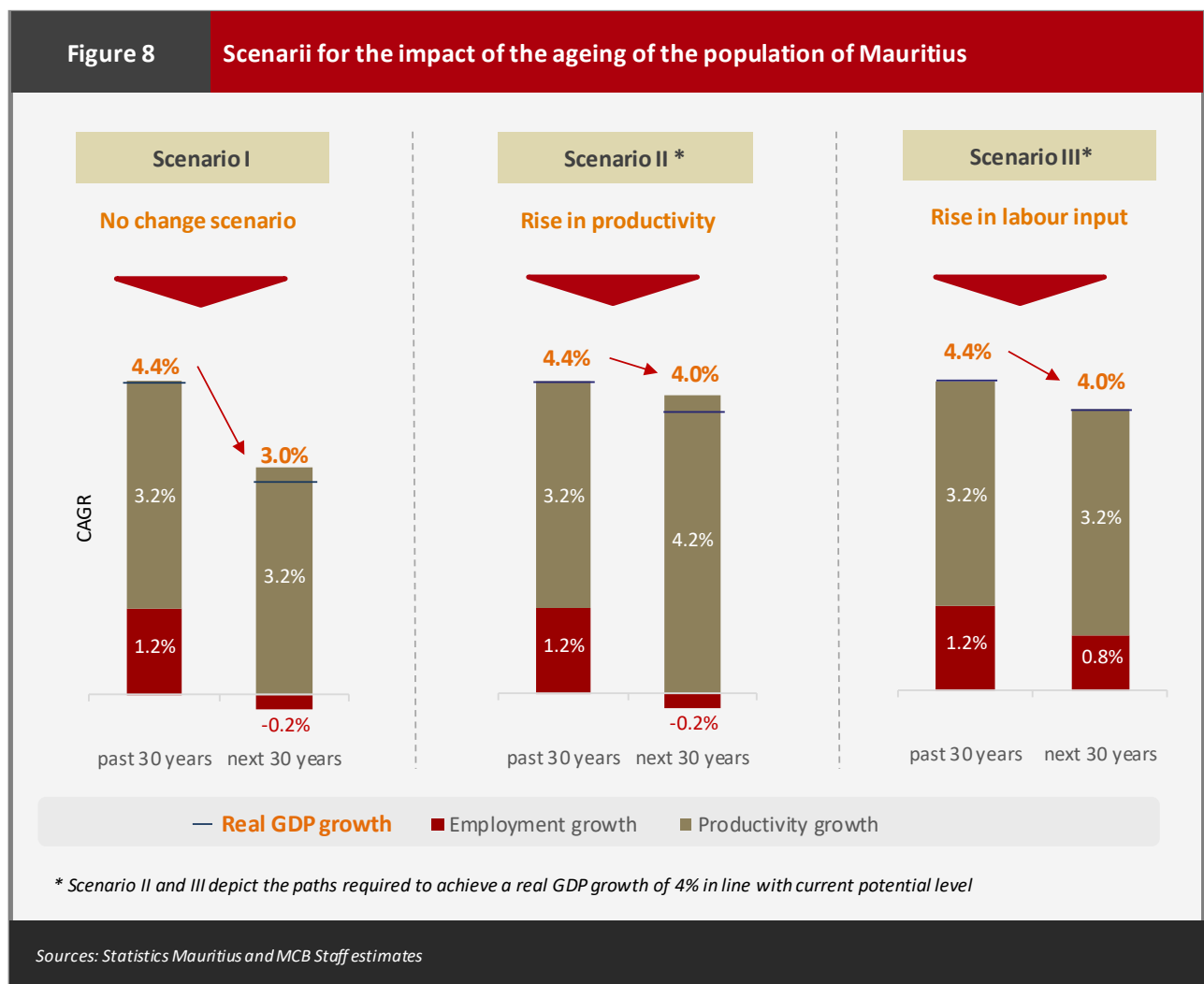
where:

- Y is the growth of the economy;
- α captures the growth in labour productivity, determined by labour-augmenting total factor productivity and the capital stock per worker
- L is the growth in labour input

With reference to the above equation, the evolution of real GDP growth, labour productivity and employment metrics during the past 30 years ending 2018 has been recorded, and inferences made regarding the movement of the latter metrics for the next three decades, with a view to gauging the ramifications of the country’s ageing. Of note, the projections made in this section should be dealt with

caution since they are based on available information and pertain to the below-described specific scenarii, which rest on a series of assumptions. Going on the premise that the ageing of our population will cause a drop in the labour force, various scenarii have been considered for the periods ahead, with the objective of assessing the following: (i) the annual average growth rate on a no-change scenario – i.e. a case where labour productivity growth continues as per trend; (ii) by how much labour productivity growth should increase (relative to trend) to achieve a real GDP growth rate of 4% in line with its current potential level; and (iii) by how much should labour input rise on the back of a higher nationwide activity rate or an elevated level of foreign labour employment to achieve the potential growth rate of 4%.

Summary of main findings and observations



Scenario I

On a no-change scenario regarding the movement of key metrics, notably: (i) labour force participation rate and the ratio of foreign employment both remain in line with recent trends at around 60% and 5% respectively amidst a broadly stable unemployment rate; and (ii) labour productivity growth stays at 3.2% annually as per its historical rate, the country's average annual real GDP growth rate over the next three decades would stand at 3%. This would imply a 140 basis points drop when compared to its corresponding rate of 4.4% for the period 1988 – 2018, and 100 basis points below the potential rate of 4%. Specifically, the slowdown in real GDP growth would reflect a projected contraction of 0.2% annually in labour input over the next 30 years due to the ageing of our population, compared to a real growth of 1.2% observed during the previous three decades. As an additional cause for concern, the assumed 3.2% average growth in labour productivity could be challenging to achieve after considering the recent trends, with the indicator having averaged 2.6% over the past decade.

Scenario II

Under this scenario, with a view to achieving an annual average growth rate consistent with the current potential level over the next 30 years - after factoring in the projected shrinking in the country's labour force - it is estimated that labour productivity growth would have to rise by 4.2% annually, from its historical rate of 3.2% achieved during the previous three-decade period. This projected labour productivity growth of 4.2% implies that, in 30 years, value added generated by the average employee would need to increase more than threefold. As the situation stands, this appears, however, highly challenging to achieve, the more so when considering the persistent structural impediments that are restraining the evolution of the country's productivity metrics and the recent evolution of labour productivity, as stressed above.

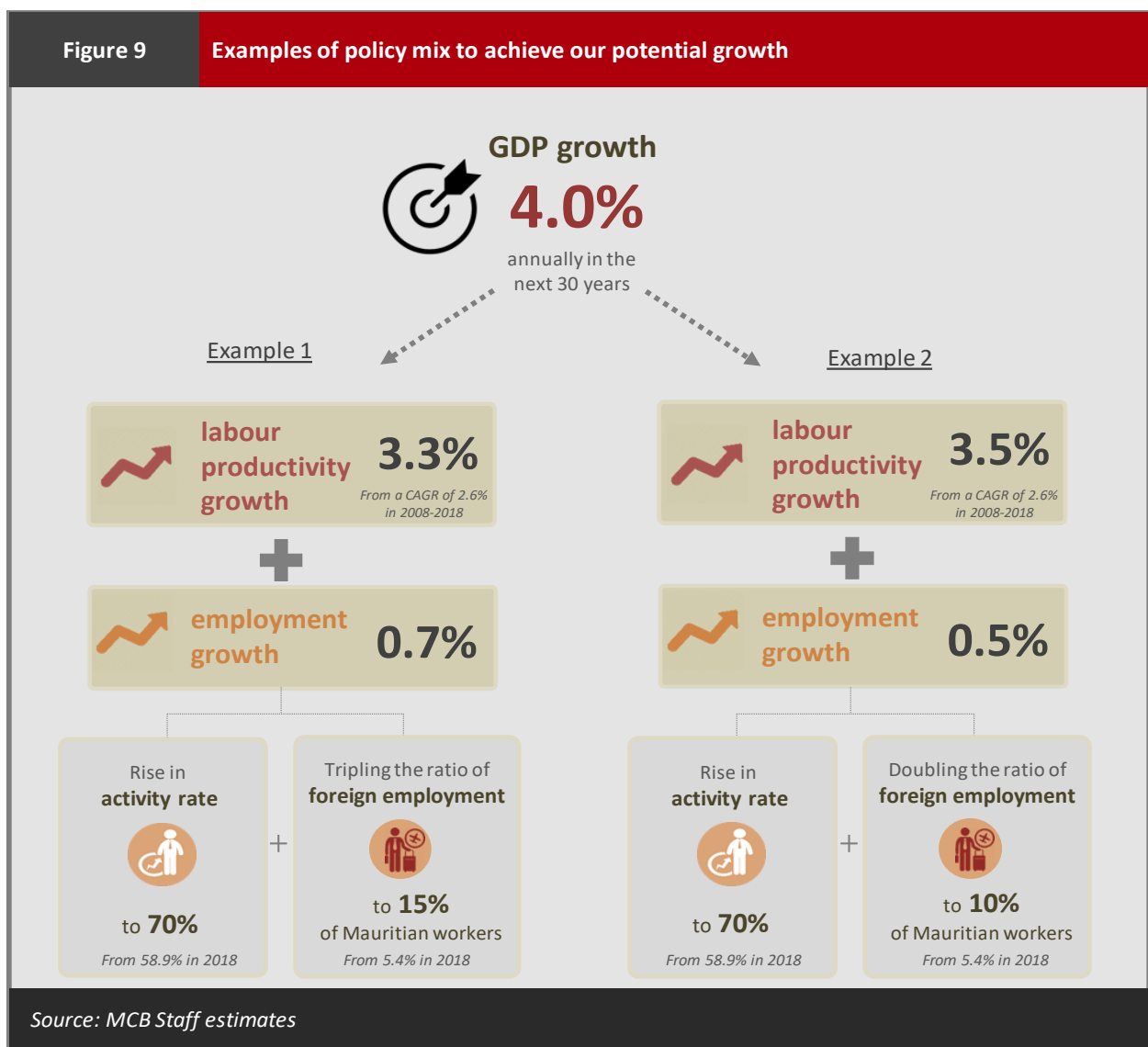
Scenario III

Assuming labour productivity level continues to grow in line with historical trends, the drag on the domestic economic growth performance from the projected ageing of the country's population could be offset by an improvement in labour input linked to other dynamics. To begin with, the country could aspire to grow at its potential rate of 4% over the coming decades if nationwide activity rate rises markedly from its current level of around 60% to reach 80%. In addition to a rise in male participation, the envisioned 20 percentage points increase in nationwide activity rate would necessitate a significant improvement in female participation from its current level of around 45%, which compares unfavourably when juxtaposed against peer countries. Indeed, as highlighted in previous editions of MCB Focus, the subdued participation of women in the employment force tends to expose the country to a paucity of labour resources and a lack of intellectual capital that would, otherwise, have boosted nationwide output by an important margin.

Alternatively, the targeted real growth rate of 4% for the coming decades could be attained if the ratio of foreign employment in the domestic economy rises from around 5% currently to 40%. Indeed, the projected drop in employment on the back the ageing of our population could be offset by higher openness of the country to foreign expertise, which would, therefore, assist in boosting growth to higher echelons.

Main inferences from simulations

The findings of the various simulations performed shed light on the necessary grounds that the country has to cover in order to turn the corner, amidst the pressures from the projected ageing of our population. That said, while the underpinnings of individual scenario might be challenging to achieve, growth could resolutely be uplifted to its potential rate through the adoption of an all-encompassing set of structural measures and reforms to push up productivity levels in a sustained manner, boost activity levels, notably of women as well as assist in further attracting foreign expertise, talent and know-how, chiefly in the high-skilled segment.



IMPACT OF THE AGEING BURDEN ON THE FISCAL POSITION

The backdrop

Looking ahead, alongside having ramifications on economic growth, the rapid ageing of the country's population threatens to add pressures on public finances, both from the expenditure as well as the revenue side. In fact, as the average age of the population rises, public spending on pensions, health care and long-term care will increase further while, at the same time, the shrinking working population will pull down the tax collection base and lower social security contributions. Over the longer run, the projected demographic shift would, *ceteris paribus*, hamper our ability to ensuring fiscal sustainability and sound public finances, the more so after making allowance for the already tight fiscal space and the elevated public sector debt to GDP ratio. With regard to the latter, it is imperative to contain the gross public debt within manageable levels in accordance with statutory requirements, with a view to assisting Mauritius to maintain its credibility vis-à-vis rating agencies and preserve the investment-grade status of its credit profile in support of the regional expansion strategies of domestic operators and endeavours to tap into international financial markets.

Fiscal projections

This section presents high-level projections of the potential impact of population ageing on the fiscal position of Mauritius over the periods ahead. For the sake of simplicity, the simulations made focus only on the implications of demographic changes on the most significant age-related expenditure item, i.e. the universal old-age pension spending. As such, it does not take into account other budgetary items that would be impacted by the evolving age structure, including health and transport expenditure items. Another caveat is that the model does not make allowance for reforms and initiatives that the authorities could introduce to offset the age-related burden, such as pension reforms or changes in tax policy. Overall, although the projections are subject to a set of assumptions, they aim to be thought provoking and provide a holistic view of the impact of future fiscal pressures stemming from population ageing, towards forming a basis for a more detailed and comprehensive appraisal of the long-term sustainability of the country's public finances.

Box III: Overview of the pension system in Mauritius

Inevitably, ageing of the country's population will lead to higher pension spending pressures, mainly reflecting non-contributory benefits provided to all citizens aged 60 and above, referred to as the Basic Retirement Pension (BRP). In addition to the BRP, which accounts for nearly half of the total budgeted Government expenditure on social security and welfare, the pension system in Mauritius is, as detailed below, made up of several other compulsory and voluntary schemes, with different coverages and benefits.

	Basic retirement pension (BRP)	Civil service pension	National Pensions Fund (NPF)	National Savings Fund (NSF)	Private plans
Coverage	Universal (Mandatory)	Public sector (Mandatory)	Private sector (Mandatory)	Private and public sector (Mandatory)	Voluntary
Funding	Unfunded	Unfunded (entrants before 2013) Funded (entrants in 2013 and after)	Funded	Funded	Funded
Contribution % of basic salary	Non-contributory	6% for employees (entrants before 2013) 6% for employees 12% for employers (entrants in 2013 and after)	3% for employees 6% for employers	2.5% for employers 1% for private sector employees	Varies according to plan chosen
Benefit	Flat (depending on age bracket)	Defined ratio of pensionable earnings for every month of service (entrants before 2013) Account balance at retirement (entrants in 2013 and after)	Point system (value of pension points accrued)	Lump-sum withdrawal at retirement	Varies according to plan chosen

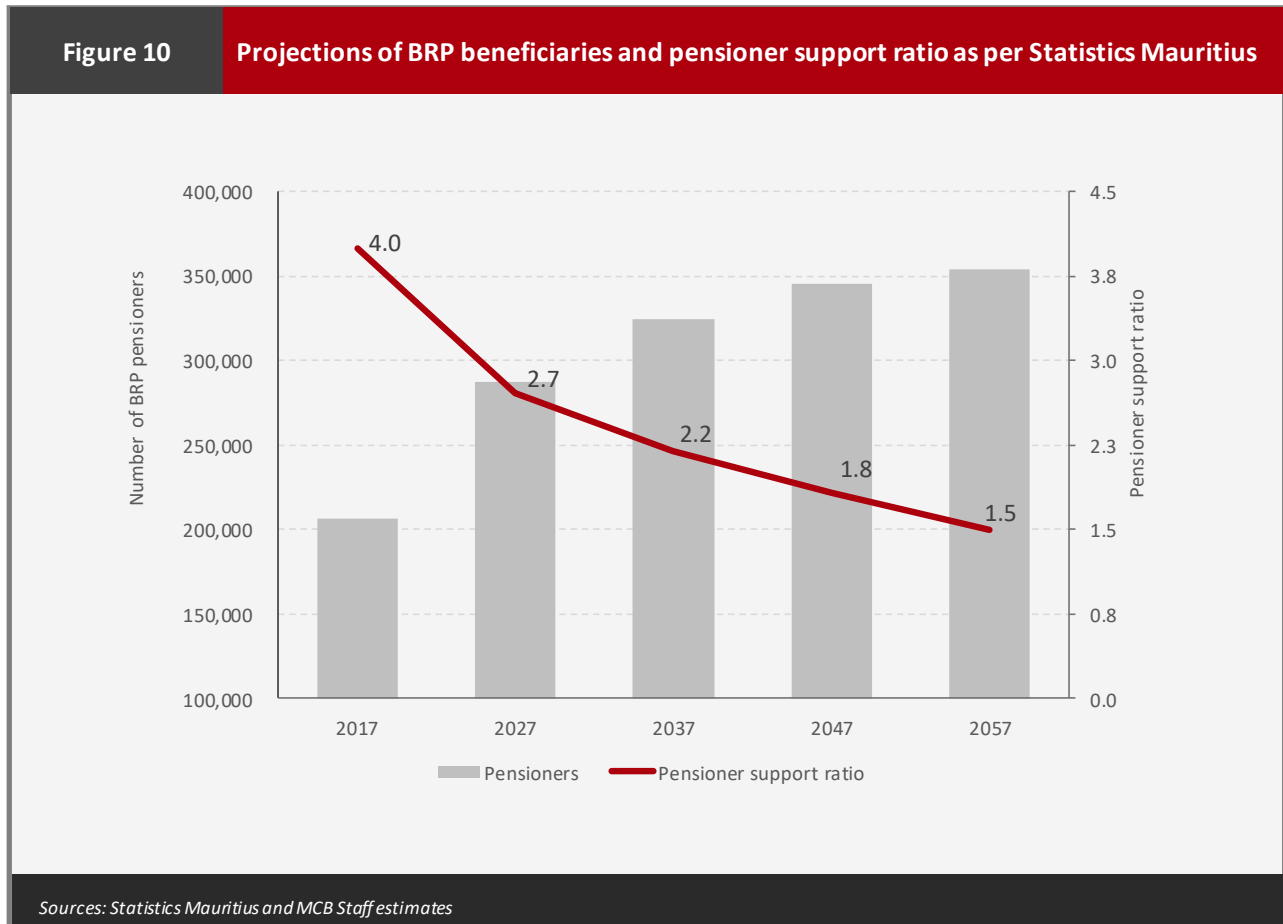
Notes:

1. A **funded** pension plan is one that has sufficient assets to provide for accrued benefits through capital contributions from employers and employees and returns on investments.
2. An **unfunded** pension plan is an employer-managed retirement plan that uses the employer's current income to fund pension payments as they become necessary. As for most public unfunded pension arrangements, benefits are paid directly from current workers' contributions and taxes.
3. The minimum and maximum basic wage on which contributions to the National Pensions Fund (NPF) and National Savings Fund (NSF) are payable are reviewed each year by the Government.

Source: Ministry of Social Security National Solidarity and Environment and Sustainable Development, IMF paper 'Pension Reforms in Mauritius'

Implications of the rise in Basic Retirement Pension (BRP)

With regard specifically to the BRP, the number of beneficiaries is, inferring from official demographic projections, likely to rise from an estimated amount of 207,000 in 2017 to 288,000 in 2027 and further to 325,000 in 2037. As demonstrated by figure 10, this would, in turn, lead to a significant fall in the country's pensioner support ratio, defined as the number of persons of working age (15-59 years) per old age pensioner (aged 60 years and over), from 4.0 in 2017 to 2.7 over the next decade and reach 1.5 by 2057.



Furthermore, three scenarii have been examined to gauge the impact of the rise in BRP, namely the case where: (i) pension spending are indexed to inflation, such that BRP spending would grow by the inflation rate each year; (ii) the increase in BRP allowance grows in line with its historical trend observed for the past decades at 2.5% over and above inflation (exclusive of years 2005 and 2015 where one-off increases were brought to BRP) and (iii) pension allowance for the 60-89 age band are, as it has been floated lately, aligned to the minimum monthly wage, albeit in a phased manner, representing an increase of 45% over the current level, followed by the same yearly increase as prescribed under scenario II for the subsequent years. Of note, in performing the simulations across the scenarii, headline inflation rate is assumed at 3.0% and no change in eligibility criteria or coverage is envisaged. As for real GDP growth, three alternative cases are considered,

namely, an annual average growth rate of (i) 4%, consistent with our potential level; (ii) 3.7%, in line with the average for the past five years; and (iii) 3%, assuming a no-change scenario as depicted in Figure 8.

Inferences from the different scenarii



Scenario 1

With reference to Figure 11, under this scenario, which assumes that pension allowances are indexed to inflation, total BRP spending would rise by 0.7 percentage point, from 3.3% of GDP in 2017 to reach 4.0% in 2027 before embarking on a downtrend given that nominal GDP is projected to grow at a faster pace. However, if the domestic economy grows by only 3% in real terms, the ratio of BRP spending would eventually stand at 3.4% of GDP by 2057, i.e. close to current levels. The probability of such a scenario materialising is remote, given that historical evidence suggests that there are generally pressures for pensioners to be compensated for more than current inflation rate.

Scenario 2

Assuming pension allowance grows at 2.5% over and above inflation annually, based on historical trends as mentioned earlier, and that real GDP growth stands at 4%, total BRP spending would rise by 1.5 percentage points to stand at 4.8% in 2027 compared to 3.3% in 2017. In fact, by 2027, and under the assumptions spelt out in this scenario, total amount of BRP spending would have increased over twofold, which would, *ceteris paribus*, lead to a significant deterioration in the overall fiscal balance. Over the longer run, BRP spending is expected to rise further to reach up to 5.8% in 2057. Of note, a more worrying outcome could be observed in case the country grows at rates below 4%, with BRP spending potentially ranging between 6.5% - 8.4% in 2057 as per assumptions made in respect of annual average growth in GDP.

Scenario 3

Under the assumption that the monthly pension allowance for the 60-89 age is increased in a phased manner over the coming years to be aligned with the nominal minimum wage, followed by subsequent increases as prescribed in scenario 2 in the following periods, total BRP spending as a percentage of GDP would, in a case where real GDP growth stands at 4%, rise to an estimated 6.4% in 2027 before edging up further to reach 7.8% of GDP by 2057, which would, *ceteris paribus*, trigger a significant worsening of the fiscal deficit as a share of GDP from current figures within 10 years. Furthermore, if the country registers a lower growth outcome than its potential rate, even higher pressures would be felt on its public finances. For instance, assuming a real GDP growth of 3.7%, BRP spending would increase to 6.6% in 2027 and 8.7% in 2057, with the ratio reaching 7.0% and 11.3% respectively in 2027 and 2057 in case economic growth falls to 3%.

All in all, whilst being subject to a number of limitations as afore-mentioned, the simulations regarding the likely evolution in BRP spending underscore the importance of upholding a credible, robust and transparent medium-term fiscal consolidation agenda. While assisting in reducing debt vulnerabilities, the latter would provide the economy with greater flexibility to respond to shocks and create an adequate fiscal space for

financing growth-inducing expenditures. Thus, alongside fostering fiscal discipline and prudence regarding expenditures, it is important, on the revenue side, to improve tax compliance and enforcement, while, concurrently, preserving the key tenets of our competitive advantages, with a prominent example being the upholding of the low, simple and predictable tax regime that, it can be recalled, played a decisive role in stimulating investment and boosting production levels on the nationwide scale during the past decades.

Box IV: Impact of an ageing population on fiscal balance

Population ageing could pose serious challenges to public finances across the globe. Raising the number of elderly increases the costs of public programs, such as pensions and health care. This will consequently exert non-negligible pressure on the longer-term fiscal sustainability, as outlined below.

Long term projections of fiscal balance

United Kingdom

As per the Fiscal sustainability report July 2018 of the Office for Budget Responsibility, the primary balance of the UK is forecast to move from an expected deficit of 0.3% of GDP in 2022-23 to a deficit of 8.6% of GDP in 2067-68. Of that increase, 3.5% of GDP reflects mainly demographic pressures on the primary balance. In particular, health spending is anticipated to rise by 6.2% of GDP while state pension cost increasing by nearly 2%.

United States

Based on the Congressional Budget Office's 2018 Long-term Budget Outlook, the federal budget deficit would grow substantially over the next several years, from 3.9% in 2018 to 9.5% in 2048. Of particular interest, under current law, federal spending through age-related programs – underpinned by the share of population age 65 and over rising by 6 percentage points over the next 30 years - would account for about half of all federal non-interest spending by 2048, compared with about two-fifths today.

Australia

As per the Parliamentary Budget Office's 2019 report, ageing is projected to reduce the budget balance by around USD 36 billion by 2028-29. As a result of an ageing demographics, revenue is projected to fall by around USD20 billion, while spending is expected to increase by around USD 16 billion.

Sources: UK Office for Budget Responsibility July 2018 report , Australia's Parliamentary Budget Office 2019 report and Congressional Budget Office's 2018 long term budget outlook

Healthcare and other social benefits

Since elderly people consume more health services than the younger segment, increases in the share of the elderly population would inexorably exert pressure on public health spending as well as social aid paid out 'in kind' to the elderly. In fact, the population segment that has the highest risk of requiring healthcare services, commonly referred to as the 'oldest old' and defined as the population aged 80 and above, is projected to be the fastest growing age group in Mauritius over the next 40 years, growing on average by 2.8% a year. As a key source of concern, since healthcare is one of the major areas where life expectancy and population ageing interact with each other, the projected rise in the country's dependency ratios implies that there will be potentially relatively fewer people to provide healthcare while the need for it increases. Without significant advances in 'healthy life expectancy', i.e. the number of years an individual is expected to live in full health, longer lives will have a large effect on the total amount of ill-health and disability in the population. This will result in a major shift in the allocation of resources and the configuration of services, with increased demand for hospital beds, pharmaceutical products, investment in health technology and assistance in kind such as wheelchairs, spectacles and hearing aid. Other pressures on public spending would also arise from several welfare programs offered to the elderly such as free monthly domiciliary medical visits, free public transport, residential day care centres and recreational centres, amongst others.

Revenue generation capacity and fiscal space for capital spending

The ageing of the country's population could, other things being equal, have adverse ramifications on the Government's revenue generation capacity, given the fall in the number of taxpayers in working population. As per official demographic projections, the country would face up to a downsizing of the pool of potential taxpayers in the future, as shown by the number of prime working age people (aged 20-59) which is expected to fall by 33% during the next 40 years. Additionally, revenue from indirect taxation is also expected to decline, as population ageing is likely to have an adverse impact on private consumption. Consequently, the fiscal space available for capital spending on infrastructure, education, and technology could be compromised in favour of rising recurrent expenditure burdens linked to the ageing of the population, with potential effects on capital accumulation and productivity growth, as gauged by empirical studies.

General policy options that could be considered for tackling the ageing of the country's population are charted out below. Further details pertaining to specific routes are elaborated in the next sub-section. Additionally, a summary of key policies put in place by other nations facing similar demographic challenges is provided in the Annex.

GENERAL ORIENTATIONS

As the situation stands, while it is creditable to note that the local authorities have executed several initiatives to upgrade physical infrastructures and made various announcements to enhance social integration and improve quality of life, notably through the improvement of healthcare services, further decisive actions are deemed necessary, given the urgency of the situation to effectively prepare for and offset the ramifications of the ageing of its population. In this respect, Mauritius can resort to peer learning and draw upon the orientations which have guided the experiences of other nations that have and are facing similar demographic challenges and have initiated pragmatic reforms to maintain growth at high echelons alongside ensuring fiscal sustainability and promoting social welfare. Evidently, it would be important to properly sift through these reforms and initiatives in order to identify and implement those yielding the highest growth payoffs for Mauritius, whilst concomitantly laying emphasis on those which are best adapted to our socio-economic imperatives and realities. Importantly also, the policy response needs to strike a proper balance between age-related spending and broader macro-economic objectives. Also, the reform should ensure that socio-economic gains are rewarding enough to do away with the inevitable trade-offs associated to specific policies. From an overarching perspective, it is also crucial that we steer away from the stereotype of seeing older people as passive persons who experience physical and cognitive infirmness. Instead, they need to be viewed as an exceptionally productive and experienced resource. Indeed, as highlighted by Paul Irving, Chairman of Milken Institute Center for the Future of Ageing: *"Today's older adults are generally healthier and more vibrant than those of generations past. They are changing retirement norms as they seek to learn, work and contribute. They are driving growth and opportunity in entrepreneurial ventures and bolstering economic vitality as creators and consumers. In workplaces and classrooms, their guidance and beneficial support enhance performance and intergenerational collaboration."*

Overall, the trajectories that could be considered for comprehensively dealing with the ageing problem can be summarised under the following pillars: (i) step up productivity levels; (ii) boost labour inputs and foster

higher openness to foreign expertise; (iii) ensure the sustainability and soundness of our pension framework; and (iv) implement other measures, notably spanning the social and infrastructure fronts. Specific policy options under each of these pillars are delineated in the next section, with further insights given in the annex.

SPECIFIC POLICY MOVES

Step up productivity levels

As underscored in previous sections, robust productivity growth can act as a key driver for sustaining high levels of growth in the context of the ageing of the country's population, and the ensuing drop in labour force. However, this calls for the espousal of bold measures to re-ignite our productivity performance that has moderated in recent years, as depicted in the country's performance across international rankings. In fact, while Mauritius remained at the 49th spot out of 140 countries in the Global Competitiveness Report 2018 of the World Economic Forum and maintained its leading position in the sub-Saharan African region, concerns prevail in respect of the country's labour market dynamics and the depth of skillset and expertise of its human capital. In that respect, the report stressed that, *"the pillars where Mauritius delivers a weaker performance are those related to human capital...In particular, Mauritius is penalized by high redundancy costs and limited participation in the various levels of the educational system."* Some of these inadequacies have also been underscored in the Human Capital Report 2018 of the World Bank, which ranks Mauritius as 52nd out of 157 countries, alongside shedding light notably on the learning gap in our education system. Such trends put into light the need for sustained productivity enhancement in Mauritius. As underpinnings and in tune with empirical evidence gathered globally, the desired strategic interventions that could assist in boosting productivity levels in a context of ageing population are as follows:

- Enhance the skill-set of the labour force
 - Set-up a National Skills Strategy such as that in Portugal, in view to develop and strengthen elder learning system as well as targeting low-skilled and elder adults
 - Craft and design training programmes spanning a targeted array of priority competency fields
 - Adopt more responsive and productivity-driven wage-setting mechanisms which ensure that salary adjustments take due account of labour marginal productivities, the evolution of the cost of living and national competitiveness imperatives
 - Redefine goals for the development of a world-class national educational system and broader learning institutions

- Unleash innovation and technology adoption
 - Launch a National Programme on Ageing Workers, emulating the Finnish National Programme on Ageing Workers (FINPAW) - launched in 2002 - to encourage ageing workers – 45 to 64 years old – to remain in the workforce longer, as well as provide training and skills to help ageing workers stay up-to-date with changing technologies and workplace demands
 - Enforce well-defined intellectual property rights to encourage firms to innovate and promote knowledge diffusion via the public disclosure of ideas
 - Increase the recourse to R&D activities and the use and adoption of the latest-breed technologies
 - Promote the diffusion of global frontier technologies and knowledge through the implementation of policies which ease the mobilisation and reallocation of scarce resources to the most productive uses

- Bolster the conduciveness of our investment framework to enhance capital deepening
 - Reinforce the quality of the institutional set-up to further promote capital formation by businesses
 - Alongside building further capacity in agencies involved in market regulation, contract enforcement and dispute settlement for example, the range of procedures related to the investment process (e.g. fees applied, permits required, etc.) can be streamlined by, for example: (i) adopting a full-fledged rules-based approach to duly enforce existing policies; and (ii) fostering the enforcement of contracts and dealing with insolvencies
 - Further reinforce the operational framework for coordinating an effective design and implementation of investment promotion policies. The latter should be well assimilated into national and sectorial policies put in place, while laying due focus on target sectors, technologies, participant roles as well as essential infrastructure investment priorities

Boost labour inputs and foster higher openness to foreign expertise

In order to address the current worrisome labour market trends, another key priority is to boost labour force participation, notably of women, alongside adopting suitable postures to enhance the country's openness to foreign talents and expertise, especially in the high-skilled segment. Key enablers that could be considered towards these ends are described as follows:

- Develop a well-crafted strategy to attract foreign expertise and talents
 - Set up a dedicated talent management entity responsible for developing and implementing strategies to attract and retain foreign talents targeted to specific industries, like the Contact Singapore
 - Design and adopt a comprehensive skilled workers migration programme
 - Set ambitious targets in respect of the proportion of foreign talents in the labour force
 - Offer visa incentives to qualified immigrants within high-skilled services sector towards filling in existing skills gap in the labour market
 - Develop a points-based selection system where immigrants get points for criteria such as employment experience and education levels, and technical skills in niche segments that are in line with the development strategy of the country
 - Further tap into the regional talent pool, since the economy's growth dynamics are increasingly tilted to the high-skilled services sector as well as the pursuit of endeavours to deepen and entrench the country's reach in Africa
 - Further incentivise highly qualified and experienced Mauritian diaspora members back to the country
- Maintain appropriate level of foreign employment in traditional sectors
 - Alongside attracting skilled foreign labour, it is important not to underestimate the importance of low to mid-skilled workers to work in selected sectors such as manufacturing, construction and potentially agriculture
- Achieve a sustained leap in female participation
 - In addition to flexible working arrangement policies and crèche facilities highlighted by the authorities in last year's budget, other policies could be considered, including those that remove distortions against part-time work, and family oriented policies including availability of affordable childcare services
 - Foster more favourable tax and legal systems for women, and promote equal pay for equal work, like in the case of Scandinavian countries
 - Promote more flexible work environments, work-life balance and diversity, and boost female representation in management

- Create a conducive framework for part-time work
 - Implement a Silver Human Resources Centre programme, similar to that of Japan, to provide part-time paid employment to retirement aged men and women, backed by necessary laws and regulations for work flexibility
 - Introduce on-call work shifts, targeting particularly older people
 - Make job applications easy to apply from anywhere and at any time
 - Set up a Flexible Work Task Force, a partnership across government, business groups and trade unions to increase the uptake of flexible working policies as carried out in the UK
 - Embrace job sharing practices - a common practice in many European countries and in the UK - helping older employees move from fulltime work to part-time work

Sustainability and soundness of the Basic Retirement Pension (BRP) framework

At another level, it is of paramount significance to embrace holistic and judiciously-designed pension reforms against the backdrop of ageing population and rising dependency trends so as to reduce strains on the fiscal balance while providing for a better social protection system. At the same time, the highly sensitive nature of the matter should be recognised, which implies that we should conduct active, regular and transparent consultations with economic and social stakeholders, to lay down a comprehensive package of programmes that would be implemented in a phased manner. In that respect, potential options and/or policy mix to be investigated for the adaptability to our socio-economic imperatives are elaborated below:

- The review of the social welfare programme and adoption of a well-crafted means testing system
 - Consider a means-testing system whereby BRP allowance are juxtaposed, for instance against income and assets, such as the system practiced in Australia, with applicable thresholds being updated annually, and backed by regular monitoring and evaluation of the relevant programme
- The design of an adjustment mechanism for the retirement age
 - Explore the possibility of introducing an adjustment mechanism for linking retirement age to life expectancy such as in Denmark, backed by the establishment of proper safety net for those who might not be healthy enough to work longer. Importantly, as stressed in the previous section, a conducive framework should be created to encourage older people to opt for part-time work
 - Besides, alternative options could be to permanently increase BRP benefits by a given amount for each month of postponement. The option to receive enhanced benefits in return

for delaying their retirement has been available to Canadians since the 1960s. Another alternative approach would be to reduce the rate of income tax payable by workers who delay collecting their pensions

- The indexation of the amount of increase in BRP allowance
 - Consider the potential indexation of pension allowance to a combination of inflation and a proportion of wage growth, towards ensuring fiscal discipline
 - Alternatively a progressive indexation system giving larger increases to low pensions, such as in the case of Portugal could be considered

Other measures

Social initiatives

- Boost fertility rates
 - Raise the child benefits to financially help parents offset the cost of raising children
 - Promote additional continuum of support such as helping parents throughout the early years by providing paid parental leave, access to affordable and universally accessible pre-school for young children, out-of-school-hours care for primary school children, home visits by nurses, free or subsidised day-care, like Nordic countries
- Foster a savings culture
 - Promote greater public awareness and encourage private saving to create further room for increased productive capital spending. Policies could be designed to discourage or postpone consumption, such as encouraging higher proportions of non-cash or deferred compensation, and other initiatives such as those in UK encouraging savings at a younger age. For instance, the authorities could raise awareness among the general public and in schools/universities on the importance of mobilising savings through financial literacy courses/adverts

Logistics and infrastructure

- Design an integrated health care system
 - Embrace a holistic approach to enhance accessibility to quality health services, the more so in a context of a growing old aged cohort. As people age, the demand for hospital beds and access to health services is likely to rise further. The authorities could come up with a comprehensive, integrated centre and home-based services to support caring of the elderly like the Singapore Programme for Integrated Care for the Elderly
 - Offer older people the possibility to purchase housing in their local community which will meet the support requirements needed to enable them to age in place and avoid the need to move again should their health condition deteriorate, such as in Australia
 - Enact policies that promote lifelong health and emphasise preventive care—such as those that support good nutrition and physical activity, and discourage tobacco use and the harmful use of alcohol and drugs—to prevent or postpone the onset of age-related disability

- Adopt an elder-friendly transport system
 - Further promote the modernisation and sophistication of the transport system alongside catering for the needs of elder people by introducing, for instance, Green Man + scheme to support elderly pedestrians like Singapore Land Transport Authority, and consider having low-floor buses with wheelchair accessibility

CONCLUDING REMARKS

Mark Twain once said: “Age is a case of mind over matter. If you don’t mind, it doesn’t matter.” Yet, the challenges emanating from the double-whammy of shrinking and rapidly ageing population that Mauritius is about to face over the coming decades matter a great deal. As expounded in this report, this situation would, *ceteris paribus*, trigger a decline in labour force, while exerting pressures on nationwide economic activity levels and our competitiveness on foreign markets. At the same time, rising pension and other age-related expenditures could *per se* weigh on our fiscal balance. Against this backdrop, the Mauritian economy is left with no other alternative than to resolutely wrestle with the looming ageing dilemma. In addition to making the most of the opportunities presented by the ageing of our population – especially through incentives to encourage the participation of the elderly in economic activities as appropriate and their skills transfer to younger generations – the ageing population conundrum underscores the need for ambitious, well-designed and far-reaching policy measures. As stressed in this report, these notably encompass moves that would foster a sustained improvement in productivity levels and boost labour input, especially by means of a rise in female activity rates and the well-calibrated recourse to foreign expertise and talents. Importantly also, the gradual and thoughtful reform of the national pensions framework is called for to mitigate the projected increase in pension spending over the periods ahead and anchor the country’s fiscal consolidation agenda on a credible and sustainable footing. That said, the sensitivity of the matter highlights the need for adopting an informed approach to tackle the country’s demographic transition, while contemplating an appropriate mix of measures in tune with the country’s idiosyncratic realities. Along the way, the recourse to international technical support and expertise could prove beneficial in demystifying the intricacies of our ageing dilemma and enabling the proper framing of key policy orientations. Above all, active and regular consultations with actors of the social and economic spheres is deemed primordial to ensure that envisioned measures are based on a solid footing, alongside fully integrating earmarked moves into economic restructuring programmes. Overall, the onus for Mauritius Inc. is to operationalise policies that will enable the economy to resolutely rise up to the ageing population challenge, alongside endorsing actions and assistance programmes that will protect incomes of the most vulnerable sections of the population and contribute to the sustainable progress and prosperity of all Mauritians.

J. Gilbert Gnany

Chief Strategy Officer

May 23, 2019

ANNEX

Underlying orientations and courses of action deployed by other nations facing similar demographic challenges as Mauritius are summarised in the sections below.

Step up productivity levels

Enhance the skill-set of the labour force

- Faced with an ageing population and elevated debt levels, Spain, Italy, Portugal, Greece and Ireland are actively promoting close collaboration between private businesses and educational institutions towards devising learning sources and formal curricula that are attuned to the current and expected future requirements of economic sectors and operators.
- In Portugal, a National Skills Strategy has been developed to strengthen elder learning system learning as well as targeting low-skilled and elder adults.
- The United Kingdom has introduced training policies specifically targeted at older cohorts. In Korea, firms are encouraged to hire older workers (55+) and receive a subsidy if they have more than six percent of their staff over this age.
- Japan introduced a wage subsidy, payable to older people who accept lower paid work when they have reached the mandatory retirement age of firms. The Australian Government provides an incentive to the old-aged who can still work, to do so, through the Work Bonus, which allows them to keep more of their pension when they have earnings from working.
- China recently rolled out a vocational school training program to prepare more senior care professionals. Hands-on training is to be promoted, and subsidies are to be given to those who attend trainings for aged care. Attention is also to be paid to working conditions of staff and staff welfare, including social insurance and pensions.

Unleash innovation and technology adoption

- The concept of universality in selected areas of education has been extensively applied in selected Asian economies, whilst a human capital and technology-led strategy was adopted in order to create a knowledge-intensive economy, which focuses on quality education, R&D, innovation as well as transparent and effective governance institutions across the human capital, knowledge and innovation systems.
- Ireland fostered a networked economy through the adoption of an urban framework in order to nurture learning and innovation strategies and unlock the positive externalities on the success of policies to promote technological transfer.

- Finland authorities introduced the Finnish National Programme on Ageing Workers (FINPAW) - launched in 2002 - to encourage ageing workers – 45 to 64 years old – to remain in the workforce longer, as well as provide training and skills to help ageing workers stay up-to-date with changing technologies and workplace demands,. Basically, FINPAW was one of the first European programmes to reverse previous policies towards ageing workers and their early exit from the labour force.
- Singapore recently came up with a National Innovation Challenge on Active and Confident Ageing to catalyse research related to ageing.
- The IMF further stresses the importance of removing barriers to competition, cutting red tape, and investing more in education and Research and Development (R&D). This would unleash entrepreneurial energy and help attract private investment in ideas that are new, surprising, and useful.

Boost labour inputs

Develop a well-crafted strategy to attract foreign expertise

- The Singapore model makes for interesting reading. Indeed, the country has, over time, introduced several initiatives and policies to attract foreign expertise, to assist in tackling the ageing of its labour force. These include:
 - The creation of a specific entity, the Singapore Talent Recruitment (STAR) Committee, responsible for developing and implementing strategies to attract and retain foreign talents.
 - The presence of a specific agency, Contact Singapore, in major countries in the world, which aims to promote the country overseas. It provides information on working, studying, and living in Singapore to foreigners
 - The provision of facilities such as housing subsidies through the Scheme for Housing Foreign Talents providing housing subsidy to foreign talents
 - The offer of scholarships to ASEAN and Non-ASEAN students to study in Singapore as an investment in Singapore’s future human capital
- Of note, while Singapore has a quota system for lower-skilled industries such as construction, it maintains little restrictions on high-end jobs such as in artificial intelligence and software programming. It is open to foreign talents in those areas while the country rebalances its education system to meet future demands in line with its strategy to become a high-tech financial hub and digitally savvy “Smart Nation”.
- Design and adopt a comprehensive skilled workers migration programme
 - The German cabinet has approved a new immigration law in a bid to attract skilled foreign labor. The long-awaited law, which is due to come into force in 2020, removes several obstacles for

immigrants wishing to work in Germany, especially for those who prove they can fill job shortages that Germany and other EU nationals cannot. It also permits immigrants with appropriate qualifications, German knowledge and necessary financial means, to come to Germany and seek for work. Previously, the opportunity was reserved only for the highly-qualified professionals. Under this law, foreign labour will also be permitted to come to Germany and have their qualifications approved and officially recognised by a German institution

- Canada is increasing its immigration targets for 2019 and 2020 and will extend its multi-year immigration levels plan through 2021, setting the stage for the arrival of 1.3 million new permanent residents between 2018 and 2021. The economic immigration programs managed by the federal Express Entry economic system and Canada's Provincial Nominee Programs (PNPs) will continue to play important roles under the plan, which expands the potential number of admissions through each program in 2019. Of the 1.3 million new permanent residents that Canada is planning for by the end of 2021, nearly a quarter — 331,000 — are projected to come through the three economic immigration classes managed by Express Entry, based on their annual targets.
- Japan recently had a revision of its immigration control and refugee recognition act to pave the way for accepting about 340,000 foreign workers in targeted industries over five years. It also plans to open one-stop consultation centers, where foreigners can get the help they need in multiple languages.
- Furthermore, the Skilled stream of the Migration Program is designed to attract migrants who make a significant contribution to the Australian economy, and fill positions where no Australian workers are available. Skilled migrants have very high participation rates in the workforce, helping to stimulate economic growth, which results in more jobs. Points-based selection systems where immigrants get points for criteria such as English language proficiency, employment experience and education levels. Australia, for example, requires a minimum of 65 points for selection, though the threshold can reach up to 90 points for some industries. Applicants can get 20 points for superior English skills, another 20 points for holding a doctorate (versus 15 points for a Master's degree), and up to 15 points for experience working overseas — with bonus points if they've ever worked in Australia
- US President Donald Trump has outlined plans for a new US immigration system designed to favour younger, better educated, English-speaking workers. In an address at the White House, he proposed moving away from the current system that favours applicants with family ties to the US

Achieve a sustained leap in female participation

- Scandinavian countries and, more recently, Japan have sought to raise female labour participation by offering affordable childcare, making tax and legal systems fairer for women, and promoting equal pay for equal work.
- Along the same lines, the OECD recommends support to families with young children, in particular in the form of parental leaves (up to a duration of 20 weeks) and childcare subsidies to raising female participation. Moreover, incentives could be considered to promote a culture of work-life balance.

Create a conducive framework for part-time work

- For those aged above 65 years, part-time work options are increasingly prevalent in many European and Asian countries facing ageing populations. For example, Japan has developed a Silver Human Resources Centre program, which provides part time paid employment to retirement aged men and women. Basically, older workers have formal, technical and tacit skills which they have accumulated throughout their career service. Employers in sectors which are facing labour shortages are seeking to acquire such skills through programmes such as mid-career apprenticeships. Older workers can also help younger ones find pathways into secure and well-paid work through mentoring and job sharing.
- In the UK there is a Flexible Work Task Force, a partnership across government, business groups and trade unions, to increase the uptake of flexible working policies.
- Job sharing practices are becoming very common in many European countries and in the UK - helping older employees move from fulltime work to part-time work

Sustainability and soundness of pension framework

Design an adjustment mechanism for the retirement age

- In 2017, Australia raised effective retirement age from 65 to 67. Similarly, Denmark whose pension system has been ranked as “first class and robust” by the 2018 Melbourne Mercer Global Pension Index, has adopted a legislation to index statutory and early retirement ages to life expectancy in order to ensure sustainable public finances. This system mechanism will raise retirement age by up to one year every five years.

Implement a contributory pension scheme (different from BRP)

- United Kingdom’s state funded Basic State Pension model, whereby the amount that can be claimed depends on the number of qualifying years of National Insurance Contributions (NICs). Contributions

are charged on earnings from employment and self-employment or credited for individuals claiming unemployment benefits or having earnings above the lower earnings limit (LEL) but below the primary threshold. The receipts from NICs are paid into the National Insurance Fund, which is separate from all other revenue raised through taxation and the government has no power to use NICs to fund anything else than contributory benefits, which mainly consist of retirement pensions. The Fund's expenditure is met wholly from workers and employers contributions and to a small extent by investment income.

- Similarly, France's compulsory basic schemes operates on a pay-as-you-go basis and give contributors the right to a basic retirement pension, calculated by years of pensionable service. This scheme benefit the entire working population (employees in public and private sectors alike and the self-employed).

Review the social welfare programme and adopt a well-crafted means testing system

- The Japanese system, for instance, automatically slows the growth of benefits to offset increases in life expectancy and changes in the labour force. Other countries—such as Germany, Finland, and Portugal—also link benefits to life expectancy. Further insights on the design of means testing system from other countries are explained below:
 - The age pension in Australia has been a means tested payment, against both income (starting from AUD 2,700 per month) and asset (AUD 137,000 – AUD 237,000 per person), with eligibility for the pension based on age (67 years) and residency (at least 10 years).
 - Similarly, in 2012, Japan came up with means testing fiscal reform plan for its national pension system (equivalent to U.S. Social Security). The plan calls for limiting maximum benefits to persons with annual incomes of JPY 8,500,000 (USD 110,000) or less. Above this income level, up to an annual income of USD 169,000 benefits would be gradually reduced by half.
 - By contrast, Germany old earnings test for workers aged 63 to 67 who continued to work while receiving a pension has been changed, making it more attractive to work. For those with annual earnings up to EUR 6,300, the full pension is paid and for those with annual earnings above EUR 6,300, the full pension is reduced by 40% of the additional earnings.
 - In Denmark, there is a public basic scheme which amounts to DKK 75, 924 per year (USD 24,091). A means-tested supplementary pension benefit is paid to the financially most disadvantaged pensioners. To calculate this supplementary pension, there is an individual earnings test whereby the basic pension is reduced if earned income exceeds DKK 329,600. The benefit is reduced at a rate of 30% against earned income above this level.

Index the amount of increase in pension payment

- Indexation refers to the increase in pensions in payment, where price indexation is the most common type. As per World Bank social protection and labour discussion paper, international best practice suggests indexation post-retirement should be by inflation only, with the logic that an individual's purchasing power should be maintained from the first day of retirement throughout retirement, however long it lasts. However, the vast majority of countries in Sub-Saharan Africa adjust civil service pensions to reflect civil service wage growth or on an ad-hoc basis to approximate civil service wage growth, which is typically higher than inflation. Some countries adopt a mix of wage and inflation indexation. For instance, Japan has an indexation system to wages until 67 years and to prices after age 68. Some countries have progressive indexation, giving larger increases to low pensions. For example, Portugal indexation system is higher for low pensions and it is more generous if the country has a GDP growth.
- For instance in Australia, since July 2017, the rate of the Age Pension (and other pension payments) has been indexed according to the Consumer Price Index (CPI) only.
- Estonia on the other hand, the size of the pension index is calculated to the extent of 80% based on the change in previous year's social tax receipts and to the extent of 20% based on the change in the consumer price index.
- In Poland, pensions are indexed by factor which is a combination of inflation and 20% of wage growth.
- In Finland, the pension provider uses the wage coefficient to adjust the insured's wages and income from work during their working life to the level of the year in which the pension starts. This is done to ensure that a person who is retiring will get a pension that is proportionate to their income level while still working. The pension provider adjusts the earnings-related pension in payment annually, at the beginning of January, according to changes in the earnings-related pension index. Indexation with the earnings-related pension index secures and even improves the pension's purchasing power.

Other measures

Social initiatives

Boost fertility rates

- In Germany, Kindergeld, or child benefit, is a standardised monthly payment made by the German government for children under the age of 18 (and up to 25 in certain circumstances), which is intended to offset some of the costs of raising a child. The amount paid is a flat sum for each child and is not affected by the parents' or carers' income. As of 2018, the payment is calculated as follows: The German state pays EUR 194 Euros a month per firstborn and second born child, with the figure going up to EUR

200 for a third child and EUR 225 for the fourth. The money is not paid in cash but transferred to the bank account of the parent or carer of the child. Incentives to encourage offsprings in Germany: paid parental leave of as much as EUR 1,800 for up to 14 months, parental receive 194 euros a month in state child support for as long as 25 years, recent mothers get home visits by midwives and can receive household help, parents get free or subsidized daycare and free health care for most kids until the age of 18.

- Additionally, parents in France get monthly child benefits that are not means tested, which start with their second infant. They receive EUR 131 when they have two offspring, EUR 299 for three and an additional EUR 168 for each subsequent child. One-off payments upon the birth (EUR 941) or adoption (EUR 1,883) of a child are given to parents, both of which are means tested.
- On another note, Nordic countries and France, for example, have developed a “continuum of supports” to help parents throughout the early years. This means providing paid parental leave, access to affordable and universally accessible pre-school for young children and out-of-school-hours care for primary school children. These policies have been in place since the 1970s, creating a stable family-friendly environment, in which parents feel confident in the decision to have more children.

Foster a savings culture

- Raise awareness among the general public and in schools/universities on the importance of mobilising savings through financial literacy courses/adverts
- Policies can be designed to discourage or postpone consumption, such as encouraging higher proportions of non-cash or deferred compensation, “baby bond” initiatives such as those in UK, and even imposing mandatory savings programs. Such measures have led to higher savings in both the US and Japan.
- The US example for low- and moderate-income households to save, where a Retirement Savings Contribution Credit/ the Saver’s Credit, through which taxpayers with income below certain thresholds may be able to take a tax credit of up to USD 1,000 (USD 2,000 if filing jointly) for making eligible contributions to a retirement account.

Logistics and infrastructure

Design an integrated health care system

- The Singapore Programme for Integrated Care for the Elderly provides a good example of a model that provides a comprehensive, integrated centre and home-based services to support caring of the elderly.

As per the OECD policy brief on health for European countries, a better coordination of care across health and social services, as well as across different levels of health care is seen as crucial.

- Singapore's health policy regarding old persons is inspired by the vision that aged persons should live in one's own home and community for as long as desired. As such, the following policies have been put in place:
 - Regular health screening, physical exercise programmes and social interest groups to keep seniors physically, mentally and socially active
 - Eldercare facilities with bundled home care, centre and nursing home services under one roof
- Also, the National Prevention Programme - 'Everything is Health' in Netherlands, has a focus on 'healthcare close by' with emphasis laid on: (i) education; (ii) promoting health in the neighbourhood and occupational health; (iii) prevention by improving cooperation with healthcare partners such as insurers to incite them to focus on prevention; and (iv) maintaining a good level of health and safe food provision.
- Australia introduced the Apartments for Life model - A key feature of this model is that it offers older people the chance to purchase housing in their local community which will meet the support requirements needed to enable them to age in place and avoid the need to move again should their health condition deteriorate. Additionally, the Home Modifications and Maintenance Services program delivers an important service to support frail older people, people with a disability, and their carers to remain at home
- The Norwegian government issued policy suggestions to improve long-term care coordination, including better defining priorities, focusing on early intervention, changing the funding system, developing specialist health care services, and introducing new information technology and education for long-term care professionals. Specifically, in order to increase patient involvement and improve efficiency and quality of care (both medical and social), the Norwegian government introduced a law on individuals having the right to an individual care plan. At a national level, this enables patients to get their own individualised care plan, managed and coordinated by health professionals. The law is directed at improving the care continuum for patients with difficult conditions, so it typically involves individuals with co-morbidities, elderly patients, or people with severe psychiatric diagnoses.
- For certain types of medical diagnosis, Telemedicine could provide elders with ease and convenience to interact with a doctor, avoiding any stress caused by commute and traffic. Countries are more and more harnessing the digital possibilities offered by artificial intelligence, cognitive assistance and robotics with the growing move from face-to-face to cloud-based consultations for some treatments, like medication management, management of chronic health conditions, consultations, and follow-up visits. Furthermore through its mobile application - Ping A Good Doctor', China is connecting patients nationwide with credentialed clinicians.

- Australia's National Aged Care Alliance Blueprint for delivering positive aged care reform. The Blueprint essentially focuses on:
 - Affordable age care services for the community and individuals according to financial capacity
 - Access to care and wellness services that will improve or maintain independence and place in community to the greatest degree possible
 - An aged care system that can deliver high quality assessment, care and treatment
 - Aged care, disability, community services and health care systems are aligned to ensure consumers can transition between service systems seamlessly and always receive the care and support that best meets their needs
 - Workforce education and development opportunities and employment conditions and practices, including remuneration, to ensure an appropriately skilled, secure and responsive workforce of sufficient number to meet future quality care needs
- Also, the UK recently issued a Green Paper on social care to explore the funding issues and a number of policy ideas such as a cap on lifetime social care charges, an insurance and contribution model, amongst others.

Adopt an elder-friendly transport system

- Since 2009, the Land Transport Authority of Singapore has introduced the Green Man + scheme, which allow elderly pedestrians or pedestrians with disabilities to extend the green time of a pedestrian crossing by tapping their concession cards on a reader attached to the traffic light pole. Moreover, it has implemented a comprehensive plan to make its transport system senior-friendly. These include, *inter alia*:
 - seats at 50-metre intervals along selected sheltered walkways so that seniors can rest while walking to their destination;
 - silver zones to improve road safety in areas of more seniors wheelchair-friendly and foldable seats in new buses to increase flexible seating capacity,
 - priority queues at all new bus interchanges and integrated transport hubs
- Singapore has an objective of replacing all buses with wheelchair-accessible ones by 2020 and extend the stop time of trains at Mass Rapid Transit stations by around two to six seconds during off-peak hours, so that seniors have more time to board trains. Similarly, in 2000, Japan passed the Public Transportation Accessibility Act, which mandated transportation businesses to make their equipment and facilities accessible, leading to a dramatic increase in accessibility across the transportation sector.

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