

A demographic
profile of Portsmouth's
past

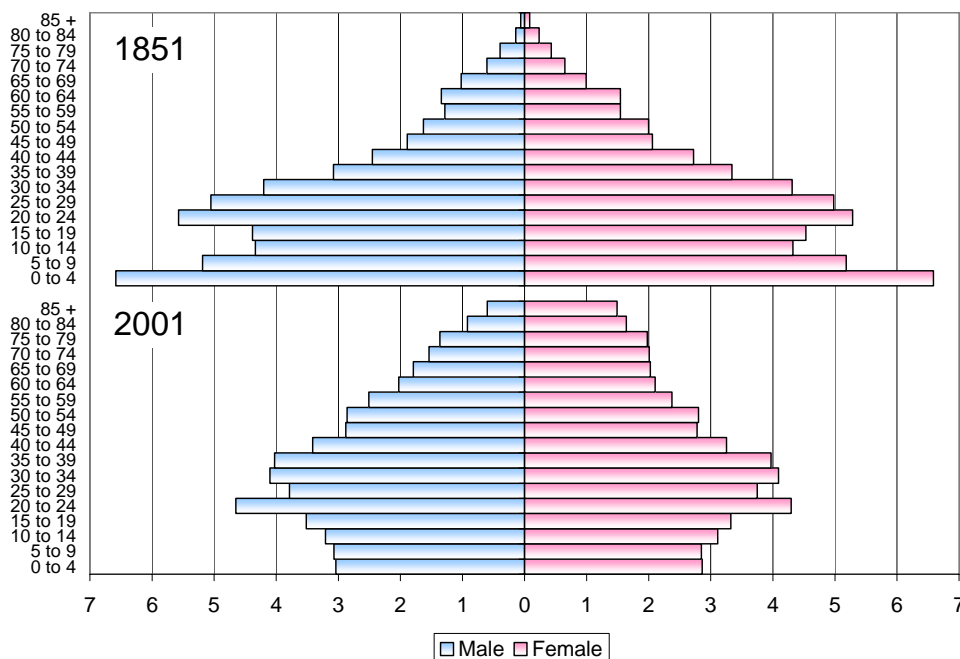
1801 -
2001

Summary

Portsmouth has experienced profound changes to its demography over the last 200 years.

- The population of Portsmouth has increased by more than 153,000 people between 1851 and 2001.
- The number of households has risen by over 13,500 between 1931 and 2001 and average household size has fallen from 3.86 to 2.37 over the same period.
- The population of Portsmouth has been ageing over time, with a greater percentage of the population now occupied by the older age groups and a smaller percentage occupied by children.
- The percentage of the population occupied by those aged over 85 years has risen by 1333 % between 1851 and 2001, the largest percentage increase in any age group.
- The population aged 0-4 years has seen the largest percentage decrease between 1851 and 2001, falling by 55 %.
- The percentage of the population occupied by the working age¹ population has remained fairly constant over time, increasing by 5 % between 1851 and 2001.

Portsmouth: Population Pyramids, 1851 and 2001



¹ Working age describes females aged 15-59 years and males aged 15-64 years. The data is only available in five year age groups, and so a more detailed breakdown cannot be provided.

Introduction

This summary profile provides a graphical overview of the changes in population that took place between 1801 and 2001 in Portsmouth. The population is analysed by age and sex, including the working age and dependent populations.

The total population of Portsmouth is available for census years from 1801-2001, whilst information on age groups and the number of households is provided for selected census years from 1851-2001 and 1931-2001 respectively.

The first census in England and Wales took place in 1801 and asked five basic questions. By 2001 the census asked forty-one questions. Thirty-two about each person resident in the household and nine questions about household accommodation. The questions asked in a census are particularly relevant to the time in question and so information collected in a particular census may not be directly comparable with previous or subsequent census data.

The boundaries of Portsmouth have changed over time. In order to maintain comparability the figures used in this report come from redistricted census data.

Data Sources

This report draws on four main data sources – redistricted census data and infant mortality rate's (IMR²) contained in the website A Vision of Britain Through Time, the Government Actuary's Department (GAD) life expectancy estimates and total fertility rate (TFR³) figures from ONS Health Statistics Quarterly.

The website A Vision of Britain Through Time presents two methods of redistricting census data, and data from both these methods were used in this profile. For more information regarding the redistricting of the data and the IMR data please see Appendix 1.

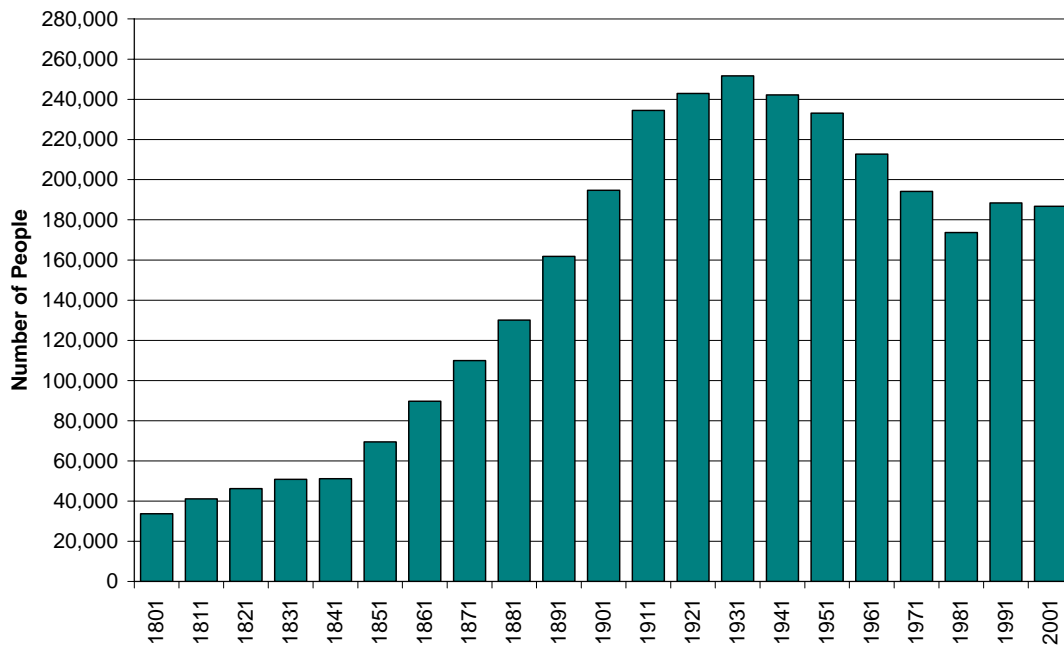
² Infant Mortality Rate (IMR) gives the number of babies that are born alive but die within the first year of life, per 1,000 live births.

³ Total Fertility Rate (TFR) gives the number of children that a woman would have if the current patterns of fertility continued for the whole of her reproductive life.

Population

The total population of Portsmouth increased in each census year from 1801-1931, rising from 33,640 to 251,650, an increase of 218,000 people. The largest gain in population took place between the 1901 and 1911 censuses, where there was an increase of 39,730 people. Between 1931 and 1981⁴ there was a decline in population in each consecutive census year. The population then increased by 14,800 between the 1981 and 1991 censuses before declining back slightly in the 2001 Census (by 1,750 people). In 2001 the population of Portsmouth was recorded as 186,700, a rise of 455 % since 1801.

Figure 1: Portsmouth: Total Population 1801-2001

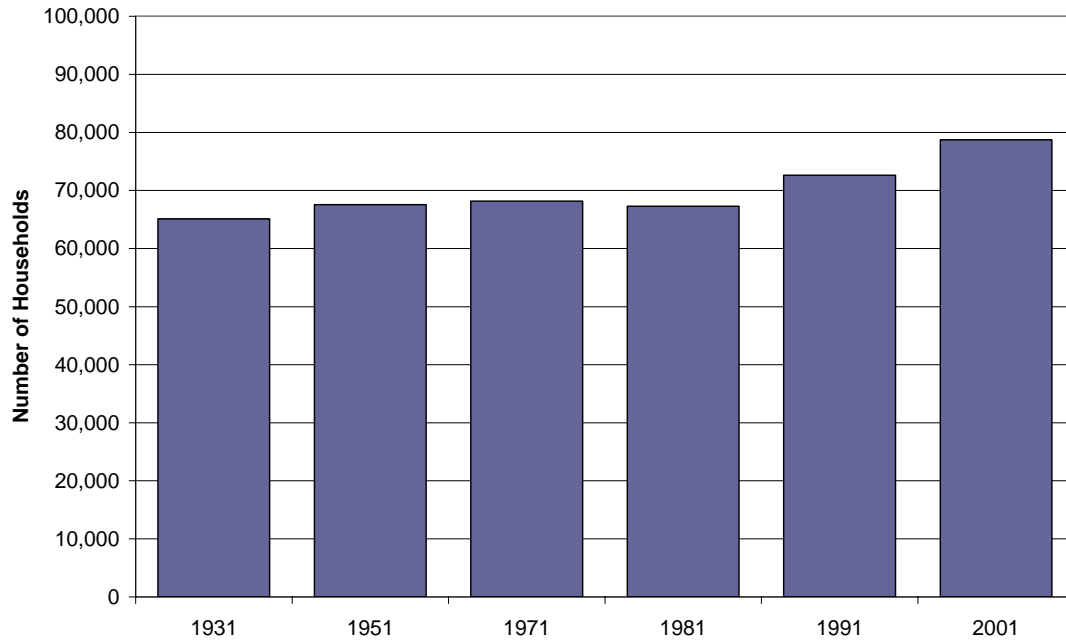


⁴ The figure for 1941 was estimated by the GB Historical GIS project, as no census was taken in 1941 due to World War II.

Households

The number of households in Portsmouth increased between the 1931 and 2001 censuses. The number of households in the 2001 Census was 78,720, compared to 65,130 in 1931, a rise of 21 % (Figure 2). Between 1971 and 1981 the number of households declined by 880. Average household size in Portsmouth decreased between 1931 and 2001, falling from 3.86 to 2.37 people per household.

Figure 2: Portsmouth: Total Households 1931-2001

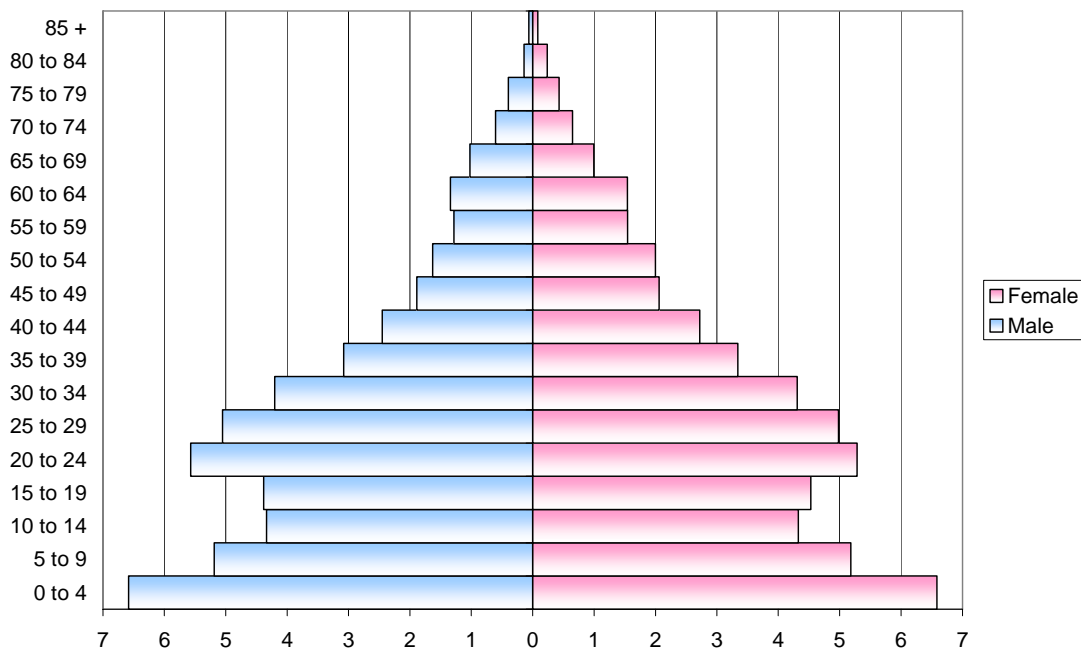


Population by Age and Sex

The population pyramids shown in Figures 3 to 10 illustrate the age and sex structure of Portsmouth for selected years from 1851 to 2001. The pyramids show the population ageing over time as more people occupy the older age groups. These changes are caused by a move towards low fertility and improvements in mortality rates over the period. The impacts of two World Wars on the young adult male population can be seen in the pyramids. Also visible are the children born in the post-Second World War and 1960's baby booms moving through the age structure over time.

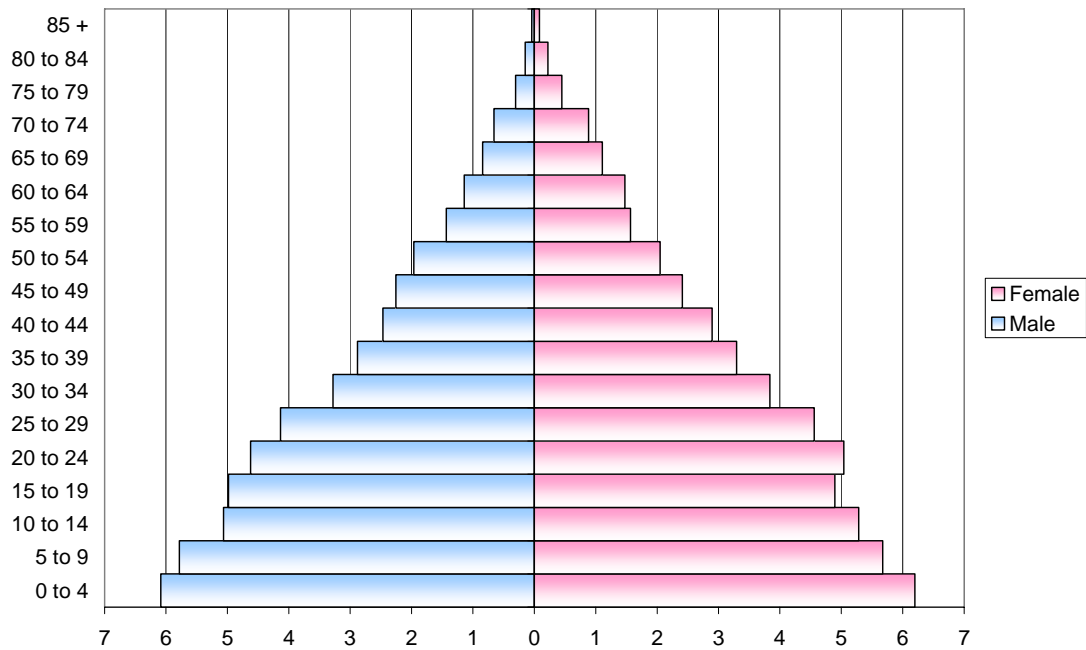
In Portsmouth in 1851 one would have expected to see a triangular shaped population pyramid with the largest proportions of the population occupying the younger age groups and reducing proportions with increasing age, as seen in the pyramid for 1891 (Figure 4). However, there is a smaller cohort of children in this pyramid than might be expected and a cholera epidemic in the city in 1848 may have been partially responsible for this (Figure 3). Life expectancy at this time would have been around 40 and 42 years for males and females respectively across England and Wales and the national TFR was almost 5 children per woman. In Portsmouth, the IMR was around 130 per 1,000 live births.

Figure 3: Portsmouth: Population Pyramid, 1851



In 1891 Portsmouth's population pyramid was pyramid shaped, with a larger proportion of the population occupied by children than by the elderly (Figure 4). National life expectancy had increased to around 44 years for men and 48 years for women, and TFR was around 4 children per woman.

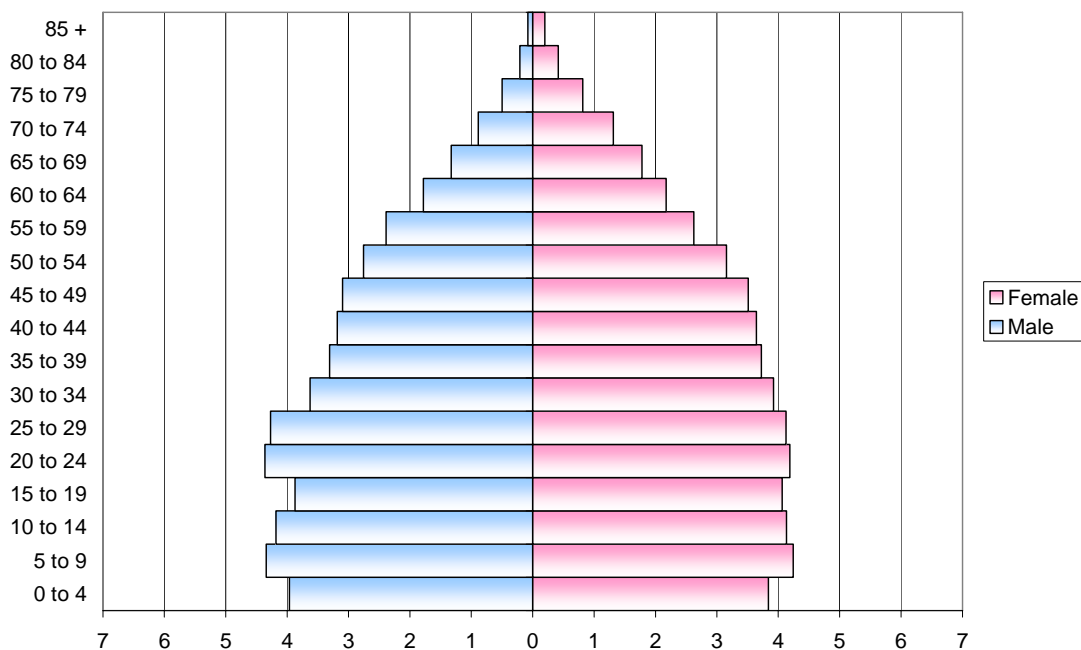
Figure 4: Portsmouth: Population Pyramid, 1891



A lower birth rate during the 1930s recession and World War I meant there was a smaller cohort of children in the 1931 Census (Figure 5). The TFR fell to around 2 children per woman in England and Wales in the 1930s. The decline in TFR which started nationally from 1870 was followed by a fall in the infant mortality rate (IMR). Portsmouth's IMR began to decline at the turn of the 20th Century and fell from approximately 125 deaths per 1,000 live births in 1911 to just below 60 per 1,000 live births in 1931. Meanwhile national life expectancy at birth increased to around 59 years for men and 63 years for women. These factors give rise to the pyramid becoming more rectangular.

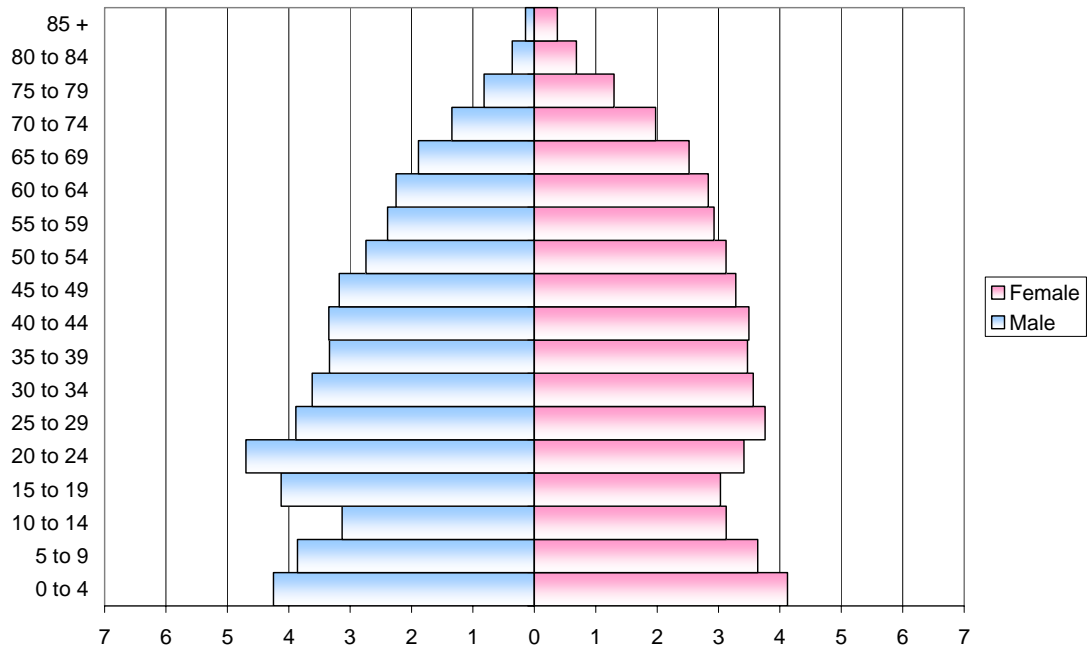
The effects of the First World War on the adult population are also visible, with a larger proportion of the population occupied by the female than the male population (Figure 5).

Figure 5: Portsmouth: Population Pyramid, 1931



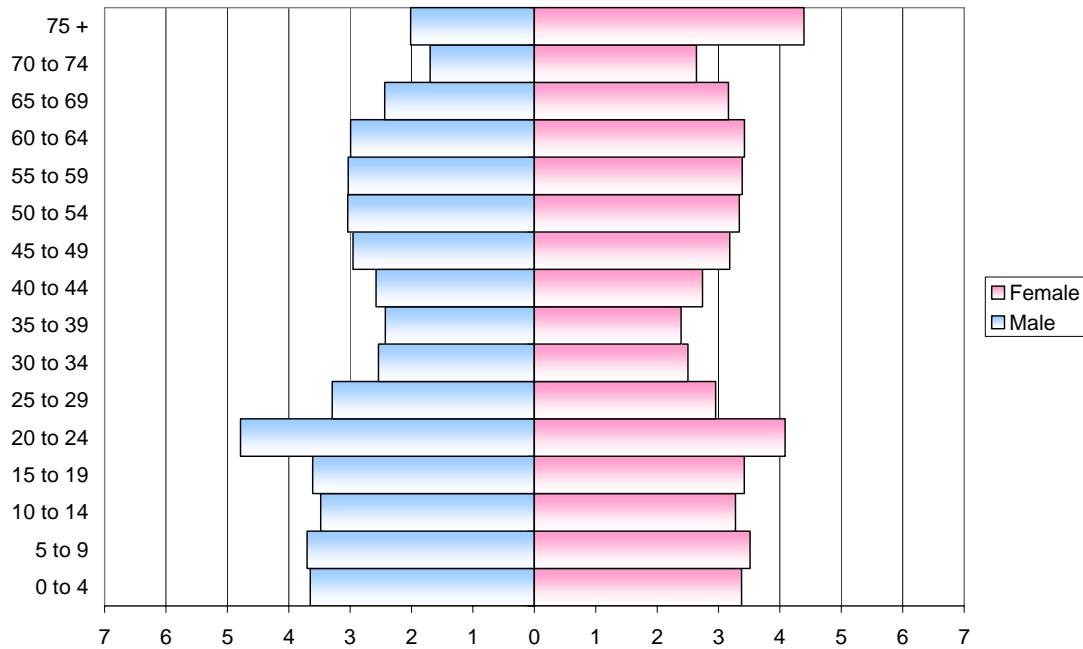
By 1951 the pyramid was starting to lose its shape, as the smaller cohorts born during the 1930s recession and the two World Wars were followed by a larger post-war cohort – the Second World War ‘baby boomer’ cohort. A larger proportion of the population were beginning to survive into the older age groups, especially women. Life expectancy stood at almost 67 years for males and 71 years for females.

Figure 6: Portsmouth: Population Pyramid, 1951



In the 1971⁵ Census the population pyramid became much more rectangular, with larger cohorts born during the 1960s baby boom boosting the younger population. This boom peaked with a TFR of 2.93 for England and Wales in 1964. The impact of the rise in the birth rate in the 1960s is accentuated by the smaller cohorts aged 30-44 years, the result of a lower birth rate during the 1930s recession and the two World Wars (Figure 7).

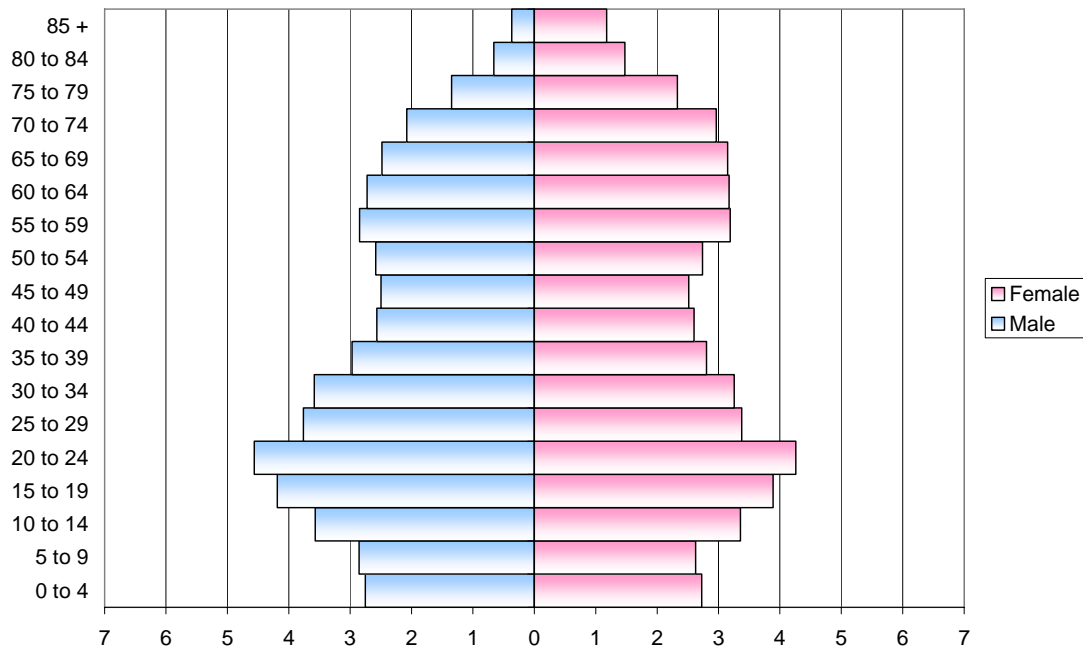
Figure 7: Portsmouth: Population Pyramid, 1971



⁵ The upper age bracket of the 1971 pyramid is different to that used in the other pyramids, due to data availability.

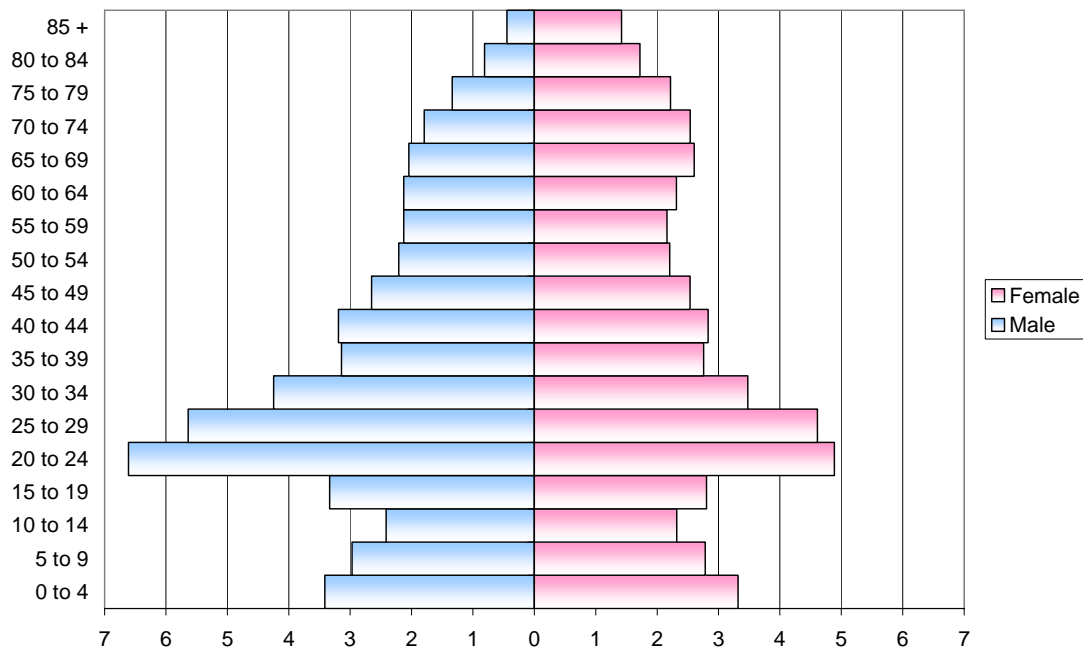
In the 1970s the birth rate fell and in 1977 there was a national birth trough and TFR in England and Wales fell to 1.66 births per woman. This resulted in much smaller percentages of the population occupying the child age groups at the time of the 1981 census (Figure 8). The children born in the 1960s boom now occupy the young adult ages, while the effects of two World Wars and the 1930s recession can still be seen in the older adult ages. Life expectancy at birth now stood at around 70 and 76 years for males and females respectively and the IMR in Portsmouth had fallen to around 10 deaths per 1,000 live births.

Figure 8: Portsmouth: Population Pyramid, 1981



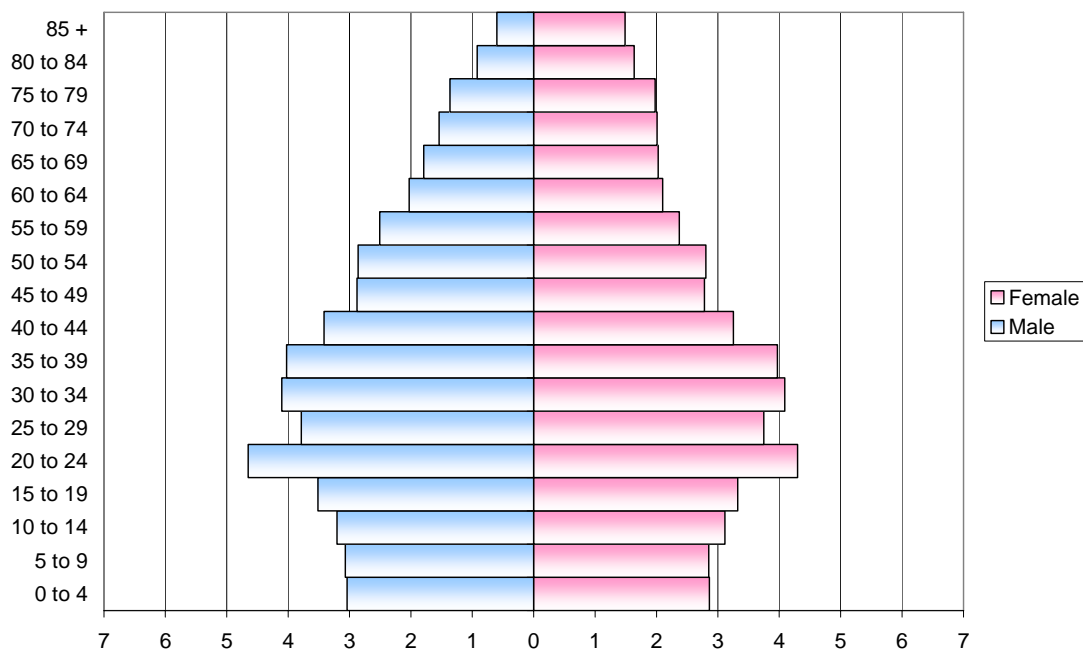
In 1991 the population pyramid contained a large bulge in the 20-29 age group, particularly amongst males, suggesting a young work force in the city. The percentage of the population occupied by those aged 0-4 years also increased due to the large numbers of people in the child bearing age groups (including the arrival of the 1960s baby boomers into those child bearing ages). This, coupled with fears over the safety of the contraceptive pill, resulted in a slight recovery in the TFR, which was 1.82 nationally in 1991.

Figure 9: Portsmouth: Population Pyramid, 1991



When the last census was taken in 2001, the pyramid took a very different shape to that seen in 1851 (Figure 3). The slight bulge in the population aged 20-24 is likely to be caused by a change in the definition of students, whereby they are now counted at their term time address rather than their home address. A part from the student bulge there have been no large fluctuations in the population since the 1960s baby boom. The generations below the 1960s boomers appear smaller, but more consistent, across the age groups. There are a similar percentage of children and elderly people in the population. It is also clear that the increase in the percentage of the population surviving into old age favours women more than men. In 2001 life expectancy was around 76 years for males and 80 years for females nationally and TFR in England and Wales fell to a low of 1.63. The IMR in Portsmouth was around 8 per 1,000 live births.

Figure 10: Portsmouth: Population Pyramid, 2001



Working Age and Dependent Populations

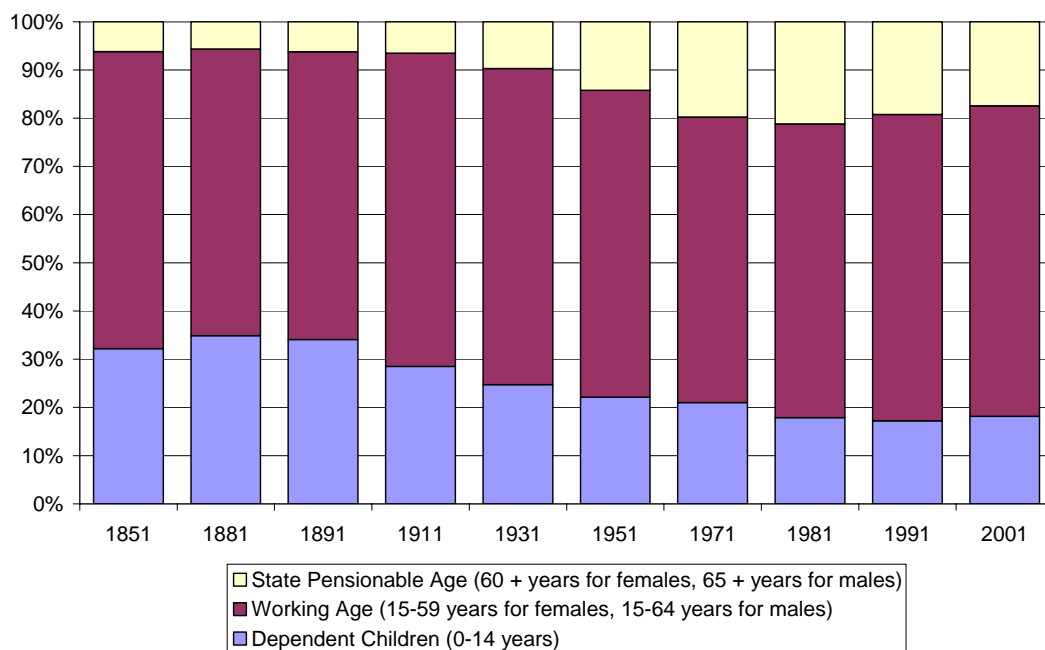
Figure 11 shows the changes from 1851-2001 in the population broken down into three broad age groups – children⁶; those of working age⁷; and those of state pensionable age⁸.

The percentage of the population occupied by children declined in each census between 1881 and 1991, falling from 34.9 % to 17.2 %, before a slight rise to 18.1 % in 2001.

The percentage of the population in the working age group has remained fairly stable over the period, ranging from a high of 65.6 % in 1931 to a low of 59.2 % in 1971, before arriving at 64.4 % in 2001.

In many census years (excluding 1881, 1991 and 2001) the percentage of the population of state pensionable age increased, rising from 6.2 % in 1851 to 17.5 % in 2001, only marginally smaller than the child population of 18.1 %.

Figure 11: Percentage of the Population by Broad Age Groups, Portsmouth, 1851 to 2001



⁶ Aged 0-14 years.

⁷ Working age describes females aged 15-59 years and males aged 15-64 years. The data is only available in 5 year age groups, and so a more detailed breakdown cannot be provided.

⁸ A state pensionable age of 60 years for females and 65 years for males was introduced in the 1946 National Insurance Act.

Changes in the age distribution represented by dependency ratios are shown in Table 1. The dependency ratio represents the ratio of the non-working age population to those of working age. It provides a basis for identifying the number of non-working age people per 100 of working age⁹.

The total dependency ratio decreased from 1891 to 1931 before rising in 1951 and 1971 due to the Post-War and 1960s baby boom. Since 1971 the total dependency ratio has declined, largely because of a declining birth rate and was 55 in 2001.

The child dependency ratio has declined in most years since the 1891 Census, while the old age dependency ratio increased between 1851 and 2001 from 10 to 27, despite fluctuations in the intervening years. This has led to a shift in the age of the dependent population, from large numbers of children in the 1850s to large numbers of elderly people in the 2000s.

Table 1: Total, Child and Old Age Dependency Ratios, Portsmouth, 1851 to 2001

Year	Total Dependency Ratio	Child Dependency Ratio	Old Age Dependency Ratio
1851	62	52	10
1881	68	59	10
1891	67	57	10
1911	54	44	10
1931	52	38	15
1951	57	35	22
1971	69	35	33
1981	64	29	35
1991	57	27	30
2001	55	28	27

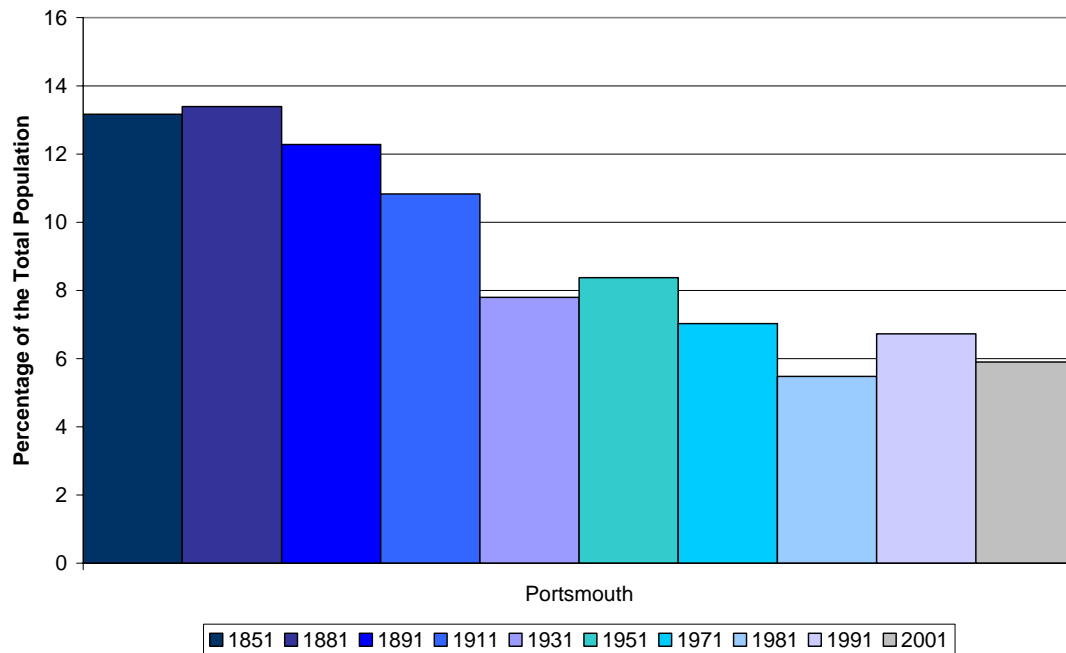
⁹ The Dependency Ratio is the ratio of children and those of state pensionable age to the working age population (defined as 15-59 years for females and 15-64 years for males).

The Child Dependency Ratio is the ratio of children (aged 0-14 years) to the working age population. The Old Age Dependency Ratio is the population of state pensionable age (females aged 60 years and over and males aged 65 years and over) against the working age population.

Pre-School Age Population

Figure 12 shows the percentage of the population in Portsmouth that is pre-school aged (0-4 years). Overall, Portsmouth experienced a decline in the proportion of the population that was pre-school aged between 1851 and 2001, although there were increases in the 1881, 1951, and 1991 Censuses. The largest percentage of the population occupied by pre-school aged children was 13.4 % in 1881, the smallest percentage was 5.5 % in 1981.

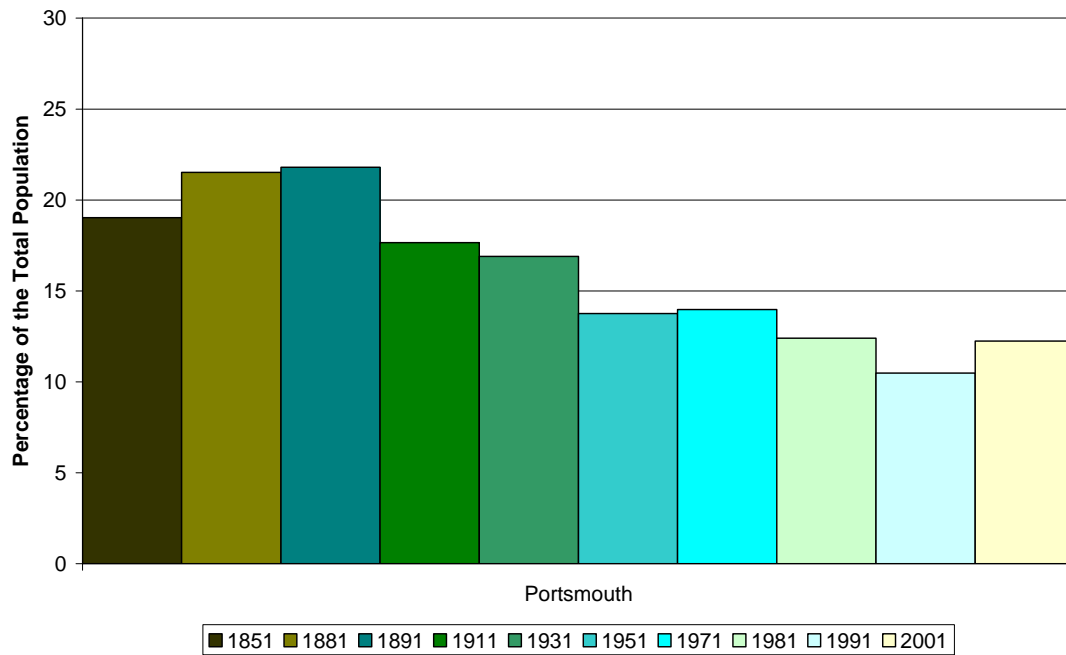
Figure 12: Portsmouth: Percentage of the Total Population that is of Pre-School Age (0-4 years), 1851-2001



School Age Population

Figure 13 shows the percentage of the population in Portsmouth that is school aged (5-14 years). There has been a decline in the percentage of the population occupied by school aged children from 1851 to 2001. However, there were rises in the 1881, 1891, 1971 and 2001 census years. The largest percentage of the population occupied by this group was 21.8 % in 1891, the smallest was 10.5 % in 1991.

Figure 13: Portsmouth: Percentage of the Total Population that is of School Age (5-14 years), 1851-2001

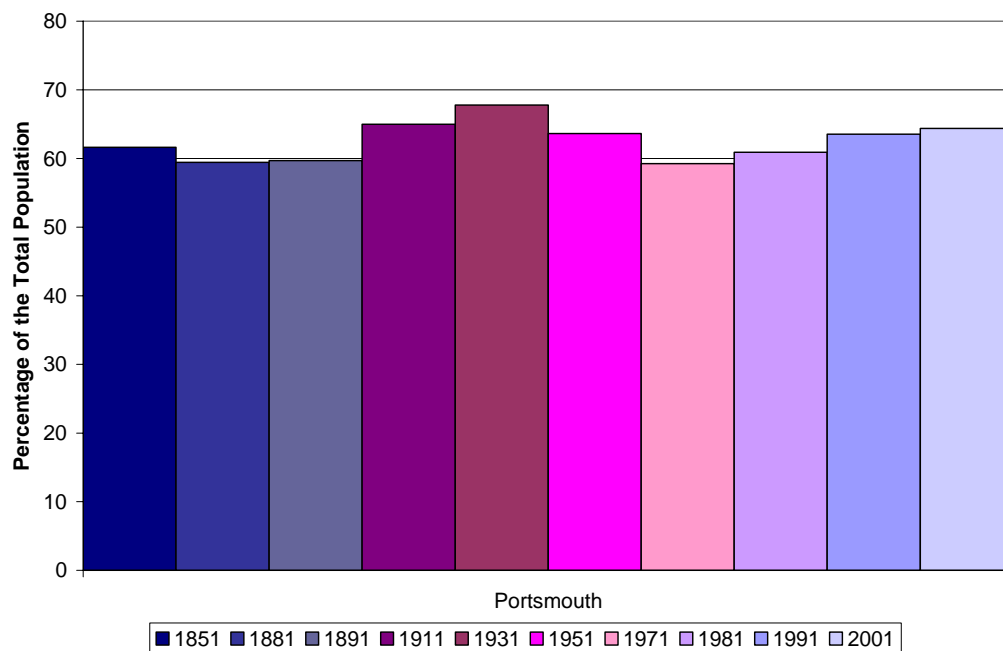


Working Age Population

The percentage of the population in the working age group (aged 15-59 years for females and 15-64 years for males) has varied the least over the census years.

From 1881 to 1931 the percentage of the population in the working age group increased, rising from 61.6 % to 67.8 %. This rise could be explained by the smaller number of children being born in relation to the numbers entering the working age groups. In contrast, as the birth rate increased during the post-war and 1960s baby booms, the percentage of the population occupied by the working ages decreased, and this is seen in the 1951 and 1971 censuses. The percentage of the population living into the older age groups also began to increase markedly from 1951. The smallest percentage in the working age group was 59.2 % in 1971, possibly due to the rising percentage of children and elderly people in the population (Figure 14).

Figure 14: Portsmouth: Percentage of the Total Population that is of Working Age (15-59 years for females, 15-64 years for males), 1851-2001

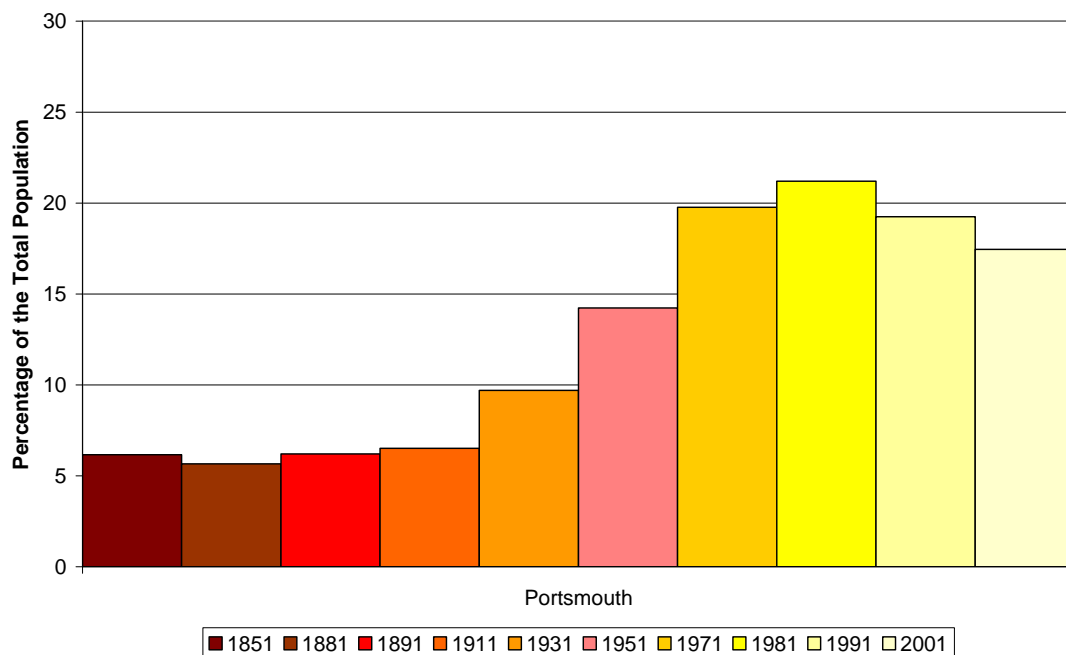


State Pensionable Age

Portsmouth saw a rise in the percentage of its population that was over state pensionable age¹⁰ (60 and over for females and 65 and over for males), between 1851 and 2001, as shown in Figure 15. This shows that the population has aged over the time period. However, there were fluctuations between these two dates, with Portsmouth experiencing declines in 1881, 1991 and 2001. The smallest percentage of the population occupying this age group was 5.7 % in 1881 and the largest percentage was 21.2 % in 1981.

The rise in the percentage of the population surviving into the older age groups is attributable to the decline in deaths caused by infectious diseases and the shift to an increasing percentage of deaths due to degenerative conditions. The relatively rapid decline of the IMR in Portsmouth and nationally, from over 125 per 1,000 live births at the turn of the 20th Century to below 10 in 2001, is reflected in the increasing percentages of the population surviving into state pensionable age.

Figure 15: Portsmouth: Percentage of the Population that is of State Pensionable Age (60+ years for females, 65+ years for males), 1851-2001

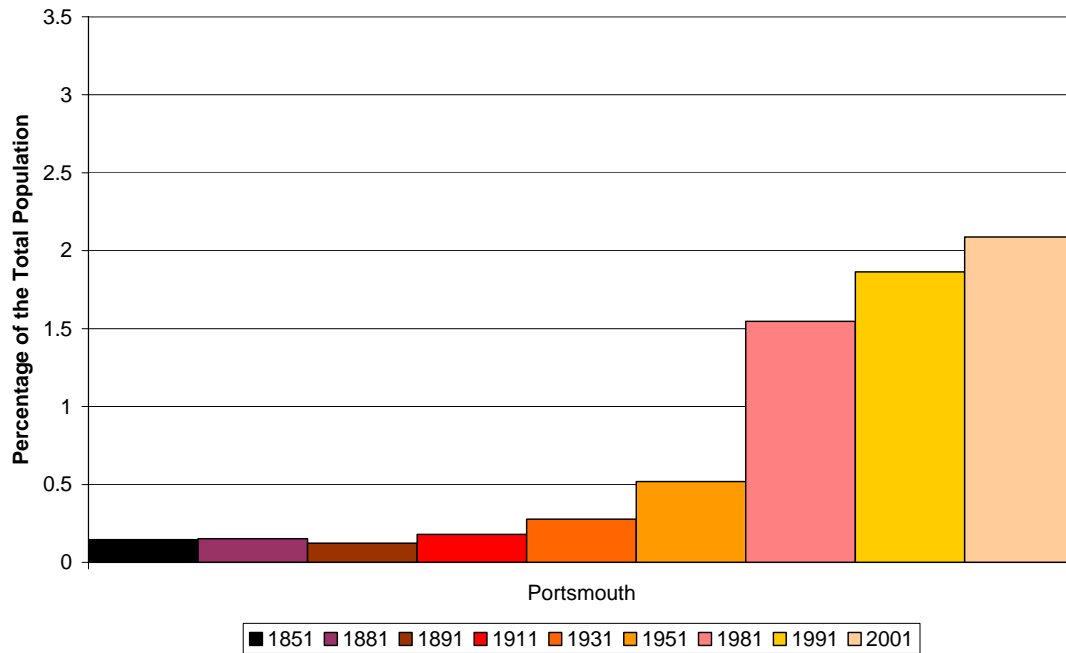


¹⁰ A state pensionable age of 60 years for females and 65 years for males was introduced in the 1946 National Insurance Act.

The Very Old

When looking at the very old (aged 85 plus) the trend of an ageing population continues (Figure 16), with Portsmouth showing a large increase in the percentage of its population aged 85 years and over in each census year (excluding 1891). This figure has increased from 0.15 % in 1851 to 2.09 % in 2001, a percentage increase of 1,333 %.

Figure 16: Portsmouth: Percentage of the Population that is Very Old (85 years and over), 1851-2001



Appendix 1

A Vision of Britain Through Time – redistricting census data.

The 2001 Census data on *A Vision of Britain Through Time* is presented for the geographical boundaries that it was collected for, as these are Portsmouth's current boundaries. However, the boundaries of Portsmouth have changed over time, and to maintain comparability it was necessary for *A Vision of Britain Through Time* to offer redistricted historical census data for Portsmouth's modern boundaries.

A Vision of Britain Through Time presents two methods of redistricting census data:

- From 1971-1991 the website makes use of the Linking Censuses Through Time System. This assumes the whole of an historical ward is contained within the modern district if this district contains the ward's centre. The populations of all the wards that have their centre within the modern district boundary are then added together to create the modern district population. This system was developed by Danny Dorling at Sheffield University.
- Before 1971 the website makes use of the population of historical parishes. The population of these parishes in a previous census year is assigned to modern districts by working out the proportion of their area that is contained within the modern district's boundaries. The method assumes that the population of the parish is spread evenly within the parish. This proportion is then applied across all ages, and so assumes that the age distribution is also constant across the parish. These figures were calculated by the GB Historical GIS project.

For more information regarding the redistricting of the data please visit the *A Vision of Britain Through Time* website at the following location.

http://www.visionofbritain.org.uk/footer/doc_text_for_title.jsp?topic=faq_content&seq=4

A Vision of Britain Through Time – Infant Mortality Rate Data.

The website presents redistricted IMR data for previous census years, this data originally came from the following sources.

1851: Registrar General's Annual Report for 1851 - Registration District-level data.

1881: Registrar General's *Quarterly Returns*, summing over the four quarters of 1881 -sub-District-level table.

1911: Registrar General's *Annual Report* for 1911 - Local Government District-level table.

1921-1951: Registrar General's *Statistical Review*, Part I, *Medical* for each year.

1981-1991: Danny Dorling supplied the website with redistricted statistics for the whole of Great Britain.

2001: Office for National Statistics. Supplied by Peter Congdon of Queen Mary, University of London. This data is presented for the same geographical area as it was collected for.

For more detailed information about the IMR data please go to the Life and Death Sources Page on the Vision of Britain website:

http://www.visionofbritain.org.uk/theme_sources.jsp?u_id=99&c_id=99&data_theme=T_VITAL