Government of Jersey Future Economy Programme

Work Package 2

Impacts of an ageing population on Jersey's economy

Final Report

November 2021

pwc

R.182-2021

Contents

Executive Summary

The Government of Jersey's Future Economy Programme (FEP) seeks to shape the long-term future direction of the economy of Jersey, with a focus on productivity and skills.

In June 2020, the Government of Jersey (GoJ), via the Economy Department, appointed PwC as their strategic partner in delivering the FEP. Several cross-cutting policy development areas have been identified as a priority to shape the long-term economic success of Jersey. One such area is population. The size, age and skills profile of Jersey's population will shape how the economy evolves over the coming decades.

This report was jointly commissioned by the Economy Department and the Department for Strategic Policy, Performance and Planning. The goal is to study the macroeconomic and sectoral effects in Jersey of an ageing population to inform policy. The report focuses largely on the evidence. Although policy recommendations are beyond the scope of this study, broad policy directions are offered. Below are some key findings:

The make-up of the Jersey population has grown significantly older over the past century. The share of islanders aged 65 and above has increased from 8% in 1891, to 12% in 1951 and 17% by 2021. More broadly, all age groups over 40 have seen double digit growth over the past 3 decades - while the number of people aged 20-29 has seen a fall of over a fifth. This has coincided with an increasing number of islanders pursuing higher education overseas. People aged 50-59 now represent the largest age group, whereas it was those between the ages of 20 and 29 in 1991.

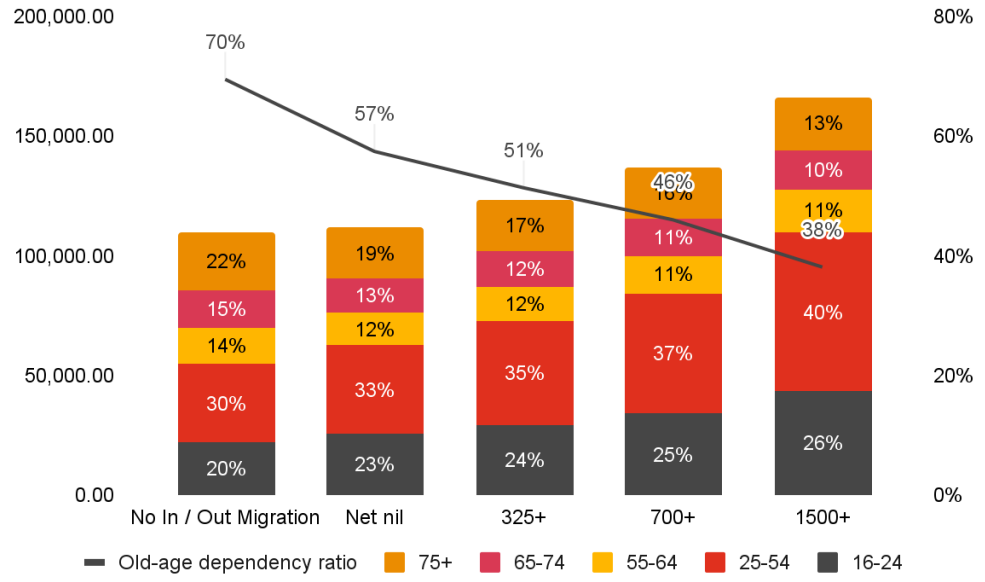
The ageing of Jersey's society is expected to accelerate in the future. The fertility rate has moved below the replacement rate of 2.1 children per-woman while life expectancy has increased. The fertility rate is a fifth lower in Jersey than in the UK, having trended downward for the past 3 decades from 12.5 children per 1,000 population in 1993 to 8.8 in 2018. With net-700 migration per-year, the share of people aged 65+ is expected to account for over a quarter of the population by 2050.

As a result of this demographic change, Jersey faces an increasing old-age dependency challenge, be it to a slightly lesser extent than the UK. Between 2010 and 2019 the old-age dependency ratio has increased from 21% to almost 26%. This means that for every 4 people of working age (15-64) there is 1 person over 65. The old-age dependency ratio is expected to reach over 40% by 2050.

Jersey's population ageing tends to reduce the size of its labour force. In line with international evidence, local analysis finds that as islanders grow older, the average number of hours worked, salary earned and labour force participation decline. Therefore, as increasingly more people enter older age groups, overall labour force participation (i.e. the % of people in employment or seeking work) declines in the economy.

Population projections indicate that positive inward migration will be needed to grow Jersey's workforce and to slow the increase in the old-age dependency ratio. Population growth is now largely driven by net-migration, accounting for approximately 80% of population growth between 2001 and 2019. If Jersey adopted a policy of net-nil migration, the workforce would shrink by a fifth and the dependency ratio would increase to 57% by 2070. Alternatively, with +325 migration a year, the workforce would largely be the same size in 2070 as in 2021, but the old-age dependency ratio would still grow from 26% to 51%. With higher net- migration of 1500+ per-year, the workforce would steadily grow and the dependency ratio would reach 38% by 2070.

Population projections by age under different migration scenarios, 2050[1]



Source: Statistics Jersey - Population Projections report 2016 (here); PwC Analysis

Increasing labour force participation, particularly of older workers, is crucial to maintain a workforce that meets the needs of the economy and to reduce reliance on migrant labour. The scale of inward migration needed to maintain the workforce size will partly depend on changes to the labour force participation rate. Under a net-migration scenario of 700+ per-year, the difference between high and low participation rate scenarios could equate to over 12,500 workers by 2050. In GVA terms, the projected difference by 2050 between low and high participation rates could be worth more than one billion (£) per-year.

An ageing population will impact some sectors' workforces more than others. Currently, both financial services and hospitality have a relatively young workforce with fewer than 13% of employees aged over 55 - however both sectors have a poor record of retaining older workers. Inversely, in the transport, storage and communications sector, over 27% of employees are 55 and above. The demographic imbalances between sector' workforces are likely to cause severe labour shortages as some grapple with issues of employee succession planning, while others with employee retention.

The type of employment activity created in Jersey will play a part in determining the island's capacity to retain and retrain older workers. As a knowledge-based service economy, Jersey is arguably better positioned to retain an older workforce compared to economies concentrated on manual labour.

Technological progress can be the vehicle to mitigate the adverse effects of ageing. Capital-intensive industries can offset a shortage of labour by investing in automating technologies i.e. industries with high levels of capital investment per-worker. Labour shortages are likely to be accentuated in sectors that are more labour-intensive and less susceptible to automation, for example in healthcare and education.

Jersey's sectoral economic activity will be driven by how older people consume and spend. Spending by those aged 55 and above is expected to constitute 50% of total spending by 2050. Input-Output estimates show that by 2050 those aged 65+ will support a net-additional 2,313 jobs and

[1] These projections are based on current and historic migration rules and data. They do not show likely impacts of any new migration rules.

£156.5 million in GVA compared with 2020. Whereas the net-additional spending by islanders under 65 will support 1,653 new jobs and generate a GVA of £131 million. Hospitality, health care, and retail and wholesale are sectors expected to benefit from increased consumption (including in terms of job creation).

Changing aggregate expenditure across sectors can slow economic growth. Though older consumers will be more numerous and thus take a larger share of aggregate expenditure, the lower per-capita spending of those aged 65+, compounded by a concentration of spending in lower productivity sectors (e.g. health care), means that an ageing population can slow overall productivity in Jersey's economy. Furthermore, these trends can exacerbate existing skills shortages in those sectors.

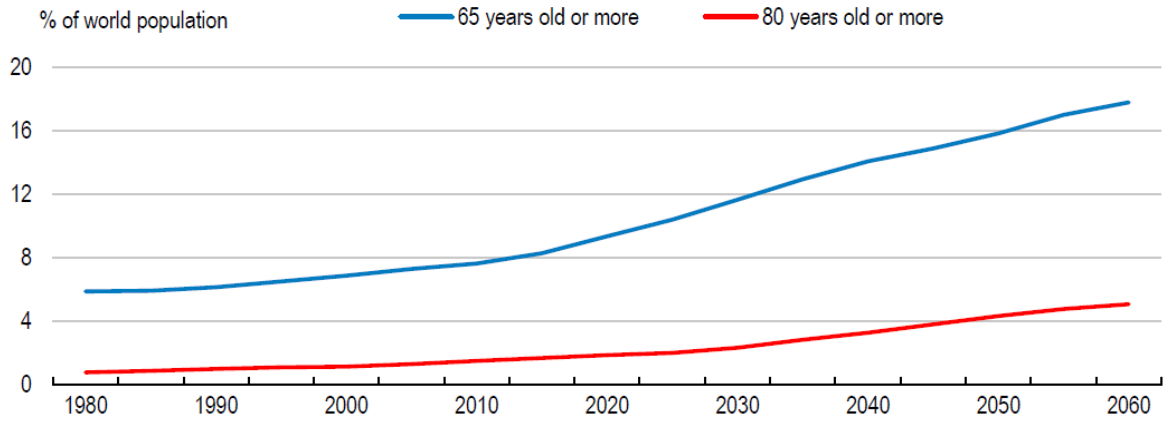
On the fiscal side, a potential drop in the tax base combined with increasing government expenditure can put pressure on fiscal sustainability. The current health care expenditure, for instance, is likely unsustainable in the future. Under the net 700+ migration scenario, the number of people aged over 65 is expected to increase by 14,193 by 2050. Assuming a constant per capita health spend over the next 30 years, a further £60.4m in spending will be needed to cover the healthcare needs for those aged 65 and above, creating pressure to increase tax rates to keep the budget balance in order.

Policies are needed to facilitate more participation of society in the workforce. The report identifies four policy areas to achieve this: (i) retirement and pension policy; (ii) employment support policy; (iii) skills and lifelong learning policy; (iv) healthy ageing policy. The first policy area is of lower priority for Jersey since the rules of pension systems do not seem to discourage work by older workers. The other three areas are interrelated and they can jointly promote employability and skills of older workers and help achieve better labour market inclusion not only of older workers but more generally of women, youth and migrants.

Introduction

With life expectancy increasing and fertility declining, the number of people aged 55 and above in OECD countries is projected to grow by almost 50% between 2015 and 2050 - to around 538 million.[2] Whereas higher life expectancy is good news, an ageing population can put significant financial pressure on health, social care and pension systems when it is accompanied by a higher *old age dependency ratio*.

Figure 1: Share of the elderly in global population



Source: OECD (2019), Fiscal Challenges and Inclusive Growth in Ageing Societies, OECD Economic Policy Paper No. 27, September 2019.

The impact of an ageing (and sometimes shrinking) population is already visible in many advanced economies[3] - everything from economic and financial performance to the shape of cities and public policy priorities. In Jersey, the combination of an ageing workforce, a tight labour market, restrictive migration policies, and a growing skills gap - all within a small island economy - will likely have a significant impact on output and productivity.

As a population grows older, its tastes and behaviours are reshaped which in turn affects how people spend money, time and resources. These changes in consumption will help to mould how Jersey's economy develops over the coming decades. There is substantial literature on the impacts of demographics and ageing on different countries: it tends to lower labour-force participation and savings rates, and may slow economic growth.[4] Yet, how far such evidence applies to Jersey depends on the island's specific geographical, economic and social contexts.

Objective of study

This study has been commissioned as part of the Government of Jersey Future Economy Programme (FEP). The FEP has the overall aim of delivering a framework for a sustainable, vibrant and inclusive economy and skilled local workforce for Jersey's future. The FEP has identified several cross-cutting

[2] By 2060, all G20 economies are expected to have fertility rates below the replacement level of 2.1, and to have experienced significant increases in longevity, by an average of 4 years. Source: OECD (2019), Fiscal Challenges and Inclusive Growth in Ageing Societies, OECD Economic Policy Paper No. 27, September 2019.

[3] For instance, across the EU, spending by those aged 50 and above is projected to account for 32% of the EU GDP and 38% of it's employment by 2025. Spending by those 50 and above will put an upward pressure on demand for goods and services which drive lower value employment. For instance on recreational activity and healthcare. source: https://ec.europa.eu/info/sites/default/files/economy-finance/ip142_en.pdf

[4] In Implications of Population Aging for Economic Growth (NBER Working Paper No. 16705), co-authors David Bloom, David Canning, and Gunther Fink conclude that OECD countries are likely to experience lower rates of economic growth because of population aging.

priority policy areas where work to understand the synergies and trade-offs is key to building Jersey's Economic Framework. Jersey's population demographics is one such priority area.

Within that context, the objective of this report is to provide insight into the expected impact of population ageing on Jersey's current and future economic performance, with a particular focus on workforce and employment effects.

The report explores impacts on: (i) Labour force and employment; (ii) Productivity and growth; (iii) Public finances and the long-term solvency of public pension, health care, and long-term care systems.

The overall employment and productivity effects are driven by how different *sectors of economic activity* are likely to grow into the future as a result of having a larger portion of older consumers, and by how prepared businesses in those sectors are to adapt to an ageing workforce - in terms of having access to the skills and technologies they need. The sectoral distribution of older workers will influence productivity and, in turn, economic growth, which ultimately determines the severity of the fiscal implications of an ageing population.

With an ageing workforce, access to workers can become scarcer. One peculiarity of Jersey is that the growth and evolution of population, and in turn of the labour force, will be shaped significantly by the inward migration of British and other workers.

The following study presents alternative labour force projections and provides policy directions in key areas, taking into account the sectoral trends in Jersey as well as evidence of policies that have worked in other countries. Beyond the relevance of migration (and related policies), the government can utilise a number of policy levers to increase the participation and productivity of older workers. Relevant policy areas include pensions and social security, labour markets, education, lifelong learning and technology utilization.

In the context of increasing old-age dependency ratios, government action normally seeks to increase workforce participation, flexible retirement and skills. However, policy directions should look beyond the traditional "old-age" policies. Although it is true that older people are more likely to be inactive and claim social benefits, technological developments may already be changing the equation. There is emerging international evidence that older people, who are living longer and healthier (thanks to medical innovations) are embracing technology to engage in additional work, thus contributing to the economy even if some receive a pension. Meanwhile, some younger people can be hurt by technological developments (e.g. automation) if they are not properly equipped with the right skills. The future of Jersey's prosperity depends on preparing everyone in society, inclusively, for the demands of the future economy.

Report structure

- **Section 1** gives an overview of historical demographic trends in Jersey, explains the drivers and provides demographic projections under population growth (and migration) scenarios.
- **Section 2** explores what the changing age structure of the population means for participation in the labour market (today and in the future), for employment and for labour productivity.
- **Section 3** looks in more detail at employment effects by sectors of economic activity and at potential labour / skills shortages due to retiring workforces. It also looks at the 'demand side' by analysing sectoral activity growth into the future - and what this means for the structural change of Jersey's economy.

- **Section 4** steps back and analyses what these transformations mean for the wider economy, in terms of GDP, economic growth and fiscal implications.
- **Section 5** provides policy directions by leveraging what we know of ‘ageing policy’ from other countries and analysing their relevance in Jersey’s context and potential outcomes.
- **Section 6** concludes with a commentary on how the findings of this research inform the development of Jersey’s Future Economy Programme.

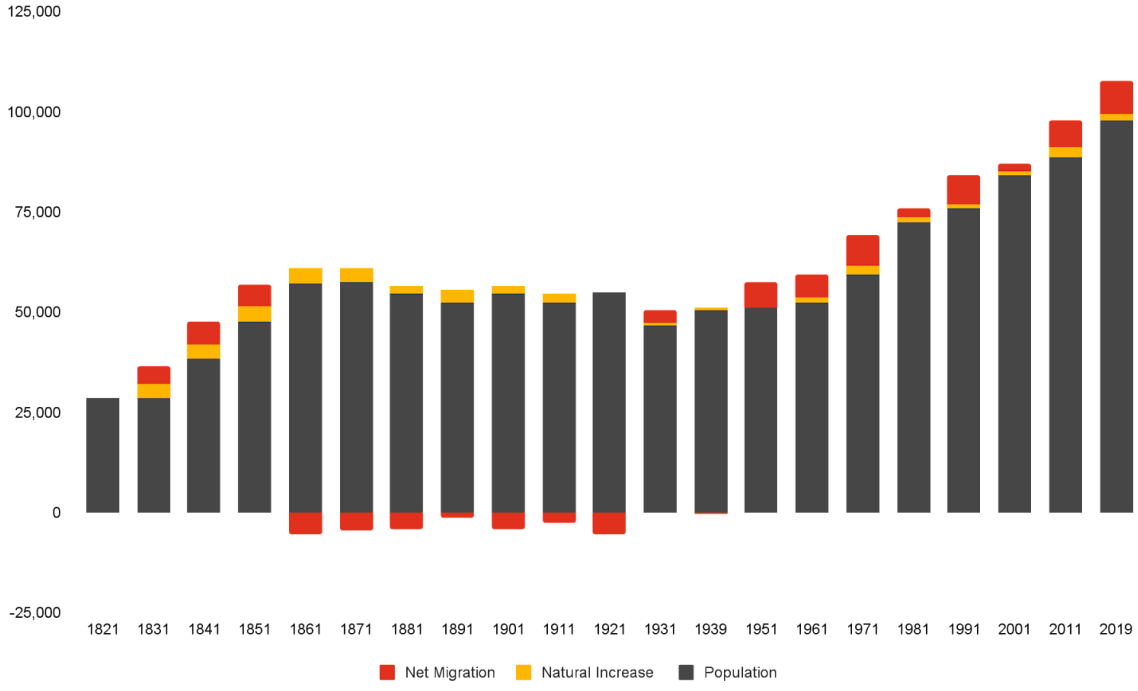
1. Demographic trends in Jersey

This section gives a high-level overview of historical population trends in Jersey, and looks at the key variables that have and will have an impact on long-term population growth. Using the evolution of these key variables, population projections by age group are developed. Older groups of people are expected to represent a larger share of Jersey's total population in the future, and migration is the force that will shape the evolution of population pyramids.

1.1 Historical trends: an ageing society

From an historical perspective, Jersey's population remained relatively constant between 1850 and 1970 (Figure 2). It was during the 1950s that population growth accelerated, and since then has more than doubled in size.

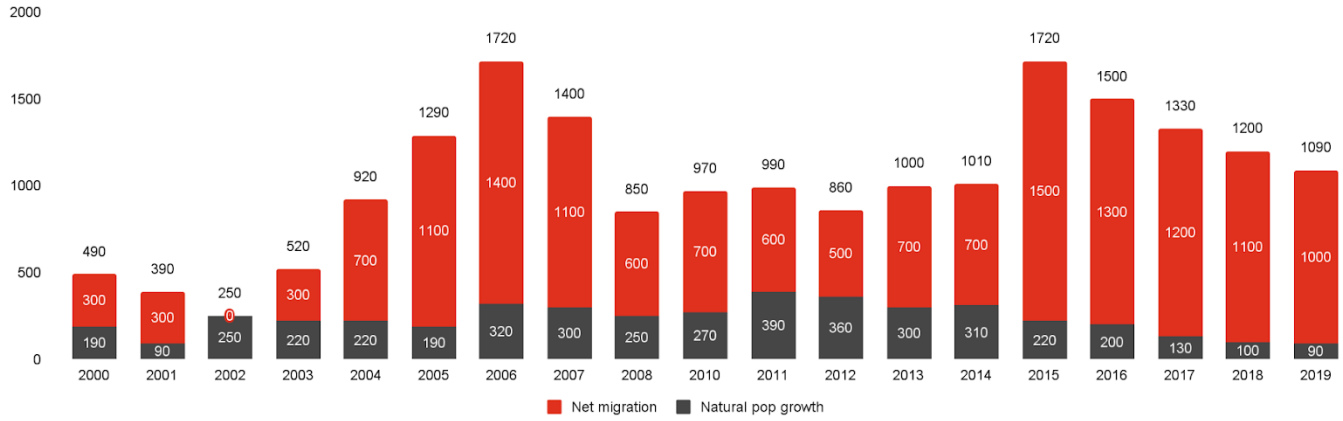
Figure 2: Population change in Jersey between 1821 - 2019. Source: Government of Jersey, Mark Boleat, Total population, annual change, natural growth, net migration per year (1821-2019)



In the last two decades, Jersey's population has been growing consistently year on year, though at a rate that varies considerably. Net inward migration (i.e. the difference between immigration and emigration) has always played an important role in shaping the demographics of the island, and its magnitude determines population growth each year (Figure 3). Natural population growth accounts for a small proportion of total population change and is trending down year on year. Meanwhile net-migration is volatile, but has trended upwards.[5]

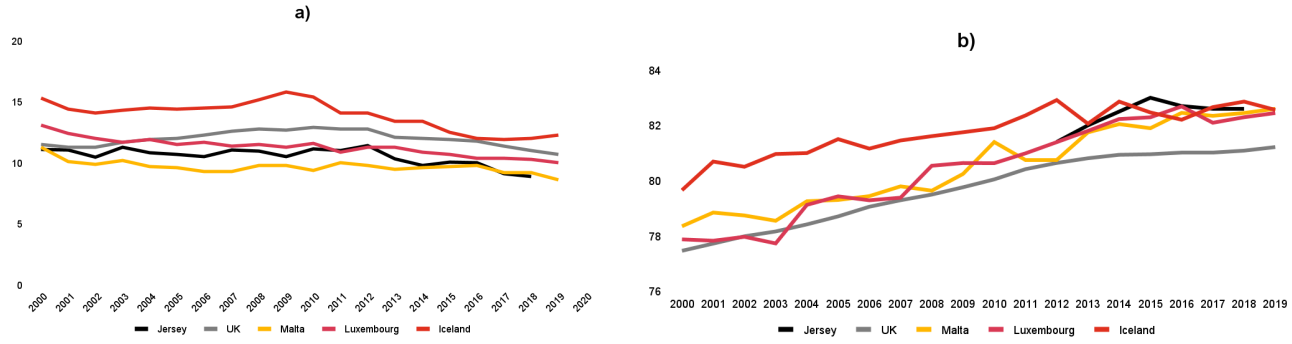
[5] This marks a contrast to previous decades (1861-1921) when net migration had been negative. Source: https://www.boleat.com/materials/jerseys_population_1.pdf

Figure 3: Population growth over time, natural growth[6] vs net migration. Source: Government of Jersey [7]



Natural population growth is driven by a birth rate above the death rate, and the difference between these deaths and births has been narrowing since 2010. This is driven by a falling birthrate, which is now significantly below the population replacement rate of 2.1 births per-woman, compared with a stable death rate. Fertility rates have also been declining in the majority of developed countries, but recent data shows that Jersey's fertility is below that of the UK and other 'comparator' economies such as Iceland - and more recently also Malta (Figure 4, panel a).

Figure 4: Fertility rates (a) [8] vs life expectancy (b): international comparison. Source: World Bank, ONS, Government of Jersey



The combination of declining fertility and increasing life expectancy (Figure 4), a global phenomenon affecting many countries, leads to older populations - i.e. people in older age groups representing a higher share of total population. Figure 5 shows the historical share of total population of different age groups, with a clear relative growth of people over age 65 and a decline of people under the age of 15.

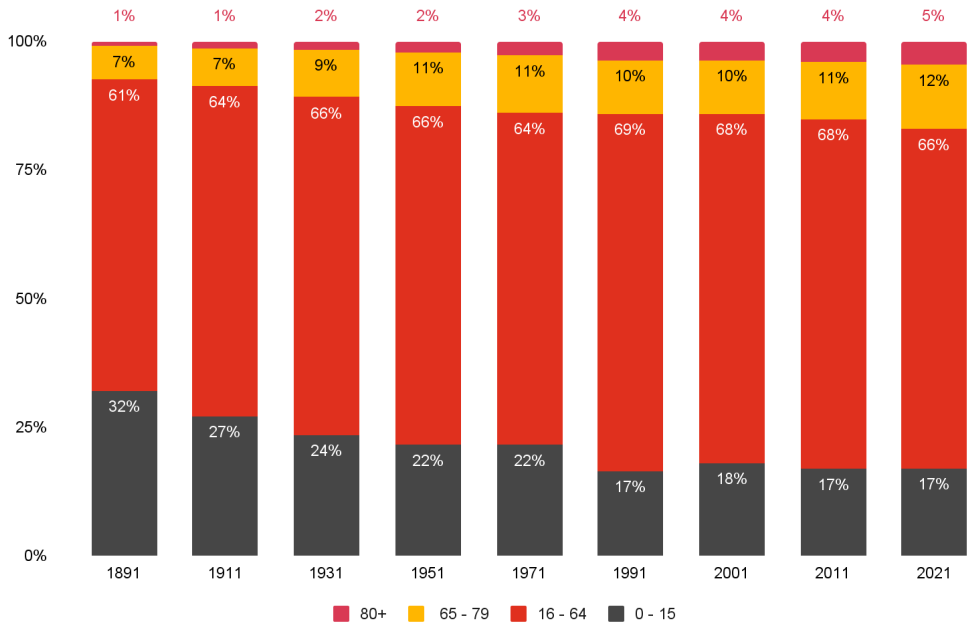
Figure 5: Percentage of population by age group from 1891-2021. Source: Government of Jersey [9]

[6] Natural population growth (expressed here in absolute numbers) shows the difference between the number of births and deaths.

[7] PwC analysis based on population data collected from Open Data.je. total population, annual change, natural growth, net migration per year.

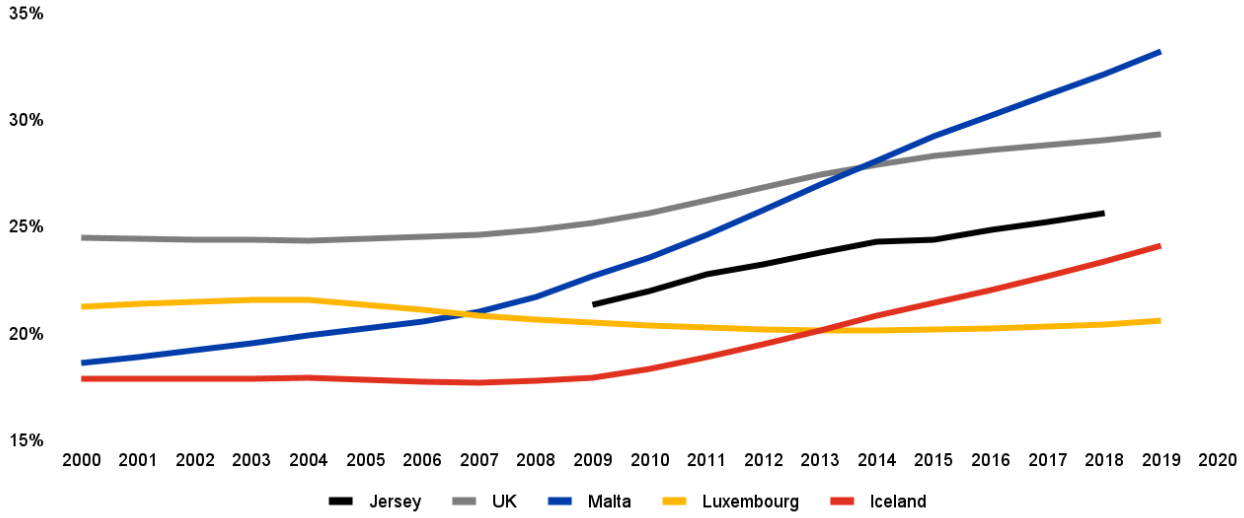
[8] Fertility rates are measured as the number of births per 1000 population.

[9] PwC analysis based on population data collected from Open Data.je.Population over time 1821 - 2011 (source - census data)



The age group of over 65 represents the fastest growing share of population growth over the past decades. As older people become more numerous, the size of older age groups (e.g. people over 65) increases with respect to people that are considered of “work age”. Global trends show an acceleration in the increase in the old-age ratio (measured in Figure 6 as the number of people aged 65+ divided by those belonging to the age group 15-64).

Figure 6: Old age dependency ratio (65+/15-64) by country. Source: PwC analysis, World Bank , Government of Jersey[10]



An increase in the old-age ratio (65+/15-64) normally leads to more *dependency* - i.e. the number of inactive people (e.g. those retired) that need to be supported in the economy by those active and in employment (see discussion on implications for labour force in Section 2). Based on these measures, Jersey, with a ratio close to 25%, does not seem to be ageing as rapidly as the UK or Malta in recent years - with the ageing process also accelerating in Iceland. Looking ahead, however, the dependency ratio is

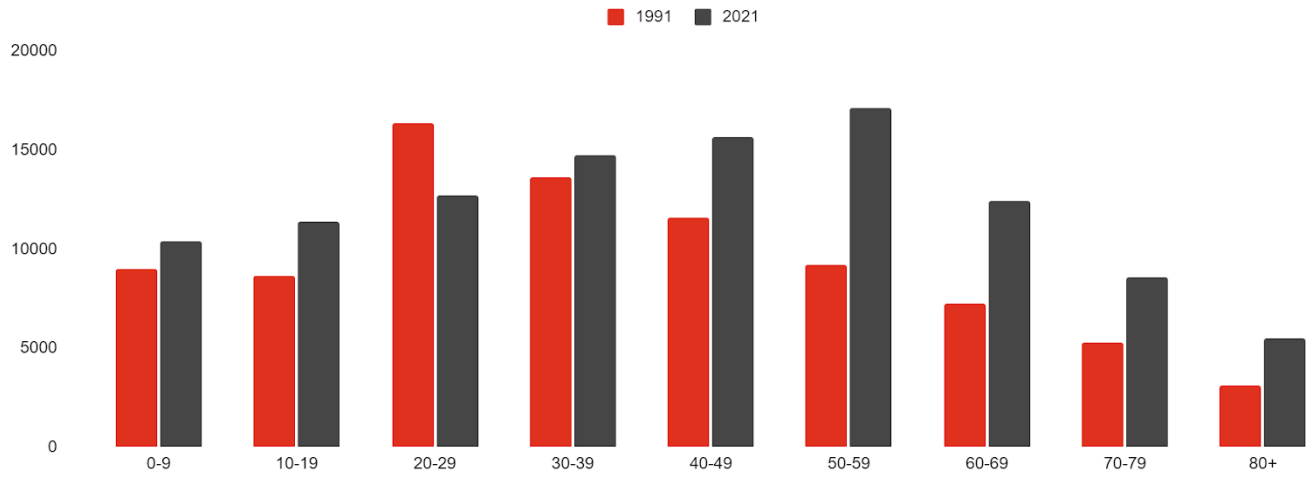
[10] Due to data availability, Jersey’s old age dependency ratio ranges between the years of 2009 and 2019.

likely to accelerate in the next two decades given the significant inward migration of young people to Jersey in the 1970s and 1980s - who are getting close to pension age.

The evolution of this ratio in Jersey will largely depend on the number of people moving in and out of the Island. Inward migration of working-age people will slow the growth of the old-age ratio (and in turn that of dependency).

A trend hidden in this ratio is the fact that many young people from Jersey move abroad to pursue a university education. A large fraction of young adults continue to leave: 24% of those born in Jersey between 1972 and 1976, who still lived in Jersey in 1981, had stopped living on the Island in 2011.[11] With university attendance having increased substantially in the last decades, more granular data by age group show that people aged 20-29 represent a smaller share of total population now in 2021 than they did in 1991 (see Figure 7).

Figure 7: Age distribution in 1991 vs 2021. Source: Government of Jersey [12]



If young people of working age do not return after their studies abroad, a potential brain drain of young people can accentuate the old age ratio over time.

1.2. Looking ahead: Population change projections

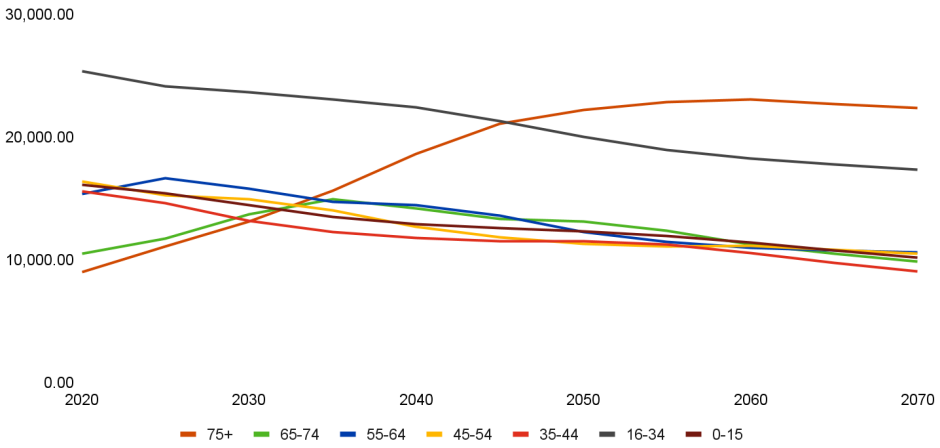
Future demographic trends in Jersey will be shaped by migration. In a scenario with no in or out migration, the population of Jersey would continue ageing rapidly in the long-term. The group of people 75+ is the one that would continue to grow the fastest, whereas the numbers for almost all younger age groups would see a decline (Figure 8).

Figure 8: Population projections by age group (migration scenario: No In/Out migration) Source: Government of Jersey[13]

[11] Mark Boleat (2014), "Jersey's Population – A History", 3rd edition, pp. 67

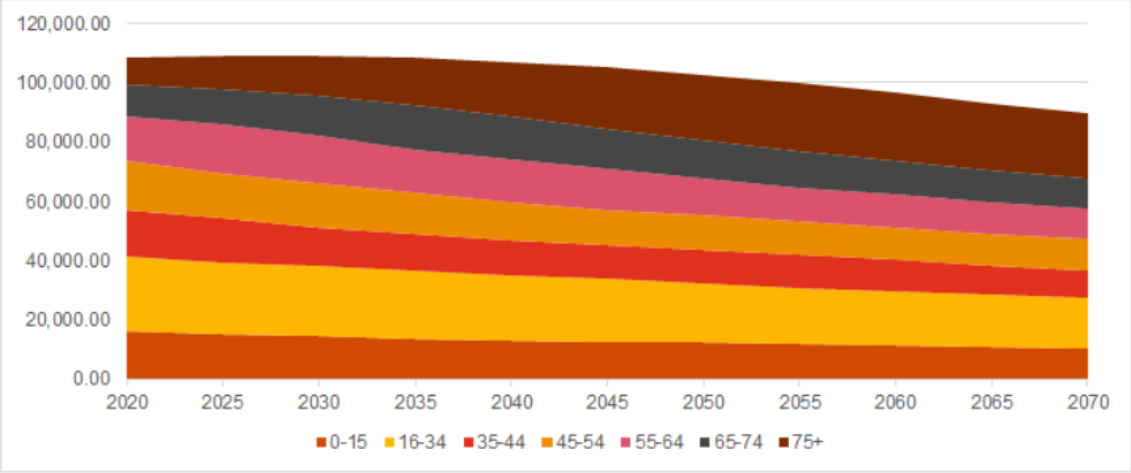
[12] PwC analysis based on population data collected from Open Data.je.Population over time 1821 - 2011 (source - census data)

[13] PwC population projections are based on population data collected from Open Data.je.Population over time 1821 - 2011



With no migration, Jersey's population will decline over the next five decades. And as population declines, older age groups will represent a larger share of the total population (Figure 9). By 2050 35% of Jersey's population would be over the age of 65; that figure would increase to 36% in 50 years time by 2070.

Figure 9: Total population projection split by age (migration scenario: No In/Out migration). Source: Government of Jersey [14]

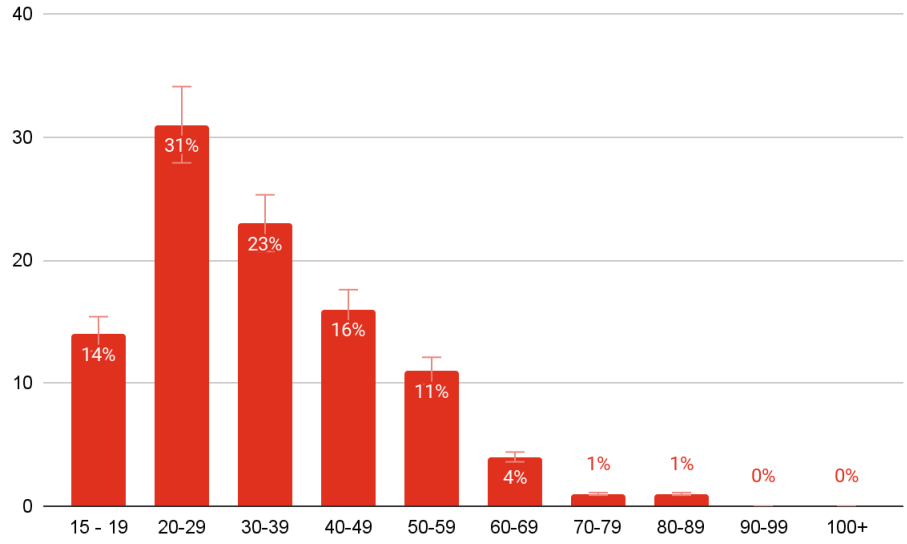


It is expected that inward migration will largely boost 'working age' segments of the population. Historically, 85% of immigrants belong to the 20-59 age group (Figure 10 shows that the age group 20-29 is the most frequent). Current planning assumptions tend to use +700 to +1,000 as central scenarios, which would mostly enlarge the 25-59 age group.

Under the five alternative migration scenarios outlined in Figure 11, there is a clear relationship between higher levels of net inward migration and a lower old age dependency. In the absence of positive net inward migration, the proportion of the population 65 and above would grow to between 32% and 37% by 2050, in turn putting significant social and economic strain on Jersey's public institutions. Though a positive net inward migration of between 700 and 1500 per-annum would lower the share of people aged 65+ (by ten percentage points), high inward migration cannot fully counteract the impact of the ageing of domestic populations.

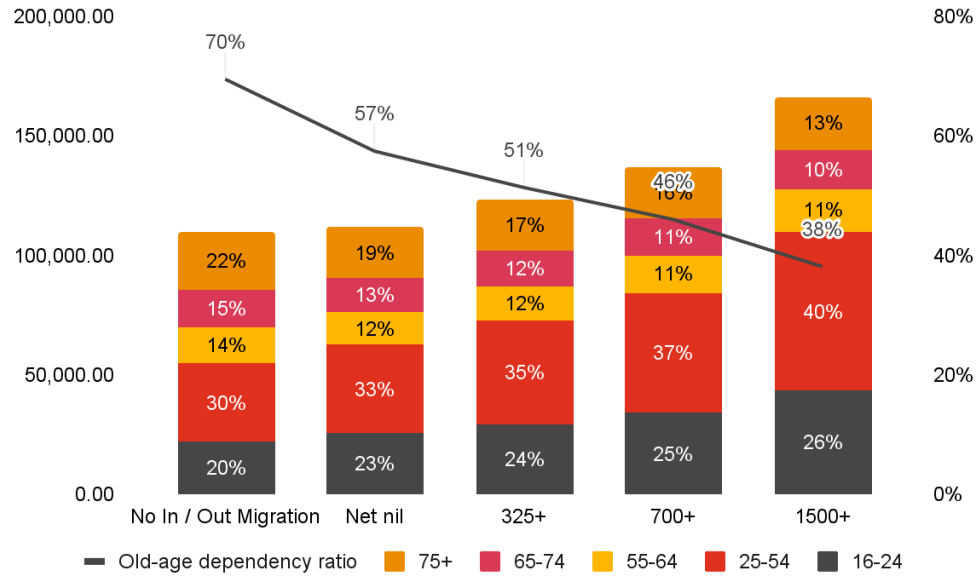
[14] PwC population projections are based on population data collected from Open Data.je.Population over time 1821 - 2011

Figure 10: Estimated distribution of inward migration by age group, 2016 - 2021 average %[15]. Source: PwC analysis, Government of Jersey



Note:Due to data limitations, the % for 15-19 year olds includes dependent (i.e. children migrating with parents) and independent (young adult) individuals.

Figure 11: Population projections by age under different migration scenarios, 2050[16]



Source: Statistics Jersey - Population Projections report 2016 (here); PwC Analysis

The next section analyses what these demographic trends mean for the evolution of the workforce in Jersey with further sections exploring the policies that can help avoid a decline of the labour force and higher levels of dependency.

[15] Estimates are based on first registration cards issued for Licensed, Entitled to Work, and Registered, non-Jersey born only.

[16] These projections are based on current and historic migration rules and data. They do not show likely impacts of any new migration rules.

2. Impact of ageing on the labour force

The most direct impact of ageing populations is that it reshapes the workforce. This section analyses how the overall makeup of Jersey's labour force is likely to change in forthcoming years under different demographic scenarios. The size of the labour force will be determined by the level of labour market participation rates of different age groups. Whether or not Jersey's economy faces labour shortages will depend on the participation of older people in the workforce. The level of migration will also have a significant impact on the number of workers available to work across different sectors of the economy.

2.1 Labour force participation

Labour force participation by wider segments of society is a sign of the vitality of an economy, particularly when a large portion of workers are employed in productive jobs. When compared to other developed economies, though, it is clear that Jersey has significant room for improving participation rates (see Figure 12). At 67%, the participation rate in Jersey is below the average of OECD countries.

Figure 12: Labour force participation rate for age group 15-64, comparison with selected countries (year: 2020). Source: OECD, PwC analysis, Government of Jersey

Note: Due to data limitations, Jersey's labour force participation rate is estimated as the proportion of population that are recorded as either employed or actively seeking employment who are registered with Customer and Local Services[17].

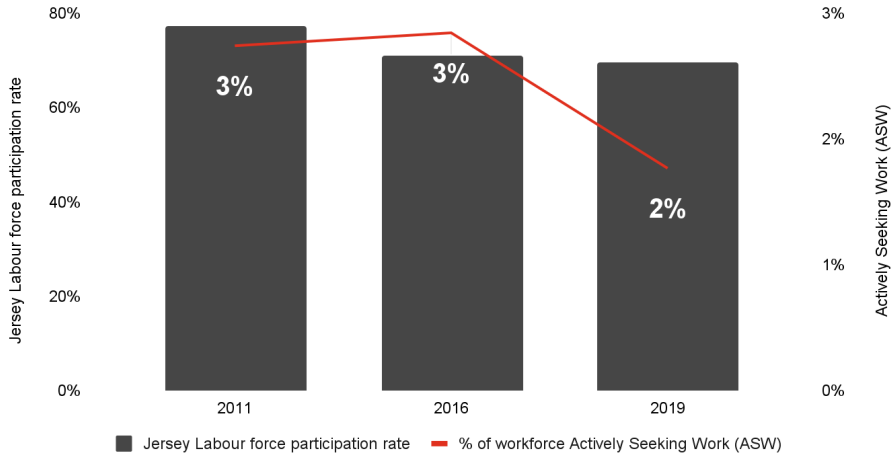
This position is in part the result of a general decline in labour force participation (of people aged 15-64) in the last few years - Figure 13 compares the year of the last census (2011) with more recent estimates. Though the percentage of people actively seeking work (ASW) has also decreased, this is also in part because more are now in employment thanks to a strong economic performance.

The restrictions to contain the shock of COVID-19 surely had a temporary effect on participation rates in 2020 of different types of workers (of different ages, educational and socioeconomic backgrounds). More generally, participation rates last decade were likely also affected by the macroeconomic context: Jersey experienced a slower recovery from the 2008 financial crisis (in terms of GVA per FTE) compared to most

[17] Students are not included in the Labour Force Participation figure.

G7 countries and productivity (GVA per FTE) has fallen by more than 20% in real terms in the past two decades. As the financial services sector has contracted, many workers may have dropped off the labour force altogether.[18]

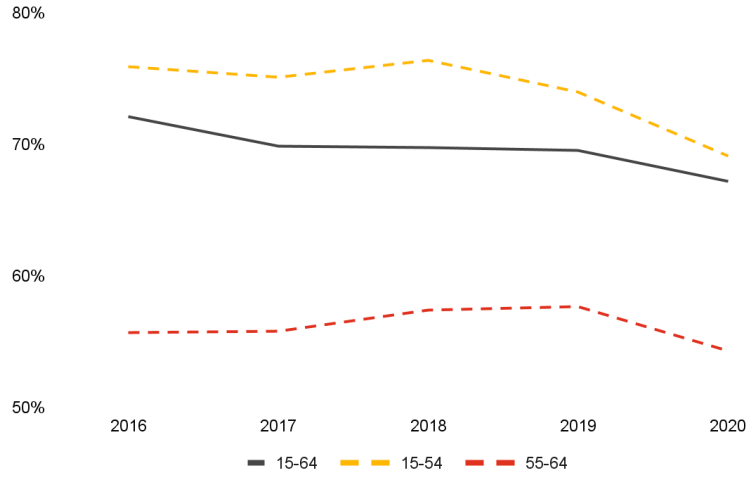
Figure 13: Labour force participation rate over time (2011, 2016 & 2019)[19] across all age groups. Source: PwC analysis, Government of Jersey [20]



Note: Actively seeking work figures are based on an average amount across all age groups. Due to data availability, further analysis of the labour force participation rate over time would be insights.

Though participation rates declined generally across the board in 2020, data from recent years seems to suggest that while participation was in a slight downward trend for the 15-54 age group, between 2016 - 2019 it was showing an upward trend for workers aged 55-64 (Figure 14) - though still far away from closing the gap with respect to the participation of the 15-54 age group.

Figure 14: Labour force participation rate 2016-2020.



Source: Government of Jersey, Customer and Local Services, Registration and Manpower Returns data, PwC analysis

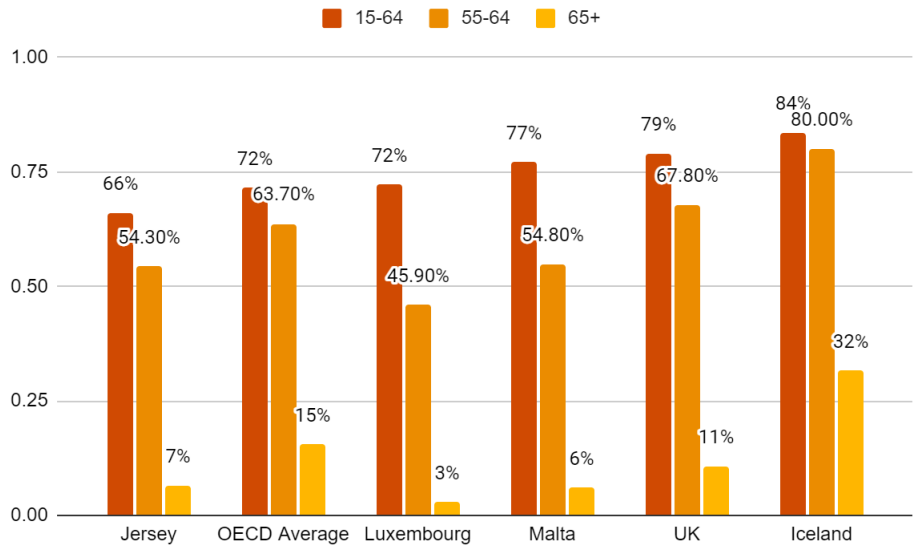
[18] Structural change to the financial services industry may have created opportunities for early retirement through redundancy, specifically as employment in the banking industry declined and activity grew in funds and trust administration.

[19] Small time frames are due to data gaps

[20] PwC analysis, data captured from social security contributions and manpower returns for 2016/2019 for labour force activity. Population data collected from Open Data.je. 2011 figures derived from 2011 census data.

From a longer-term perspective, a workforce that has more and more people in older age brackets 'mechanically' reduces the overall labour force participation in the economy. The participation rate of people aged 65 or above is significantly lower than for other age groups in many economies (Figure 15). Due to health issues[21] or pension entitlements, normally less than 20% of people in this age group will be active and in employment. And Jersey does not compare favourably against the average of the OECD - Section 5 explores in more detail some explanation as part of the policy directions.

Figure 15: Labour force participation rate by age, comparison with selected countries (year: 2020 or latest available). Source: OECD, PwC analysis, Government of Jersey



It is a well known fact that participation rates start declining as early as age 55 (well before statutory pension age) in many economies (Figure 16 compares Jersey against the average in OECD countries). Be it the result of social security and pension systems' benefits discouraging people to continue working (e.g. some early retirement entitlements) or older workers facing unattractive alternatives in the labour market (such as pay cuts or new jobs at lower pay), international evidence shows that people in their early 60s (or even in their late 50s) have more propensity to drop from the labour market than those between 25-55.

Figure 16: Labour force participation rate by age group 2020. Source: PwC Analysis, Statistics Jersey, OECD

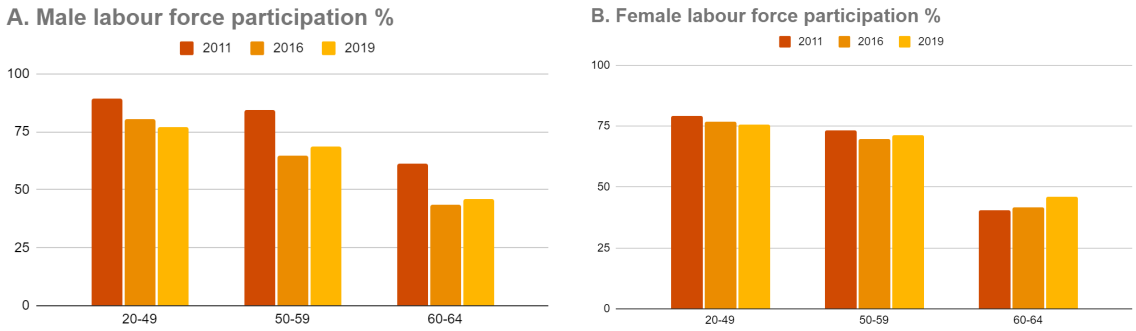
Age	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64
Jersey	24%	60%	78%	77%	78%	75%	77%	71%	64%	46%
OECD	28%	65%	80%	82%	83%	83%	83%	79%	71%	50%
UK	45%	74%	85%	86%	86%	87%	87%	84%	75%	51%

Note: These figures are derived from Manpower Returns data and cross referenced with registration card data on age, gender and employment, compared with total population estimates by age and gender (available here). Activity seeking work figures were taken from GoJ unemployment statistics. The employment figures are based on people, as opposed to labour market jobs to avoid double counting.

[21] Involuntary retirement due to ill-health has played a part in early retirement, as is the case in the similarly small economy of Malta. Source: Marvin Formosa (2014), Socio-economic implications of population ageing in Malta: Risks and opportunities

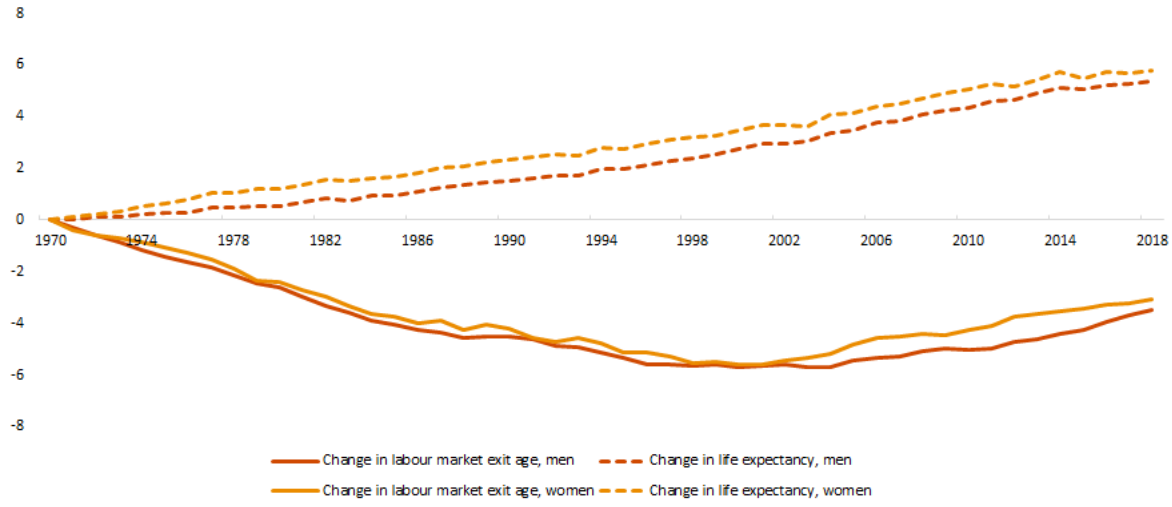
Jersey shares this familiar pattern, and unless those older age groups close that participation gap with respect to other age groups, Jersey's workforce may decline into the future. Recent historical data for men and women suggest that participation has not changed significantly - though participation of older female workers increased slightly, whereas for older male workers decreased (Figure 17).

Figure 17: Jersey labour force participation rate by age for men (a) vs women (b) comparison over time (2011, 2016 & 2019).[22] Source: PwC Analysis, Government of Jersey



The participation of older age groups has the potential to increase over time. Given current international trends, the expectation is that a 55-years-old worker in 20 or 30 years time will participate more than a 55-years-old today. History was not suggesting this for some time - for decades, people had left the labour market at an even earlier age - despite those generations benefitting from longer lives than their parents. But the trend has changed in developed countries (see Figure 18). Since the turn of the century, labour market participation at older ages is on the way up again, indicating additional potential for firms to alleviate the labour market pressure in the demographic transition. In nearly all OECD countries, employment rates for older workers across education levels have been rising over the last two decades. Better health of older people reflected in higher life expectancy is a key driver of this development.[23]

Figure 18: Changes in labour market exit ages (in years) and life expectancy at the age of 65 since 1970, OECD average; Source: OECD (2020).



The "effective" rate of retirement in Jersey is undoubtedly significantly lower than the statutory pension age (currently at 65, which will go up by 2 months a year, ultimately changing to 67 in 2031). Nevertheless,

[22] Small time frames are due to data gaps

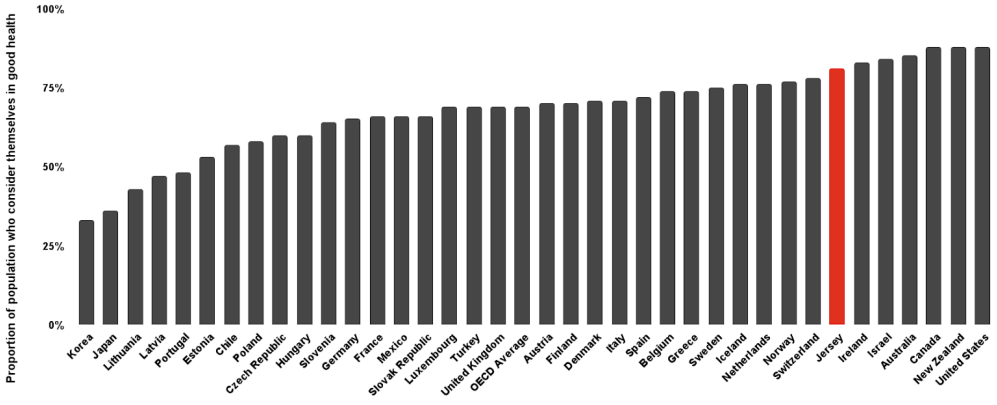
[23] Geppert, C. et al. (2019), "Labour supply of older people in advanced economies: the impact of changes to statutory retirement ages", OECD Economics Department Working Papers, No. 1554, OECD Publishing, Paris.

people in Jersey feel in good health compared to other countries (as shown in Box 1, showing the percentage of each country's population that consider and report themselves to be in 'good health').[24] This is a positive sign for the future evolution of participation of older workers. Yet, retirement will continue being driven to an extent by economic reasons. For instance, the good position of Jersey's workers to build wealth can encourage early retirement (of those people in their 50s). Evidence from Statistics Jersey finds a direct relationship between salary and contribution to a private pension,[25] and due to the relatively high share of employment in well-remunerated salaries, people continue having access to early retirement benefits. Section 5 looks in more detail at how pensions entitlements drive retirement.

Box 1 - Jersey's perceived health

Jersey ranks higher than the majority of OECD countries by this metric, with 81% of the population reporting good health, compared to the OECD average of 69%, which is the same as the UK's. With a greater number of the population in good health, we might expect higher labour force participation rates, which could be useful in the context of ageing, as over 60s may be more likely to stay in the workforce in some capacity. Similarly, a healthy population has other macroeconomic benefits, such as higher productivity, as we would expect the human capital of a healthier population to be greater. International experience shows increasing life-expectancy gaps between socio-economic groups, which could limit the participation in work of certain segments of older populations if it also occurred in Jersey (this is an area of further research as identified in Section 6). In England, for instance, the life expectancy gap between the most and least deprived decile of areas increased from 9.0 (6.9) years for men (women) in 2011-13 to 9.3 (7.4) years in 2014-16 despite several government initiatives to reduce them.[26]

Figure 19: Self-reported health, comparison with OECD countries. Source: Statistics Jersey & OECD

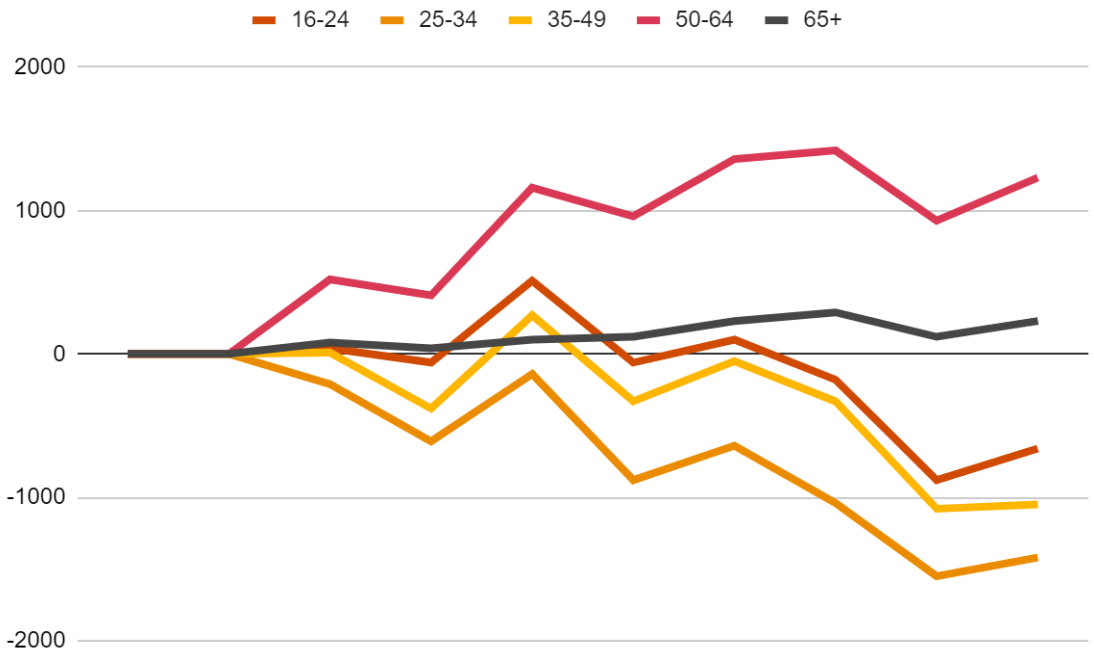


2.2 Employment levels

More labour force participation directly leads to higher employment rates of older people. The number of older people in employment has increased in recent years in Jersey - which is the result of demographic trends (i.e. more older people[27]) and stronger participation. Since December 2016, when the data started to be tracked, the number of people aged 50-64 in employment has risen by 1,230 (9% of the total work force in this age group), the largest increase across all age groups (Figure 20). The number of people aged over 65 in employment is the only other age group that sees a positive change in this period (by 2030).

[24] These results should be taken with some caution, however, as there may be some misreporting, as well as the fact that many countries will have a different subjective interpretation of 'good health'.
[25] Statistics Jersey (2019), *Estimating government receipts and expenditure for Jersey households*
[26] See Raleigh (2021), *What is happening to life expectancy in England?*
[27] The number of people aged over 50 growing faster than other age groups.

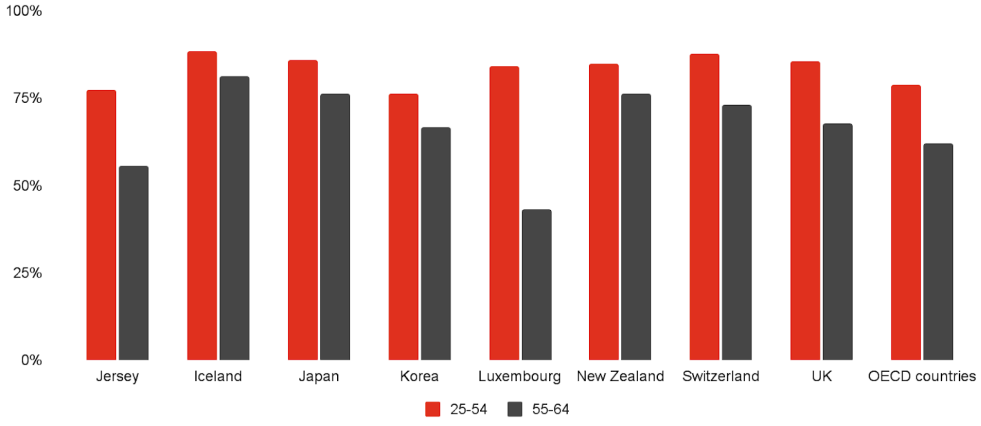
Figure 20: Cumulative change in employment by age band, Dec 2016 - Dec 2020. Source: PwC analysis, Government of Jersey [28]



Note: These figures are derived from Manpower Returns data and cross referenced with registration card data on the total residential population by age, gender and employment. The employment figures are based on people, as opposed to labour market jobs to avoid double counting.

The employment rate in Jersey does not compare positively against a sample of comparator countries. Though data from 2011 to 2020 indicate that the rate of employment has increased by 3% among those aged between 50-64, employment rate in the age bracket 55-64 is not as high as in other developed economies (Figure 21). In general, participation and employment of older workers have been increasing internationally (see Box 2), though the gaps with respect to younger age groups still persist.

Figure 21: 2019 employment rates by country in age groups (25-54, 55-64). Source: Government of Jersey, OECD[29]



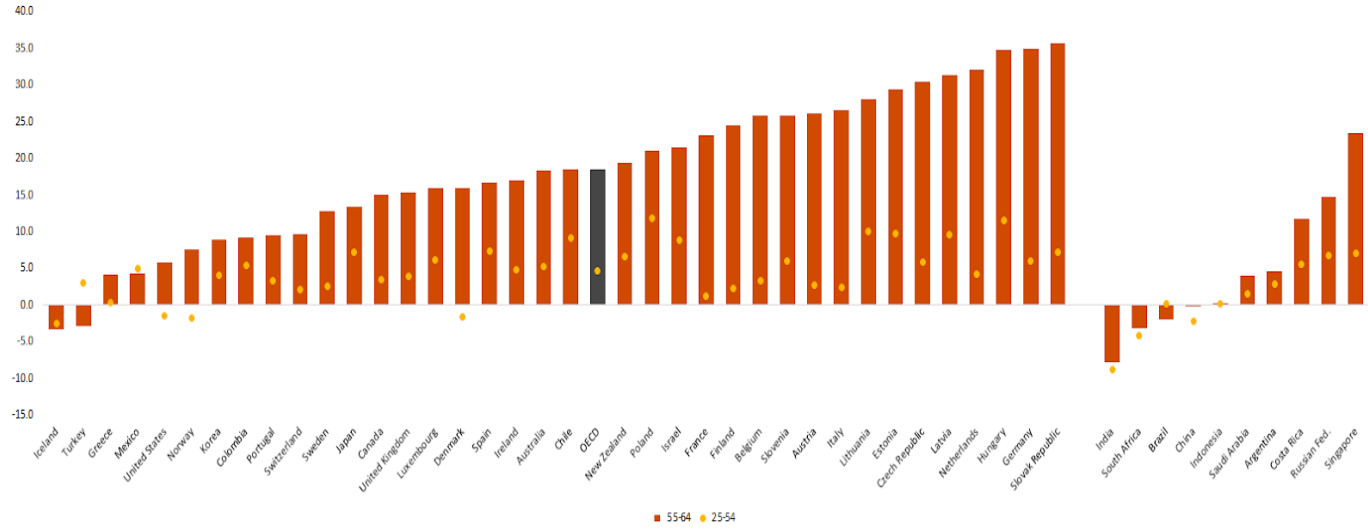
[28] PwC analysis, data captured from social security contributions and manpower returns for 2016/2019 for labour force activity.
[29]Data analysis was done by combining Government of Jersey and OECD data, which had disparate age groups. Combining the years 2011, 2016 and 2019 into one visualisation would result in unclear interpretation.

Trends of people actively seeking work suggest that employment of older people is not as affected by economic conditions as the employment of the young (Figure 23).[30] As the economic cycle improves (e.g. between 2011-2019), the employment rates of younger workers increase (and thus the ASW numbers decline), while there is a relatively consistent amount of older workers seeking work. This means that a proportion of older workers still struggles to find jobs independently of economic conditions. They are also less likely to find work if they remain inactive.

Box 2 - International evidence of employment by age group

International evidence shows that employment rates of older people have risen significantly over the past two decades, with particularly strong gains for women. In the OECD, the employment rate of people aged 55 to 64 grew from 53% to 62% between 2007 and 2019 (Figure 22) - while remaining close to 78% for 25-54 year-olds.[31]

Figure 22: Change in employment rates, 2000-19. Source: OECD (2020).

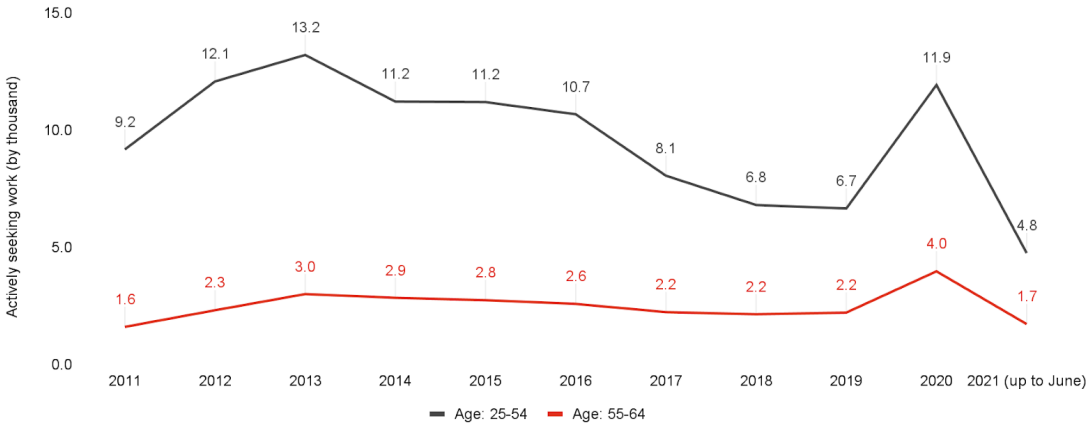


Note: Data refer to the period: 2000-10 (China), 2000-18 (India), 2001-19 (Brazil, Colombia, Singapore, South Africa), 2004-19 (Argentina) and 2009-18 (Saudi-Arabia). OECD is an unweighted average.

Figure 23: Jersey's labour force Actively Seeking Work (ASW) by age group over time 2011-2020. Source: PwC analysis, Statistics Jersey

[30] Including the spike related to the start of the pandemic in 2020

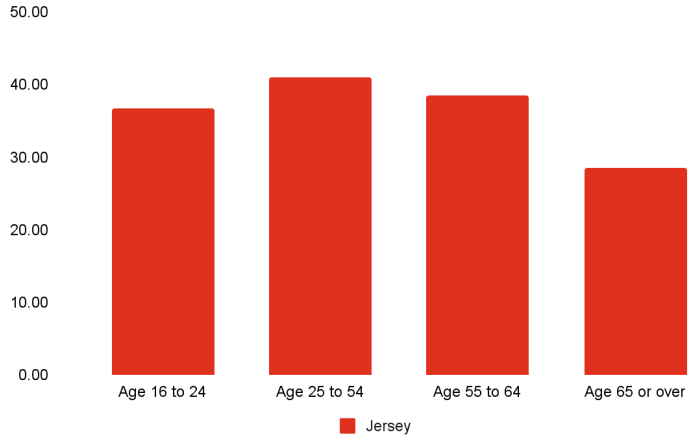
[31] Look at OECD (2019), *Promoting an Age-Inclusive Workforce*



Even if participation and employment increases for older workers, a fraction of those move to less productive jobs or work fewer hours (Figure 24). Based on time use surveys of those in full and part time employment, hours worked steadily reduces with age, from over 41 hours per-week for those between 25 - 54, to 28 hour per week for those 65 and above.

The mix of higher participation rates and fewer work hours by older workers suggests that they are still likely not contributing as much to the economy and labour markets as they did earlier in their life[32] - thus not fully reducing potential labour shortages and dependency on social benefits.

Figure 24: All job average weekly hours worked by age[33]. Source: Government of Jersey, 2011 Jersey Census.



Note: GVA figures are based on 2019.

International evidence shows that there are also large differences in participation for different types of workers. While indeed in nearly all OECD countries employment rates for older workers across education levels have been rising over the last two decades, people over 55 with fewer years of education have lower employment rates than people with more years of education - which also seems to occur in Jersey.[34] In

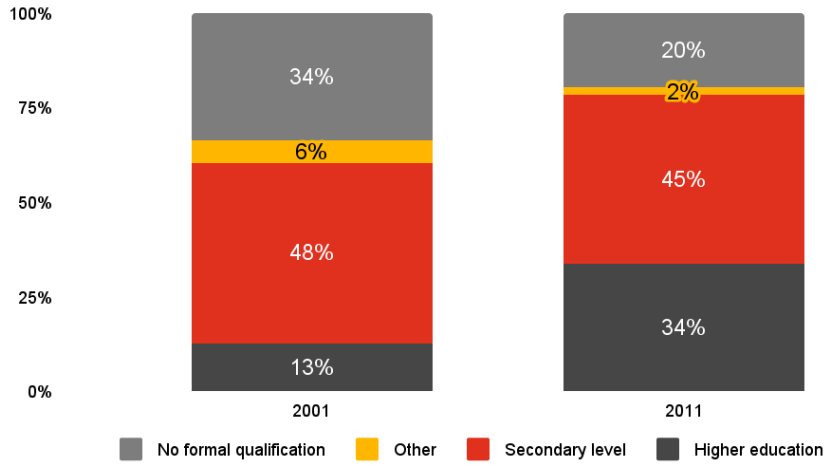
[32]Local employment data would suggest that relative to the mean hours worked per-week, those over the age of 55 account for a relatively larger share of the workforce compared with their economic activity.

[33] Jersey figures calculated from Census data, weighted against the 2019 Jersey Opinions & Lifestyle survey and UK figures by age.

[34] Comparing 2021 figures from educated individuals between 55-64 with people actively seeking work in the age bracket, 36% do not have a formal qualification, and 20% of the same age group is unemployed and actively seeking work. The difference between the two figures can be interpreted as less educated people between 55 and 64 have lower employment rates than their educated peers.

addition, older women work less than men in most countries, and the gender gap in employment is even more pronounced at lower levels of education attainment.

Figure 25: Level of education of Jersey's population. Source: Census (2001;2011) [35]



A positive trend is that older people are more educated than in the past - the share of tertiary-educated older workers has already substantially increased over recent decades (Figure 25). And more educated people normally stay working for longer. Future older workers of all generations will, on average, not only be in better health but will also be better educated than current generations of 50-plus workers, which is likely to continue increasing participation rates of older people.

2.3 Future labour force

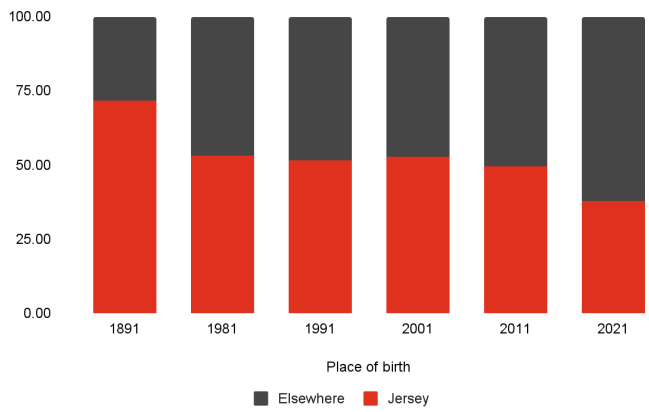
With current participation rates of older people in employment, the labour force of Jersey is expected to decline in the long-term unless supported by a net influx of migrant workers. Migration will continue to be the main source of growth of workers for Jersey's labour force (see Box 3).

Box 3 - Non Jersey-born workers in Jersey

The proportion of non Jersey-born workers has increased substantially in Jersey over the last decades (Figure 26)

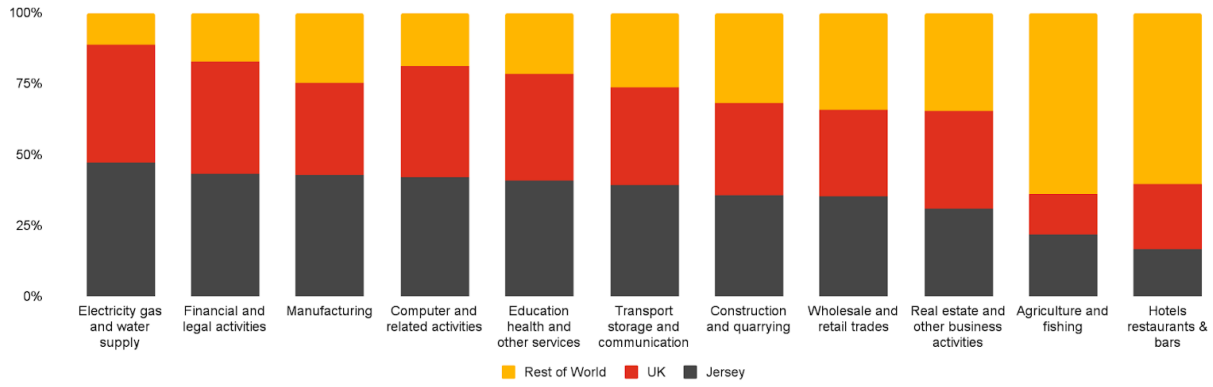
Figure 26: Population by place of birth, 1891-2021. Source: Government of Jersey - Registration data estimate 2021. [36]

[35] Population data collected from Open Data.je, 2001 and 2011 census data.
[36] Estimates are based on first registration cards issued.



There are some sectors more affected than others. Financial services (the main sector of Jersey) or sectors like utilities and manufacturing rely more on domestic workers (Figure 27); by contrast, agriculture (seasonal route) and hospitality (low-skill route) have a high reliance on migrant labour.

Figure 27: National origin of workforce by sector (2021). Source: Government of Jersey - Registration data estimate 2021



Note: Estimates are based on Registration card data collected by Customer & Local Services and cross-referenced with Manpower return by sector (Standard Industrial Classifications).

The charts below (Figures 28 to 32) present alternative employment outcomes based on different net-migration figures and labour force participation rates *(% of labour force participants as a % of population aged 15+)* compared with the total population.

Under each scenario, the projected size of the workforce is estimated under a high, medium, and low labour force participation rate.[37] For example, under a high participation rate, 29% of those between the ages of 65-69 would be in the labour force - compared with 23% under a low participation rate.[38]

Under each of the population change scenarios modelled, the employment-to-population ratio declines. This means that the share of the working population as a percentage of those aged 15 and above will decline. With net-nil migration, the employment-to-population ratio will decline 46% by 2070. With

[37]Assumptions are made on the percentage of labour force participants in each age group running in 5-year cohorts from 15+. The model applies the OECD average labour force participation rate by age for medium, and extrapolates a 10% above / below for high / low labour force participation to determine the workforce size overtime.
[38]These high/low scenarios are based on relevant comparators for Jersey, specifically Iceland with a high labour force participation rate and Malta with a low one.

net-migration of 1500, the employment-to-population ratio would decline to 56%. This assumes a medium participation rate.

Under a net-nil or no migration scenario the total size of the workforce would steadily decline, irrespective of improvements in the workforce participation rate.

Figure 28: Labour force projections - net nil migration scenario[39]. Source: PwC analysis, Government of Jersey

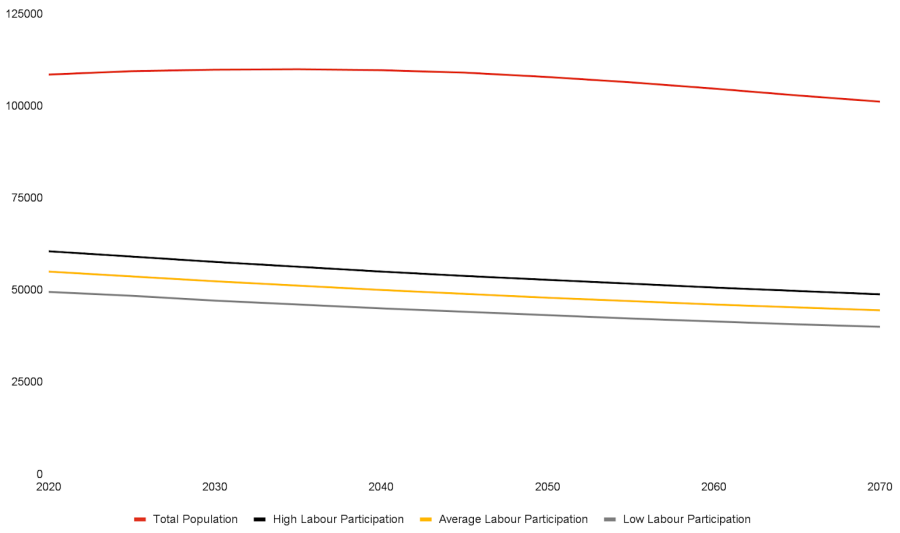
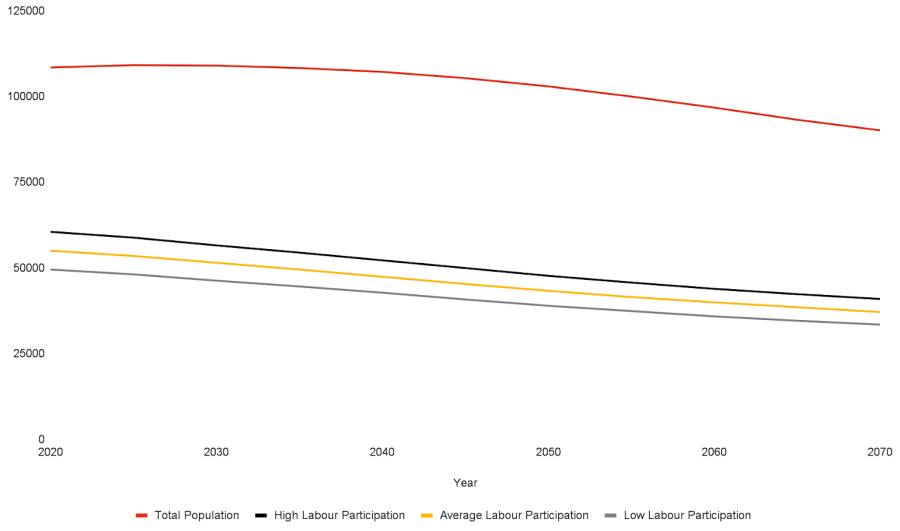


Figure 29: Labour force projections - no in / out migration scenario. Source: PwC analysis, Government of Jersey

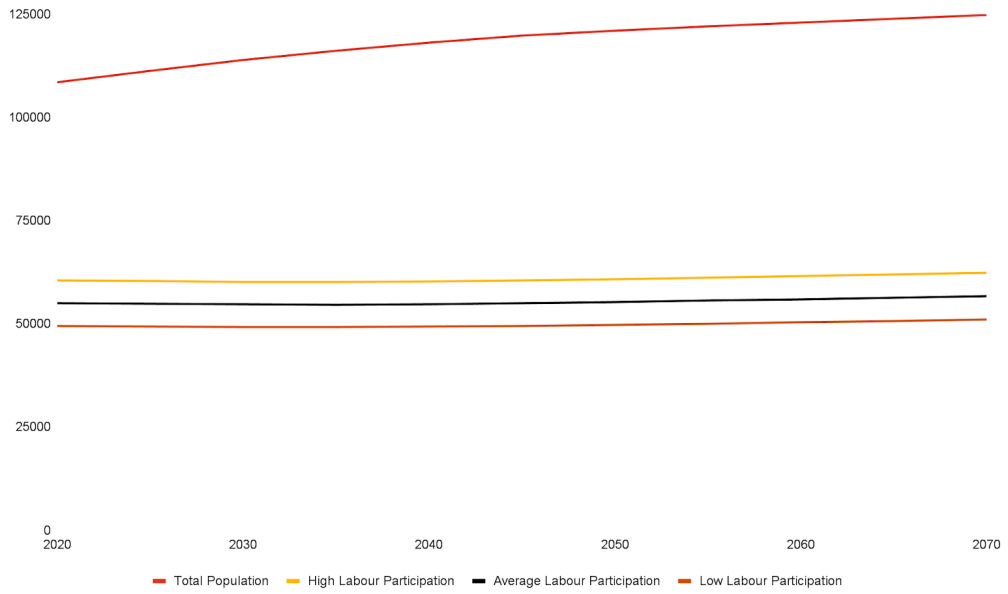


The total labour force rate changes year on year under each scenario as the demographic profile of the population changes. Specifically, as the island's population continues to grow older, the labour force rate will likely fall as a larger share of the population will be in age groups where labour force participation is

[39]High, medium and low participation rate deduced from a cross-country analysis of best and worst performing countries.

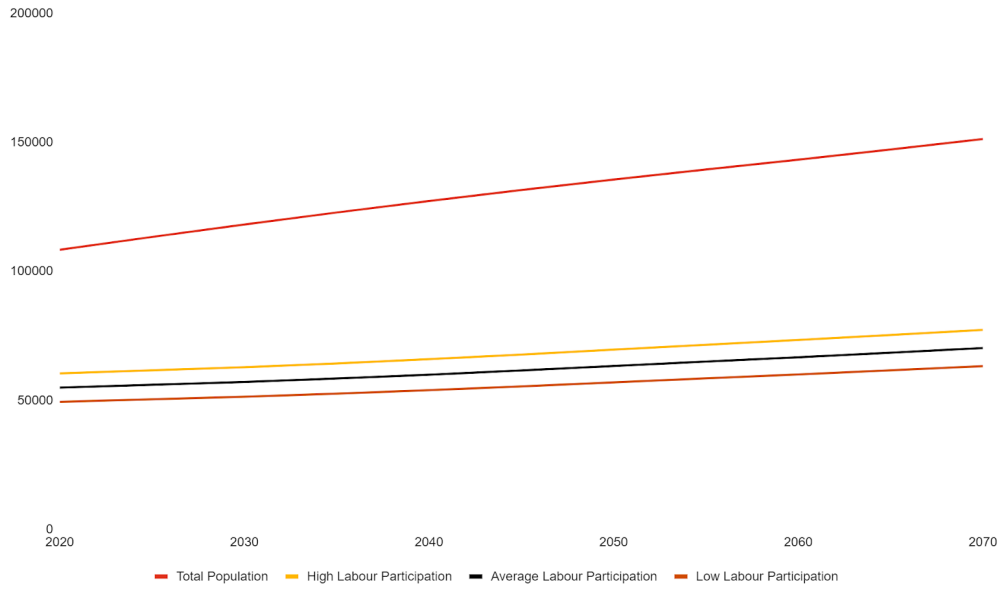
lower. For this reason, the age profile of the population is a significant contributor to the overall labour force participation rate.

Figure 30: Labour force projections - net 325+ scenario. Source: PwC analysis, Government of Jersey



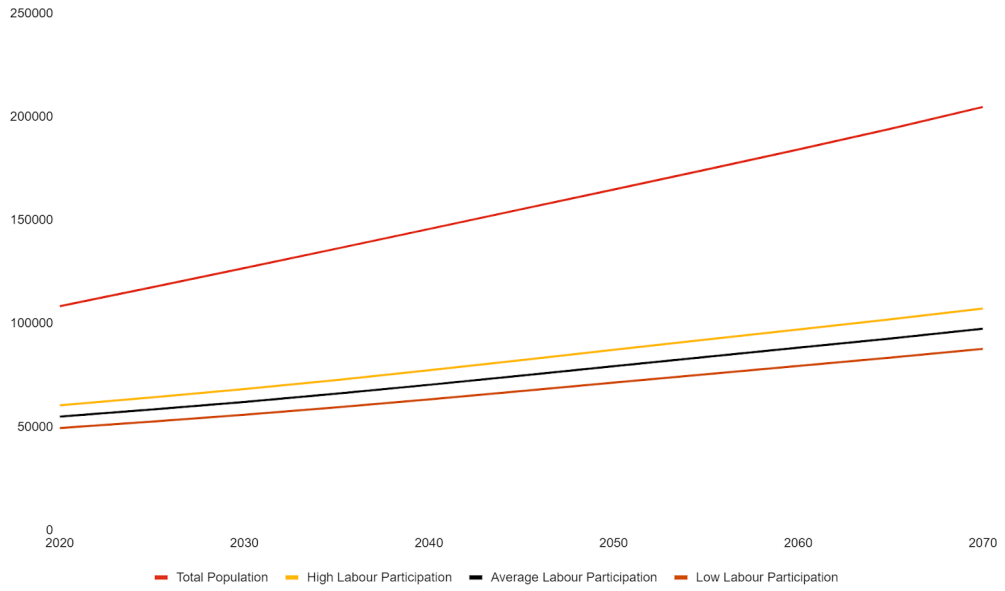
A scenario of net positive migration of 325 would barely offset the decline in workforce due to ageing: the labour force stays relatively flat - even if the total population is increasing. Assuming a positive net-migration rate of between 700 and 1500 per annum, the workforce size would steadily grow. Under a net-migration outcome of 700 per annum and a high participation rate (if realised), employment could increase by as much as 17,500 by 2050.

Figure 31: Labour force projections - net 700+ scenario. Source: PwC analysis, Government of Jersey



Projections indicate that under net-1500 migration per-annum from 2020 to 2070, the total labour force would increase by over 70%. Looking at the age distribution within net-migration (325-1500), ages between 30 and 44 are expected to have the highest participation rate.

Figure 32: Labour force projections - net 1,500+ migration scenario. Source: PwC analysis, Government of Jersey



What is the expectation for the future economy? Though Jersey seems well positioned to enlarge the participation rate of older age groups given its healthy population, labour force projections on their own do not give the full picture of employment. Higher levels of labour force participation by older age groups, be it in full employment or in flexible working arrangements (e.g. people in partial retirement), certainly contribute to the economy. Yet, simply keeping more people in labour markets does not necessarily solve all labour shortages linked to ageing populations - for instance, if skills gaps persist (see Section 3).

The key question is which sectors of the economy are those that are gaining from the demographic transition and those that are losing (aged) workers more rapidly and are facing the most severe labour shortages. Even if labour force participation rates remain high, and thus the decline in labour supply is not significant, 'effective' employment may decline over time if workers in declining industries do not quickly adjust their skills to meet the needs of the growing sectors of the economy[40] - with long-term unemployment a potential result from the structural changes in the economy generated by ageing populations.[41] These changes are of a long-term nature and transcend the dislocations created by COVID-19.

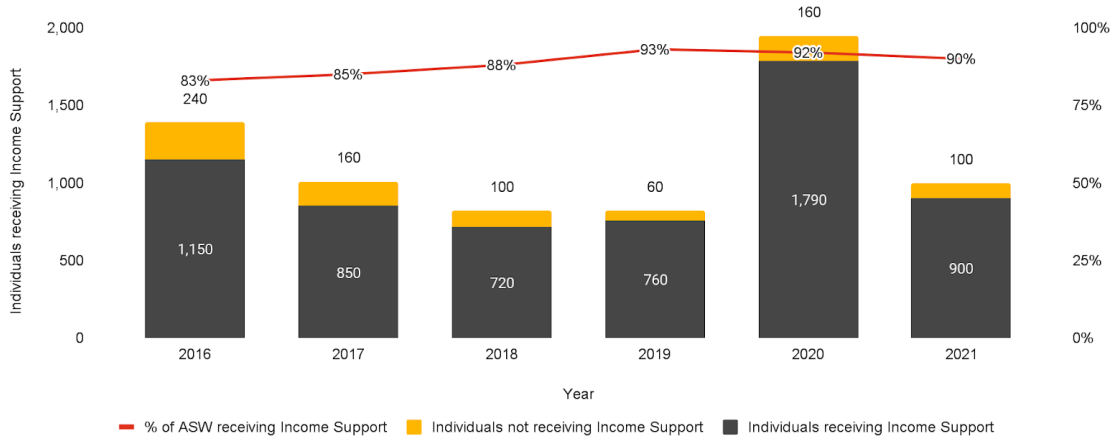
Box 4 - Implications of COVID-19

The COVID-19 crisis has led to massive turbulence on labour markets across all OECD countries from the second quarter of 2020. Unemployment rates have surged and numbers of workers under short-term

[40] International evidence shows that the increasing share of elderly people in society positively affects employment shares in community, social, and personal services as well as in the financial sector. See Thiessen U., K.A. Kholodilin, and B. Siliverstovs. Does aging influence sectoral employment shares? - evidence from panel data. DIW Berlin Discussion Paper, (785), 2008.
[41] Aggregate labour supply comprises the number of active people that are available to work, whether they are employed or unemployed.

compensation schemes have skyrocketed in some countries, with disruptive consequences for economies.[42] In Jersey, 31% of workers have seen themselves work reduced hours[43]. In the short to medium term, labour markets will need to recover from this sudden shock, which may temporarily put a halt to labour shortages or change sectors in which they appear (OECD, 2020). There was also a temporary shock in the number of people actively seeking work (ASW), increasing dramatically in 2020 after years of steady decline (Figure 33).

Figure 33: Labour force number of registered ASW, receiving and not receiving Income Support, June 2016 – June 2021. Source: PwC analysis, Statistics Jersey [44]



However, the crisis will not change the long-term dynamics induced by demographic change, which primarily work through the supply-side of the labour market. The pressure to react to population ageing and low fertility rates will hence continue to magnify.

Ageing populations become a danger for economic dynamism if the level of dependency (i.e. older people claiming benefits and not working) increases significantly. Section 1 shows that the old-age ratio (65+/15-64) will continue increasing in Jersey. Though such a ratio is often referred to as the "dependency ratio" in the literature or policy discussions, whether this translates into actually more economic dependency or not depends on a series of factors affecting (i) participation in labour markets and (ii) productivity. The problem of old-age dependency is a problem of work and production: as a larger pool of retirees consumes without "producing", the burden on pension and welfare systems rises.

An ageing workforce does not have to be a bad thing for Jersey's workers and the economy even if some labour shortages remain. Increases in productivity of those still in the workforce can restore economic growth (see Section 4), as more companies invest in innovation and new (automating technologies) to offset the effects of labour shortages.[45]

[42] See OECD (2020), *Promoting an Age-Inclusive Workforce Living, Learning and Earning Longer*

[43] Government of Jersey (2020), *RECOMMENDATION -Minimum wage rates for 2020*

[44] PwC analysis, data captured from social security contributions and number of registered ASW, receiving and not receiving Income Support for labour force activity.

[45] Productivity growth is likely to benefit from a combination of three things: demand that is expected to stay strong, affordable capital and technology, and training that constantly improves workers' skills. See article :FT(2021), " Long live the labour shortages The pandemic disruption may be igniting a productivity boom", by Martin Sandbu, Aug 19 2021.

3. Sectoral impacts: supply and demand views

This section identifies those sectors most vulnerable to the impacts of population ageing in Jersey's economic context, and those that may benefit from it. As the ageing population trend continues, employers in growing sectors face the challenge of 1) filling the jobs of older workers who reach retirement age, and 2) meeting the increasing demand for their products and services.

Particular consideration is given to sectoral employment impacts as a result of changing consumption priorities among different age groups. Vulnerability of sectors is determined by the labour and skills shortages they may face as current workforces grow older and approach retirement, and by their ability to invest in technology and automation.[46] The final impact of automation on the overall economy depends on the ability of people (young and old) to transition from old to new jobs.

3.1 Sectoral context in Jersey

The impacts of ageing (and demographics in general) across the economy is taking place in the context of wider transformations occurring in Jersey. Though the financial sector has stagnated in the last few years (and productivity has declined), other high-skill services sectors seem in a good position to continue expanding, particularly in the digital space.

Expansion of service sectors beyond finance

Since last century, Jersey has been reliant on its services sector to drive economic output.

- Financial services is still the most important sector in Jersey. In 2019, where the latest data was available, the sector accounted for 40% of total GVA, representing the largest single component of GVA, followed by other business activities (predominantly private sector service industries, 12%).
- The financial and legal sector has been the largest employer in Jersey in the past 20 years, followed by the private sector education, health and other services - which have surpassed construction (in 2010) and wholesale & retailer (in 2017).

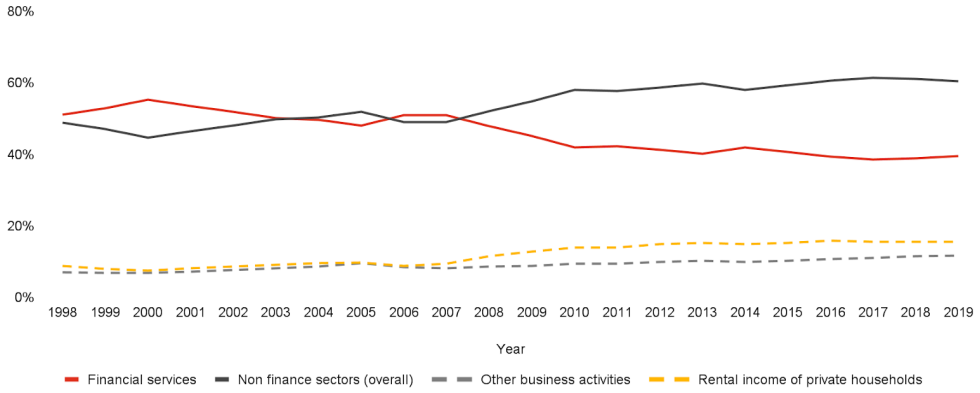
The share of the total economy taken by the financial sector has, however, declined in the last two decades (Figure 34). With that decline, Jersey's total economic output has plateaued since 2000 with GVA per-capita falling by over a fifth (Box 5 explains part of the decrease in productivity).

Box 5 - The stagnation of productivity in Jersey

Productivity levels are decreasing across all sectors. Since 2007, productivity (as measured by GVA per FTE) has decreased by 22% in real terms, driven by the decline within the finance sector (31%) as banks are required to retain more capital and invest in labour-intensive tasks such as compliance and reporting. The banking industry has experienced a fall in deposit margins, which in part has driven a rebalancing of employment from high-productivity banking into the relatively less productive trust and funds administration.

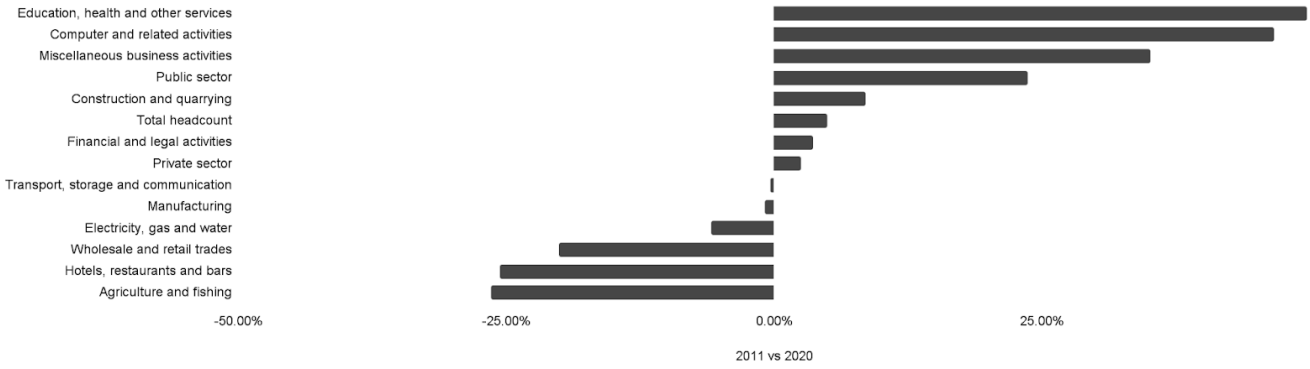
[46] As older cohorts start retiring the supply of labour falls relative to capital, which puts upward pressure on wages relative to interest rates (the return on capital). This, in turn, encourages a substitution away from labour towards automating technologies in the production process.

Figure 34: contribution to GVA by selected industry, 1998 - 2019 (%). Source: PwC analysis, Statistics Jersey [47]



Despite the slowing down in the financial services sector, Jersey's strength in services remains true, but with a gradual shift to other types of services. Since 2011, the number of people employed in professional business services has substantially increased - while low-productivity sectors such as hospitality[48] have declined (Figure 35).

Figure 35: Growth in employment (2011 vs 2020, %) among key industry groups. Source: PwC analysis, Statistics Jersey [49]



Whereas the increase in people working in education and health-related services can decelerate productivity growth,[50] the expansion of the ICT sector (e.g. employment in computer-related activities), and the digital economy more generally, can boost productivity and stimulate other sectors of Jersey's economy.

Increasing demand for high-skilled labour in the digital age

Digitalisation continues gaining ground globally, creating opportunities in new sectors - and even in more traditional ones. For instance, a 2020 UK-wide survey found that almost 90% of manufacturers see digitalisation as a business opportunity - a significant improvement from 70% in 2018. Jersey has identified

[47] PwC analysis, data captured from GVA in real terms in constant 2019 values.

[48] Output per hour worked, is much higher in financial and legal activities (£86) than for hospitality (£20).

[49] PwC analysis, data captured from Open Data.je industry by occupation group of working age adults.

[50] In part driven by ageing, increasingly more people in Jersey are employed in education and health services, which show lower productivity per-hour worked (£30). Source of labour productivity figures: Statistics Jersey.

that potential. In 2013, the government established Digital Jersey to promote the island as a leading centre for digital excellence, which involves both developing the digital sector itself and encouraging application of technology across all sectors.

The rise of digitalisation and automation makes some types of work redundant - almost 17,000 jobs could be at risk in Jersey by 2035 as a result of technology advancement (see more discussion in Section 4).[51] Nevertheless, new, more productive jobs are being created in certain sectors. This means that the demand for high-skilled workers is likely to continue increasing.

The employment goals for the digital sector have been surpassed so far, and the prospects of the ICT sector continue to be good in Jersey .[52] Data from the Supply-Use tables in Jersey shows that, while the financial sector makes the largest contribution to Jersey's GVA, its knock-on impacts on the rest of the economy are relatively small. By contrast, the ICT sector's total contribution to Jersey's economy is still small, but its knock-on impacts are twice as large: for every job created in the ICT sector, there are two additional jobs created indirectly elsewhere - e.g. with large effects in the legal, accounting, and compliance sector.[53]

Whether the demand for such high-skilled workers is met or not in the context of ageing populations depends on the qualifications that old and young people have, and on which sectors are currently experiencing faster ageing of their workforces and greater labour shortages. Automation can help alleviate labour shortages in those sectors - and, in fact, increase productivity more generally in the overall economy. Yet, not all businesses will be in a good position to invest in such technologies,[54] given that some sectors are more labour intensive than others (e.g. long-term care).

The remainder of this section explains how ageing, via changing consumption patterns, leads to different velocities of sectoral growth and how ageing workforces by sector can accelerate (or not) labour shortages.

3.2 Effect of ageing workforces by sector

Like technological advancement, an ageing population also has uneven effects across industries in terms of employment and the use of labour. To measure the extent of the challenges faced by each industry, this section looks at the proportion of workers that are aged over 55 as well as the absolute numbers.

Generally accepted economic theory suggests that industries with a high proportion of older workers are associated with a higher risk of having labour shortages due to labour retirement. For example, in 2018 the Chartered Institute of Personnel and Development (CIPD) estimated that if the UK fails to adequately support older workers the UK could face a shortage of up to three million workers in the coming decade .[55] This risk of labour shortage will also be exacerbated by early retirement, shrinking labour pool and difficulties in labour upskilling.

Based on our analysis, on average 1 in 50 workers in Jersey are aged over 65, while one in six are aged over 55. Age distribution varies by industries:

---

[51] See PwC (2020)

[52] The organisation had an ambition to create 2,200 new jobs in the digital sector by 2020, four times higher than its 2013 level of 560. This goal has been achieved - around 3,032 people were employed in the digital sector in 2018, which is about two times larger than the level in Guernsey (1,372 people). See Tech Nation, 2018

[53] Similarly, the ICT sector's GVA multiplier is 2.07, meaning that every £1 spent in the sector supports an additional £1.07 in Jersey's economy.

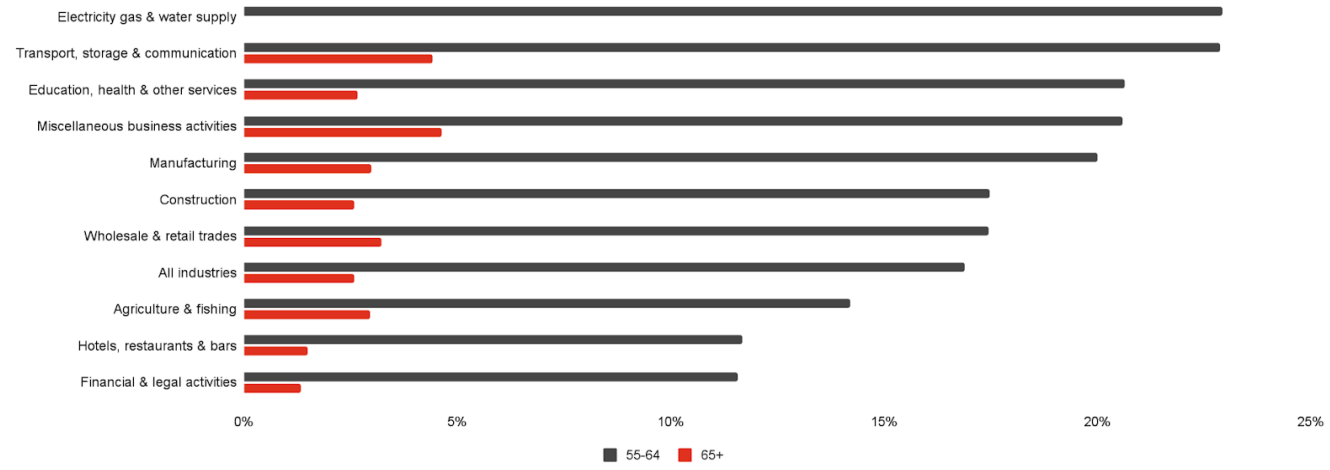
[54] Automation and digitisation historically give comparative advantage to large businesses with substantial R&D investment and resources (source: British Automation and Robot Association, 2018)

[55] CIPD (2018), *UK must improve support for older workers or face talent shortage, says research*

- Financial & legal activities industry has the youngest age profiles - only 11.6% are aged over 55 and 1.3% for over 65
- Electricity, gas & water supply sits at the other end of the spectrum, with 22.9% aged over 55 - though no worker is aged over 65, suggesting that retirement rules are strict in this sector.

In terms of the absolute numbers, the education, health and other services sector may face the biggest challenge in maintaining its labour force - it has 3,390 workers aged over 55 in 2020, followed by the financial & legal activities sector (1,550 workers) and the business activities sector (1,100 workers). This means that these sectors will need to fill the labour gap of a large number of retiring workers in the near future. If older workers are not retained for longer, organisations need to either retrain young workers or invest in new technologies to increase productivity of the remaining workforce. Depending on the sector, these options can be costly and time consuming.

Figure 36: proportion (%) of workforce aged over 50 in 2020, by industry group. Source: PwC analysis, Statistics Jersey



Note: Data is not available to isolate the impact that Covid 19 may have had on the demographic makeup of sectors in Jersey. In some industries young people may have been impacted by the pandemic more than their older peers, thus exacerbating the ageing of workforces in some sectors (temporarily).

Theory would suggest that knowledge based industries, such as financial services are best placed to retain an older workforce, while labour intensive sectors, such as construction are less able to. However, in part as a result of differences in salaries and work-based pension plans between sectors, there is a higher dependence on workers above the age of 55 in Construction, Wholesale and Retail, and Agriculture and Fisheries, than the knowledge based sector of Financial and Legal Services.

To gain the full picture of the challenges faced by industries, we also considered each industry's ability to retain its old workers - having a large proportion of old workforce is less problematic for an industry with a low older worker dropout than that with a high dropout rate. Data on industry dropout rate is not readily available, so we applied the CIPD (2015) method which used percentage change in the numbers of workers aged 45–49 and 60–64 (%) as a proxy. Combining each industry's reliance on older workers with their ability to retain old people, the extent of the ageing population challenges they are facing is presented in Table 1. Using this method, industries at the top of the table are estimated to face the biggest challenge as they have a relatively high proportion of older workers and experience difficulties in retaining these old workers at the same time. The top two industries are Education, health & other services and Financial & legal activities.

Table 1: Industries facing ageing population challenges, 2020. Source: PwC analysis, Statistics Jersey

Industry	% aged 55+ Jersey	Number aged over 55	% fall in employment aged 60–64 relative to 45–49	Relative rank of industry[56]	% aged 55+ UK, 2018
Education, health & other services	23.1%	3,390	60.5	1	21.1%
Financial & legal activities	12.9%	1,550	73.1	2	18.0%
Construction	20.7%	1,010	53.7	3	20.2%
Wholesale & retail trades	20.7%	1,030	52.0	4	18.7%
Miscellaneous business activities	25.2%	1,110	50.0	5	21.5%
Agriculture & fishing	17.2%	2,40	60.0	6	30.3%
Hotels, restaurants & bars	13.2%	390	58.1	7	11.6%
Transport, storage & communication	27.3%	620	48.7	8	22.0%
Electricity gas & water supply	22.9%	110	50.0	9	15.8%
Manufacturing	23%	200	46.7	10	20.9%
All industry	**19.5%**	**9,370**	**59.7**	**N/A**	**19.8%**

A large proportion of the workers in the education and health-related services already are aged over 55; moreover, there is also a large fall in employment for those aged 60-64 relative to 45-49, meaning that this sector is struggling to maintain its workforce. This result is intuitive given the nature of the industry. The education and health sector is historically characterised by its preference towards highly skilled, professional workers with extensive experience. When a large number of employees retire in a short period of time, the sector could struggle to fill the gap.

Labour shortages could be magnified if technology continues evolving (e.g. with the expansion of e-health) and such older workforces do not adapt. There are arguments (and some evidence) that older workers are less able to adapt to new skills requirements (perhaps due to different motivations at that stage of life[57]). Therefore, older workers may voluntarily or be forced to exit the labour force before retirement, which might explain the high dropout rate in this sector. Moreover, as a result of population ageing, demand in the healthcare sector is projected to grow, with an addition of 2,398 health workers needed to meet demand by 2050 under the central migration scenario.

The financial & legal activities sector, which ranked the second place, has far fewer workers that need to be replaced (1550 workers compared with 3390 in the education, health & other services sector) but a poorer record in retaining its old workers. There may be several reasons for this, including financial considerations that affect supply and demand. The high financial rewards in the sector has historically made early retirement a favoured choice for many, thus affecting the supply of labour. At the same time, if older

[56] Sectors are ranked on the numbers of people aged 55+ and dropout rates, with equal weights assigned to both figures.

[57] Employers who are expected to remain for a shorter period of time are likely more reluctant to retrain.

workers are demanding higher salaries due to their experience, companies may opt to hire younger people instead.[58]

Industries with a high exposure to ageing populations will need new resourcing strategies going forward - for example by finding a replacement for labour or providing more support to older workers to enable longer working lives. However, that does not necessarily mean that the industries at the bottom are free from the ageing population challenge. Their relatively low proportion of older workers and the higher labour retention rates may potentially reflect unfriendly working conditions to older workers or a real financial need for them to keep on working. For example, 23% of the manufacturing industry's workforce are estimated to be aged over 55, but the dropout rate is the lowest among the industries at 46.7%. Given the highly physically demanding feature in this industry, the low dropout rate may reflect insufficient savings for retirement rather than good practice by employers in support of older workers.

3.3 Age consumption patterns, sectoral growth and feedback employment effects.

There are three main ways in which an ageing population can affect the economy: (i) slowdown in labour force growth; (ii) changing patterns of savings and consumption; and (iii) pressures on public social expenditures. The first point has been illustrated in the previous section. This section focuses on the sectoral impacts brought about by the change in consumption patterns as a result of the demographic change.

There has been a change in the profile of employment with a significant increase of employment by those aged 55 and above in education and health, compared with a fall in hotels, restaurants and bars.

Figure 37: Absolute change in employment by sector 2011 vs 2020. Source: PwC analysis, Government of Jersey

Note: These figures show the accumulated change between 2011 vs 2020. It is likely that Covid impacted employment in sectors like hospitality and Retail, which might in part explain the drop in employment in those sectors.

The economic Life-Cycle theory states that individuals tend to smooth their consumptions by consuming more than what they produce through labour activity at the beginning and end of their lives, and produce

[58] Empirical studies show that whereas wage and benefit costs increase with age, there is no conclusive evidence that productivity increases as well. Source: https://www.nber.org/papers/w26597

more than they consume in the middle years. In reality, perfect consumption smoothing is normally infeasible. To sustain a certain level of old-age consumption, older persons have in general the following options: 1) gain financial returns from labour activity, selling assets etc; 2) reduce their consumption. The latter seems to be a prevalent choice - the decline in spending appears to be persistent over time and common to most western countries, regardless of people's income.[59]

Figure 38 investigates whether the consumption dip for old people happens in Jersey. Analysis in this section is based on the last available Jersey Household Spending Survey which presents estimates of average weekly household expenditure in 2014/15. Due to data limitations, two assumptions have been made:

- There is no within-age-group-consumption pattern change over time - the shifts in consumption pattern among consumption categories over time are solely because of demographic change[60].
- Head of household spending is representative of the general consumption pattern in their respective age group.

Figure 38: Aggregate weekly consumption per household by age groups, inflation adjusted to 2020. Source: PwC analysis, Statistics Jersey [61]

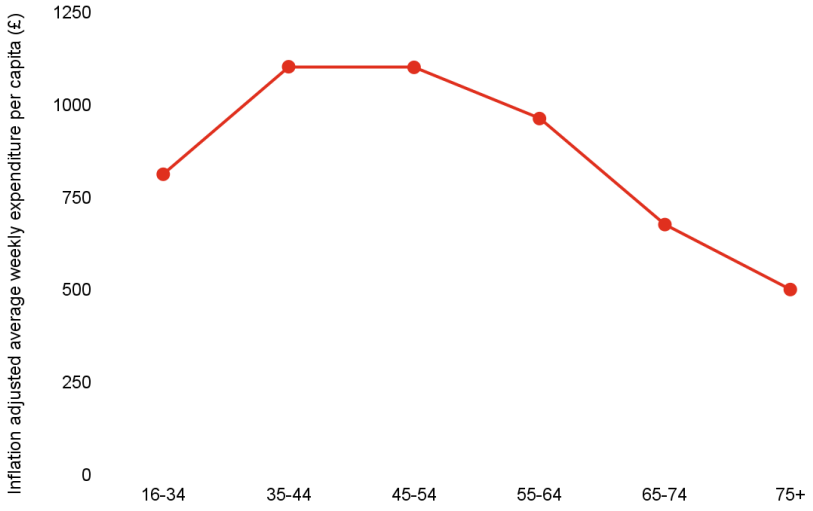
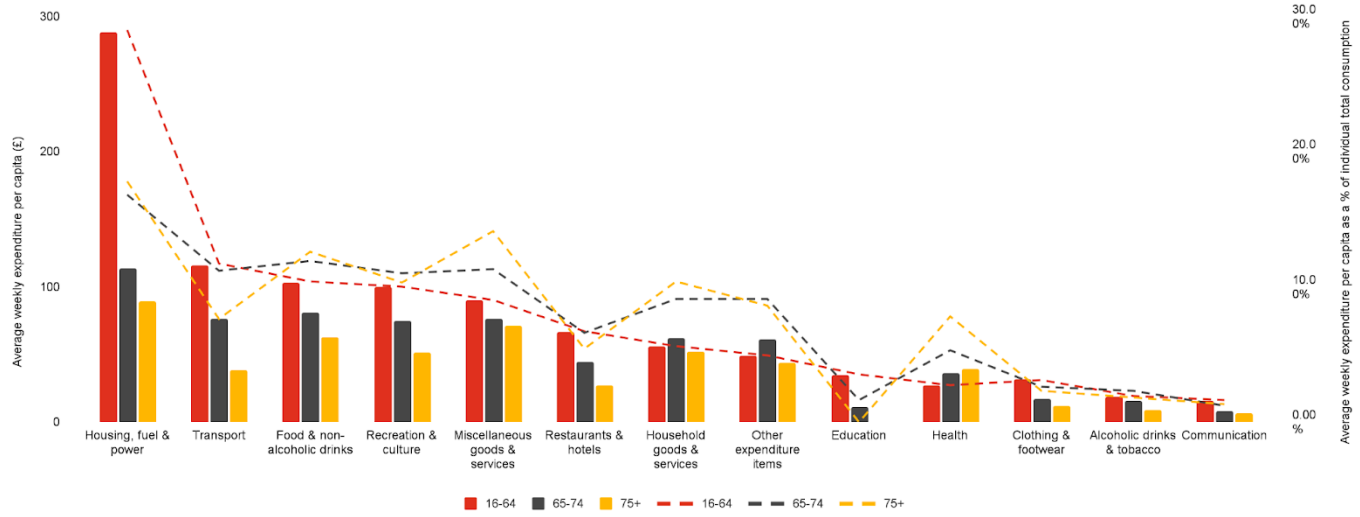


Figure 38 shows that the consumption expenses follow a hump-shaped curve among different age groups, and indicates that the two oldest age groups have the lowest weekly expenditure. The peak is reached when the household head is aged between 45 and 55. Spending also varies substantially between consumption categories. As illustrated in figure 39, as individuals age, consumption falls for all other categories except health, which increases by 34.7% for 65-74 and 46% for over 75 compared to the spending by people aged 16-64. In terms of expenditure allocations, although people trim their overall spending as age increases, some sectors actually see a growing importance in older people's consumption basket. For example, people aged over 75 spent 14.1% of their total consumption on miscellaneous goods & services (which includes home care, personal care and childcare), a significant rise from people aged 16-64 (9.0%). It can be concluded that people adjust their consumption behaviour as they move into

[59] International Labour Organization (2020), *World Employment and Social Outlook*
[60] Each age group has a spending level per person (in that group), The model assumes that there is no change in this per-person consumption level over time.
[61] PwC analysis, data captured from social security contributions and spending survey (2018).

different age bands of their life. Therefore, changes in the population structure (e.g, ageing population) should influence the development of consumption expenses, which will have further implications on sectoral growth.

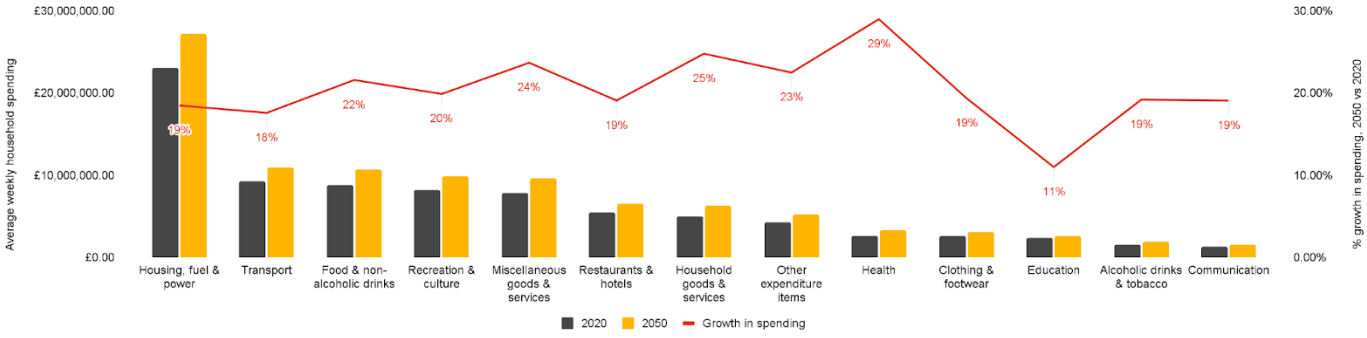
Figure 39: Weekly average household spending by consumption category and age of houseowner, inflation adjusted to 2020: Source: PwC analysis, Statistics Jersey



Note: dashed lines show each age group's allocation of expenditures across different consumption categories.
Source: PwC analysis, Statistics Jersey

With the assumption that the ways in which older people are spending stay the same over time,[62] Figure 40 estimates the growth in spending per sector that is driven by demographic change alone under the central migration scenario. Between 2020 and 2050, it is expected that the share of total consumer spending will shift from over 60% by those between the ages of 16-54, to just under 50% in 2050; while the share of spending by those aged 55 and above will increase from just under 40% in 2020 to closer to 50% in 2050.

Figure 40: Average weekly household spending by consumption category and age (16-55+)[63], 2020 vs 2050, net 700+ scenario. Source: PwC analysis, Statistics Jersey [64]



Source: PwC analysis, Statistics Jersey

As the population grows for each of the age bands, overall consumption increases for all categories but at different rates. As expected, the health sector is projected to see a 29% increase in total spending, the largest increase across all categories of expenditure. This is mainly driven by the rise in spending by

[62] This probably will not be true with new generations of older people accessing different types of consumption plus the impact of technology and in particular internet shopping.
[63] Age of the representative head of household.
[64] PwC analysis, data captured from social security contributions and spending survey (2018).

people aged over 55 (a 44% increase compared to the 2020 level). As the older age constitutes a larger and larger part of the total population, demand for healthcare is expected to increase accordingly. This could either strain a stretched healthcare system, or provide new markets for health and care insurance which would reduce the burden on families and provide good quality care.[65] At the other end of the age distribution, an ageing population reduces the relative demand for education. Spending in education increases by only 11%, 9% below the sectoral average. Although with a steady birth rate this is not likely to have profound impacts, evidence from Japan has seen schools close and universities suffer as a result of reduced numbers of young people[66]. A similarly small economy to Jersey, Malta, has seen predictions for large growth in 'silver economy' sectors (sectors that cater to older individuals)[67] so there are undoubtedly sector specific growth opportunities to be capitalised upon with the right policy and strategy direction in place.

Figure 41: Total household spending change between 2020 and 2050 by sector and age band, net 700+ scenario (£m). Source: PwC analysis, Statistics Jersey [68]

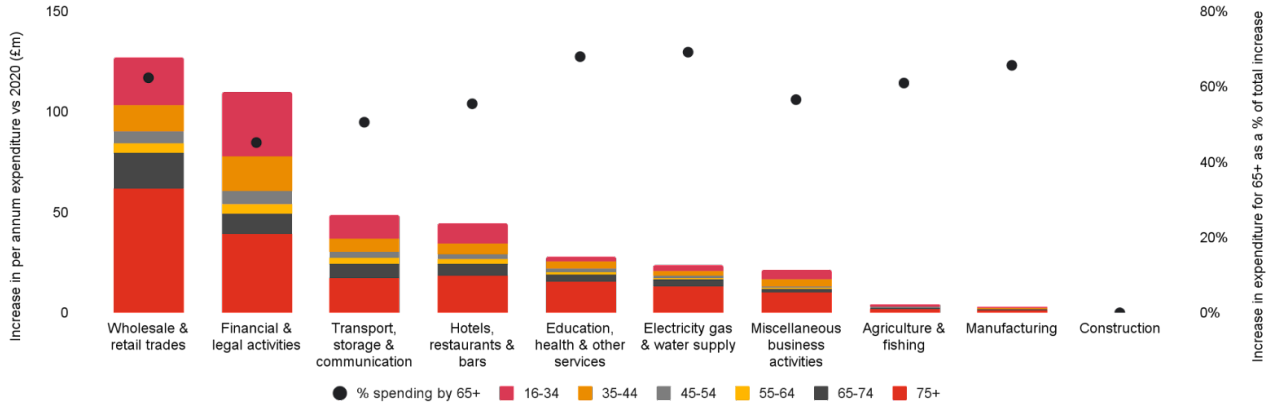


Figure 41 presents the estimated difference in consumer spending resulting from demographic change between 2020 and 2050 by sectors and age groups. To do this, we manually mapped consumption categories to SIC industries. All sectors except construction (which is not mapped with a consumption category) see an increase in consumption during the 30 years, mostly driven by the increased total spending by people aged 65 and above.

What would the impact of the change in consumption be on sectors? PwC conducted some in depth analysis of the make-up of the Jersey economy and the interdependencies between sectors (please refer to the separate technical overview of PwC's Supply, Use and Input-Output table analysis). Using this analysis, the impact of the increase in consumption across the whole economy can be estimated more accurately, enabling interventions to be fully appraised and justified. The results have been presented in figure 42 and 43. They show both the direct impact of consumption by two different age groups in each sector on GVA and employment, as well as their "knock-on" impacts, which are fed through each sector's interactions with their suppliers and employees' interactions with the wider economy. There are two types of knock-on impacts:[69] (i) is the supply chain (or 'indirect') impact, which is created by the spending of each sector on its

[65] Chen Chien-Hsun (2018), *How Does Taiwan's Aging Population Affect Its Economy*, EAI Background Brief No. 1356

[66] European Parliament (2020), *Japan's ageing society*

[67] Marvin Formosa (2014), *Socio-economic implications of population ageing in Malta: Risks and opportunities*

[68] PwC analysis, data captured from social security contributions and spending survey (2018).

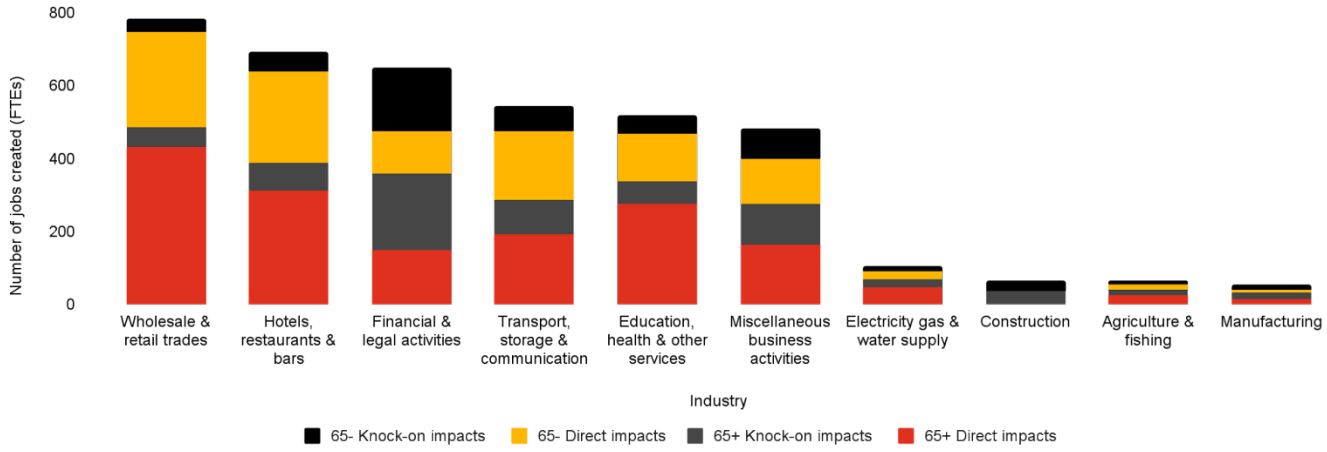
[69] Knock-on impacts as referred to here are also known as indirect (supply chain) and induced (employee spending) impacts, derived from Input-Output table analysis. Please see the Appendix 1 for further technical guidance.

suppliers; and (ii) is the employee spending (or 'induced') impact, which is created by the spending of employees of each sector and its supply chain.

This analysis is helpful to understand the impact of the additional consumption on Jersey's sectors. However, the model only gives a conservative projection and breaking through the following limitations would bring the predictions closer to real life.

- The model assumed no change in consumption patterns over the next 40 years.
- The model does not take into account technology change / disruption that may affect the sectoral makeup of the economy. This may fill the gap of some jobs created.
- The model assumes no change in the setcorial make-up of the economy.

Figure 42: Net sectoral employment under the net +700 migration scenario between 2020 and 2050, number of new jobs created [70]. Source: PwC analysis, Statistics Jersey [71]



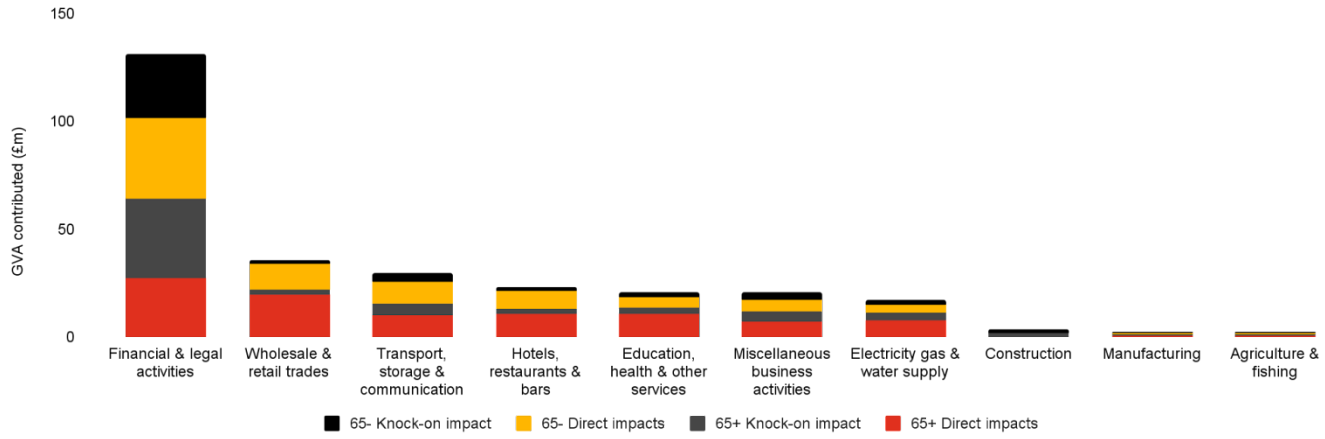
Note: Direct, supply chain, and employee spending impacts cannot be summed across sectors to reach total employment contribution for Jersey, as one sector's supply chain and employee spending impacts are some other sector's direct impact. Supply chain impacts and employee spending impacts together refer to knock-on impacts.

Note: As a result of the demographic shift, 55.5% of the net-increase in spending on Hotel, Restaurants and Bars between 2020 and 2050 will come from those aged 65 and above. The Hotels, Restaurants and Bars sector has a high employment to output ratio. Specifically, for every £1m of sector output, 12.75 FTEs are employed by Hotels, Restaurants and Bar businesses. By way of comparison, for every £1m output in Construction, 5.5 jobs are supported - hence the divergence between the net-change in sector spending and the employment impact of this spending.

Figure 43: Net sectoral GVA impact under the net +700 migration scenario between 2020 and 2050, £m. Source: PwC analysis

[70] Numbers are rounded to the nearest integer.

[71] PwC analysis based on data captured from social security contributions and spending survey (2018).



Note: Original GVA data for Jersey was constructed by PwC for this analysis. While the GVA data is closely based on data from the Government of Jersey, it will not align completely with the data that is currently publicly available. Direct, supply chain, and employee spending impacts cannot be summed across sectors to reach total GVA contribution for Jersey, as one sector's supply chain and employee spending impacts are some other sectors' direct impact. Supply chain impacts and employee spending impacts together refer to knock-on impacts.

The figures only present the net increase in employment and GVA between 2020 and 2050 as a result of the increase in spending in each sector by different age groups.[72] Take wholesale & retail trade as an example, figure 42 shows that the increased total consumption between 2020 and 2050 brings 784 new jobs to the wholesale & retail trade sector, 485 of which comes from the increased spending by people aged 65 and above. Further breakdown of the 485 new jobs added by older people shows that 433 jobs are created as a result of their consumption in the wholesale & retail trade sector, while the rest comes from the interaction with the wider economy.

Shifting skills demand and shortages

As the population ages into retirement, industries face a direct challenge to fill the gap of retired workers. However, as briefly mentioned before, some industries will also have to find additional workers to fill new demand arising from the changing consumption pattern between old and young generations. This indirect challenge is investigated in the next section.

PwC analysis finds that between 2020 and 2050, some sectors will see employment grow more than others as a result of shifting spending behaviours driven by demographic changes. In particular Hotels, Restaurants and Bars; Education, health and other services; and Retail and wholesale are expected to benefit most from increased domestic consumption. However, this demand will likely exacerbate existing skills shortages. This is expected to be most acutely felt in Health, education and other services and Hotels, restaurants and bars which already have the highest sectoral vacancy rates.

Table 2: Growing Skills Shortage 2020 - 2050

Industry	% total workforce 2020	% aged 55+ Jersey	Forecast employment % change 2050 vs 2020	Vacancy Rate*
Education, health & other services	27.0%	20.63%	15.1%**	11.2%
Financial & legal activities	22.7%	11.57%	4.9%	8.8%
Construction	10.2%	17.47%	1.1%	8.9%

[72] These estimates are based on current productivity and business organisation. The action of jobs needed might be quite different depending on productivity and technology changes.

Wholesale & retail trades	12.4%	17.46%	10.7%	8.8%
Miscellaneous business activities	10.2%	20.59%	9.4%	2.1%
Agriculture & fishing	2.5%	14.20%	4.5%	7.3%
Hotels, restaurants & bars	7.6%	11.68%	15.7%	32.3%
Transport, storage & communication	4.6%	22.88%	15.3%	2.4%
Electricity gas & water supply	0.8%	22.92%	21.8%	~
Manufacturing	2.0%	20.00%	4.5%	11.6%
All industry	**100%**	**16.89%**	**N/A**	**9.9%***

Note: Calculations based on net-migration scenario of 700 per-year; include total employment and vacancies across all sectors (also public sector).
*Vacancy rate is calculated from the 2019 to 2020 average.
**Includes new jobs created as a result of increased government expenditure in the health sector
Source: PwC analysis, Statistics Jersey

Key highlights from figure 42 and 43 include:

- The increased spending makes the largest contribution to Jersey's wholesale & retail trade sector in terms of new jobs created (784 FTEs, a 10.7% increase from its 2020 level), and to the financial & legal activities sector in terms of GVA increased (£131.7m).
- Regarding new jobs created in 2050 compared to 2020, spending by older people contributes more than the younger generation for all sectors. In particular,
    - People aged over 65 will spend £79.5m more in 2050 than 2020 in the wholesale & retail trade sector, as a result 485 (62% of the total jobs created) new jobs will be created, a 6.6% increase from the sector's 2020 employment level.
    - Similarly, those aged over 65 will spend £24.7m more in the Hotels, restaurants & bars sector, and 388 (66% of the total jobs created) new jobs will be created, a 8.7% increase from the sector's 2020 employment level. And
    - 339 (65% of the total jobs created) new jobs will be created in the education, health and other activities sector, mostly driven by the increased spending in health (£19.2m).
- The changing population profile means demand for financial services and hospitality increase, and these are the sectors with a fairly young workforce[73], which may mean these sectors are able to adapt under new conditions. Conversely, industries such as health, where over 20% of workers are over 55, may struggle to meet the new demand especially when a significant chunk of their workforce nears retirement. This may require significant training programmes or immigration policies to alleviate these concerns.
- In terms of sectoral growth, the finance & legal sector sees the largest increase in GVA, mostly through knock-on impacts. In general, the financial services sectors in Jersey have high GVA per output values - averaging 60% compared to 46% in non-finance sectors - which further indicates that they respond more to extra consumption in the economy than other sectors[74].

[73] Government of Jersey, Labour market statistics
[74] PwC, Towards an Economic Framework for Jersey, 2020

3.4 Skills and automation by sector

This section has so far shown that, with demographic change, some sectors of the economy are expected to grow much faster than others (the health and long-term care sector being one of them). Some sectors can even decline as populations grow older.

These sectoral shifts present two main challenges for the economy:

1. The scarcity of labour linked to ageing can become more visible in those sectors that have larger shares of older workers (who are closer to retirement), particularly those that already experience skills gaps and thus face increasing vacancy rates.
2. These challenges are compounded by the need to dedicate more workers to lower productivity industries like care work, which increasingly takes on a larger share of the economy.

Some industries, particularly those that are more capital-intensive, can offset the shortage of labour by investing in automating technologies.[75] If inward migration remains at low levels, automation does not seem to have downsides: with a declining labour force, it is useful to have less need for workers. In practice, whether automation is one of the keys to overcoming labour shortages depends on two questions:

Firstly, it depends on how far technology complements the work of Jersey's workforce (mainly by boosting productivity of skilled people) rather than making people redundant - and thus further increasing economic dependency[76] by making more people claim social benefits if unemployed or retired early (see Box 6 for the expected impacts of automation on Jersey's Economy).

Box 6 - The impacts of automation on Jersey's economy

In 2020 Digital Jersey published research that identified wide-spread opportunities for task automation in the labour market as well as a digital skills density which lagged its counterparts in the UK. The findings were based on 9,000 local job vacancies and 6,000 CVs collected over the preceding 18 months. This painted a detailed picture of labour market demand, supply and skills utilisation as it was in 2020. Similarly, PwC published analysis in 2020 which estimated that 27% of jobs in Jersey are at risk of automation by 2035, in total 16,900 jobs. Sectors most at risk of automation include financial and professional services where repetitive and routine tasks can be replaced with labour substituting technologies.

COVID-19 has accelerated the digital transformation timetable and thus its impact on the labour market. Businesses here, as elsewhere, have rushed to adopt technology to survive, and many jobs will be impacted sooner than otherwise would be expected. As government employment support schemes wind down, the extent of unemployment in Jersey will emerge.

However, given the right conditions, there could be as many new employment opportunities created in Jersey as there are lost from labour substituting technologies. These are a mix of new, technology-enabled job roles within existing industries, expansion in personal care sectors, and potential growth sectors. For example, within the finance sector, automated core administration tasks in anti-money laundering (AML), client due diligence (CDD) and financial performance evaluation will free up capacity for added-value services. This could include bespoke investment management, data security and environmental, social and governance (ESG).

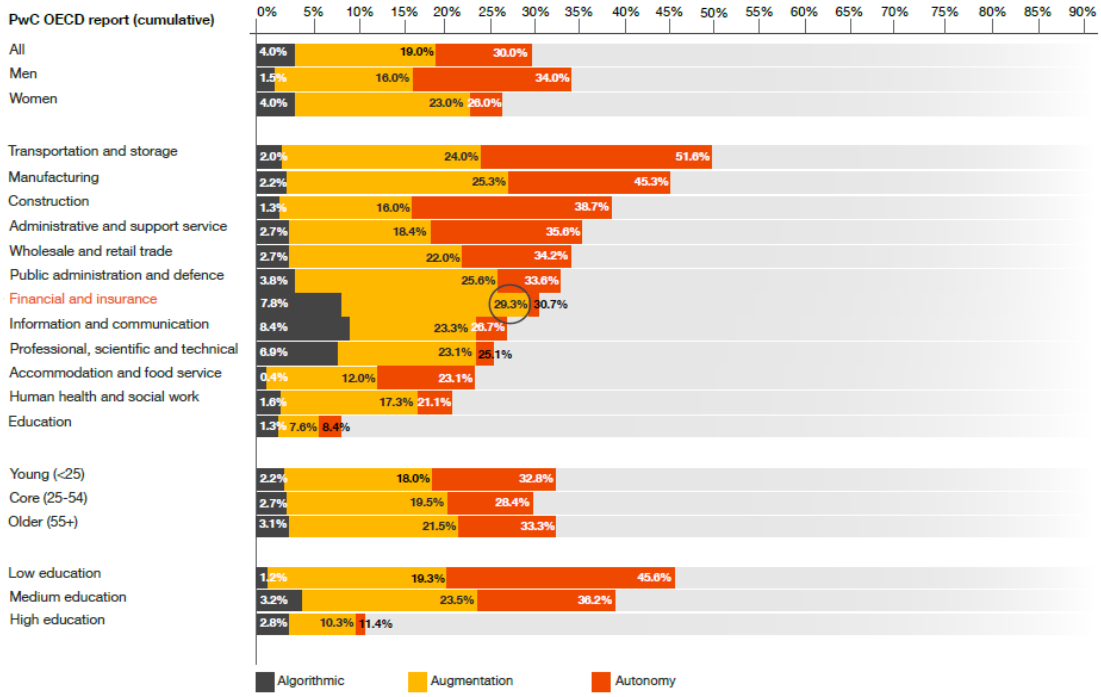
[75] Also sectors that are associated with repetitive or hazardous tasks, such as manufacturing and construction, can expect significant gains from automation despite shortages in the young labour force.

[76] Economic dependency in an economy is not to be confused with the usual definition of 'dependency ratio' which is often used as a synonym of the old-age ration (+65/15-64), which is simply an age-related statistic (not impacted by levels of unemployment).

Secondly, it also depends on how far different sectors can actually use automating technologies to alleviate labour shortages. The sectors less subject to automation are, of course, more labour-intensive (see Figure 44).

Furthermore, some of these labour-intensive sectors are expected to grow into the future in the context of ageing populations - employing more of 55+ people as shown in Figure 44. The challenge for the economy is that some of these sectors show lower productivity, which can decelerate overall economic growth (see next section)

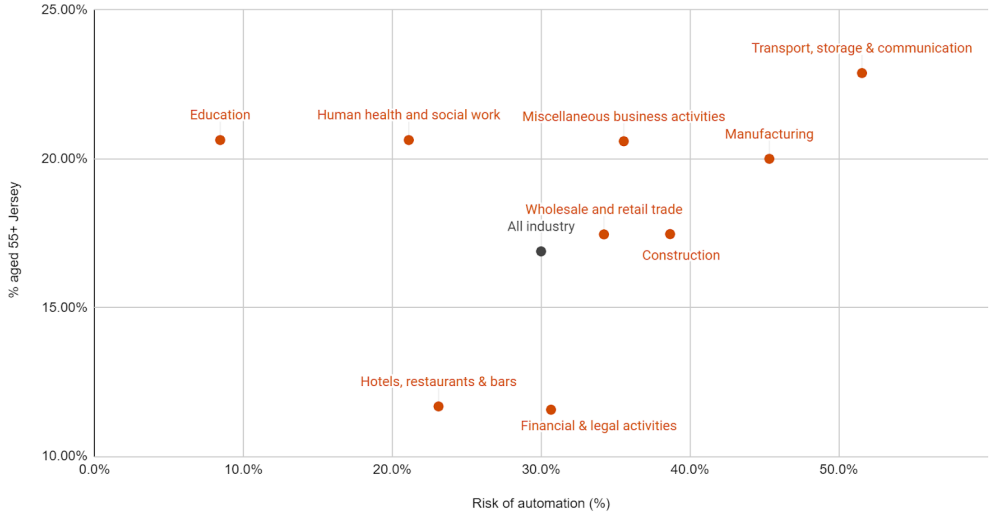
Figure 44: Sectoral propensity to automation: Potential cumulative rates of job automation by industry across automation waves.



Source: Will robots really steal our jobs? An international analysis of the potential long term impact of automation (2018). PwC

Labour shortages can accentuate in sectors that are more labour-intensive, which are less susceptible to be automated.

Figure 45: Sectoral use of automation and older workers in Jersey. Source: PwC Digitally Upskilling the Channel Islands Report.



Source: PwC analysis using data from PwC (2018)

Upskilling will play an important role in overcoming the pressures of ageing populations.[77] PwC research suggests that the risks of job automation are, on balance, greater for older workers (aged 55+) compared to those aged 25-54 years old.[78] The share of potential jobs at high risk of automation by the 2030s amongst older workers is around 34%, compared to 28% for the 25-54 age group. The differences in risk can be explained by variation in skills and education attainment. Analysis of older workforces in OECD countries suggests that they consist of a higher proportion of low education workers, who are at higher risk as their jobs tend to be more easily automated. Older workers also tend to be employed in clerical support roles, which involve routine tasks that are more easily automated.

The allocation of workers across the most productive sectors of the economy, and not the sole fact of increasing labour force participation, is what will drive Jersey's productivity and economic growth, and thus reduce its level of dependency.

[77] Look at evidence in: Paccagnella, M. (2016), "Age, Ageing and Skills: Results from the Survey of Adult Skills", OECD Education Working Papers, No. 132, OECD Publishing, Paris, https://doi.org/10.1787/5jm0q1n38lvc-en.
[78] PwC (2018), *Will robots really steal our jobs?*

4. Impact of ageing on the wider economy

The workforce and sectoral impacts of demographic change translate into wider impacts on the economy and economic growth.[79] Projections show that over the period 2018-30, declining working-age populations will drag down *GDP per capita* growth[80] in 11, mostly advanced, G20 countries, by up to 0.5 percentage points.[81] This means that the economy may become less productive.[82]

Whether Jersey can sustain its level of GDP per capita and standards of living will depend on how far the reallocation of workers, skills and capital (i.e. investments in new technologies) created by ageing across sectors of the economy can help boost productivity.

This section reviews what ageing means for productivity and growth of the economy, and then its fiscal implications.

4.1 Productivity and economic Growth

There is cross-country evidence that productivity is correlated to changes in the age structure of the workforce.[83] Data from the US shows a 10% increase in the fraction of the population aged 60+ leads to an over 5% fall in GDP per capita.[84] Similar conclusions have been reached in the European economy[85], where studies find negative productivity impacts from an older workforce.

Trends in productivity are the result of both supply and demand shocks. The former has to do with how far people maintain/improve (and use) their skills in an ageing workforce. The latter has to do with the sectors of economic activity that are expanding with changing consumption patterns of older populations, as analysed in Section 3. Figure 46 summarises all the channels through which ageing affects productivity, positively or negatively.

[79] Demographic change can have an impact on: consumption and labour supply, on productivity and, ultimately, of GDP per capita. See Feyrer J. (2007), Demographics and productivity. Review of Economics and Statistics, 89(1):100–109, 2007. See also: Miles D. (1999), Modelling the impact of demographic change upon the economy. The Economic Journal, 109(452):1–36, 1999.

[80] GDP (per capita) growth is also affected by declining labour participation following factors: Declining employment rate; capital per worker; Total Factor Productivity.

[81] OECD (2019), *Fiscal challenges and inclusive growth in ageing societies.*

[82] The IMF found that a 1 percentage point increase in the 55–64 age cohort of the labor force is associated with a reduction in total factor productivity of about ⅕ of a percentage point. Extrapolating this result forward, projected ageing could reduce TFP growth by an average of 0.2 percentage points per annum over the next twenty years. link here.

[83] See Feyrer J. (2007), Demographics and productivity. Review of Economics and Statistics, 89(1):100–109, 2007

[84] Which is partly explained by a 3% drop in the rate of growth in output per worker (OECD 2019).

[85] Iñigo Calvo-Sotomayor, Jon Paul Laka and Ricardo Aguado (2019), *Workforce Ageing and Labour Productivity in Europe*

Figure 46: Impacts of ageing populations on productivity - direct and indirect channels. Source: PwC Analysis

Channel	Effect Description	Evidence[86]
Age-related Productivity (age effect)	Individual productivity varies at different ages of workers.	With different age-specific productivity, overall productivity in the economy changes as the age composition of the workforce gets older. Age-specific productivity tends to increase up to a certain age and levels out thereafter.[87] Whether productivity starts declining after a certain age depends on the type of tasks carried out by workers (and thus on the levels of skills and education).[88] >> Negative effect: the greater presence of older workers may hamper firms' productivity and future growth if older workers are less innovative or less willing to take risks.[89] Accelerated rates of population ageing can reduce adaptability in some sectors >> Positive effect: Older workers have substantial job experience, and an increasing number of studies suggests that departures of senior colleagues may be detrimental to co-worker's productivity.[90]
Spillover effect in wider economy (market effect)	Changes in work practices and consumption habits by an older population (and workforce) impacts whole teams, firms and industries.	Ageing can have a negative impact on productivity growth of all workers across the economy: >> Negative effect: if less productive sectors of the economy expand with ageing.[91] >> Negative effect: Ageing and population decline can lead to lower entrepreneurship (e.g. start-up creation) and lower competition, which overall results in less productive economies.[92] >> Positive effects: countries, where ageing has been faster, are also characterised by a higher rate of technology adoption (as response to increasing labour shortages), which boost productivity of workers.[93]
Capital accumulation (indirect) effect	Differences in the rate of capital accumulation impact investment levels and, in turn, economic growth.	With ageing populations, there is a large accumulation of savings when there is a higher concentration of people in the age groups close to retirement (e.g. 50-64) and then a decline in aggregate savings in the economy as median age increases and more and more people retire and start using their savings.[94] This phenomenon has aggregated macroeconomic impacts on interest rates, the accumulation of capital and levels of investment and, ultimately, economic growth.[95]

[86] Look at the OECD review of evidence in: OECD, "Ageing and Fiscal Challenges across Levels of Government", source: https://www.oecd-ilibrary.org/sites/dc2ae16d-en/index.html?itemId=/content/component/dc2ae16d-en

[87] See Aubert, P., & Crépon, B. (2007). Are older workers less productive? Firm-level evidence on age-productivity and age-wage profiles. mimeo.

[88] See Skirbekk V. (2004) Age and individual productivity: A literature survey. In: Feichtinger G. (Ed.) Vienna yearbook of population research 2004. Austrian Academy of Sciences Press, Vienna, pp 133–153

[89] See Aksoy, Y, H Basso, T Grasl and R Smith (2015), "Demographic structure and the macroeconomy", VoxEU.org, 8 April. See also: Engbom, N (2019), "Firm and worker dynamics in an aging labor market", FED Minneapolis, working paper 756.

[90] See Jaeger, S and J Heining (2020), "How Substitutable Are Workers? Evidence from Worker Deaths", MIT, mimeo.

[91] See Maestas, N, K J Mullen and D Powell (2016), "The Effect of Population Aging on Economic Growth, the Labor Force and Productivity", NBER, working paper 22452.

[92] See Hopenhayn, H., J. Neira and R. Singhania (2018), From Population Growth to Firm Demographics: Implications for Concentration, Entrepreneurship and the Labor Share.

[93] See Acemoglu, D. and P. Restrepo (2018), "Demographics and Automation", NBER Working Paper No. 24421.

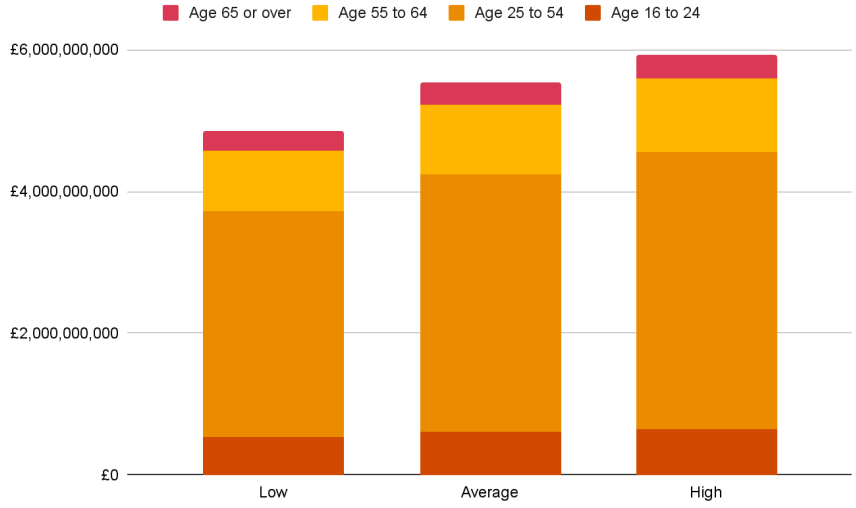
[94] See Abel A.B. The effects of a baby boom on stock prices and capital accumulation in the presence of social security. Econometrica, 71(2):551–578, 2003.

[95] There is cross-country evidence showing that differences in productivity growth between faster and slower ageing countries might be explained by differences in the rate of capital accumulation, as opposed to differences in the growth rate of average worker productivity. See Oliveira Martins, J. et al. (2005), "The Impact of Ageing on Demand, Factor Markets and Growth", OECD Economics Department Working Papers, No. 420, OECD Publishing, Paris. See also Börsch-Supan, A., A. Ludwig and J. Winter (2006), "Ageing, Pension Reform and Capital Flows: A Multi-Country Simulation Model", Economica, Vol. 73/292, pp. 625-658.

Thinking about people and productivity (the supply side), older workers have skills and other attributes coveted by firms that may be difficult to replace in the labour market.[96] In less advanced economies, economic activity tends to be more concentrated on manual labour and thus suffer from the effects of ageing (and related physical skills depreciation). In an economy like Jersey's, more and more built upon services, knowledge and technology adoption, economies can benefit from the ability of older workers to plan and interpret.

The size of the estimated economic contribution made by each age group will depend on the labour force participation rates. Under a low participation rate, the expected economic output of Jersey's workforce above the age of 55 is approximately £1.1 billion compared with £1.4 billion under a high participation rate (Figure 47)[97]. For this reason, proactive policy interventions will likely be needed to steer the participation rate upwards across all age groups.

Figure 47: Expected economic output by age group by 2050 under different participation rates (migration scenario: 700+). Source: PwC Analysis, Government of Jersey.



A greater challenge for Jersey has to do with how ageing reshapes sectoral growth and the structure of the economy.[98] In general, global evidence shows that consumption can drop up to 20% at retirement,[99] with lower-income households particularly affected, which means that economic dynamism can be affected as more people reach that stage. More importantly, trends in sectoral growth linked to ageing can decelerate economic growth if less productive sectors (e.g. health and social care) expand faster than others - and thus employ an increasing share of the workforce. This could magnify the productivity challenges that Jersey has faced in the last two decades.[100] It can also magnify the pressures of larger fiscal expenditures. The use of more labour-intensive services (e.g. health or social care), less subject themselves to

[96] As suggested by a large empirical literature on skill-accumulation in labor economics, and in line with recent related work on hiring frictions. See Jaeger, S and J Heining (2020), "How Substitutable Are Workers? Evidence from Worker Deaths", MIT, mimeo...and also: https://voxeu.org/article/workforce-ageing-pension-reforms-and-firms-outcomes

[97] Assumes hourly productivity of £45 and extrapolates mean hours worked by age with population forecasts.

[98] This means that broader sectoral and industrial policies may be needed in addition to those seeking to boost labour force participation (discussed in Section 5); such policies are beyond the scope of this report.

[99] There is empirical evidence that consumption falls particularly steeply as consumers enter retirement. See Banks J., R. Blundell, and S. Tanner. Is there a retirement-savings puzzle? American Economic Review, 88(4):769–788, 1998.

[100] Productivity has tended to be pro-cyclical, with both productivity and GVA increasing in 1999-2000 and 2005-2007; and both falling in 2001-2003 and 2009-2012. However, in the last three years productivity has fallen 4% during a period in which GVA has increased by 4%.Source: https://www.gov.je/SiteCollectionDocuments/Government%20and%20administration/Fiscal%20Policy%20Panel%20Advice%20for%20the%202020-23%20Government%20Plan.pdf

productivity growth, leads to higher allocation of resources (private or public) to these sectors[101] - with a potential effect of a larger share of GDP being channelled by the Government via the welfare state.[102]

There certainly are new opportunities in the "Silver economy" to continue innovating. These likely require active industrial policy (see Box 7).

Box 7 - potential for growth with the 'silver' economy

There is a growing body of literature around the increasingly important older consumer market. And several recent international reports have sought to estimate future expenditure among older consumers in the US and across the EU.[103] In the UK, recent years have seen a number of government initiatives designed to support older people's consumption and to encourage businesses to respond to the growing older market. These range from supporting moves toward inclusive design to the recent pledge to invest £98 million to support innovation in goods and services as part of the Government's Industrial Strategy Grand Challenge on healthy ageing. Most recently the Government has established a Longevity Council to advise on how best to use innovations in technology, products and services to improve the lives of our ageing population.

Silver Economy in the EU[104]

The Silver Economy in the EU is estimated at €3.7 trillion and growing, primarily comprising private expenditure by older people (50+) on various goods and services, from housing to recreation.Official population projections suggest the Silver Economy will expand steadily over the next 10 years, across the EU. Based on the study's assumptions, it has the potential to expand by approximately 5% per year up to 2025, to €5.7 trillion.

The contribution of the European Silver Economy to GDP could reach €6.4 trillion and 88 million jobs by 2025. This would be equivalent to 32% of EU GDP and 38% of the Union's employment. This growth opportunity comes not only from the natural response from existing sectors to shifting demand patterns, but also the wholly new industries created by the intersection of demographic and technological change. For example,[105]

> Smart homes: Smart homes have been increasingly popular among old people for the convenience it brings. Home automation can also help old people to live independently. The study estimates that smart homes will be installed in many tens of millions of homes (across all age groups) by 2025.
> **Silver tourism**: 16% of total tourism expenditure in the EU28 comes from people aged 65 and above. This figure is still significant globally, with 50+ population spending €109b per year on sectors directly related to tourism, approximately 3% of GDP, and directly or indirectly contributing to 100,000 jobs in all sectors.
> **Driverless cars**: Autonomous vehicles are of especial relevance to older people, who can benefit from enhanced mobility without the physical demands of driving. The global market for driverless cars is expected to grow to €39b by 2025, and to €71b by 2035.

There are also forces favourable for productivity that can be leveraged:

- The ageing of the labour force has been associated with increases of productivity-enhancing ("labour saving") automation at the industry level [106], as firms respond to an increasing scarcity of

[101] The Baumol effect (Baumol, 1967) states that relative prices of labour-intensive services, like in the health and long-term care sectors, tend to increase with respect to the price of other goods with higher exposure to technological change.
[102]See Disney R. (2007). Population ageing and the size of the welfare state: Is there a puzzle to explain? European Journal of Political Economy, 23:542–553, 2007.
[103] Source: https://ilcuk.org.uk/wp-content/uploads/2019/12/Maximising-the-longevity-dividend.pdf
[104] Source: https://digital-strategy.ec.europa.eu/en/library/silver-economy-study-how-stimulate-economy-hundreds-millions-euros-year
[105] Source: https://digital-strategy.ec.europa.eu/en/library/silver-economy-study-how-stimulate-economy-hundreds-millions-euros-year
[106] See Acemoglu, D. and P. Restrepo (2018), "Demographics and Automation", NBER Working Paper No. 24421.

labour in an ageing society.[107] In general, if the ageing process leads to technological innovation, labour productivity can increase.[108]

- The shift toward knowledge-based economies can keep older workers for longer in employment - and remain more productive - if people continue acquiring the right skills.

A positive correlation between older population structures and the levels of labour productivity, if it is achieved, would be in principle expected to expand society's consumption possibilities into the future and create more leeway in public finances.[109]

4.2 Fiscal impacts

An ageing population inevitably has consequences for Jersey's public finances, as work, spending and saving behaviours change as individuals and households age. Older (normally retired) individuals spend (and typically earn) less, whilst often using public services more, notably healthcare services.

The fiscal impact expected in Jersey depends on how public expenditure and social security benefits are expected to evolve, particularly health expenditure per head, with estimates from other locations suggesting that someone aged 65 already consumes 2.5 times more health care than an average 30-year-old.[110]

This section analyses both fiscal expenditures and revenues in Jersey in the context of ageing populations. It looks in particular at the net fiscal contributions of different types of Jersey-born and migrant workers.

International experience shows that ageing populations can increase the public debt burden;[111] and if public expenditure is not contained, tax revenue would need to increase to stabilise public debt-to-GDP ratios at their current levels.[112]Jersey typically runs a balanced budget and does not hold ongoing public debt, but it may still need to increase taxes as it would not want any public debt.[113]

Expenditure

Government expenditure on health, social care and related benefits accounted for about £330 million of public spending in 2020[114], or approximately £3,000 per capita.

Average costs per person do however vary quite substantially by age group, with older members of the population typically requiring more care than the younger groups (Figure 48).

---

[107] See Cutler D.M., J.M. Poterba, L.M. Sheiner, and L.H. Summers. An aging society: Opportunity or challenge. Brooking Papers on Economic Activity, 1:1–73, 1990.

[108]See Daron Acemoglu (2013), "When Does Labor Scarcity Encourage Innovation?". Also, it has been found that in the small economy of Taiwan, a significantly ageing workforce for the last 3 decades has seen their productivity increase significantly as levels of human capital have increased over time. See, Wen-Hsin Huang et al. (2019), Impact of Population and Workforce Aging on Economic Growth: Case Study of Taiwan.

[109] If older people remain in the labour force for longer and productivity increases overall in the economy, the increasing wage incomes can at least in part compensate for the decline in the tax base due to ageing populations.

[110] For the case of the UK, see BBC News (2018), *10 charts that show why the NHS is in trouble*.

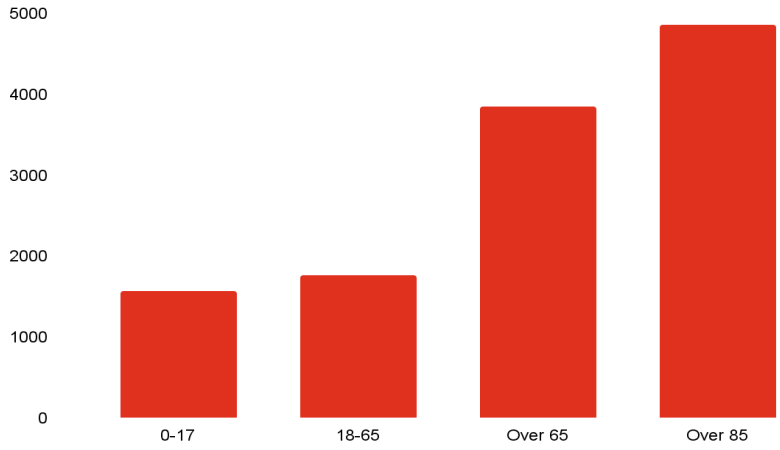
[111] International estimates suggest an average of 180% of GDP in G20 advanced economies over the next three decades. Source: OECD (2019), *Fiscal Challenges and Inclusive Growth in Ageing Societies*, OECD Economic Policy Paper No. 27, September 2019.

[112] International estimates put the number between 4 and 11 percentage points of GDP by 2060 in G20 countries. Source: OECD (2019), *Fiscal Challenges and Inclusive Growth in Ageing Societies*, OECD Economic Policy Paper No. 27, September 2019.

[113] The Government of Jersey does not have a policy of running debts against operational budgets. Therefore, spending constraints could have impacts across society, wider than economic growth.

[114] This includes the departmental spending of Health & Community Services; The Health Insurance Fund; and Long Term Care.

Figure 48: Government expenditure on health per capita by age (£, inflation adjusted to 2020). Source: Statistics Jersey.



Source: Government of Jersey

Illness and disease tend to become more common as age increases. As a consequence, public expenditure on health increases through the age groups. The per capita public health spending is significantly lower when people are in their childhood or at working age, before it doubles for those aged 65 and above. Unsurprisingly, the oldest, aged 85 years and over, costs the government the highest amount of per capita spending on health, 3 times larger than the spending on those between 18 and 65 years old.

Table 3: Government spending on health and old age, 2018.

	Health		Old age	
	Percentage of gross domestic product (GDP) (%)	**Percentage of general government spending (%)**	**Percentage of gross domestic product (GDP) (%)**	**Percentage of general government spending (%)**
Denmark	8.3	16.8	8.2	16.2
Netherlands	7.6	18.3	6.4	15.3
UK	7.5	17.5	8.3	20.2
EU27	7.0	14.1	10.4	22.3
Finland	7.0	14.0	13.6	25.6
Slovenia	6.6	14.3	9.9	22.8
Jersey	**6.1**	**27.4**	**3.9**	**24.8**
Malta	5.3	13.1	6.7	18.3
Estonia	5.1	10.6	6.7	17
Ireland	5.0	11.6	3.2	12.5
Cyprus	2.7	6.4	6.1	14

Source: PwC Analysis, Statistics Jersey, OECD. Eurostat – General government expenditure by function (COFOG) [gov_10a_exp]; Government of Jersey Annual Report and Accounts 2018

In 2018, Jersey spent £284m on healthcare, equating to about £2600 per person. As a percentage, Jersey healthcare spending equated to 6.1% of GDP, which is in the middle range when compared to a few comparator countries (Table 3). However, of the selected countries, Jersey's healthcare spending as a percentage of total government spending was the highest. Jersey's spending on old-age pensions is also low as a percentage of GDP, but it is high when expressed as a percentage of public expenditure.

It looks unlikely that health care expenditure will be contained in the future. There is certainly evidence of a certain degree of compression of morbidity in some countries (notably Germany),[115] but other countries (including the UK) have observed a deterioration of health outcomes of older people. If there are more and more older people that prolong life expectancy but not years of good health accordingly, then health expenditures are to continue increasing. Moreover, people are likely to expect better health care services than in the past. New medical technology and drug therapies, for instance, increase the demand for health care for all age groups, because these make new treatments, that were previously unattainable, possible.[116]

Demographic change, technological advancement, and epidemiological characteristics all will continue having an influence on the pattern of health expenditure.[117] The challenge of the demographic transition is the ability to provide (and finance) welfare services that meet the needs and requirements of most people. It is not sufficient merely to ensure the provision of the same services as we have today. To maintain the welfare state, public services will need to meet future standards. The standards people expect of health care, for example, are very different from what was considered acceptable some decades ago.[118]

As the budget for health (and social) care increases, there will be a pressure to increase taxes to keep the budget balance in order. International evidence shows that the magnitude can be substantial: in the UK, research by King's Fund finds that a 3 percent real yearly increase in the budget for health care to cover the rise in demand for a decade, would require a permanent increase in tax or reduction in spending on social security benefits and tax credits.[119] In Jersey, such trends can lead to considering wider tax reform.

Table 4: Employment and GVA impact in Jersey, 2020 vs 2050, net 700+ migration scenario. Source: PwC Analysis, Statistics Jersey.

	0-16	17-64	65+	85+	Total
Change in population compared to 2020	2,923	10,095	14,193	5,744	32,955
Increase in public spending on health (£m)	4.6	17.9	60.4	27.9	105.0
Employment effect (FTEs)*	82 (62)	319 (257)	974 (783)	498 (400)	1873 (1505)
GVA effect (£m)	3.9	15.1	46	23.5	88.5

*Direct effect in brackets.

[115] Source: https://www.thelancet.com/journals/lanepe/article/PIIS2666-7762(21)00055-7/fulltext

[116] see, for instance, Okunade A. and V. Murthy. Technology as a major driver of health care costs: a cointegration analysis of the newhouse conjecture. Journal of Health Economics, 21:147–159, 2002. See also: Lichtenberg F.R. The impact of new drugs on us longevity and medical expenditure. American Economic Review, 97(2):438–443, 2007.

[117] This implies that besides the quantitative dimension of ageing (fewer individuals of working age, an increased number of elderly people), there is a qualitative dimension to the welfare states that will be affected by new technologies.

[118] See discussion in Andersen T.M. and L. Haagen Pedersen. Financial restraints in a mature welfare state. Oxford Review of Economic Policy, 22(3):313–329, 2006.

[119] Projections of Appleby et al [2009]. How cold will it be? Prospects for NHS funding: The King's Fund and Institute for Fiscal Studies, 2009.

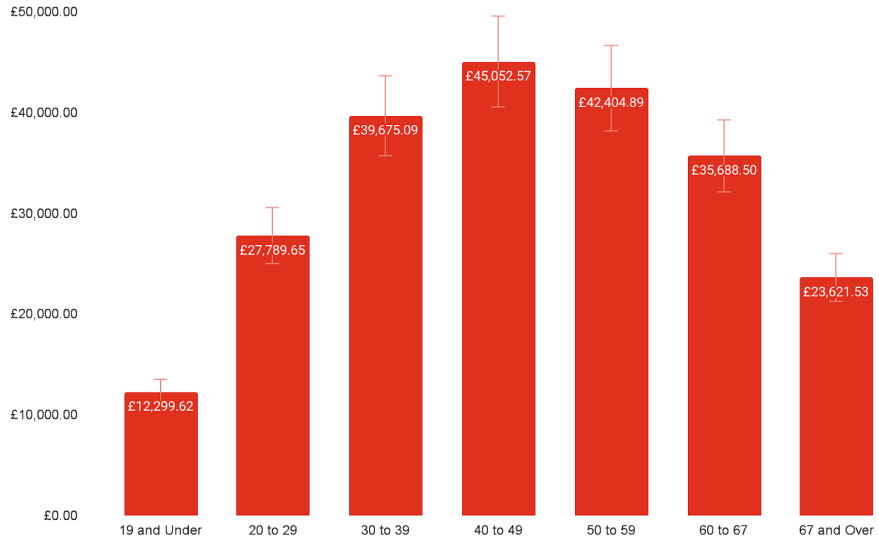
Amid this challenge, there is the opportunity to innovate and expand employment in *new sectors of the silver economy*. Under the net 700+ migration scenario, the number of people aged over 65 is expected to increase by 14,193 by 2050, 43% of the total population increase (Table 4). Assuming a constant per capita health spend over the next 30 years, a further £60.4m in spending will be needed to cover the healthcare needs for those aged 65 and above, creating an extra burden on the government. On the other hand, this additional expenditure on health creates demand for extra labour. According to the Supply and Use Table, this spending will generate 1,873 new jobs by 2050, of which 1505 will be added directly to the health sector.

Tax revenues and net fiscal contributions

The net fiscal contribution of people throughout their life-cycle follows a well-known pattern:[120] Benefits received (which is expenditure by government) are larger than taxes paid for young people still in education and for older people in retirement[121] - with people between the ages 25-65 becoming the net tax payers.[122]

The hours worked and spending power of consumers tends to peak between the ages of 30 and 49, trending downwards thereafter. This trend is unsurprisingly reflected in incomes earned, as detailed in figure 49.

Figure 49: Average salary by age group 2020. Source: PwC analysis, Statistics Jersey.



As societies grow older (and with higher dependency), there is a 'mechanical' deterioration of net fiscal contributions. As more individuals enter retirement (thus reducing the tax base), then income tax revenues will also drop along with any mandatory social security contributions, further reducing government revenues. Even with increases in labour force participation rates, international evidence shows that fiscal

[120] Theoretically, an age-earnings profile throughout life shows that workers tend to experience positive earnings growth over most of their working lives as they gain skills and experience, then see a modest decrease as they near retirement-age. This can be seen to be the case in the UK, where median earnings are rising until age 50-59, where they reduce 8% and fall further still in the decade following (ONS, 2020).
[121] As older individuals require more health expenditure, state pension payments and other social care commitments.
[122] Studies from the European Commission suggest that the net fiscal effect in the EU turns positive in an individual's late-20s, before falling to negative again at retirement age as expected. Source: Belanger, A., Christl, M., Conte, A., Mazza, J. and Narazani, E., *Projecting the net fiscal impact of immigration in the EU*, EUR 30407 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-23424-1, doi:10.2760/68847, JRC121937.

revenues can still decline if an aged population reduce overall economic activity[123] - which could dent the takings from corporate taxes along with employer and employee contributions.

The impacts of ageing on net tax take necessarily leads to spending constraints if the public budget is to be balanced. Such spending constraints could affect areas beyond those affecting older people (e.g. health care) and could further damage Jersey's growth prospects.

More work from older age groups and greater productivity can be targeted with the right policies (further discussed in Section 5). Still, migration will continue to play a key part in the evolution of the workforce and public finances in Jersey. Though new migration control policies will limit the ability of migrants to settle permanently in Jersey (with controls becoming effective from 2023), the attraction of highly-skilled, entrepreneurial people from abroad can be a boon for the economy.

International evidence shows that an influx of highly skilled, working-age migrants can have a significant positive fiscal impact. In the UK, immigrants have made a consistently positive net contribution to the public finances, to the tune of around £25 billion since 2011.[124] Immigration of skilled people does not have to be necessarily large but it must be sustained. Evidence from the OECD[125] shows that countries who had a large influx of migrants and then restricted immigration experience negative fiscal consequences, as these workers retire and instead become a 'drain' on the public purse.

Figure 50: 2012 vs 2020 average earnings by residential status.[126] Source: PwC Analysis, Government of Jersey.

[123] For instance, microsimulations on Germany indicate that income tax revenue could decrease by around 7 per cent per year by 2035 compared to 2016, in spite of a higher labour market participation of the elderly. Look at : Beznoska, M. and T. Hentze (2017), Demographic change and income tax revenue in Germany: a microsimulation approach, Public Sector Economics, Vol. 41/1, pp. 71-84, http://dx.doi.org/10.3326/pse.41.1.

[124] Christian Dustmann and Tommaso Frattini (2014), *The Fiscal Effects of Immigration to the UK*, Journal Of Economic Perspectives VOL. 27, NO. 2, Spring 2013 (pp. 173-92)

[125] J. Mo (2013), *The Fiscal Impact of. Immigration in OECD Countries*, International Migration. Outlook 2013, OECD Publishing, Paris,.

[126] **Entitled**: Someone who has lived in Jersey for 10 years. Can buy, sell or lease any property, and can work anywhere and doesn't need permission to be employed. (Some people may qualify for 'entitled' status on social, economic or hardship grounds.)

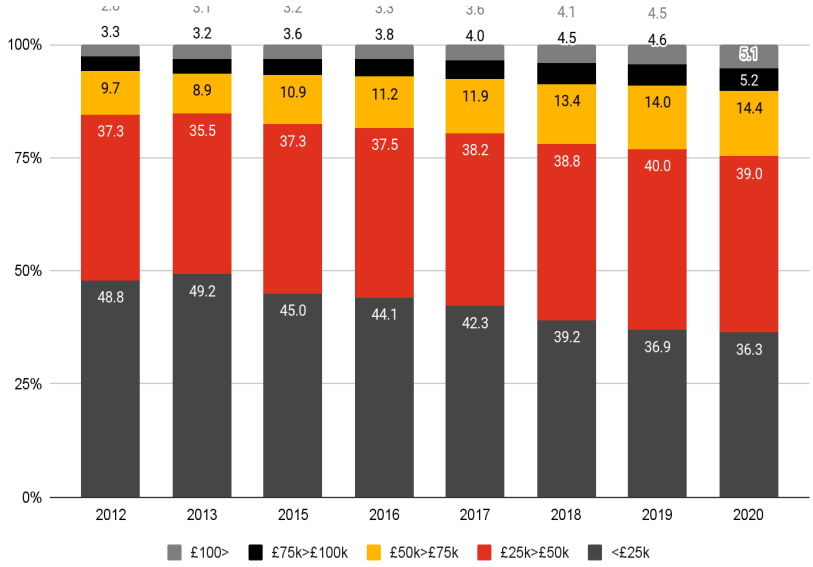
Entitled for work: Someone who has lived in Jersey for five consecutive years immediately before the date the card is issued, or is married to someone who is 'entitled', 'licensed', or 'entitled for work' status.They can buy property jointly with an 'entitled' spouse / civil partner, can lease 'registered' property as a main place of residence; and can work anywhere and doesn't need permission to be employed.

Licensed: Someone who is an 'essential employee', they can buy, sell or lease any property, apart from assisted purchase or social rented housing, in their own name if they keep their 'licensed' status. Employers need government permission to employ a 'licensed' person.

Registered: Someone who does not qualify under other categories, they can lease 'registered' property as a main place of residence. Employers need permission to employ a 'registered' person.

In real-terms, the average salary of Entitled, Entitled to Work, and Registered has kept pace with or exceeded inflation between 2012 and 2020, whereas the average Licensed salary has not[127]. However, this finding is most likely due to data limitations which groups all taxpayers earning more than one hundred thousand into a single category, thus under-representing the earnings of those in this group. In reality, the number of taxpayers in Jersey earning more than one hundred thousand per-year has increased from 2.8% to 5.1% of taxpayers during this time. This would suggest that tax contributions made by the wealthy *(many of whom come from off-island)* account for an increasing share of Government revenue.

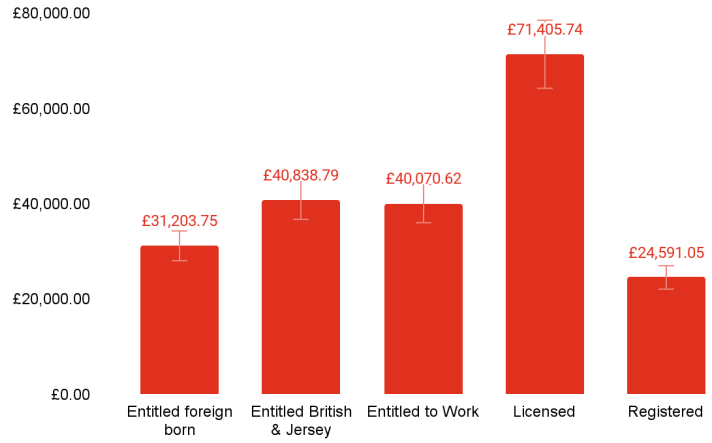
Figure 51: Change in taxpayer earnings from 2012 to 2020 (£, 2020) Source: PwC analysis, Government of Jersey



While wage comparisons by residential status is a useful lens from which to better understand the contributions made by Jersey's migrant populations, due to a time-based system of graduation to Entitled status it does not represent a full picture. To this end, a comparison of salary by place of birth distils further the contributions of those born either in Jersey/UK or overseas. This comparison finds almost wage parity between Entitled to Work (5-10) and Entitled Jersey / UK born taxpayers, with those with Entitled status born outside of Jersey / UK earning significantly less.

[127] Inflation Adjusted salaries are based on UK figures.

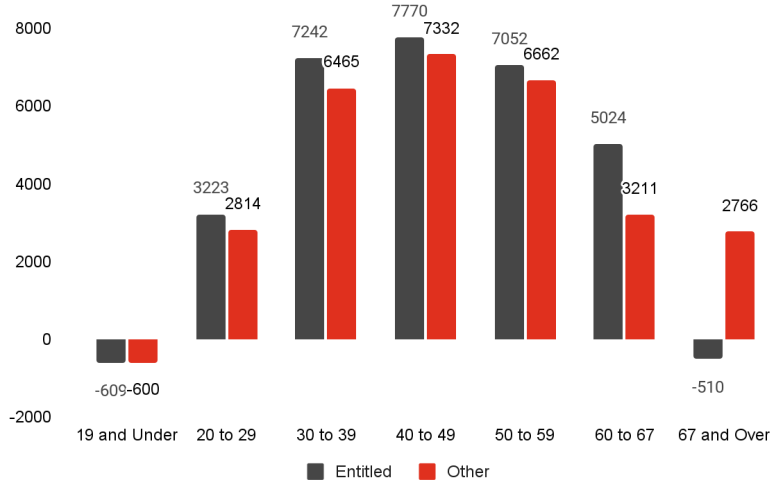
Figure 52: Average salary by residential status / place of birth (£, 2020) Source: PwC Analysis, Government of Jersey



Note: These figures are likely higher as granular data was not available on the earnings distribution above £100k per-annum.

In respect to net-tax contribution, this analysis of wage by residential status finds that foreign-born (skilled) workers have a positive contribution to the public purse, though not to the same extent as domestic ones (Figure 53).[128] The analysis suggests that domestic workers tend to have a more positive fiscal contribution which turns positive a few years earlier, whilst migrants have greater contributions over the life-cycle than external owing to a positive contribution in later years. Furthermore, both natives and migrants with higher education tend to contribute far more to the public purse.[129]

Figure 53: Average net-tax balance by those employed in 2020, Entitled compared with Entitled to Work, Registered, Licensed[130]. Source: PwC Analysis, Statistics Jersey.[131]



Note: The data used to calculate the average net-tax balance are based on earnings data used to determine individual Social Security contributions. Where possible, the figures were cross-checked with data published by Statistics Jersey.

[128] The estimated net-tax contribution by residential status detailed in figures X applies figures used by Statistics Jersey to extrapolate an estimated tax contribution by salary. The costs to the Government are based on fixed tax-funded expenditure, including health and administration costs. These figures do not account for possible income support or tax relief / costs associated with education which are specific to individual circumstances.

[129] Similar results regarding the life-cycle are found in a smaller economy of New Zealand.

[130] These figures assume a fixed cost per-head for health care (age adjusted), along with a fixed fee for Government administration. Social Security supplementation, contributions and income support are excluded. Income tax and the long term care charge is included.

[131] PwC analysis from raw data provided by Revenue Jersey on income combined with Statistics Jersey analysis on government receipts and expenditure.

Ongoing inward migration has the potential to continue to reshape significantly the workforce of Jersey. Attracting the most relevant skills is an important policy area. Nonetheless, two important objectives the Government of Jersey can consider is to put measures in place to increase participation and productivity of people. *Can an increase in productivity offset the increasing demand for services and reductions in the tax base?*

- The evolution of economic growth depends on the capacity of the economy to allocate resources into productive sectors.
- Population ageing tends to create structural changes in the economy (as seen in Section 3) that favour the growth of the sector of services, which has lower levels of productivity.[132]
- This has implications on how ageing societies will finance their growing dependency ratios: if the current generation benefits from access to labour-intensive services at the expense of lower economic growth into the future, the prescription might point to raising taxes now rather than in the future as population ageing becomes more steep (see further discussion in Section 5).

[132] This is called the Baumol cost disease in the academic literature.

5. Policy directions

A comprehensive policy approach is needed to deal with the impacts of ageing. As recommended by the OECD,[133] it should be tailored to each country's institutional and policy settings and social preferences, and may span many areas of public policy.

In the context of rising dependency ratios and related fiscal pressures, Jersey can certainly seek to make public services (including health care provision) more efficient to reduce costs and put in place an optimal tax strategy[134] Nonetheless, there are limits to how much taxes can increase (before adversely affecting the economy[135]). To make the economy more financially sustainable (and maintain standards of living), policies need to facilitate more participation of society in the workforce, and the acquisition of relevant skills.

The problem of old-age dependency ratios, is a problem of work and production: as a larger pool of retirees consumes without "producing", the burden on pension and welfare systems rises.[136] The main policy objectives of ageing societies involve increasing employability and productivity of wider segments of society - including young and old (Figure 54). A key question for Jersey is how to balance between the ability of the island to boost its overall productivity and the desire of the island to bring in (or limit) more migrants to increase the working-age population.

Figure 54: Policy objectives in the context of ageing society. Source: PwC Analysis

[133] Dorothée Rouzet, Aida Caldera Sánchez, Theodore Renault and Oliver Roehn (2019), Fiscal challenges and inclusive growth in ageing societies, OECD, ISSN: 2226583X (online) https://doi.org/10.1787/2226583X

[134] There are some options like relying more on consumption taxes (as opposed to labour income taxes. Japan is taking this direction given that part of the planned 2019 consumption tax hike is destined to fund pensions and long-term care. However, many other countries, particularly in Europe, have already exploited this avenue and may have reached the point – estimated at between 21 and 27% for standard VAT – where further increasing value-added tax rates would actually decrease total tax receipts due to disincentives and tax avoidance effects. See Akgun, O., D. Bartolini and B. Cournède (2017), "The capacity of governments to raise taxes", OECD Economics Department Working Papers, No. 1407, OECD Publishing, Paris, https://dx.doi.org/10.1787/6bee2df9-en .

[135] Look at discussion on: Akgun, O., B. Cournède and J. Fournier (2017), "The effects of the tax mix on inequality and growth", OECD Economics Department Working Papers, No. 1447, OECD Publishing, Paris, https://dx.doi.org/10.1787/c57eaa14-en.

[136] Welfare systems are impacted independently of whether elderly support is provided by the government or not. For instance, if long-term care is provided by family members (via informal care) rather than institutional care supported by the Government, public expenditure can be contained. But the economic impact will come back in a different form: those informal carers will drop off the labour market, reducing the tax base and taxable income (particularly if these informal carers have high skills).

Retirement and pensions policy is one of the main areas of action internationally to increase employment of older workers - though not the most pressing one for Jersey given its current context as explained below.

This section then identifies 3 additional areas that are key for Jersey to pursue its economic objectives in the context of an ageing population:

1. Employment support policy
2. Skills and lifelong learning
3. Healthy (and inclusive) ageing

These three policy areas are interrelated and they can jointly promote employability and skills of older workers and help achieve better labour market inclusion not only of older workers but more generally of women, youth and migrants. The section concludes with a wider commentary on the relevance of comprehensive generational policy to ensure widespread inclusion and prosperity in Jersey's society.

5.1 Retirement and pensions policy

Many governments have enacted, or are contemplating, future increases in statutory pension ages[137] in order to contain the rising fiscal costs of ageing. Such changes take place in a context of increasing life expectancies and populations that are on average healthier.

In Jersey, higher labour force participation rate among older age groups will be partly driven by changes in pension age - which is set to increase further to 67 for both genders by 2031.[138] Many other jurisdictions have implemented similar policies (see also the case of Cyprus in Box 8). Cross-country evidence shows that statutory pension ages do lead to higher labour force participation at older ages - including those above 65.

Box 8 - employment of older workers in Cyprus

Extending the working life of workers is one of the ways to deal with the challenges that come with a greying population. Longer working lives means more tax contributions, delayed state pension contributions, and more economic activity. Medical studies have also shown that a longer working life is associated with better health and wellbeing, therefore reducing pressures on health and social care systems.

Labour force surveys conducted by Eurostat which investigate the transition from work to retirement in 2012, reveal that Cyprus has significant potential to improve labour market outcomes for older workers. For instance, the proportion of economically inactive persons who receive a pension, but who would have wished to stay longer in employment stood at 45% in 2012, the latest year of available data. This compares to 9% in Slovenia, 30% in the Netherlands and 33% in Malta.

In 2018, legislation was introduced in Cyprus to index the retirement age to life expectancy. This helps to keep workers in the workforce for longer, by delaying the time when they can draw on their pensions. Over the next three years, the Ministry for Labour will evaluate changes in life expectancy, as well as the viability of the Social Insurance Fund, and is expected to announce a new retirement age in 2023.

[137] This refers to the age at which people become eligible for benefits such as pension payments.

[138] Women have had pension age of 65 since 1975 (but with women working before then retaining a SPA of 60). See more details in: https://www.gov.je/SiteCollectionDocuments/Government%20and%20administration/Fiscal%20Policy%20Panel%20Advice%20for%20the%202020-23%20Government%20Plan.pdf

Raising statutory pension age (like Jersey did recently) is a necessary step in the context of an ageing population but not sufficient - international evidence shows that it does boost employment[139] but it shows the smallest effect on the aggregate employment rate of any of the structural policies being considered in developed countries (including those to support employment, as discussed in section 5.2).[140]

Despite increases in pension age, early retirement is still common in many countries.[141] The design of pension and welfare systems are often regarded as the drivers of early retirement trends (see Box 9).

Box 9 - Welfare systems and early retirement - international evidence

Pension and welfare systems are in part responsible for these trends. International evidence from several decades show that unemployment-related and disability schemes explain the participation rate of males aged 55-64 (at least in developed countries).[142] These de facto early retirement schemes explain why participation does not increase in line with the statutory pension age. Also, social transfer programmes outside the old-age pension system, which were particularly prevalent in most continental European countries, acted as de facto early retirement schemes with a marked impact on the participation rate of men aged 55-59, but also with effects on the participation rate of men of older ages.[143] Unemployment regulations are shown to be particularly influential for retirement behaviour , along with the more traditional determinants linked to the pension system.[144]

PwC international evidence shows that countries with higher levels of public expenditure on family benefits and those with higher levels of public pension expenditure are associated with lower employment rate in the 55-64 age category.[145] The amount of pension entitlement matters for people's decisions to retire - as they contribute to higher wealth.[146] Also, higher levels of employment protection for temporary contracts has a negative relationship with the employment rate for older workers (the issue of work and labour market flexibility is discussed in more detail in section 5.2).

Reforming some of the parameters of eligibility and benefits of programmes such as Social Security and pension systems can help create the right incentives for people to continue working.[147] In general, early retirement pathways have been substantially reduced over the past decade, as a result of pension reforms and some tightening of eligibility criteria to—or outright phasing-out of—other social transfer programmes that had been used as alternative early labour market exit pathways in the past.

---

[139] Data for OECD countries shows that an increase in statutory pension ages by one year is typically estimated to increase the average effective retirement age by between one and a half and two and a half months. Source: Turner, D. & Morgavi, H. (2021). *Revisiting the effect of statutory pension ages on participation and the average age of retirement in OECD countries*. Public Sector Economics, Pages: 257 - 282, Volume: 45, Issue: 2. Look also at evidence in: Geppert, C. et al. (2019), "Labour supply of older people in advanced economies: the impact of changes to statutory retirement ages", OECD Economics Department Working Papers, No. 1554, OECD Publishing, Paris, https://dx.doi.org/10.1787/b9f8d292-en.

[140] See Égert, B. and Gal, P., 2017. The quantification of structural reforms in OECD countries: A new framework. OECD Economics Department Working Papers, (1354); Gal, P. and Theising, A., 2015. The macroeconomic impact of structural policies on labour market outcomes in OECD countries: A reassessment. OECD Economics Department Working Papers, No. 1271

[141] See Conde-Ruiz and Galasso (2004), *The macroeconomics of early retirement*, Journal of Public Economics, 2004, vol. 88, issue 9-10, 1849-1869.

[142] See Blöndal and Scarpetta (1999); Blöndal, S. and S. Scarpetta, 1999. *The Retirement Decision in OECD Countries*. OECD Economics Department Working Papers, No. 202. Paris: OECD

[143] See Duval, R., 2004. *Retirement Behaviour in OECD Countries: Impact of Old-Age Pension Schemes and Other Social Transfer Programmes*. OECD Economic Studies, (2), pp. 7-50

[144] See the evidence presented in García-Pérez, J.I.; Jiménez-Martín, S. & Sánchez-Martína, A.R. (2013). *Retirement incentives, individual heterogeneity and labor transitions of employed and unemployed workers*. Labour Economics, Volume 20, January 2013, Pages 106-120.

[145] See PwC 2018, *Golden Age Index*. For instance, a 1pp increase in public pension expenditure as & of GDP is associated with a 0.95pp decline in the employment of older workers.

[146] See for instance: Blundell R. and P. Johnson (1998). Pensions and labor market participation in the United Kingdom. American Economic Review Papers and Proceedings, 88(2):168–172. See also Blundell R., C. Meghir, and S. Smith (2002). Pension incentives and the patterns of early retirement. The Economic Journal, 112:153–170.

[147] A broad range of microeconometric studies of retirement decisions have been conducted over the past decade for a number of OECD countries.They confirm that among a variety of factors -such as individual and household characteristics, economic variables such as wage earnings, retirement incentives embedded in old-age pension and early retirement schemes affect the labour supply of older workers. See review of literature on https://www.oecd.org/social/labour/32124786.pdf

Jersey, however, does not have an unemployment benefit per se and incapacity benefits – which often mask early retirement – are limited in value. The main support system runs through income support, which is means-tested and requires individuals to work or actively seek work until the state pension age. Recent changes to the eligibility of incapacity benefits have increased employment seeking requirements, where only those with a high level of incapacity are now exempt from seeking employment. This all means that in Jersey the local benefit system is unlikely to be driving early retirement in any meaningful way.

Areas of Action

Many countries also try to incentivize labour force participation of older workers by reforming features of pension schemes. Some of the usual actions include:

- Making pension systems more flexible in terms of the amount of contributions and the occurrence of withdrawals helps older workers better plan phased retirement while continuing working and contributing to the economy.[148]
- Allowing to combine work and pensions means that people do not see their pension payment entitlements reduced if they continue to work.[149]

In Jersey, there is no barrier to an older worker both claiming a state pension and continuing to work - in line with some other developed countries.[150] There is no financial penalty for doing this and the worker receives the full value of their pension regardless. Employer contributions are still payable in respect of employees above pensionable age, unless they work less than 8 hours per week (which is the case for all employees, irrespective of age).[151]

One area that Jersey can explore as an improvement in the pension system is the addition of *pension deferral* mechanisms. The Jersey old-age pension can be drawn up to 2 years early at a reduced rate. The ability to claim an enhanced pension after pension age can encourage older workers to remain in employment. Though there is currently little international evidence of whether pension deferrals do effectively encourage more labour force participation (and delay retirement decisions), many countries are introducing them as a means of giving people more flexibility to move in and out of work after state pension age.

In practical terms, Jersey would need to define what the deferral period should be and how to unlink these entitlements from any income-tested benefit. The maximum duration of pension deferral beyond the normal retirement age currently ranges from three years in Iceland to eight years or more in, say, Denmark or France.[152]An actuarially neutral supplement could be provided at no cost to the social security fund in Jersey.

[148] One approach is that pensions are either recalculated each year to reflect these new contributions, or once the pension is eventually claimed, If people make pension contributions for work while receiving an early-retirement benefit,

[149] Some schemes include Transition-to-Retirement pensions or removing limits to post-retirement earnings.

[150] Eleven countries from the OECD – beyond those with mandatory defined contribution schemes – allow combining work and early pension receipt: Austria, Belgium, Canada, the Czech Republic, Finland, France, Germany, Greece, Japan, Norway and the United States.

[151] Employees are no longer obliged to pay contributions.

[152] Source: OECD (2017), Pensions at a Glance 2017, OECD and G20 indicators, Chapter 2 Flexible retirement in OECD countries

5.2 Employment policy

Situation

Much of the focus of policy action in the context of ageing populations has been on old-age pension reform but, as stressed in the OECD report *Live Longer, Work Longer*[153], a more comprehensive set of reforms may be necessary to encourage work at an older age. This includes policy action in three broad areas to: (1) reward work, (2) change employer practices, and (3) improve the employability of workers.

Helping older workers remain productive in the labour force is beneficial for the economy. Building multigenerational workforces and giving older employees greater opportunities to work can boost economic activity and raise incomes - international evidence shows that GDP per capita can increase by nearly 20% over the next three decades.[154]

One of the conclusions from the last section is to enhance incentives to remain in work longer - i.e. eliminate incentives to retire early by ensuring that unemployment, disability and other welfare benefits are not used as alternative pathways to early exit from the labour market. This in part implies giving better options for *phased retirement*. International evidence shows that most transitions from work into retirement are not direct - EU estimates suggest that only 35% of older workers leave their last job or business to take up a pension.[155]

In Jersey, the combination of higher participation rates and fewer hours worked by older employees (as described in Section 2) indicates that measures to increase participation in labour markets should include efforts to highlight the importance of offering flexible work practices. People aged over 65 represent a small percentage of employees in Jersey's economy, but account for a higher percentage of the self-employed. Policy proposals to adoption such flexibility have already been touted in other island jurisdictions such as the Isle of Man (Isle of Man Government, 2020)[156]

Figure 55: Rate of employment for age 65+ by working hours (2019). Source: Government of Jersey

Full time	Part-time	Zero-hour
18%	12%	6%

There is robust evidence demonstrating that offering flexible working options supports workers across the life course to prevent burnout, manage family responsibilities and engage in learning. Globally, 57% of workers envision working beyond retirement but less than one in three workers have the option to move from full- to part-time work and even fewer feel that suitable work for older workers is offered by their employer.[157] Movements to more flexible working arrangements, such as self-employment, may be less

[153] See OECD (2006), *Live longer, work longer.* Paris: OECD Publishing.

[154] Source: OECD (2020), Promoting an Age-Inclusive Workforce: Living, Learning and Earning Longer, OECD Publishing, Paris, https://doi.org/10.1787/59752153-en

[155] While 20% take up an early retirement benefit, 13% leave due to unemployment and 12% for reasons of long-term sickness or disability. At higher ages, the proportion of those leaving to take up a pension increases regularly. See https://eur-lex.europa.eu/resource.html?uri=cellar:5f435b88-c01c-4598-b76b-5ef7b6530a0e.0002.01/DOC_1&format=PDF

[156] Isle of Man Government (2020), Research into the threats and opportunities of an ageing population in the Isle of Man

[157] See evidence on OECD (2020).

well-paid, yet desirable for older workers. This may be the case in the UK, where over 35% of workers close to pension-age are self-employed.[158]

Figure 56: *Jersey 2021 Manpower Returns data by age, Source: PwC Analysis, Government of Jersey* [159]

		16-24	25-49	50-64	65+	All
Employee	**Full-time**	9%	59%	30%	2%	100%
	Part-time	14%	43%	36%	8%	100%
	Zero-hour	28%	40%	25%	7%	100%
Self Employed (employing others)	**Full-time**	~	45%	46%	9%	100%
	Part-time	~	34%	48%	18%	100%
	Zero-hour	~	68%	32%	~	100%
Self Employed (not employing others)	**Full-time**	1%	47%	43%	9%	100%
	Part-time	1%	45%	39%	15%	100%
	Zero-hour	4%	57%	32%	7%	100%

Note: The above figures are derived from Manpower returns submissions on self-declared 'contracted hours'. The question applies to all employees, including the business owners. Self-employed zero hour contract holders commonly constitute business owners who do 'ad-hoc' work.
Note: ~ indicates a value less than 10, all other numbers have been independently rounded to 0 decimal space.
Source: PwC analysis, Statistics Jersey

Areas of Action

The context described above leads to the following areas of action. Within each of the following areas are indicators of cost, impact, payback period, and if the policy will address labour force participation, productivity or public finances. These metrics are indicative of a policies impact, but further analysis and costing is needed to quantify this.

5.2 Employment policy

Incentivise employment of older workers

Opportunity	Example policy options	Effectiveness			
Elsewhere schemes and incentives to recruit younger workers are common. However, as the demographic profile continues to grow older, there is greater need to encourage businesses to 'retain, retrain, and recruit' older workers. Financial incentives are one way of achieving this.	Locally, the Government of Jersey has provided financial incentives to recruit younger workers and those who are unemployed. See details here and here. Similar mechanisms could be deployed for older workers, as has been the case in Australia. For instance: • Employee Social Security relief against the employment of over 65+ • Salary subsidy on wages of newly recruited older workers for a defined period of time.	**Participation**	✓	**Impact**	Medium
		Productivity	-	**Cost**	££
		Public Finances	✓	**Payback Period**	Short / Medium / Long

Prioritise a younger demographic of immigration

[158] ONS (2020), *Annual Population Survey*

[159] Due to data limitations % shown represents the total amount of employment type by age. (i.e.of all self-employed (employing others) full time workers, 9% are 65 and older) as opposed to breaking down further to show % of age groups that fall into the different categories (e.g. 25% of people aged 50-64 are self-employed, as compared to 15% of those 25-49 who are self-employed.)

Opportunity	Example policy options	Effectiveness			
To optimise the long-run net-tax benefits of inward migration, Population Policy could encourage and incentivise a younger demographic to relocate.	Elsewhere, many points-based immigration systems such as those in Canada, Australia and the Netherlands have a immigration appraisal that provides a weighting to age and a lower salary threshold. Through these eligibility criteria's younger workers can more freely move to and work in those countries.	**Participation**	✓	**Impact**	High
		Productivity	-	**Cost**	N/A
		Public Finances	✓	**Payback Period**	Long term

Increase labour force participation of older women

Opportunity	Example policy options	Effectiveness			
As is the case elsewhere, social barriers exist to women either re-entering the workforce after childcare or elderly care. These difficulties are highlighted in PwC's Woman in Work Index which tracks gender equality across multiple indicators in 35 juridictions. The latest study from 2020 found Jersey to rank 24th on the index, performing poorly in gender pay disparity in particular[160]. Accordingly, there is an opportunity to introduce more flexible working policies and practices to address this and better cater to the realities of carer responsibilities.	The Government of Jersey could explore the feasibility of enhancing family-friendly and age-friendly policies. In particular learning from countries such as Sweden, Norway which are ranked highly in: ● childcare enrollment ● paid parental leave Similarly, these countries lead in metrics such as over 60; ● income security ● health status ● capabilities ● enabling environment.	**Participation**	✓	**Impact**	High
		Productivity	✓	**Cost**	££
		Public Finances	✓	**Payback Period**	Medium / Long term

Flexible employment

Opportunity	Example policy options	Effectiveness			
The COVID-19 pandemic has demonstrated the ability of many lines of employment to work flexible hours and remotely. There is an opportunity to build on this momentum, standardising what had been necessity policies that permitted this activity into business as usual practice. In doing so, the employment landscape will better cater to the realities of family responsibilities which had previously prohibited many from remaining in or joining the workforce.	Policymakers could encourage flexible working practices through reimagining elements of employment legislation. Such efforts to introduce flexible working arrangements could remove distortions against part-time work which in turn will boost participation. Example policies include: ● Making flexible working the default by legislating for the right to have flexible working. ● Amending work and housing legislation to allow people to work remotely for off-island businesses, without the employer having to obtain a Business License or Register with the JFSC. ● Streamline social security, income tax, and other payments to accomodate for a more mobile and workforce where people will have multiple jobs.	**Participation**	✓	**Impact**	High
		Productivity	-	**Cost**	£
		Public Finances	-	**Payback Period**	Short / Medium / Long term

Social infrastructure

Opportunity	Example policy options	Effectiveness

[160] Further details on PwC's Woman in Work index can be found here.

Unpaid care work can disincentive people to remain in or to re-enter the workforce. Accordingly, there is an opportunity to boost workforce participation by creating a social care environment which seeks to free islanders of their elderly care and childcare responsibilities, enabling continued workforce activity.	Possible policies to improve access to care services and lower the relative cost of care include: ● There is a long-term care scheme in Jersey since 2014. Jersey has fewer family networks than other jurisdictions and paid for care (and use of care homes) is more common in Jersey. ● flexible immigration policies for care workers (because they impact on the relative cost of child care) ● Lifting the tax exemption threshold for couples. Currently, the tax threshold for a single person in Jersey is £16k versus £25,700k for a married / civil partnership. This constitutes a higher rate of tax on secondary earners than would otherwise be the case if they were single. This discourages labour force participation by reducing the unpaid care to employment trade-off.	**Participation**	✓	**Impact**	High
		Productivity	-	**Cost**	££
		Public Finances	-	**Payback Period**	Short / Medium term

All these areas of action seek to help older workers remain in employment, with the flexibility to adapt to their needs. The role of government is important to facilitate appropriate employment[161] and discrimination rights in the workplace[162]. Thanks to past reforms workers aged 55-64 years are more active in the labour market than ever before.

This also implies collaborating with employers (businesses) to adopt employment best practices for an ageing society. Global practices to facilitate *phased retirement* range from flexitime options (such as starting and finishing work at different times) to working "compressed" weeks (working an extra hour each day to get Friday afternoon off) or using "time accounts" to spread working hours across weeks or months. Employers best practices also cover Diversity and inclusion (D&I) strategies, internal mobility programmes, returner or re-entry programmes and midlife careers reviews.[163]

5.3 Skills and lifelong learning

Situation

All policies to incentivise older workers to remain in employment will work better when accompanied by relevant training. There often are large differences in response by different types of workers to policies such as increasing retirement ages - largest among high-wage and healthy workers, while low-wage and less

[161] Employment law provides the right for workers to request flexible working but employers can refuse if there are valid business reasons that this won't work.

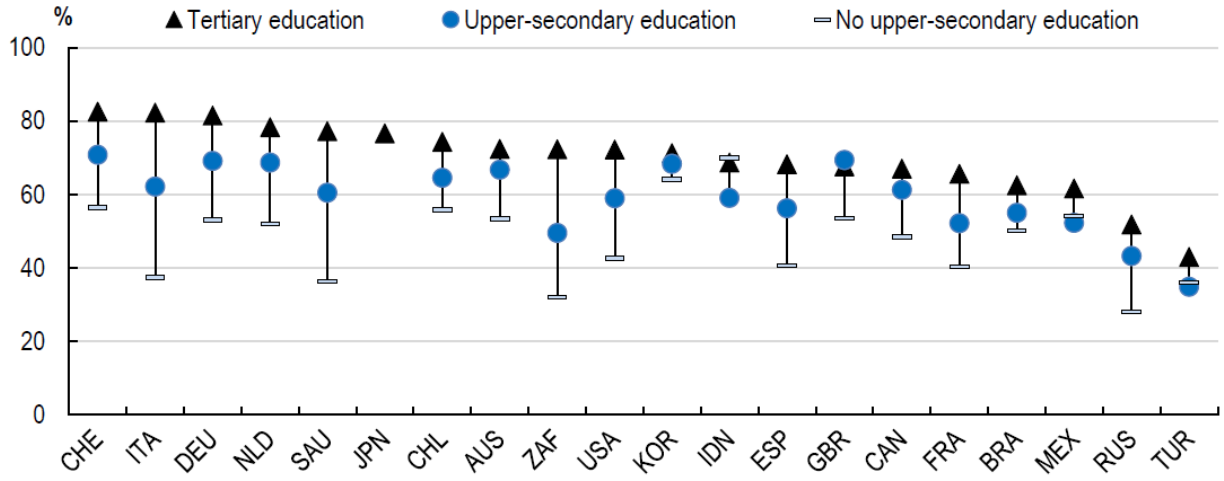
[162] Age discrimination introduced in Jersey in 2016. Age discrimination is still present in many modern workplaces – not only restricting employment choices for older and sometimes even younger workers, but also representing a considerable cost to business. Studies show that age discrimination against those ages 50-plus cost the United States economy USD 850 billion in 2018 alone: source: OECD (2020), Promoting an Age-Inclusive Workforce: Living, Learning and Earning Longer, OECD Publishing, Paris, https://doi.org/10.1787/59752153-en .

[163] See a comprehensive review in OECD (2020), Promoting an Age-Inclusive Workforce: Living, Learning and Earning Longer, OECD Publishing, Paris, https://doi.org/10.1787/59752153-en

healthy workers may continue to retire early via disability or unemployment benefits. With insufficient training, the declining relative productivity and wages of low-skilled older workers in times of rapid technological change can lead to early retirement.

Alleviating labour shortages will be a function of how far the pool of talent and skills in Jersey matches the needs of the evolving economy. In general, international evidence shows that increasing educational levels across age groups is beneficial for the economy for several reasons, one of them being that older workers remain employed for longer (see Figure 57). Across OECD countries, well-educated people increasingly work longer than the less-skilled.[164] By contrast, low-educated people often have low employment rates at older ages that suggest a large potential for longer working lives - by providing relevant training. [165]

Figure 57: Gaps in employment rates at age 55-64 by education persist



Source: OECD (2019), Fiscal Challenges and Inclusive Growth in Ageing Societies, OECD Economic Policy Paper No. 27, September 2019

Yet, OECD evidence shows that only 41% of adults take part in job-related training.[166] Then, the incentive to upskill normally declines for older workers:[167] the number of older workers participating in training is often low, including in developed economies (see Figure 58). If older people fail to adapt to new technologies and re-invent themselves, their skills could become outdated and they will be forced to remain inactive. Early retirement just makes the ageing challenge worse.

Jersey, like elsewhere, is not sufficiently prepared to respond to the accelerated pace of change brought about by megatrends such as automation and ageing populations (and now magnified by the COVID-19 pandemic). Specifically, Jersey does not have a robust upskilling and reskilling system that is fit for purpose for the fourth industrial revolution.[168]

---

[164] See evidence presented in Sonnet, A.; ·Olsen, H. & Manfredi, T. (2014), "Towards More Inclusive Ageing and Employment Policies: The Lessons from France, The Netherlands, Norway and Switzerland", De Economist (2014), 162:315–339.

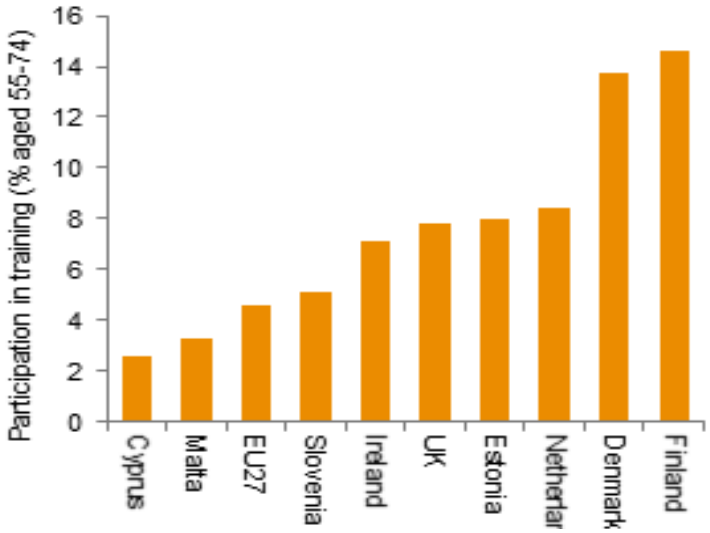
[165] See for instance IMF (2018), Drivers of Labor Force Participation in Advanced Economies: Macro and Micro Evidence, 2018.

[166] See OECD (2020), Promoting an Age-Inclusive Workforce. Access: https://www.oecd.org/els/promoting-an-age-inclusive-workforce-59752153-en.htm

[167] As individuals age, they accrue skills and experience, whilst investing in education to improve their human capital. As they near retirement, the payoffs from these investments are worth less in terms of future earnings, so human capital investment stalls and skills depreciation takes over. This is the standard theoretical model used to explain the age-earnings profile.

[168] These challenges were highlighted in the Jersey Labour Needs Pre-Assessment Report which was commissioned to inform the Island Plan in early 2020. It explores how to build an evidence base to determine the balance of on-island talent versus immigration requirements, which in turn is a key determinant of population growth, and thus of island capacity and infrastructure requirements.

Figure 58: Participation in training by older workers



Source: Eurostat – Participation rate in education and training (last 4 weeks) by sex and age [trng_lfs_01]

This is a challenge because in the economy of the "4th industrial revolution" it is becoming a necessity to plan lifelong learning for multiple careers. Between 2006 and 2017, job tenure declined in OECD countries by 4% among medium to high-educated workers and 12% among the low-educated.[169] More frequent changes of jobs over careers may rise as people start to fully embrace more flexible ways of working (e.g. teleworking) and forms of work (e.g. gig work). This raises challenges for traditional models of adult learning provision that depend heavily on employer-provided training to keep the skills of workers up to date. Training participation of workers in temporary jobs or other forms of employment tends to be lower than for full-time employees in permanent jobs.

For this reason, skills are a core priority of the Future Economy Programme[170], critical for productivity, population policy, future growth, diversification and an economy that works for all. Skills were identified from the outset as a priority cornerstone objective for Jersey's future economy. A similar emphasis on skills can be seen in both the Economic Council's and Jersey Employers Group's output reports, and the latest Government Plan.

Areas of Action

The context described above lead to the following areas of action:

5.3 Skills & lifelong learning					
Lead by example					
Opportunity	**Example policy options**	**Effectiveness**			
As the largest employer in Jersey, the GoJ has a role to play in	Proactive policy could include: • setting targets on the share of the GoJ	**Participation**	✓	**Impact**	Medium

[169] See OECD (2020). Promoting an Age-Inclusive Workforce. Access: https://www.oecd.org/els/promoting-an-age-inclusive-workforce-59752153-en.htm

[170] The FEP has the overall aim of delivering a framework for a sustainable, vibrant and inclusive economy.

realizing the change policymakers want to see. By modernising employment and training practices to support an older workforce, the GoJ could: ● increase the effective age of workforce exit ● foster a more adaptable/resilient workforce ● reduce staff turnover	● workforce aged 65+ ● engagement in workforce upskilling programmes				
		Productivity	-	**Cost**	£
		Public Finances	-	**Payback Period**	Short / Medium term
Labour market insights					
Opportunity	**Example policy options**	**Effectiveness**			
To effectively manage mass-scale workforce upskilling and redeployment programmes requires a thorough understanding of how demand for skills is likely to evolve over the medium to long term.	To increase the effectiveness of policy interventions that future-proof workforce skills and enable higher labour participation of older workers requires a clear understanding of: ● skills growing in demand ● the supply of skills ● likely automation of roles / tasks ● skills transferability between roles / sectors For this reason, the GoJ could invest in its labour market insights capabilities and projections to support cross-departmental decision making.	**Participation**	-	**Impact**	High
		Productivity	-	**Cost**	£
		Public Finances	-	**Payback Period**	Medium / Long term
Financial incentives for skills & education training					
Opportunity	**Example policy options**	**Effectiveness**			
Create tailored fiscal incentives that encourage those aged 55 + to enroll on re-skilling programmes as part of a lifelong learning strategy.	Jersey already boasts successful public and private adult training providers. However, enrollment could be higher. Possible intervention could be modelled on Student Financing. Other policy option include: ● age-linked training credits ● fully funded manual to non-manual reskilling programmes.	**Participation**	✓	**Impact**	High
		Productivity	✓	**Cost**	£££
		Public Finances	✓	**Payback Period**	Medium / Long term
Targeted training & employment support for older workers					
Opportunity	**Example policy options**	**Effectiveness**			
Provide tailored and practical support to those aged 55 and above to help them navigate the process of retraining, or deploying their skills to new industries/ jobs.This could: ● Enlarging the workforce ● Support workforce retraining into new economy skills ● Creating an adaptable and resilient economy	Building on Jersey's existing provision of business and skills support, ALOs including Digital Jersey, Skills Jersey, and Jersey Business could jointly become a central points of contact offering career / business coaching and digital skills training to those aged 55+ - and businesses seeking to better adapt employment practices to support an older workforce.	**Participation**	✓	**Impact**	Medium
		Productivity	✓	**Cost**	££
		Public Finances	✓	**Payback Period**	Short / Medium term

The actions delineated above point towards the importance of:

- a data-driven skills strategy with a robust future-oriented evidence base about how sectors, jobs and skills will evolve.
- a coordinated and partnership approach between organisations, government, educators, training providers and citizens is critical to increase the focus, scale and pace of change for the job roles of the future.

Government is best placed to drive workforce foresights given its role in shaping migration policy, education and steering economic diversification. With clear strategic objectives for the Island, the government can set the direction for investing in the right set of skills while attracting relevant talent from abroad (Box 10 summarises other factors that are relevant to attract high-skilled migrants).

Box 10 - Attracting migrant talent

The challenge for policymakers is how to minimise the need for all kinds of migration while attracting highly skilled migrants that can innovate - by making Jersey an attractive place for young and qualified individuals to pursue their careers within the country, or to attract them back following education or work abroad. Policymakers need to think about the how (i.e. the systems and processes for legally offering visas) but also the complementary policies and reforms that make Jersey an attractive place to live and work (i.e. non-economic factors).

Potential immigrants will not just care about labour market prospects- although these are obviously key - but the broader concept of 'liveability'. The Economist Intelligence Unit's Liveability Index comprises five key pillars that capture this concept. These pillars are:

1. Stability: low rates of crime, terror and civil unrest

2. Healthcare: availability and quality of private and public healthcare

3. Culture and environment: desirable climate, low level of corruption and censorship, culture and food, drink and consumer goods and services

4. Education: availability and quality of education

5. Infrastructure: quality of transport and road network, international links, availability of quality housing, quality of energy, water and telecommunications provision

This framework should guide reforms across these areas, to complement any new immigration policy.

Housing policy - 'Despite the potential positive fiscal impacts of young migrants in Jersey's economy, many are shut out from high quality residence in the housing market, meaning living in Jersey becomes relatively less attractive. Demographic trends will continue reshaping the housing market (with some long-term impacts likely associated with ageing populations[171]), and how to design the right policies to ensure long-term affordability (for current residents and newcomers) is an important area for future policy research).

Individual companies can certainly become proactive in shaping the future workforce through internal upskilling programmes and student outreach. Nonetheless, international evidence shows that better outcomes are obtained when businesses and government collaborate, particularly to avoid some unintended consequences in the economy - e.g. deskilling of the workforce to meet specific companies / industries needs, diversification into lower value sectors or an exacerbation of the existing and emerging skills mismatches.

[171] The development of an aged population has consequences for the housing market. Less first-time buyers and dynamic participants in the housing market can translate into dampening of house prices (Levin et al., 2007), which has knock-on effects of reducing household wealth for homeowners. Source: Eric Levin, Alberto Montagnoli and Robert E. Wright (2007), Demographic Change and the Housing Market: Evidence from a Comparison of Scotland and England

Government can certainly collaborate closely with businesses to promote continuous development while at work. There are many tools and next practices that can be adopted:[172]

- Regularly reviewing skills and work tasks, as well as capability for current and future roles
- Midlife career reviews
- Experiential learning opportunities
- Group learning and team development

Mid-life career reviews, for instance, are simple and cost-effective ways to identify upskilling and reskilling needs matched to the company's changing skills requirements. In the United Kingdom, it is estimated that a mid-life career review costs between GBP 50-350 per client but generates a substantial return in terms of increased motivation and confidence levels and a greater take-up of training and learning opportunities.[173]

5.4 Promoting healthy (and inclusive) ageing

This section is a final commentary to highlight the importance of going beyond 'old-age' policies and tackle generational issues that also affect the young.

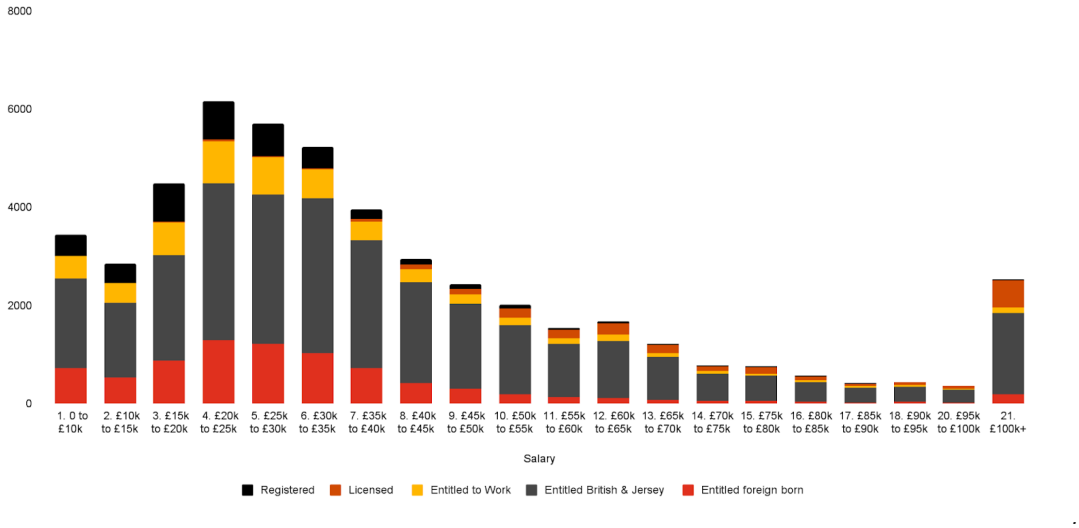
Situation

While technology and automation might help to compensate for any potential "shortages" of young workers relative to the increasing number of retirees to be supported, it could also worsen the plight of the young, particularly the low-skilled. Contrary to the common assumption that younger workers will have the best chance at avoiding technological redundancy, international evidence shows that younger workers with fewer accumulated skills can be severely affected by rapid technological change.[174]

Any policy discussion on mitigating the impacts of ageing populations must clearly identify the impacts across generations and find the right long-term balance, particularly in a context where technology and economic trends tend to raise inequalities. The process of ageing can accentuate the growing gaps among people of the same generation - e.g. the widening wage gap between high and low skills or between domestic and migrant workers (see Figure 60).

Figure 60: Distribution of earnings by residential status 2020. Source: PwC analysis, Government of Jersey.

[172] See OECD (2020), Promoting an Age-Inclusive Workforce: Living, Learning and Earning Longer, OECD Publishing, Paris, https://doi.org/10.1787/59752153-en ;
[173] See OECD (2020), Promoting an Age-Inclusive Workforce: Living, Learning and Earning Longer, OECD Publishing, Paris, https://doi.org/10.1787/59752153-en ;
[174] See for instance: https://www.nber.org/papers/w18629



Inequalities in both income and wealth increase over the life-cycle as people grow older, i.e. disparities in wealth become more pronounced (i.e. a process of 'cumulative' inequality). And as the age structure of population changes with the prominence of older age groups, inequality measures mechanically increase. Overcoming unequal ageing requires a focus on the complete life-cycle of people. The earlier the better because inequalities can even start from early on in life (e.g. via the acquisition of certain cognitive and interpersonal skills in early childhood that are often determined by good parenthood).

'Unequal Ageing' also affects health and other well-being measures. Poorer people face a less healthy lifetime and have a lower life expectancy. The share of low-educated people aged 65 reporting bad health is almost twice that of high-educated people.[175] This can exacerbate the problem of dependency because these workers lower the participation in labour markets and claim social benefits.[176] Life expectancy gaps are increasing in some locations,[177] which makes important segments of older populations retire earlier than others - affecting the labour force and also putting pressure on welfare services.

Areas of Action

Policy approaches can target the objective of "equal ageing", i.e. giving equal opportunities to different groups of people. One example is reducing gender gaps in employment outcomes and social protection coverage. Some of the policy options discussed in previous sections can be implemented in coordination to pursue "productive ageing" objectives, which basically means maximizing the productivity of people and thus generating more income.

Key areas of action are described below:

5.4 Promoting healthy (and inclusive) ageing

[175] See OECD (2019), Fiscal Challenges And Inclusive Growth In Ageing Societies, OECD Economic Policy Paper September 2019 No. 27

[176] Projections for OECD economies indicate that effective health promotion policies could dampen the increase in total (private and public) health care costs by around 0.3 percentage points of GDP by 2030 – from 8.8% in 2015 to 9.7% of GDP in 2030, instead of 10% of GDP in 2030 in the baseline.

[177] For some countries – like the United States (Chetty et al., 2016) – evidence points to an increase in this life expectancy gap over recent decades that may continue in the future. Life expectancy differences between the income-richest and income-poorest regions in Central and Eastern European countries more than doubled for men between 1999 and 2008, from 1.8 to 4.2 years, while remaining stable overall in the EU (Richardson et al., 2013). Source: Chetty, R. et al. (2016), "The Association Between Income and Life Expectancy in the United States, 2001-2014", JAMA, Vol. 315/16, p. 1750, http://dx.doi.org/10.1001/jama.2016.4226

<table>
<tr><td colspan="5">Equal Ageing</td></tr>
<tr><td>Opportunity</td><td>Example policy options</td><td colspan="3">Effectiveness</td></tr>
<tr><td rowspan="3">Internationally, many countries have sought to address emerging issues of generational equity and ageism. In doing so, governments have the opportunity to:
● increase social mobility
● enhance civic engagement
● improve overall equality of outcomes.</td><td rowspan="3">Ageism can lead to widespread marginalisation which has a negative impact on health, well-being and economic participation. An example policy that could be deployed in Jersey to address this is enhanced Equality legislation. Specifically to meet or exceed leading nations where greatest protections are enshrined in law. Examples includes Sweden, Canada and Luxembourg which have been identified by the World Bank as global leaders in gender equality[178].</td><td>Participation</td><td>✓</td><td>Impact High</td></tr>
<tr><td>Productivity</td><td>-</td><td>Cost £</td></tr>
<tr><td>Public Finances</td><td>-</td><td>Payback Period Medium / Long term</td></tr>
<tr><td colspan="5">Promoting Training at all ages</td></tr>
<tr><td>Opportunity</td><td>Example policy options</td><td colspan="3">Effectiveness</td></tr>
<tr><td rowspan="3">International evidence suggests that there is an opportunity to increase participation in skills and retraining programmes by those aged 55 and above. Similarly, anecdotal evidence suggests that the same applies to Jersey. Increased reskilling participation would not only improve the skills of all people, but also retrain older people so that they remain employable and productive.</td><td rowspan="3">There is an opportunity to encourage a culture of life-long learning across all age groups. Possible policy interventions include:
● ensuring equal access, equal opportunity, and equal treatment across all age groups to training and funding options.
● to run targeted campaigns to raise awareness of the importance of continued training / reskilling.</td><td>Participation</td><td>✓</td><td>Impact High</td></tr>
<tr><td>Productivity</td><td>✓</td><td>Cost ££</td></tr>
<tr><td>Public Finances</td><td>✓</td><td>Payback Period Medium / Long term</td></tr>
<tr><td colspan="5">Promote active ageing</td></tr>
<tr><td>Opportunity</td><td>Example policy options</td><td colspan="3">Effectiveness</td></tr>
<tr><td rowspan="3">Physical inactivity can exacerbate health and social care problems in turn undermining opportunities to increase workforce participation of older workers. Evidence from 2019 found that 50% of the adult population of Jersey was either overweight or obese. This compares to the global average of 39%[179]. While weight is just one proxy for overall health, the consequences of an inactive and unhealthy lifestyle are broad and far reaching, impacting not only those affected but also the fiscal pressure on local and national government.</td><td rowspan="3">Possible policy options are listed below. These policy areas are charged at adopting a more preventative approach to emerging health and wellbeing issues.
● Encourage intergenerational living through housing policy to stave off social isolation and encourage continued civic participation.
● Adopt WHO Age-friendly cities framework principles into planning[180].
● Incentivise healthy living by linking Social Security contributions to lifestyles. Examples of behavioural economics being applied to insurance premium and similar include vitality health.Other examples include Canada's Children's Fitness Tax Credit & Healthy Living Tax Credit.</td><td>Participation</td><td>✓</td><td>Impact Medium</td></tr>
<tr><td>Productivity</td><td>✓</td><td>Cost £££</td></tr>
<tr><td>Public Finances</td><td>✓</td><td>Payback Period Long term</td></tr>
</table>

[178] Further details on the World Bank analysis can be found via the link: https://blogs.worldbank.org/opendata/women-business-and-law-2020-how-does-law-affect-womens-economic-opportunity

[179] Obesity and overweight: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

[180] Further details on the World Health Organisation age friendly cities can be found via the link: https://extranet.who.int/agefriendlyworld/age-friendly-cities-framework/

6. Conclusions and implications for Jersey's Future Economy Programme

This study into the macroeconomic and sectoral implications of an ageing population in Jersey has identified a number of emerging demographic shifts which pose risks but also create potential opportunities to Jersey's future prosperity.

Jersey's population is projected to grow older over the coming decades. The economic impacts are wide-ranging:

- As increasingly more people enter older age groups, overall labour force participation in the economy is expected to decline in the future. This affects labour markets by creating labour shortages and it increases dependency as more people are out of work.
- Higher dependency in turn has implications for the fiscal sustainability of Government spending.
- Ageing can act as a drag on economic growth and productivity, more generally, due to a falling employment-to-population ratio and per-capita consumption/income.
- Aggregate consumption and expenditure more tailored towards an ageing population will drive additional spending in sectors like retail, hospitality and healthcare. These sectors are labour-intensive and often identified as low productivity sectors. There are, nonetheless, economic opportunities to be created in the 'silver economy' if these sectors innovate with new types of products and services.

The key to creating new opportunities in an ageing society is to ensure that Jersey has the relevant workers and mix of skills to sustain the growing sectors of the economy. Yet, demographic and workforce projections suggest that the level of inward migration will play a significant role in slowing or accelerating the ageing of Jersey population, and in turn the labour and skills needed by its economy. Increasing the labour force participation of older workers will also help significantly in achieving this - and thus helping to rely less on inward migration.

To make the implementation of policies across the policy areas identified in this report more effective, a clear vision, leadership and coordinated interventions across Government will be needed. Jersey's Future Economy Programme seeks to ensure coordinated action via a whole-of-government approach by clearly articulating the cornerstones of the Island's economy that will support a sustainable, vibrant and inclusive economy. In the context of this vision, there are a few areas where future research would improve the effective implementation of population policies.

6.1 Links with FEP's cornerstones

The Future Economy Programme (FEP) is the Government of Jersey's flagship programme shaping the long-term future direction of the economy, as set out in the Government Plan. Aligned with the Common Strategic Policy, the goal is **a sustainable, vibrant and inclusive future economy**, with a focus on

productivity and skills. The FEP is positioned in the context of, and seeks to align and build on, multiple other initiatives, including the post-pandemic recovery and renewal agenda for Jersey. Work is underpinned by five "cornerstone" objectives for the Jersey economy:

1. An economy operating within environmental limits
2. Businesses which are productive and resilient
3. Households which are resilient and share in growth
4. Strong island identity & international reputation for quality products & services
5. Highly skilled workforce equipped for the jobs of the future

The Future Economy Programme is progressing cross-departmental work to develop an Economic Framework. The Economic Framework will be a a vision and set of decision tools that align policy makers and other economic development decision makers behind common objectives to guide the economic development process. In doing so, the framework will make clear how policy change in one area will impact the objectives across all five cornerstones.

In the context of population policy and demographic change, the Economic Framework will shed light on how changes to population policy or demographic outcomes impact the economy, the environment and different sectors of economic activity. To date, the wide implications of an ageing population have received limited attention in policy discussions in Jersey.[181] This data-driven approach will help to inform a whole-of-government approach to policy making by identifying and measuring impacts across wide sectors of the economy and highlighting trade-offs between different policy areas. In particular, population and demographic policies in Jersey can complement or hinder progress towards the five cornerstones objectives, most significantly a highly skilled workforce and household resilience. Accordingly, policy should be optimised in the context of the five cornerstones' objectives to support the overall government ambition.

6.2 Future areas of work in the area of population

This study offers an overview of the macroeconomic and sectoral impacts of an ageing population using a comprehensive set of data sources in Jersey, including the recently created input-output tables, as well as international experiences. Based on the evidence and results of the study, there are areas for potential future research that can expand the evidence base for better decision and policy making. Below is just an outline:

Area 1: Measuring and monitoring dependency accurately

- Define, measure and monitor different types of dependency, including youth dependency. The ONS in the UK offers some guidance in this respect.[182]
- Build further scenarios of dependency in the context of inward migration by looking at labour force participation rates of different types of migrants.
- Collect data on how many people are actively seeking work over the age of 65. This data is not currently monitored and it could be that there is underemployment within this age group.

[181] For example, the dimensions, dynamics and consequences of simultaneous ageing and shrinking populations are by and large overlooked in the SDG documents (SDGs), with ageing mostly visible only in relation to the fact that older people are a vulnerable group. In other highly visible UN documents related to sustainable development such as the New Urban Agenda, the challenges posed by ageing urban populations are mentioned in only one sentence. Source: https://www.nature.com/articles/s42949-021-00023-z

[182] See https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/ageing/articles/livinglongerandoldagedependencywhatdoesthefuturehold/2019-06-24

- Start monitoring and measuring the economic and social value of volunteering and ‘family’ social and child care.

Area 2: Monitoring unequal ageing across the whole life-cycle of people

- Measure and monitor life expectancy gaps across different segments of populations, and derive implications for employment.
- Measure and monitor access to training by different socio-economic groups in Jersey.
- Measure and monitor the participation of Jersey’s older workers in training.
- To better inform policy, monitor tax contributions at the household level (rather than solely on an individual level), which allows capturing family dynamics alongside work and childcare commitments.

Area 3: Measuring and monitoring flexible work practices for older populations

- Measure and monitor the percentage of people 60+ with caring responsibilities.
- Measure and monitor the percentage of people, by age group, that work in full-time and part-time employment.
- Estimate for different socio-economic groups (or levels of education) the fraction of people that reduce their working hours as they approach retirement.

Area 4: Identifying and attracting skilled migrant labour

- Comprehensive analysis of the value (or specific skills) that migrants bring to different sectors, or their demographic and educational characteristics.
- Improve knowledge of the push-pull factors driving employee decisions.
- Comprehensive analysis of how skills gaps might be filled by Jersey nationals who chose to work off-Island
- Comprehensive understanding of how in / out migration of tertiary students to and from Jersey impacts the overall labour market in Jersey. This should extend to the share of students leaving Jersey to pursue higher education, the percentage that return, and if they return with dependents / partners. Finally, the analysis could consider the role of student financing as a push / pull factor.