Annual Guernsey Population Projection Bulletin

Issue date April 2023

The Population Projection Bulletin provides 60 year forecasts for the total population in Guernsey and related data.

States of Guernsey
Strategy and Policy

States of Guernsey
Data and Analysis

1.1 Introduction

The Population Projection Bulletin provides forecasts for the total population of Guernsey and other related data series, such as the population in specified age groups, dependency ratios and working age adults. The data are based on the current profile of the population to which a series of assumptions are applied. Three scenarios are presented:

- Central projection: Total fertility rate of 1.4 and net migration of +150 in line with the averages recorded since 2014
- Upper (planning) projection: Total fertility rate of 1.5 and net migration of +300 in line with States resolution
- Lower projection: Total fertility rate of 1.3 and net migration of 0

The bases for these assumptions are detailed further in **Appendix 1**.

These forecasts are produced using the Government Economic Modelling system ('GEM') and draw on data collected via the Rolling Electronic Census. GEM enables the States of Guernsey to extrapolate the population and other data series based on the most up to date information and to test their sensitivity to factors such as fertility rates and migration. The projections are used to inform robust, long-term policy development and government decision making.

2.1 Headlines

- Like the majority of developed economies, Guernsey has a population that is ageing.

- Central projections indicate limited increase in the total size of the population in the medium term, peaking at approximately 64,000 in 2029. Under the upper planning projection, population increases continue to the 2080, peaking at approximately 69,500.

- Data shows population between compulsory school age and state pension age declining throughout the period. This is reflected in a projected fall in the workforce at an average rate of 0.4% per annum. It is estimated that an average level of annual net immigration of around 300 people would be required to maintain the size of the workforce at its current level.

- A significant increase in the number of people above state pension age is expected to continue through the majority of the period. The number of people aged 85 or over is likely to more than double over the projected time period.

Figure 2.1.1: Total projected population for Guernsey
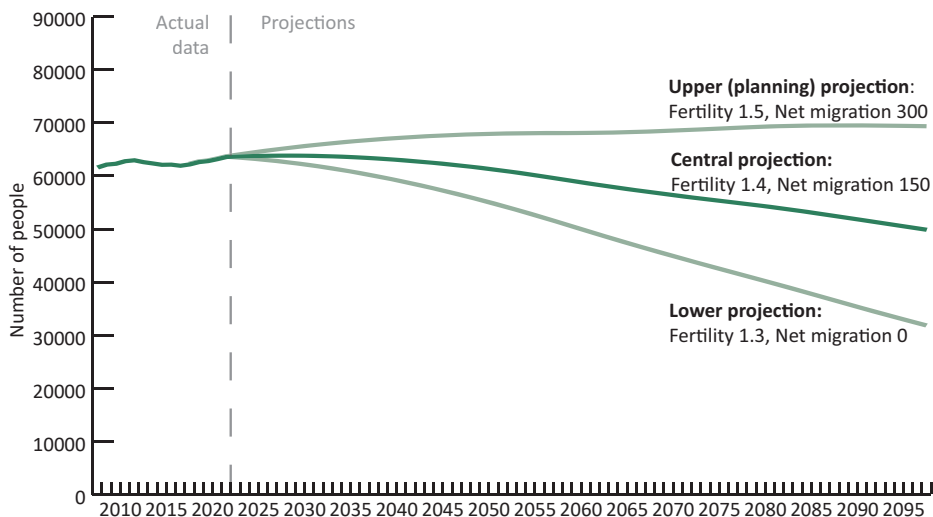
Table 3.1.1: Projection of the population

	Lower Projection		Central Projection		Upper (Planning) Projection	
	Total population	Cumulative % change from current	Total population	Cumulative % change from current	Total population	Cumulative % change from current
2022 (actual)	63,711		63,711		63,711	
2027	62,981	-1.1%	63,947	0.4%	64,917	1.9%
2032	61,900	-2.8%	63,899	0.3%	65,917	3.5%
2037	60,460	-5.1%	63,562	-0.2%	66,710	4.7%
2042	58,709	-7.9%	62,971	-1.2%	67,317	5.7%
2047	56,705	-11.0%	62,166	-2.4%	67,756	6.3%
2052	54,436	-14.6%	61,126	-4.1%	67,999	6.7%
2057	51,912	-18.5%	59,870	-6.0%	68,076	6.9%
2062	49,275	-22.7%	58,544	-8.1%	68,141	7.0%
2067	46,699	-26.7%	57,302	-10.1%	68,331	7.3%
2072	44,252	-30.5%	56,191	-11.8%	68,665	7.8%
2077	41,892	-34.2%	55,146	-13.4%	69,057	8.4%
2082	39,544	-37.9%	54,074	-15.1%	69,394	8.9%
2087	37,113	-41.7%	52,854	-17.0%	69,529	9.1%
2092	34,687	-45.6%	51,552	-19.1%	69,512	9.1%

Guernsey's total population has been extrapolated using a central assumption of an average level of annual net immigration of 150 people and a total fertility rate of 1.4. This projection is aligned with the average level of net migration and fertility rates observed in the historic data (see **Appendix 1** for details). Under these assumptions, Guernsey's population is projected to show very small annual increases until 2029 (**Figure 2.1.1** and **Table 3.1.1**), reaching a level approximately 0.4% greater than it was in March 2022. Beyond 2027, the population may begin to decline, with central estimates falling to 54,100 by 2080, 15% smaller than that reported in March 2022.

In October 2022 the States agreed: *"The States of Guernsey will assume, for the purpose of planning future infrastructure and service provision, that net migration will average up to +300 per year over the next thirty years. This assumption will support the capacity of the Island's workforce so that it remains a desirable and competitive jurisdiction, and will ensure that the Island can meet the needs of the economy with the necessary housing and infrastructure."*

The upper (planning) projection is included to support this resolution and indicates how the evolution of the population may progress at a higher level of net migration. Under these assumptions (which include a slightly higher assumption of fertility) the population level would be expected to increase gradually throughout the projection period, reaching 69,400 by 2082, 8.9% higher than its current level.

A lower projection is also included to illustrate what may happen in the absence of net migration (i.e. where levels of immigration and emigration are the same on average). Under these assumptions, projections show an accelerating decline in the population over the projection period.

3.2 Population by age and gender

Figure 3.2.1 shows the changing distribution of the population over time by age and gender. The modal (or largest) age group is shifting upwards from 50-54 in 2020 to 65-69 by 2030.

Figures 3.2.2 to **3.2.5** show the population in four key age groups:

- Children of or below compulsory school age, that is those aged 0-15 (**Figure 3.2.2**)
- Adults aged between compulsory school age and state pension age* (**Figure 3.2.3**)
- Adults above state pension age* but below 85 (**Figure 3.2.4**)
- Adults aged 85 or more (**Figure 3.2.5**)

These projections are also summarised in **Table 3.2.1**

Children of or below compulsory school age

Projections show that the number of children in the community will decline throughout the projected period (**Figure 3.2.2**). The decline is a result of a numbers of factors, including a central assumption of a fertility rate of 1.4 and a continuing decline in the number of women of child bearing age. The international standard replacement rate, the fertility rate required to sustain a stable population in the long term, is 2.1*. At a further level of detail, the number of children of primary school age is anticipated to decline throughout the period. The number of children of secondary school age is expected to reach a peak in approximately 2025, before declining.

Projections within this age group are particularly sensitive to fertility rate assumptions and, to a lesser extent, net migration.

Adults aged between compulsory school age and state pension age*

Typically termed 'working age adults', this group makes up the core of both the productive workforce and the tax base. **Figure 3.2.3** shows a sustained decline in the working age population. The rate of decline is mitigated by the increase in the state pension age from 65 to 70 between 2020 and 2049 and the assumption of net immigration.

These projections are very sensitive to net migration and (in the longer term) fertility rates. Net immigration

* Data projected using state pension age are adjusted to account for the agreed policy to increase state pension age from 65 to 70 between 2020 and 2049.
**www.who.org

Figure 3.2.1: Population pyramid
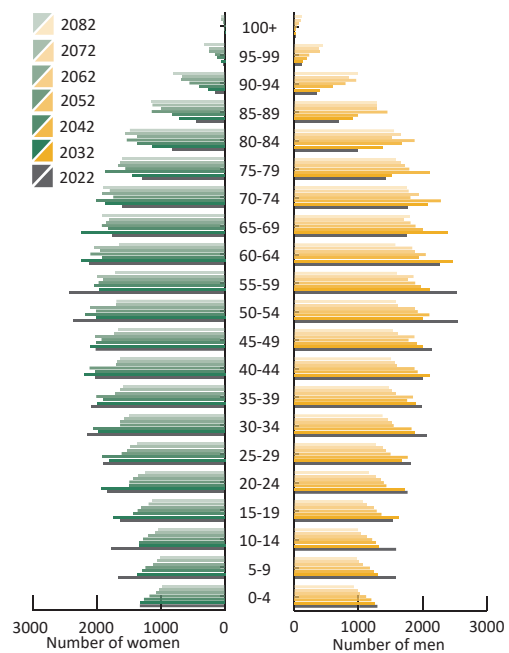(assuming annual net migration of 150 people and fertility rate of 1.4)
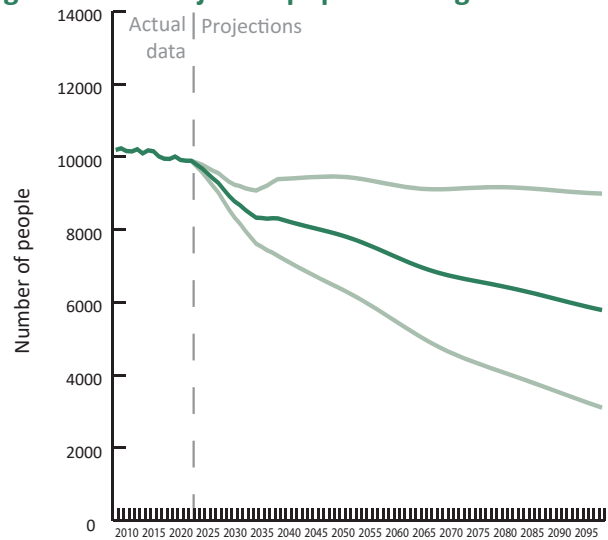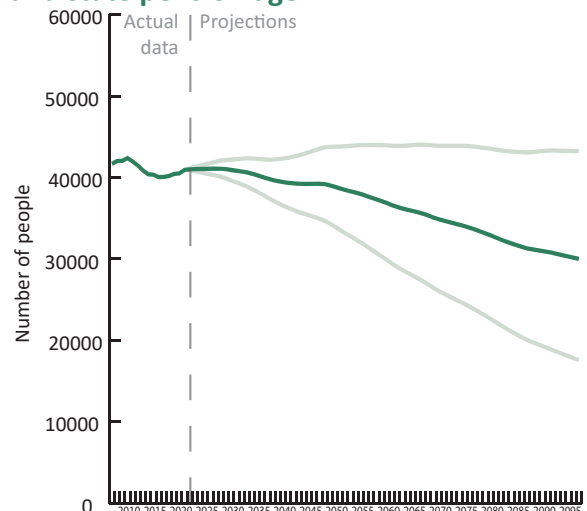

Figure 3.2.2: Projected population aged 0-15

Figure 3.2.3: Projected population between age 16 and state pension age**

Figure 3.2.4: Projected population between state pension age and age 84*
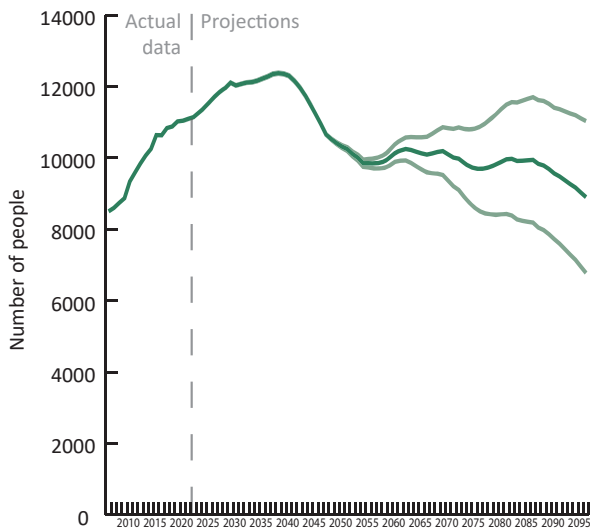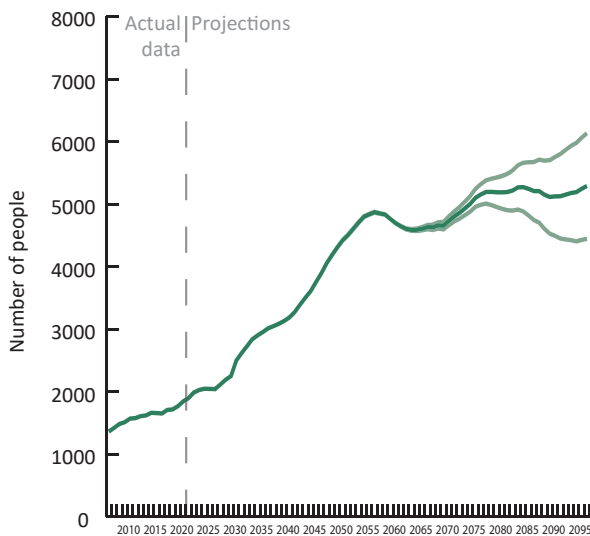

Figure 3.2.5: Projected population aged 85 or more

would need to rise to approximately 300 people a year to maintain the size of this group.

Adults aged between state pension age* and 84
This group represents those who may be in receipt of an old age pension. A minority of people in this group continue in paid employment or self employment but they are typically less active in the economy than those below state pension age. This group will also typically have increased medical needs, although most will not reach the peak of their medical and care needs until they progress beyond 84.

Projections show a rapid and sustained increase in this age group, averaging 1.0% a year until 2040 (**Figure 3.2.4**). As the large "baby-boom" generation, born between 1946 and 1964, progress beyond this age group the rate of increase slows and eventually the number of people in this age group will decline. The projected size of this age group is largely insensitive to assumptions of net migration and fertility until beyond 2050, because there is little net movement into or out of Guernsey of people in this age group.

Adults age 85 and over
This group represents those in the community who typically have the greatest need for medical and care services. This demographic group is increasing rapidly and the rate of increase is likely to increase significantly from 2031 when the 1946 co-hort (the leading edge of the baby boom generation and one of the largest age cohorts) reaches 85. This rapid increase in the number of people aged 85 or more is likely to continue until 2058 (**Figure 3.2.5**), with the annual rate of growth averaging 2.8% per annum. Beyond this point it is expected that their will be a dip in the population as more of the "baby-boom" generation reach their assumed life expectancy. The numbers in this group are projected to increase again from around 2070 as the children of the "baby-boom" generation (the echo boom) reach 85.

Projections in this age group are largely insensitive to assumptions on net migration and fertility until the 2070s.

3.2 Population by age and gender

Table 3.2.1: Projection of the population by age group

	Lower Projection		Central Projection		Upper (Planning) Projection	
	Total population	Cumulative % change from current	Total population	Cumulative % change from current	Total population	Cumulative % change from current
0-15 years						
2022 (actual)	9,893	-	9,893	-	9,893	
2032	9,020	-8.8%	9,285	-6.1%	9,553	-3.4%
2042	7,965	-19.5%	8,541	-13.7%	9,137	-7.6%
2052	7,368	-25.5%	8,314	-16.0%	9,306	-5.9%
2062	6,946	-29.8%	8,142	-17.7%	9,421	-4.8%
2072	6,568	-33.6%	7,957	-19.6%	9,460	-4.4%
2082	6,190	-37.4%	7,736	-21.8%	9,424	-4.7%
2092	5,750	-41.9%	7,438	-24.8%	9,297	-6.0%
16-State pension age						
2022 (actual)	40,929		40,929		40,929	
2032	40,358	-1.4%	41,061	0.3%	41,764	2.0%
2042	39,397	-3.7%	40,827	-0.2%	42,258	3.2%
2052	37,897	-7.4%	40,070	-2.1%	42,242	3.2%
2062	36,255	-11.4%	39,336	-3.9%	42,420	3.6%
2072	35,147	-14.1%	39,223	-4.2%	43,315	5.8%
2082	33,541	-18.0%	38,653	-5.6%	43,805	7.0%
2092	31,584	-22.8%	37,743	-7.8%	43,978	7.4%
State pension age - 84						
2022 (actual)	11,042		11,042		11,042	
2032	11,555	4.6%	11,554	4.6%	11,552	4.6%
2042	12,038	9.0%	12,030	8.9%	12,023	8.9%
2052	12,239	10.8%	12,222	10.7%	12,206	10.5%
2062	12,319	11.6%	12,302	11.4%	12,286	11.3%
2072	11,233	1.7%	11,231	1.7%	11,228	1.7%
2082	10,278	-6.9%	10,317	-6.6%	10,357	-6.2%
2092	9,733	-11.9%	9,852	-10.8%	9,971	-9.7%
85 and over						
2022 (actual)	1,847		1,847		1,847	
2032	2,047	10.8%	2,047	10.8%	2,047	10.8%
2042	2,500	35.4%	2,500	35.4%	2,500	35.4%
2052	2,956	60.0%	2,956	60.0%	2,956	60.0%
2062	3,190	72.7%	3,190	72.7%	3,190	72.7%
2072	3,756	103.4%	3,754	103.3%	3,753	103.2%
2082	4,427	139.7%	4,420	139.3%	4,414	139.0%
2092	4,845	162.3%	4,837	161.9%	4,830	161.5%

4.1 Workforce

Figure 4.1.1 and Table 4.1.1 provide forecasts of the size of the workforce in Guernsey. These forecasts are produced under an assumption that workforce participation rates of five year age group bands under 65 remain constant over time. Participation among those aged between 65 and 69 is assumed to increase as the state pension age is raised and it is assumed a small percentage of people continue to participate in the workforce beyond state pension age. The intention of these assumptions is to demonstrate what the total size of the workforce may be if workforce conditions continue to be broadly the same as they currently are.

Figure 4.1.1 demonstrates the decline in the workforce throughout the period under the central projections. The projections show an average rate of decline of approximately 0.5% per annum, resulting in a cumulative reduction in the workforce of 2.0% by 2032 and 4.1% by 2042.

The upper planning assumption demonstrates the policy intention behind the decision to promote higher levels of net migration, with this projection maintaining the size of the workforce at approximately its current level throughout the projected period

Workforce projections are highly sensitive to net migration assumptions because migration both into and out of Guernsey is typically employment related. This means that the vast majority of migratory movements occur among the working population. Average levels of inward migration of between 200 and 300 people per year are required to maintain the size of the workforce at its current level.

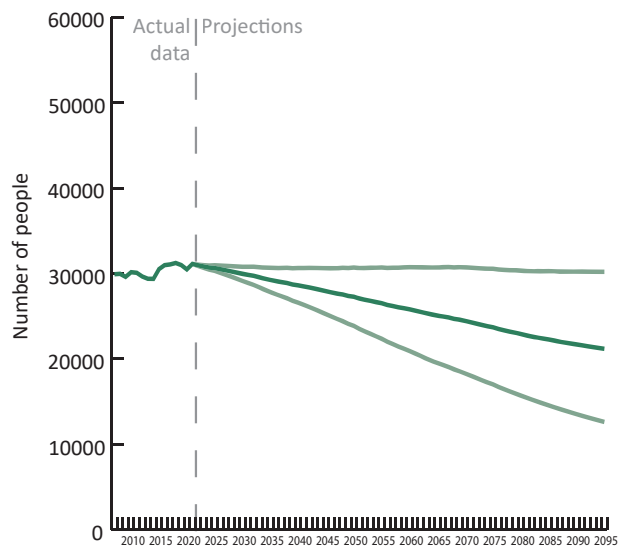**Figure 4.1.1: Projected workforce***

Table 4.1.1: Projection of the workforce*

	Lower Projection		Central Projection		Upper (Planning) Projection	
	Total workforce	Cumulative % change from current	Total workforce	Cumulative % change from current	Total workforce	Cumulative % change from current
2022 (actual)	31,120	-	31,120		31,120	
2032	30,080	-3.3%	30,499	-2.0%	30,918	-0.6%
2042	28,895	-7.1%	29,841	-4.1%	30,787	-1.1%
2052	27,597	-11.3%	29,129	-6.4%	30,661	-1.5%
2062	26,339	-15.4%	28,490	-8.5%	30,642	-1.5%
2072	24,959	-19.8%	27,781	-10.7%	30,607	-1.6%
2082	23,516	-24.4%	27,070	-13.0%	30,636	-1.6%
2092	22,022	-29.2%	26,323	-15.4%	30,652	-1.5%

5.1 Dependency ratios

Dependency ratios are calculated by dividing the total number of people in the dependent population (those of compulsory school age and below and those above state pension age) by the number of people of working age. They are intended to provide an indication of the number of people who are not economically active and who use the majority of government funded services (such as education, health and social care and public pensions), relative to number of people who are economically active and therefore contributing the most to government revenues.

Two definitions of dependency ratios are presented. Those presented in green represent show the official UN definition which sets the age criteria for the active population at 15 to 64 as below.

$$\text{UN dependency ratio} = \frac{\text{Pop. 0-14} + \text{Pop.65+}}{\text{Pop. 15-64}}$$

The second definition provided in yellow are adjusted to more closely reflect the situation in Guernsey, incorporating compulsory full time education until the age of 16 and a phased increase in the States pension age between 2020 and 2049 from 65 to 70:

$$\text{Gsy dependency ratio} = \frac{\text{Pop.0-15} + \text{Pop. above SPA}}{\text{Pop. 15-SPA}}$$

While dependency ratios are useful as indicative illustrations of a population's balance, they do not factor in:
- Continuation in full time education for those beyond the age at which education is compulsory.
- Non-employment and unemployment among those of apparent working age (particularly common among over 50s).
- Individuals of apparent working age who require care and support.
- Employment among people above apparent working age.

Figure 5.1.1 shows dependency ratios for Guernsey increasing from 0.56 in March 2022 (UN definition) to a peak of 0.85 in 2083. The alternative data, factoring in the increases in the State pension age to 70 by 2049,

*Data projected using state pension age are adjusted to account for the agreed policy to increase state pension age from 65 to 70 between 2020 and 2049.
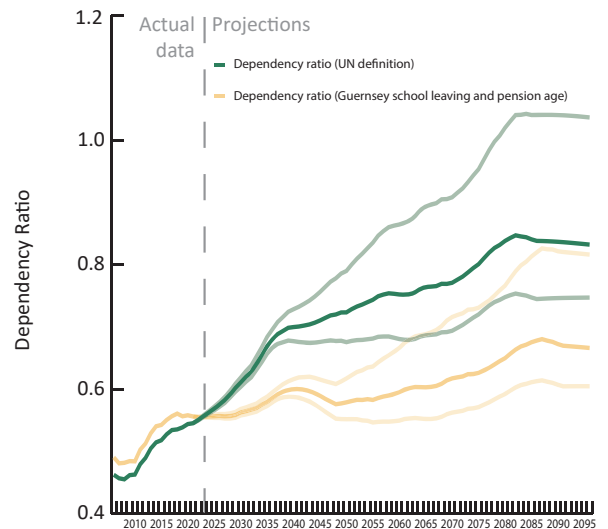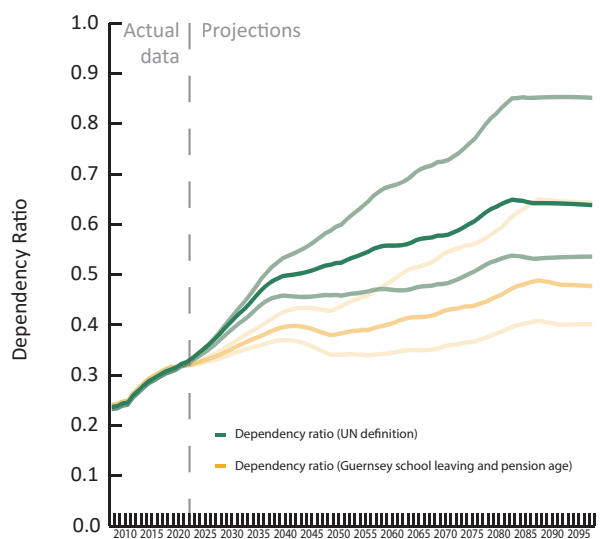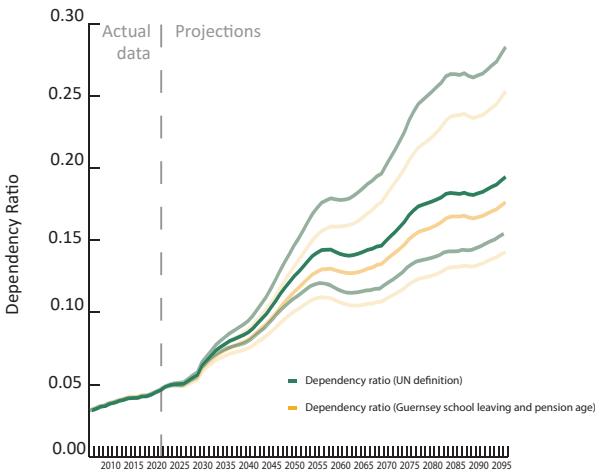
Figure 5.1.1: Dependency ratio: overall

Figure 5.1.2: Dependency ratio: above state pension age

5.1 Dependency ratios

Figure 5.1.3: Dependency ratio: older adults (85+)

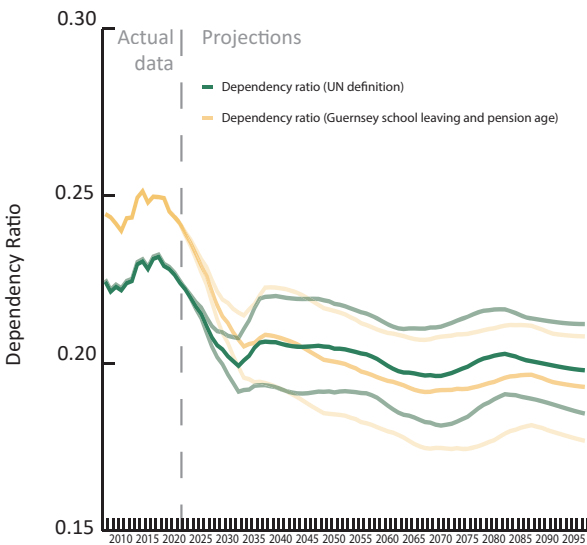## Figure 5.1.4: Dependency ratio: school age or younger

results in a lower dependency ratio which peaks at 0.68 in 2088. Dependency ratios are highly sensitive to assumptions of net migration, primarily because of the impact this has on projections of the working age population and therefore increasing the net immigration assumption lowers dependency ratios.

Figures 5.1.2 to **5.1.4** show the dependency ratios for different sections of the population:
- those above 64 (UN) or state pension age (Guernsey) who are in receipt of State pensions,
- those who are over 85 who typically have the greatest care and support needs; and
- those of age 14 or below (UN) or 15 and below (Guernsey) being of compulsory school age.

Together, these three figures illustrate that the increase in the number of people above state pension age is the primary driving factor behind the projected increase in the overall dependency ratio.

The dependency ratio for those above state pension age is projected to follow the same pattern of increases as the overall dependency ratio. The dependency ratio for older adults (85+) increases throughout the projected period rising from 0.04 to 0.19. This implies that there are currently about 4 people aged over 85 for every 100 people between 15 and 64. This is projected to increase to 19 people aged over 85 for every 100 people between 15 and 64 by 2093.

By contrast, the dependency ratio for those of compulsory school age or younger is projected to fall (**Figure 5.1.4**). These are sensitive to changes in the assumed fertility rate but largely insensitive to changes in the assumption of net migration.

6.1 Births and deaths

Typically people require the most medical and care services at the beginning and end of their lives. The number of births and deaths in the community is therefore important, not only for the net contribution to the total population number, but in planning the aggregate level of health and care services required.

Figure 6.1.1 shows the projected number of births in Guernsey each year. The annual number of births is projected to decline over time as a result of a decline in the number of women of child bearing age in the community and the assumed persistence of levels of fertility (the number of children each woman will give birth to in her lifetime) below the replacement rate of 2.1. Levels of fertility in most developed economies have been substantially below this level since the mid to late 1970s and central projections assume that the recent average total fertility rate of 1.4 persists through the period. Increasing or decreasing the assumed fertility rate has a substantial impact on the number of births expected.

Projected births are also sensitive to assumptions of net migration that may impact the number of women of child bearing age in the community.

The number of deaths which occur in Guernsey is expected to increase as the population ages (**Figure 6.1.2**) and is closely correlated with the size of the population aged over 85. Like the projections of those aged over 85, projections of the annual number of deaths show very little sensitivity to assumptions of either net migration or fertility.
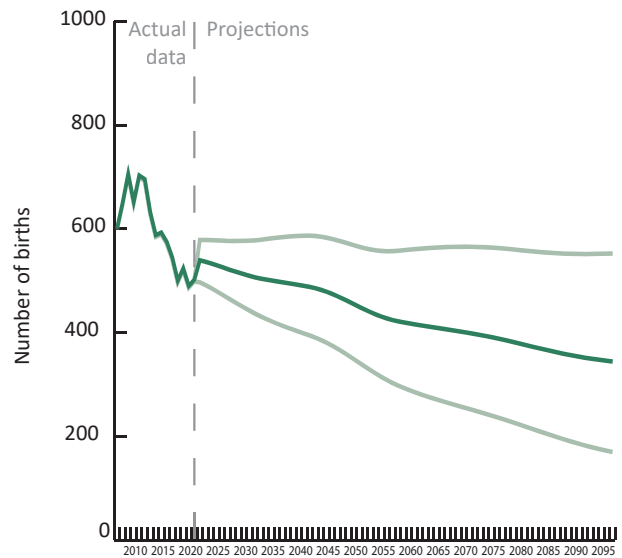
Figure 6.1.1: Projected number of births

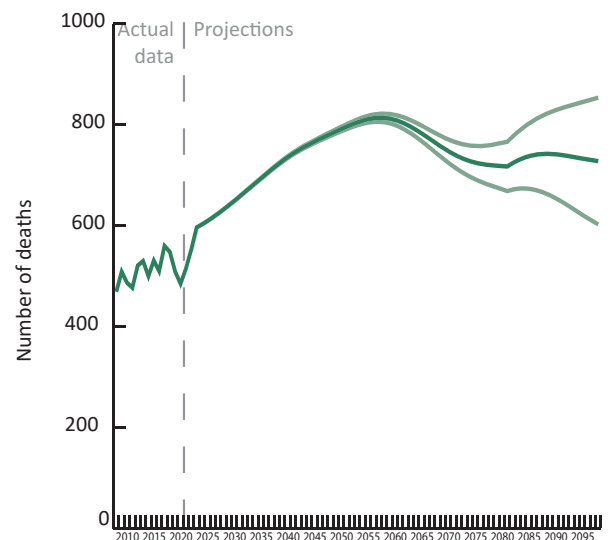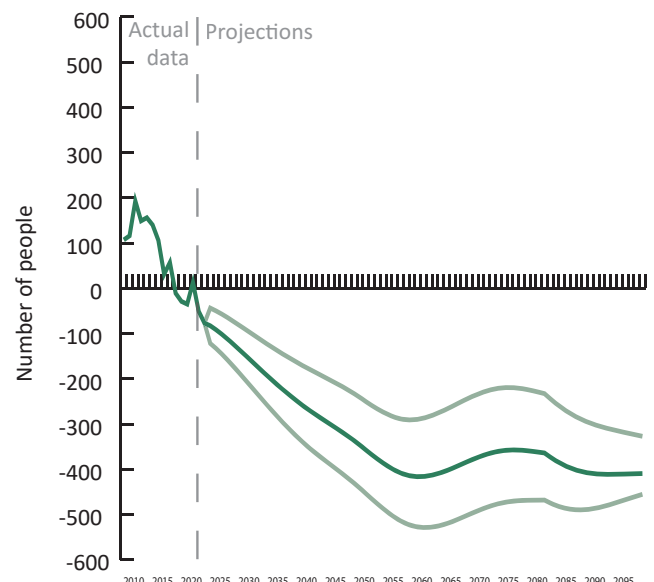### Figure 6.1.2: Projected number of deaths

Figure 6.1.3: Natural population change

All economic and actuarial projections are based on assumptions about what is going to happen in the future. This is a necessary part of this type of analysis but, since future events are never certain, it introduces uncertainty into the projections.

Assumptions are typically chosen by examining historical data, so that the expectation of the future is derived with reference to what has happened in the past. However, all data series are subject to volatility to a greater or lesser extent and there is always the possibility of structural changes in data series. For example, total fertility rates in the UK between 1946 and 1970 were consistently well above the 2.1 replacement rate (a period known as the baby boom) but fell to 1.7 by 1977 and have remained consistently below 1.9 ever since. While projections are made with sensitivity analysis which can reflect uncertainty due to volatility, major structural changes are usually much more difficult to predict.

Fertility rates
The total fertility rate is the number of children the average woman is expected to give birth to in her lifetime. It governs the total number of children who are projected to be born in Guernsey and, as these children grow up, contributes to the number of people in increasingly older age groups. There is a natural delay in the time it takes for fertility rates to impact population projections at these older age groups. Projections of young people are affected immediately, and naturally projections of the adult population are not significantly affected for more than 16 years. Projections of people aged 85 or over are not affected at all over the projected period.

Fertility rates in Guernsey have been falling and, on review of the available data, the assumed central fertility rate has been reduced to 1.4 for this publication (**Figure A1.1**). Sensitivity analysis includes the fertility rates ranging from 1.3 to 1.5.

By age, fertility rates are assumed to follow the pattern described by **Figure A1.2**.
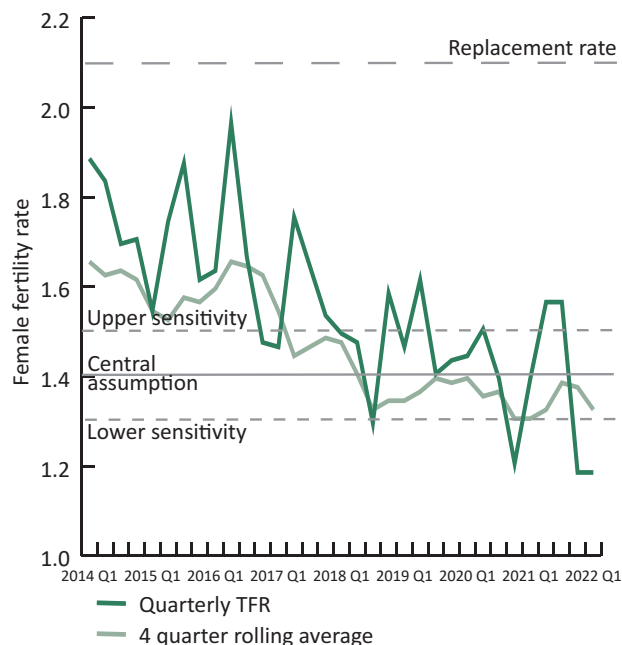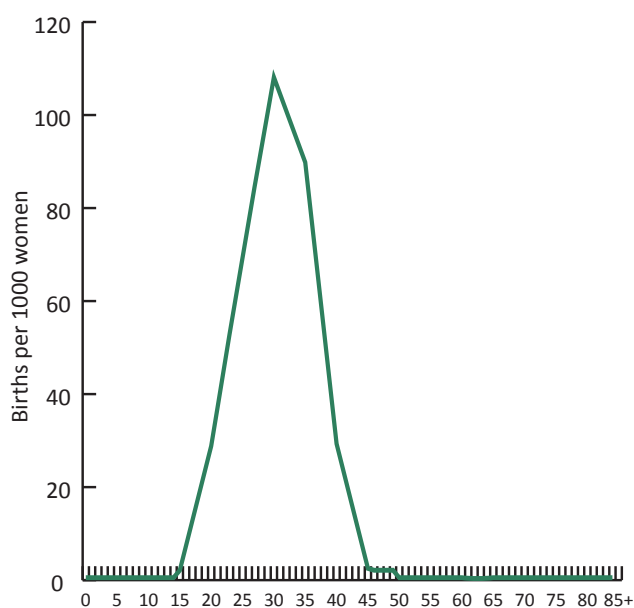
Figure A1.1: Actual total fertility rate

Figure A1.2: Assumed fertility by age

Net migration

Net migration is the difference between the number of people who immigrate to Guernsey and the number who emigrate each year. Levels of net migration are very volatile and in the past decade have varied between net immigration of 491 people in the year ending March 2022 to net emigration of 464 people in the year ending March 2013 (**Figure A1.3**). Levels of net migration are tied to the economic cycle and tend to be higher during periods of high economic growth. Guernsey is currently in a period of high net migration.

Central projections assume net annual immigration averaging 150 people per annum, which is broadly equivalent to the average level of net migration over the available time series. Upper and lower limits on sensitivity analysis are set respectively at net immigration of 300 people per annum and no net migration, reflecting the degree of uncertainty in this variable.

Consistent with observed net migration patterns, it is assumed that migration generally occurs within the working age population (**Figure A1.4**) and younger adults in particular.

Mortality

Mortality assumptions are derived from mortality tables published by the UK Office of National Statistics and mortality is assumed to improve over time and average life expectancy is projected to increase. **Full details of mortality tables applied to the projections are available on request.**
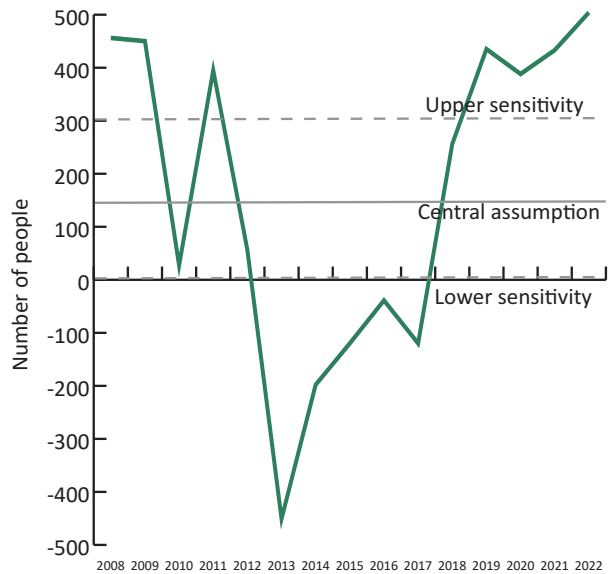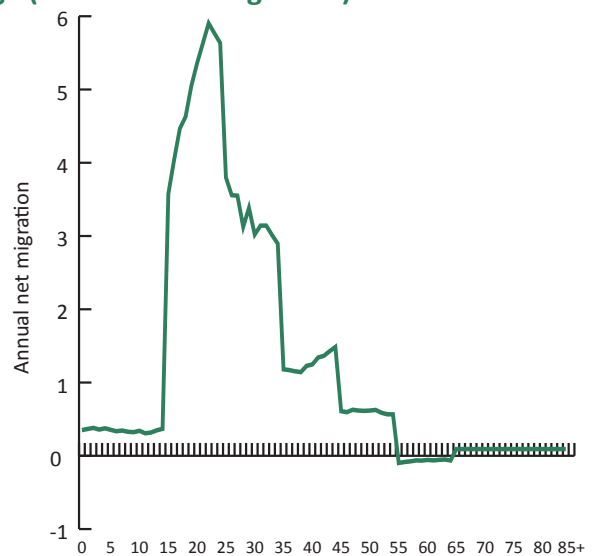
Figure A1.3: Actual net migration

Figure A1.4: Assumed pattern of net migration by age (at 100 net immigration)

7.1 Contact Details

Statistical publications issued by the States of Guernsey are available online at **www.gov.gg/data**.

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