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The Demography of Ageing and Future Policy Impacts: a Northern Ireland Perspective

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Abstract: The Northern Ireland population is ageing as a result of long-term falls in fertility rates and long-term improvements in mortality rates. This will create changes in the make-up of the Northern Ireland population. Most notably it is projected that the ageing of the Northern Ireland population over the next five decades will be the fastest in the United Kingdom. In the 1937 Census the older population (those aged 65 and over) was recorded at just under 116,000 (nine per cent of the population). This compares with 2009 with almost 255,000 older people (14 per cent of the population). Population ageing is likely to be faster over the next 30 years, with older people projected to reach half a million by 2041 (24 per cent of the population). Over the last century mortality rates have declined, people are therefore living longer and dying of different diseases today than in the past. The majority of those aged 65 and over were simply recorded as dying of old age in 1922, but by 2009, those aged 85 and over are more likely to die due to diseases of the circulatory system followed by diseases of the respiratory system. Calculations for life expectancy and limiting long term illness-free life expectancy show that on average males can expect to live 76.6 years with 80 per cent or 61.5 years limiting long term illness-free, while females can expect to live for 81.3 years with 77 per cent or 62.3 of those years limiting long term illness-free. Based on current trends after the age of 65 the Northern Ireland population is expected to spend around half of their remaining years in poor health

Keywords: demography, ageing, life expectancy, Northern Ireland
JELs: J11, J14

1. INTRODUCTION

One of the most significant changes in the make-up of the Northern Ireland population has been the relative ageing of the population. Population ageing is not unique to Northern Ireland; indeed it is being witnessed across the world. The reasons for population ageing vary. In some countries ageing is primarily due to increased longevity whilst in other countries the driving force is falling fertility levels.

Northern Ireland has witnessed both of these phenomena. There have been significant falls in fertility rates from on average four or more children per woman to around two today. This has been coupled with increased life expectancy, with improvements to public health, health care provision, nutrition and sanitation being instrumental.

These improvements, whilst extremely welcome, will create changes in the make-up of the Northern Ireland population. Most notably it is projected that the ageing of the Northern Ireland population over the next five decades will be the fastest in the United Kingdom [1].

Population ageing will have an impact on the wider society in Northern Ireland. In areas such as grandparents caring for their grandchildren, more opportunities for older people to work until later in life and a host of other changes. Government has had to respond to these changes in a number of areas of social and economic policy. Most notable are changes in the economic sphere, with increases in state pension age brought about by the Turner Pensions Commission [2] and more recently the United Kingdom Government consultation on phasing out the default retirement age [3].

Locally, the Northern Ireland Government in 2005 published "Ageing in an Inclusive Society" [4]. The strategy sought to promote greater inclusion of older people in Northern Ireland in society. The strategy forms part of the wider equality agenda; with age being one of the areas assessed by the Equality Commission for Northern Ireland.

In this context it is important that the demographic evidence base around population ageing is available for policy makers, politicians and the wider society. This will help ensure that future changes in policy are evidence based.

This paper looks at population ageing in detail with specific emphasis on the changing age structure of the Northern Ireland population and the numbers of older people. This paper is split into various sections looking at: the different definitions of ageing; an insight into why the population is ageing; comparisons of the ageing population across the United Kingdom, the European Union and the Rest of the World; life expectancy and healthy life expectancy; and, projections for the older population and living arrangements for the older population.

2. DEFINITIONS

It is important to recognise that older people are a disparate group and that ageism both towards old and young people exists in society and this needs to be addressed through better information, advice and legislation where appropriate. Allied to this is the concept that it is perhaps incorrect to categorise people with respect to their age. Indeed descriptors of chronological age are very much a subjective issue; what is young or old for one person may not be for another. However, age is used across society and is recorded effectively. Therefore whilst accepting the general point it has been necessary to adopt some standard age-related classifications solely around chronological age.

For the purposes of this paper a number of definitions are used. Firstly, a general definition, the older population are those aged 65 and over, with the youngest old those aged 65 to 84 years and the oldest old those aged 85 and over. This definition of the oldest old is used across the developed world [5].

Secondly, in terms of state pension in the United Kingdom, up until 5 April 2010 women aged 60 and over and men aged 65 and over were eligible for the state pension and are thus of "pensionable age". People of working age are thus defined as women aged 16 to 59 years and men aged 16 to 64 years, whilst children are defined as those aged under 16.

From 2020 onwards, women will only be eligible for the state pension when they are aged 65 and over. The change in pension rules for women will be introduced incrementally over the period 2010 to 2020. The Pension Commission, an independent body, was established by the Government to assess the United Kingdom pensions and retirement savings system and to advise the Government on the present state pension system [2]. On the current timetable, set in 2007, the pension age is due to rise to 66 years by 2026, to 67 years by 2036 and to 68 years by 2046 for both males and females [6]. However, following the Pension Commission reports, the United Kingdom Government are currently consulting on this and are actively considering the impact on the demographic and economic situation. To help ensure sustainability of the pension system over the long term the UK Government will be considering the future timing of increases to the state pension age [3]. It seems possible that there may be further increases to the definition of state pension age.

Given these changes this paper primarily uses the definition of older persons (aged 65 and over) and not pension age. Occasionally, current working age and current pensionable age will be used (i.e. prior to the 5 April 2010 change). All age-related definitions are summarised in Box 1 below.

Box 1: Age-related classifications used in this paper

Children:	***Those aged under 16 years***
Current Working Age:	***Women aged 16 to 59 years and men aged 16 to 64 years***
Current Pensionable Age: (2009 definition)	***Women aged 60 and over and men aged 65 and over***
Older Population:	***All persons aged 65 years and over***
Youngest Old Population:	***All persons aged 65 to 84 years***
Oldest Old Population:	***All persons aged 85 years and over***

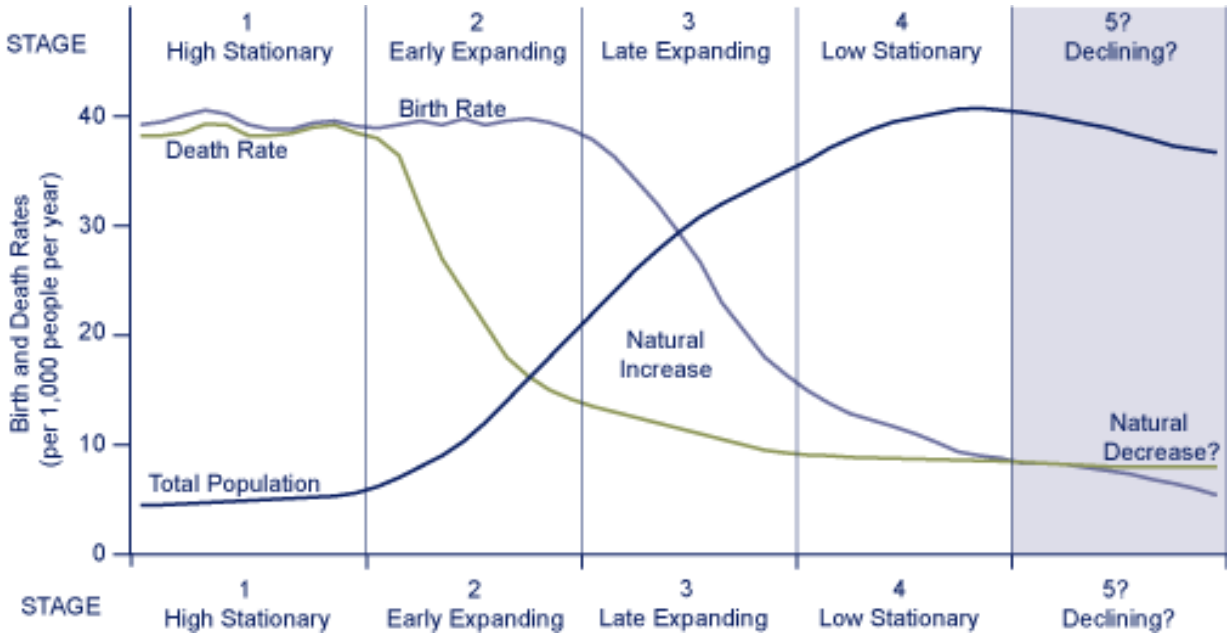
Finally the term 'ageing' as used in this paper covers two factors: not only the ageing of the population i.e. the general increase in the average or median age of the population, but also the increasing number of people reaching old age.

3. DEMOGRAPHY BEHIND THE AGEING POPULATION

Population ageing is expected to be one of the most prominent global demographic trends of this century and widespread across the vast majority of countries of the world. In Northern Ireland, between the 1937 Census and the latest 2010 population estimates, the older population increased from just under 116,000 (nine per cent of the population) to 260,000 older people (14 per cent of the population). Population ageing is likely to be faster over the next 30 years, with older people projected to reach half a million by 2041 (24 per cent of the population). The future increases in ageing should therefore be seen as a continuation of a long-run trend rather than a new phenomenon.

Demographers attribute population ageing to a number of "demographic transitions" or gradual processes where a society moves from a situation of high to low rates of fertility and mortality in stages (see Figure 1). The first stage is high fertility and mortality rates. In the second stage, the population begins to increase as mortality rates fall due to a decline in infant and childhood mortality, while fertility rates still remain high. At the third stage the population still increases but begins to age when fertility declines and adult mortality rates improve. This lowering of mortality results in more children surviving and thus people having larger surviving families. People eventually react to this increased survival of children by having fewer children per family and this drop in family size becomes much larger than the improvement due to infant survival. At stage four the population begins to stabilise as both the fertility and mortality rates are low, this is the current situation in Northern Ireland. There may be a fifth stage, which Northern Ireland has not experienced, where the population will begin to decline and age with mortality rates being greater than fertility rates. This is currently the case in Germany, where deaths exceed births by 2.2 per 1,000 inhabitants in 2010 [7].

Figure 1: Chart showing the stages of demographic transition[1]



[1] The demographic transition chart is available at:
http://www.nssgeography.com/worldissues%20web/Unit%20population/What%20is%20the%20Demographic%20Transition%20Model.htm

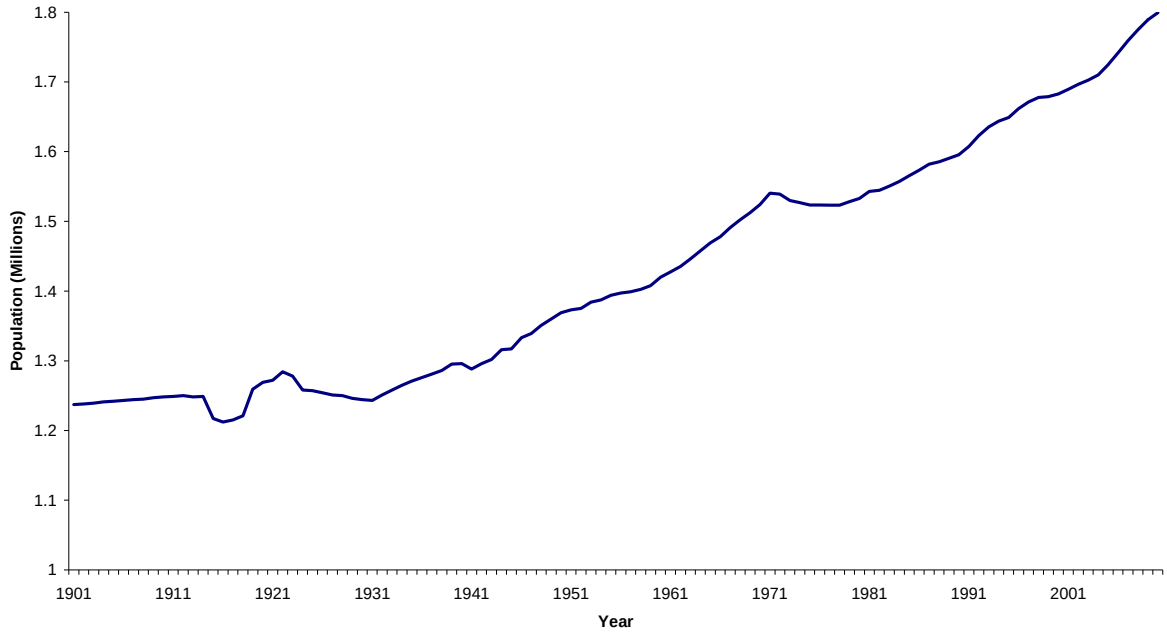
The process of population ageing is primarily driven by fertility and mortality rates. In Northern Ireland, there have been falls in both fertility and mortality rates since the early 1900s and these sustained levels of lower fertility and higher life expectancies have resulted in increases in the proportion of older people in the population. The next section details the population in Northern Ireland and relates this position to the United Kingdom, the European Union and the Rest of the World.

4. AGEING DEMOGRAPHY OF NORTHERN IRELAND, THE UNITED KINGDOM, THE EUROPEAN UNION AND THE REST OF THE WORLD (PAST AND PRESENT)

Northern Ireland

The population of Northern Ireland is growing in size. In 1901, the regions of Ireland which eventually formed Northern Ireland in 1922, had a combined population of 1.24 million people; by the 1937 Census the population had increased to 1.28 million, it reached 1.4 million in 1956, 1.6 million by 1990, and was just short of 1.8 million in 2010. The change in population can be seen in Figure 2.

Figure 2: Northern Ireland population (1901-2010) – non-zero y-axis



The population growth has not been consistent across all age-groups. In 1937, the median age of the Northern Ireland population was 28.6 years; it reached 30.1 years by 1987 and by 2010 it had increased to 36.7 years, thus showing that on average the population of Northern Ireland has become markedly older. Figures 3 and 4 show the population age distributions for males and females from the 1937 Census and 2010 mid-year population estimates respectively.

Figure 3: Northern Ireland population pyramid, 1937 Census

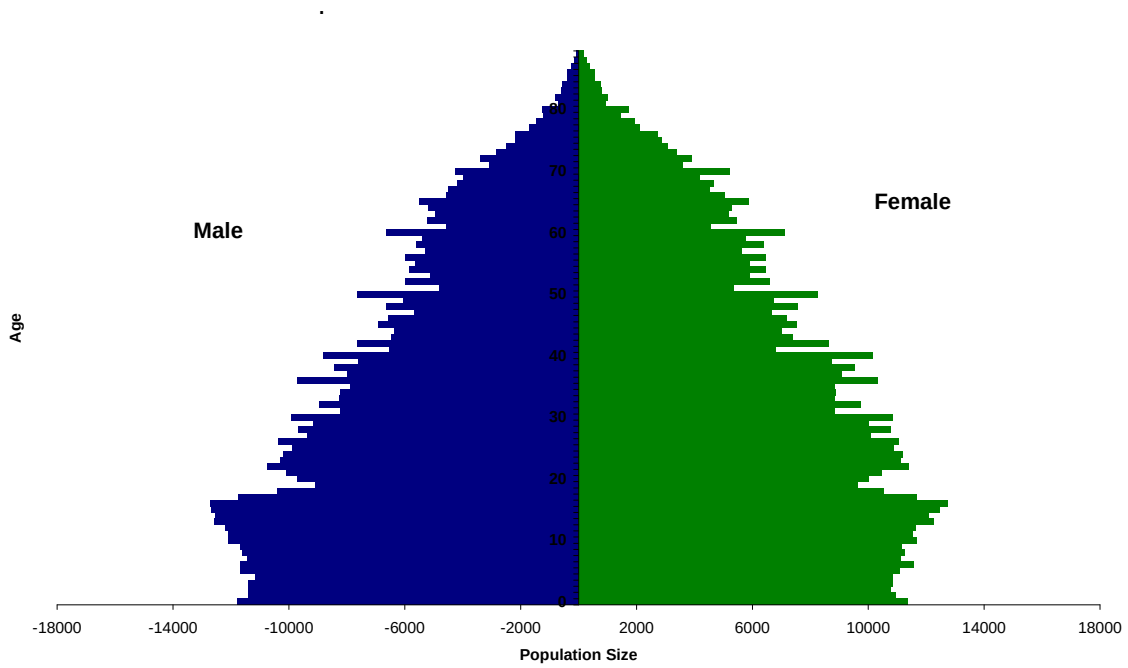
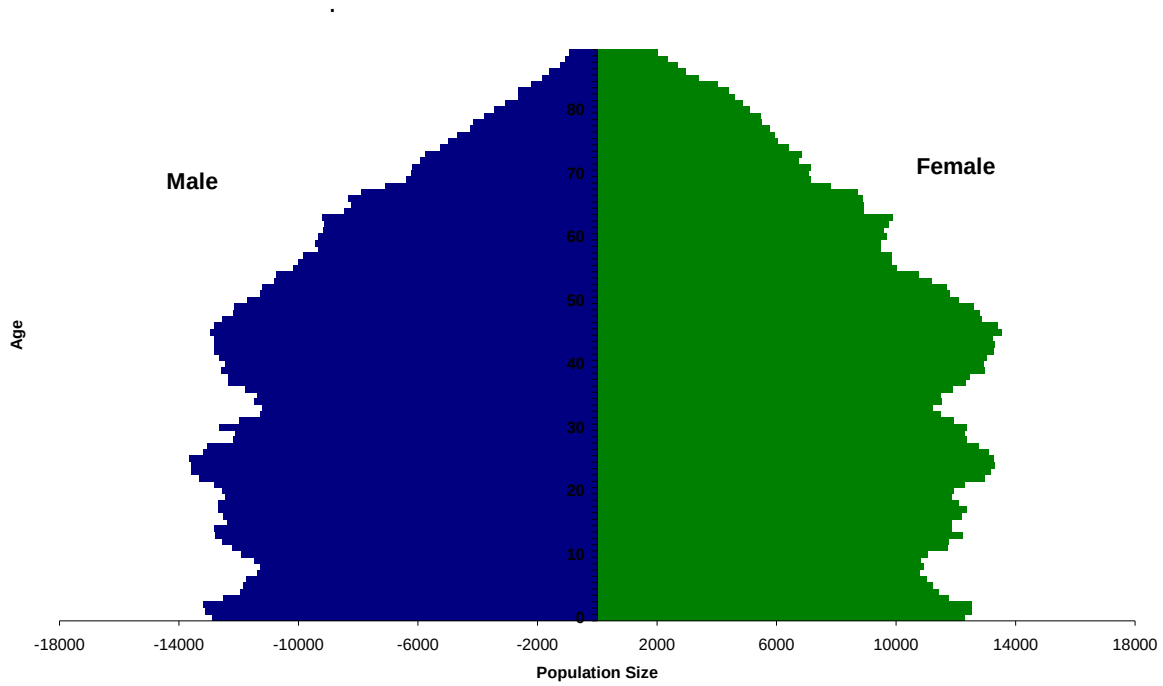


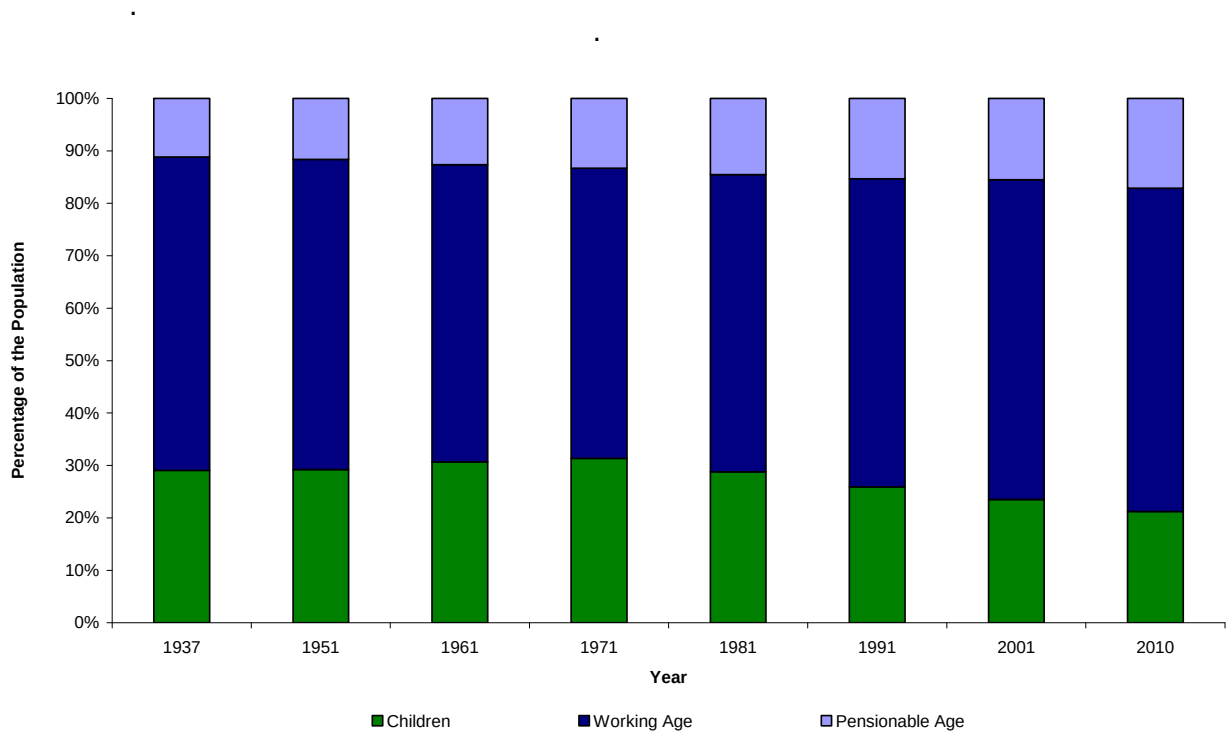
Figure 4: Northern Ireland population pyramid, 2010 mid-year population estimate



The age structure of the Northern Ireland population has been changing over time. The number of children increased between 1937 and 1971 from 372,100 to 482,700 as a result of a baby boom in the years following the Second World War. Since 1971, lower fertility levels have resulted in a 21 per cent decrease in the number of children aged 0-15 years to 382,000 by 2010. When fertility starts to decline this causes the population to age.

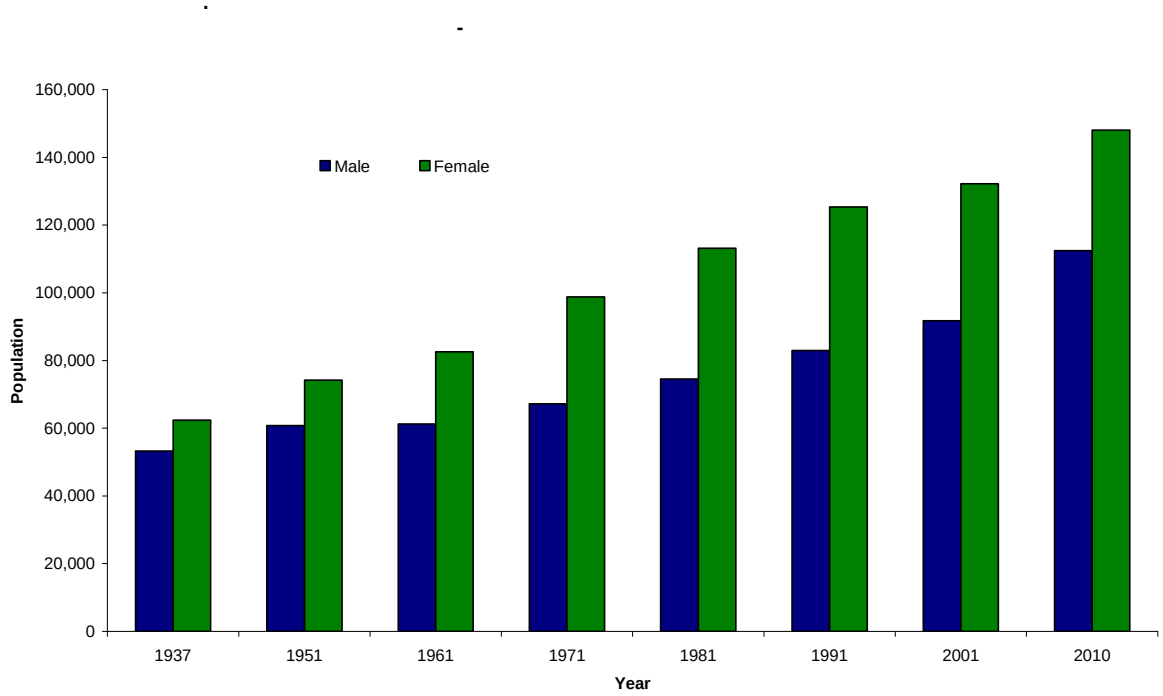
In contrast to children, the number of people of current working age has increased by 45 per cent from 764,400 to 1,109,100 between 1937 and 2010; and those of current pensionable age have increased by 115 per cent from 143,200 to 308,300 between 1937 and 2010. The changing age structure of the population since 1937 is illustrated in Figure 5.

Figure 5: Changing age structure of the Northern Ireland population (1937 to 2010) – non-standard interval x-axis



Between 1937 and 2010 the older population (aged 65 and over) increased by 125 per cent or 144,900 people from 115,600 to 260,500 older persons. In 1937 the older population represented nine per cent of all the people in Northern Ireland; by 2010 this had increased to 14 per cent. Within the figure the older male population more than doubled between 1937 and 2010 while the older female population increased by 137 per cent. The change is shown in Figure 6.

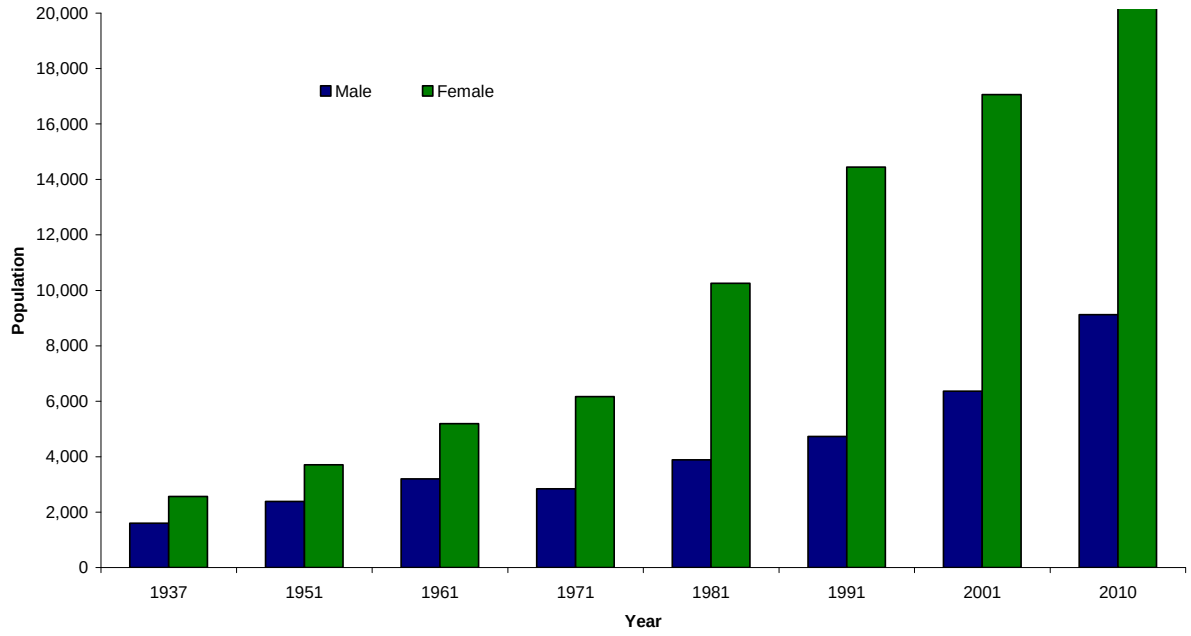
Figure 6: Older population (aged 65 and over) in Northern Ireland, by sex (1937 to 2010) – non-standard interval x-axis



Within the older population the number of youngest old (65 to 84 years) doubled from 111,500 in 1937 to 230,800 in 2010. In 1937 the youngest old made up nine per cent of the population and by 2010 they made up 13 per cent.

More markedly the number of oldest old (aged 85 and over) increased almost seven fold, from just under 4,200 in 1937 to 29,700 in 2010. In terms of representation the oldest old have increased from 0.3 per cent of the population in 1937 to 1.6 per cent in 2010. Figure 7 shows the scale of the increase over the period.

Figure 7: Oldest old population (aged 85 and over) in Northern Ireland, by sex (1937 to 2010) – non-standard interval x-axis

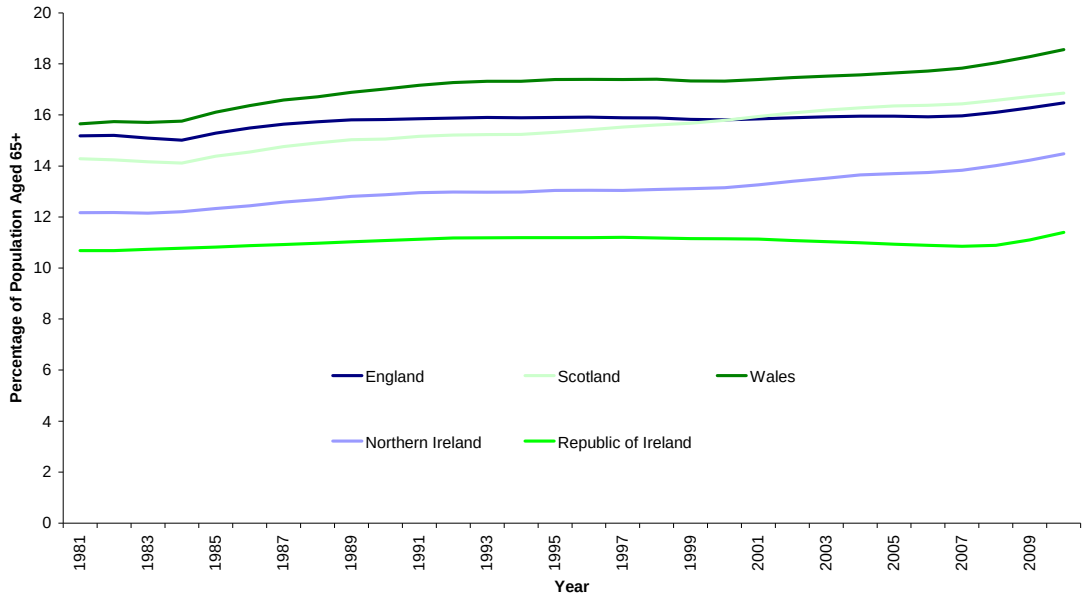


Northern Ireland Comparisons with the United Kingdom, European Union and the Rest of the World

Northern Ireland has a younger population than the other parts of the United Kingdom; this is primarily because Northern Ireland's fertility rate has remained higher than the other parts of the United Kingdom. The latest population estimates, the 2010 mid-year estimates, show that Wales has proportionally the largest older population with 19 per cent of its population aged 65 and over, followed by Scotland on 17 per cent, England on 16 per cent and Northern Ireland with 14 per cent. In contrast, the Republic of Ireland has an even younger population than the United Kingdom, with just 11 per cent representing the older population.

Figure 8 shows that historically there was also a difference between Northern Ireland and the other parts of the United Kingdom in older population representation. However this difference has remained constant over the last 30 years. In contrast, the share of older people in the Republic of Ireland population has been decreasing slightly over recent years and is now diverging from the United Kingdom experience.

Figure 8: Percentage of the older population (aged 65 and over) in England, Scotland, Wales, Northern Ireland and the Republic of Ireland (1981 to 2010)



Looking at other countries in the European Union (EU27) over the last decade using Eurostat data [8], in 2000 Italy had the largest proportion of older people in its population at 18 per cent. By 2010 Germany had the highest proportion of older people at 21 per cent. While at the other extreme Cyprus, the Republic of Ireland and Slovakia had the smallest percentage share of the older population in 2000 at 11 per cent. In 2010 the Republic of Ireland had the smallest proportion which remained at 11 per cent over the decade.

In world terms, in 1950, there were 131 million older people according to UN data [9]. At that time, only three countries had more than 10 million older people: China (24 million), India (12 million), and the United States of America (13 million). Fifty years later, by 2000, the number of older people had increased three fold to 417 million. In 2000, four countries had more than 20 million older people: China (86 million), India (44 million), Japan (22 million) and the United States of America (36 million). Over the first half of the 21st century, the global older population is projected to expand three fold to reach nearly 1.5 billion in 2050.

As the world older population has grown faster than the total population, the proportion of older persons relative to the rest of the population has increased considerably. At the global level, almost one person in every 20 was aged 65 and over in 1950. By the year 2000, this ratio had increased to almost one person in every 15. By the year 2050, one person in every six throughout the world is projected to be aged 65 and over as shown in Figure 9.

Figure 9: World older population and percentage of the world population aged 65 and over (1950-2050)

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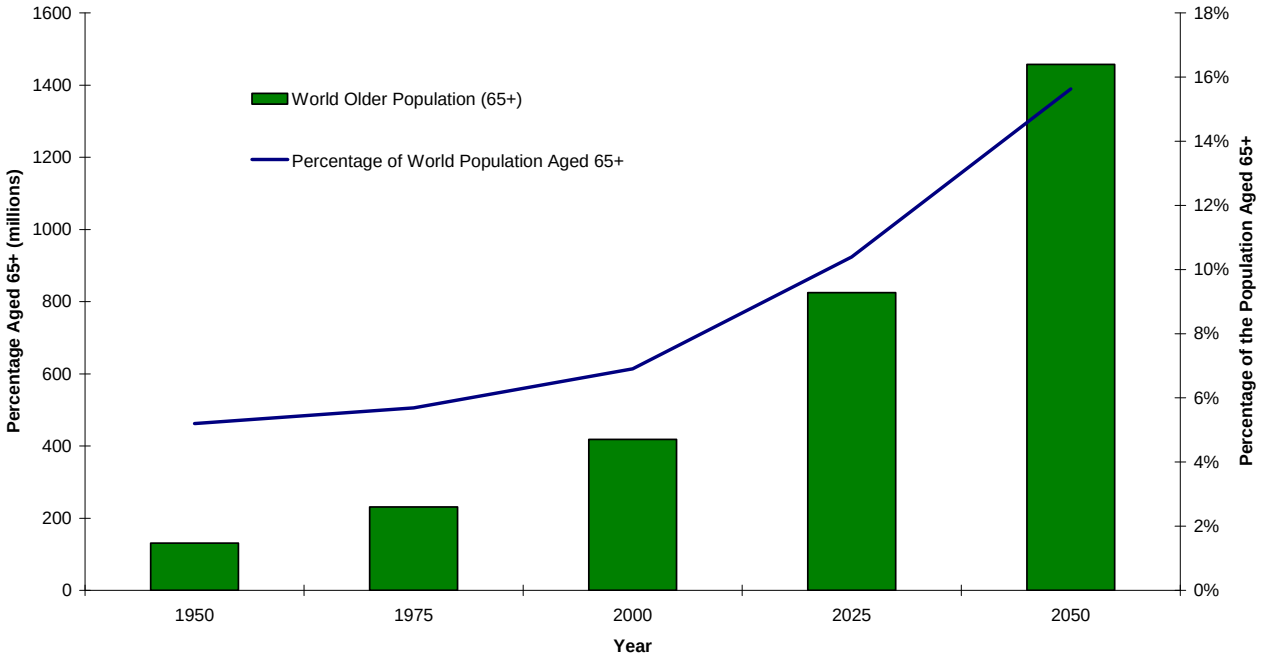


Between 1950 and 2000, the median age of the world's population increased by three years, from 24 years in 1950 to 27 years in 2000. Over the period 2000 to 2050, the increase in median age is projected to be 11 years, so by 2050, half of the world's population is projected to be more than 38 years old.

While the older population is growing rapidly globally, the oldest old population is accelerating at a much faster rate. There were five million people aged 85 years and over in 1950 which accounted for just 0.2 per cent of the total population; by 2000 the oldest old had increased to 29 million or 0.5 per cent of the total population. This proportion is projected to increase four fold over the next 50 years, to reach two per cent of the population by 2050. By 2050 the oldest old age group is projected to number over 189 million worldwide.

5. LIFE EXPECTANCY AND HEALTHY LIFE EXPECTANCY STATISTICS

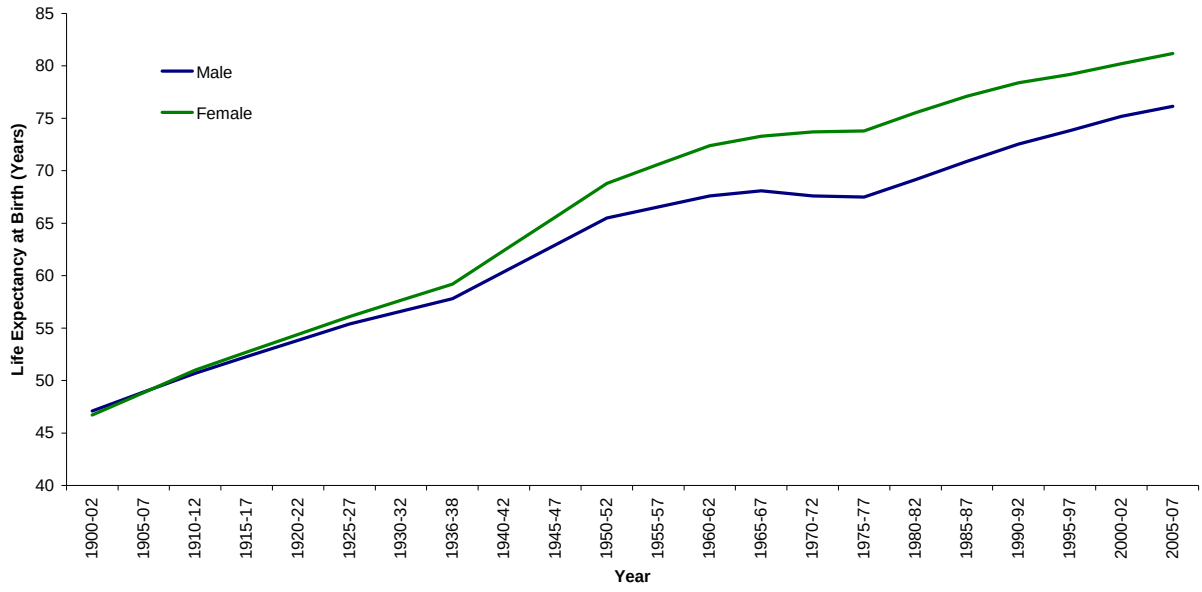
In terms of the ageing of the population, life expectancy is a key summary statistic. This section looks at changes in life expectancy and also introduces a relatively new statistic called 'healthy life expectancy' which measures the number of years one might expect to live in good health.

Life expectancy is an estimate of the number of years that a person can expect to live, on average, if they experienced the age-specific mortality rates for a certain period of time.

In 1900-02 baby boys and girls were expected to live for 47 years. By 2000-02 baby boys could expect to live to 75 years and baby girls to 80 years, an increase of 28 years for boys and 33 years for girls (See Figure 10).

The figures quoted in this paper on life expectancy are period life expectancy figures which are the most commonly and widely used. Period life expectancy does not take any account of changes in age-specific mortality rates over time and is simply calculated using the current mortality rates. Across the United Kingdom figures are also calculated on cohort life expectancy which looks at mortality over the life span of a generation or cohort.

Figure 10: Northern Ireland life expectancy at birth for males and females (1900-02 to 2005-07) – non-zero y-axis

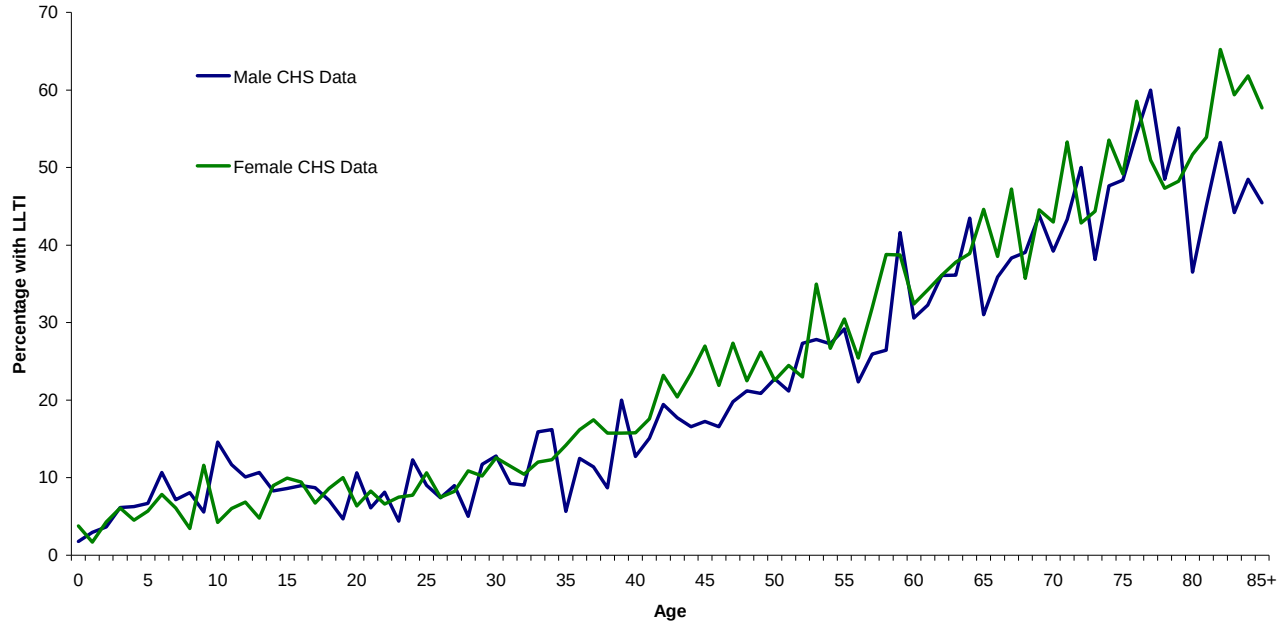


While life expectancy is an important measure of the length of life, it does not look at quality of life, and therefore takes no account of whether people are living longer in good health or bad health. Quality of life can be examined by looking at the expected years of life which are free from a limiting long-term illness.

Limiting long-term illness (LLTI) is a measure of health which is used in the Census and it is also asked in the Continuous Household Survey (CHS) [10] each year. The CHS is asked of around 6,000 people each year and about 20 per cent respond that they have a LLTI. Figure 11 shows that the percentage of people who say they have a LLTI increases with age.

People who live in communal establishments such as nursing homes, are not covered by the CHS. To account for this gap in the data the results of the CHS have been adjusted to include the percentage of people who lived in communal establishments and had a LLTI in the 2001 Census and a trend line has been created to model the percentage of people with LLTI.

Figure 11: Percentage of people reporting they have a LLTI in the Continuous Household Survey by age and sex (2005/6 to 2009/10)



Using the information from the LLTI calculated trend along with population and death registration data it is possible to create both a life expectancy at birth and LLTI-free expectancy [11]. This is defined as the number of years an individual can expect to live in a healthy state; in this case without a limiting long-term illness.

Table 1 shows the life and LLTI-free expectancy at birth for males and females. On average males can expect to live 76.6 years with 80 per cent or 61.5 years LLTI-free, while females can expect to live for 81.3 years with 77 per cent or 62.3 of those years LLTI-free.

At the age of 65, males will on average live a further 17.1 years but only 55 per cent will be LLTI–free (9.4 years) while females will live longer at 19.9 years but a smaller percentage (45 per cent) will be spent LLTI-free, equating to 9.0 years.

Table 1: Life expectancy and Limiting Long-Term Illness free expectancy for males and females (2005/6 to 2009/10)

	At Birth			At 65 Years		
	Life Expectancy	Healthy Life Expectancy (LLTI Free)	%	Life Expectancy	Healthy Life Expectancy (LLTI Free)	%
Male	76.6	61.5	80%	17.1	9.4	55%
Female	81.3	62.3	77%	19.9	9.0	45%

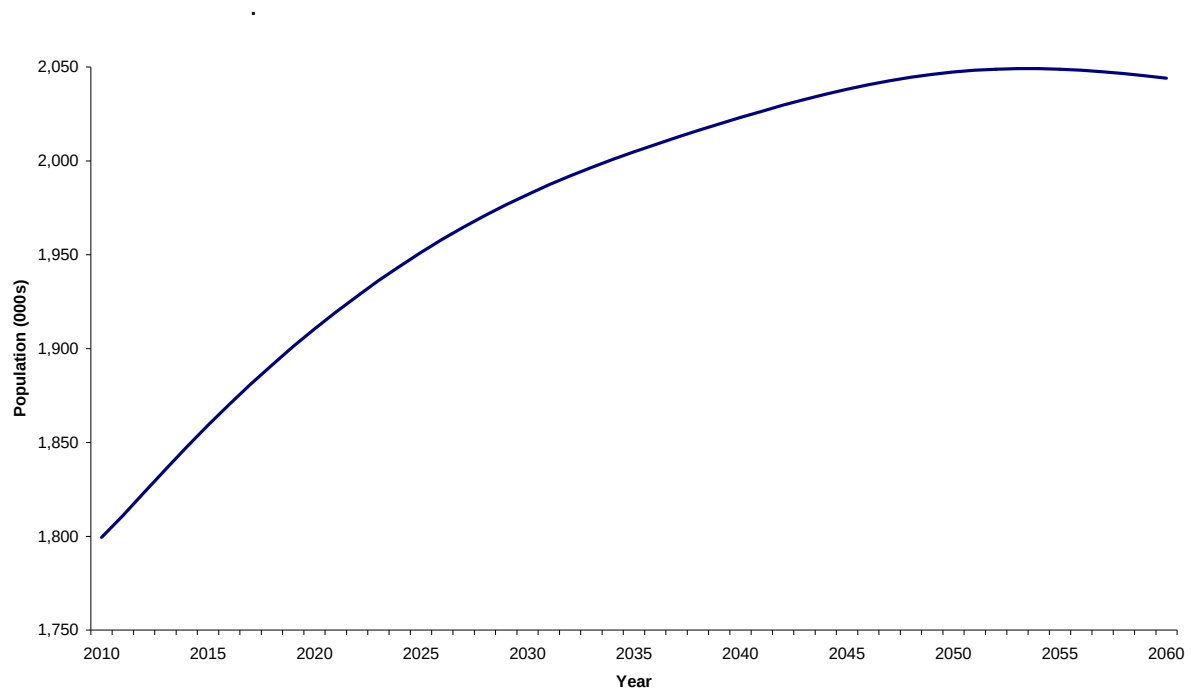
The analysis of LLTI shows that after the age of 65 the Northern Ireland population will spend around half their remaining years in poor health. Further research is needed to assess the needs of the ageing population in relation to this. The 2011 Census asked additional questions on disability and health which will help to produce better estimates of the population who are in poor health and the nature of their illness [12]. Clearly an increased understanding of this is vital for assessing the impact of an ageing population on the social and economic policy areas. This is discussed further in the conclusion.

6. AGEING DEMOGRAPHY OF NORTHERN IRELAND (FUTURE)

It is important to understand and plan for the future number of people in Northern Ireland. To assist this, standard population projections are produced for Northern Ireland. The latest set of population projections, which are 2010-based, show that the Northern Ireland population will continue to age and the older population will continue to rise. However, it is important to note that these projections are dependent upon assumptions of fertility, mortality and migration. The assumptions are examined later in this section but it is most notably the assumptions and changes in life expectancy which are driving the ageing population, as the vast majority of the future older population are currently present in the population at younger ages.

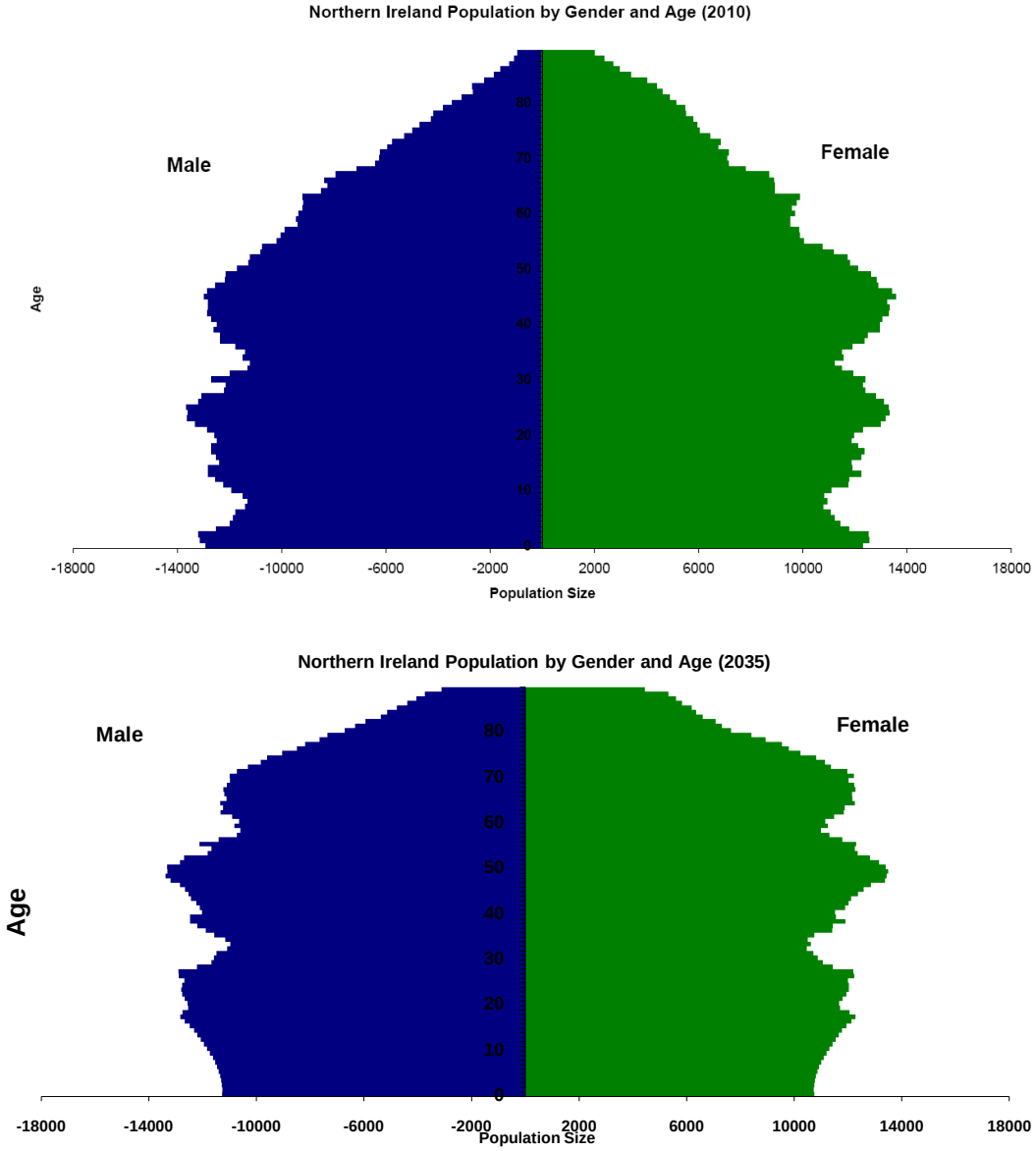
The latest 2010-based population projections for Northern Ireland show that the population will increase until the early 2050s before it will begin to stabilise. The 2010 population was 1.799 million and it is projected to exceed two million by 2034. By the year 2060 the population is projected to reach 2.04 million which will be an additional 245,000 people and a population 14 per cent larger than 2010. The population projections from 2010 to 2060 are shown in Figure 12.

Figure 12: Projected population in Northern Ireland (2010 to 2060) – non-zero y-axis



The population projections show that, over time, the population pyramid begins to look less like a pyramid and more like a rectangle, as more people are surviving to older ages. Figure 13 illustrates the population in 2010 and the 2010-based population projections for 2035.

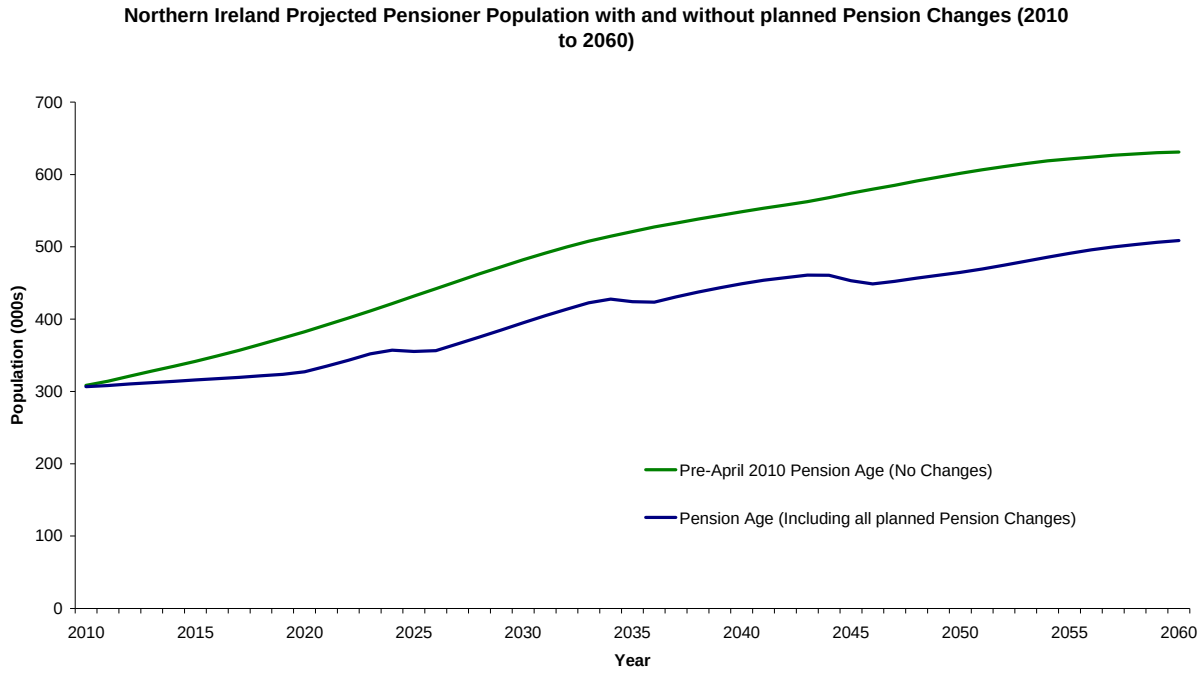
Figure 13: Northern Ireland population pyramids (2010 and 2035)



Population projections indicate a marked increase in the size of the population at older ages. The number of people of current pensionable age is projected to increase by around 13 per cent in the next five years (2010-2015) and by 42 per cent in the next 15 years (2010-2025). However, under current legislation[1], between April 2010 and March 2020, the age at which women are eligible for the state pension will increase from 60 to 65 years. Taking this into account, the number of actual persons of pensionable age will grow by 16 per cent between 2010 and 2025. Figure 14 shows the effect of changing the pension age for females from 60 years to 65 years between 2010 and 2020 and then increasing the pension age to 66 years by 2026, 67 years by 2036 and 68 years by 2046 on the number of pensioners (both males and females). If all these changes go ahead as planned, by 2060 there will be 122,300 less pensioners than there would be if pre-April 2010 pensionable age were to be continued.

[1] The data presented in this paper does not reflect proposed further changes to the state pension age published by the government. They propose increasing the State Pension age to 66 - women's State Pension age will increase more quickly to 65 between April 2016 and November 2018; and from December 2018 the State Pension age for both men and women will start to increase to reach 66 from October 2020. These proposed changes are not yet law and still require the approval of UK Parliament. Further information relating to these proposals can be found at:
www.direct.gov.uk/en/Pensionsandretirementplanning/StatePension/DG_4017919

Figure 14: Northern Ireland projected pensioner population with and without planned pension changes (2010 to 2060)



The population projections show that the Northern Ireland population will continue to age and the older population will continue to rise. However, the projections are dependent upon assumptions of fertility, mortality and migration. In addition to the principal projection, variant projections are produced based on alternative assumptions of future fertility, mortality and migration. The main variant projections discussed here are those where only one component of population change (fertility, mortality or net migration) is varied from those in the principal assumptions.

Changing the assumptions on fertility will have no impact on the numbers in the older population (aged 65 and over) in the period up to 2060 as it will take 65 years before babies born today reach that age. However changing the migration assumptions will have a minor effect on the older population. By 2060 the number of older people could vary between 527,900 and 623,300 if the low or high migration assumptions are used instead of the current principal projection which would result in 575,600 older people in 2060.

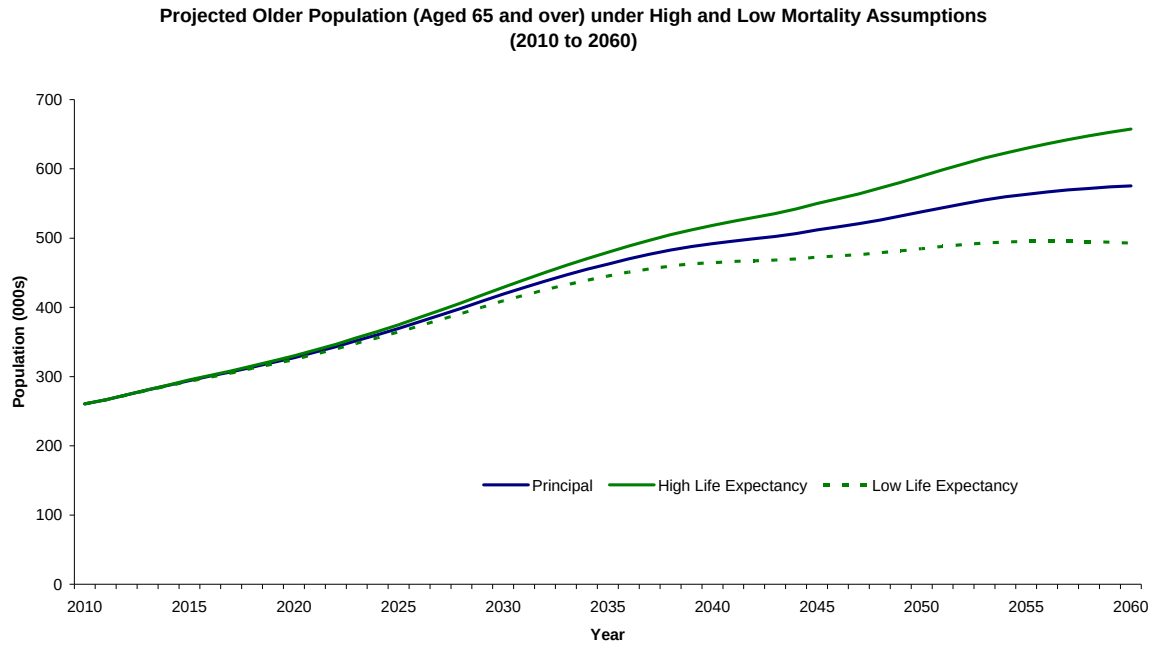
Finally, changing the mortality assumptions will have the greatest impact on the future older population. Table 2 shows the different life expectancies projected by 2060 for males and females at birth and 65 years using the principal, high and low mortality assumptions. Figure 15 shows the effect of varying the mortality assumptions for the projection period. Changing the mortality assumption will vary the projected population of older people between 492,800 and 657,600 if the low or high mortality assumptions are used instead of the current principal projection which would result in 575,600 older people in 2060.

All these figures should be compared with the 260,000 older people in 2010. Taken together the 2010-based projections show that the older population in Northern Ireland is projected to roughly double over the next fifty years under any reasonable set of future demographic assumptions and there is projected by 2060 to be at least 490,000 people aged 65 and over.

Table 2: Life expectancy assumptions for males and females for principal, high and low mortality assumptions at 2060

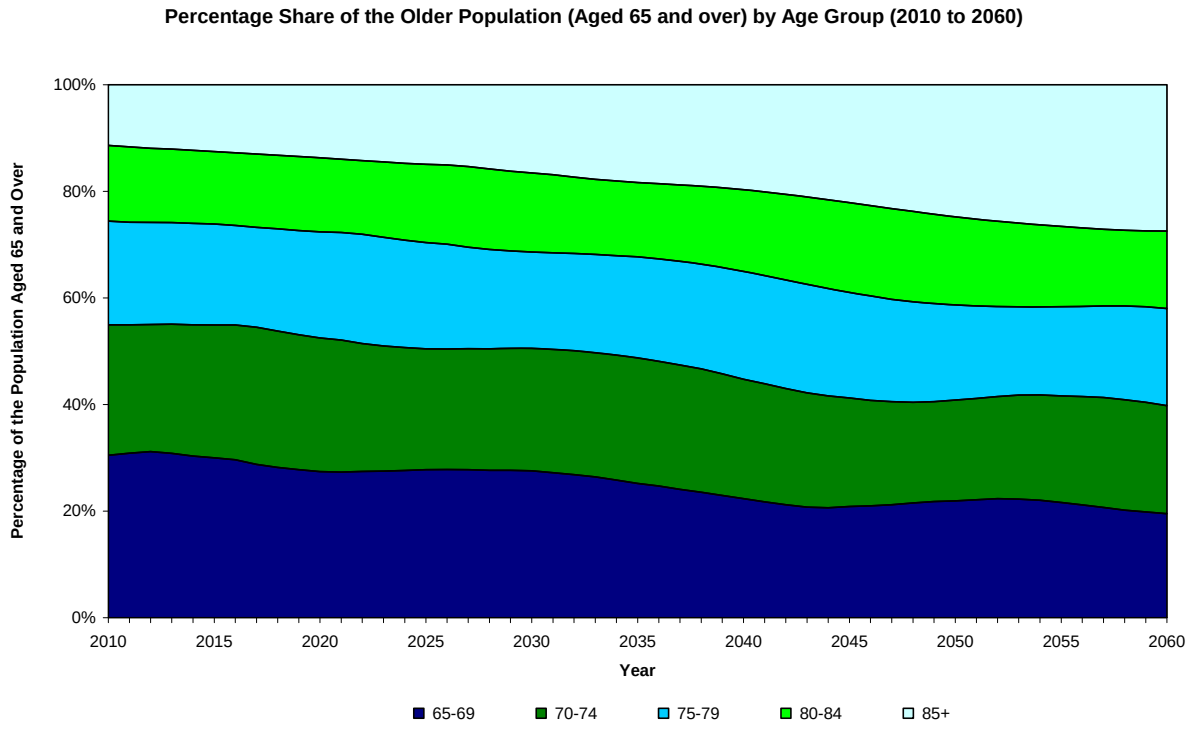
Life Expectancy at 2060	Principal	High Life Expectancy	Low Life Expectancy
Male			
Life Expectancy at birth	85.8	91.6	80.0
Life Expectancy at 65	24.1	28.8	19.8
Female			
Life Expectancy at birth	89.7	94.3	85.1
Life Expectancy at 65	26.8	30.7	23.1

Figure 15: Projected older population (aged 65 and over) under high and low mortality assumptions (2010 to 2060)



Looking within the older population, it is the oldest old group (85 years and over) that is projected to have the largest growth. In 2010, the oldest old population made up 11 per cent of the older population (aged 65 and over) but is projected to make up 27 per cent of the older population by 2060. Meanwhile those aged 65 to 69 are projected to have the largest decline. In 2010, 65 to 69 year olds made up 31 per cent of the older population but are projected to make up just 19 per cent by 2060. Figure 16 shows the projected changes in the share of all the age groups in the older population from 2010 to 2060. Between 2010 and 2060 the proportion of all age groups in the older population are projected to decline over the period with the exception of the oldest old age-group which will increase its share.

Figure 16: Percentage share of the older population (aged 65 and over) by age group (2010 to 2060)

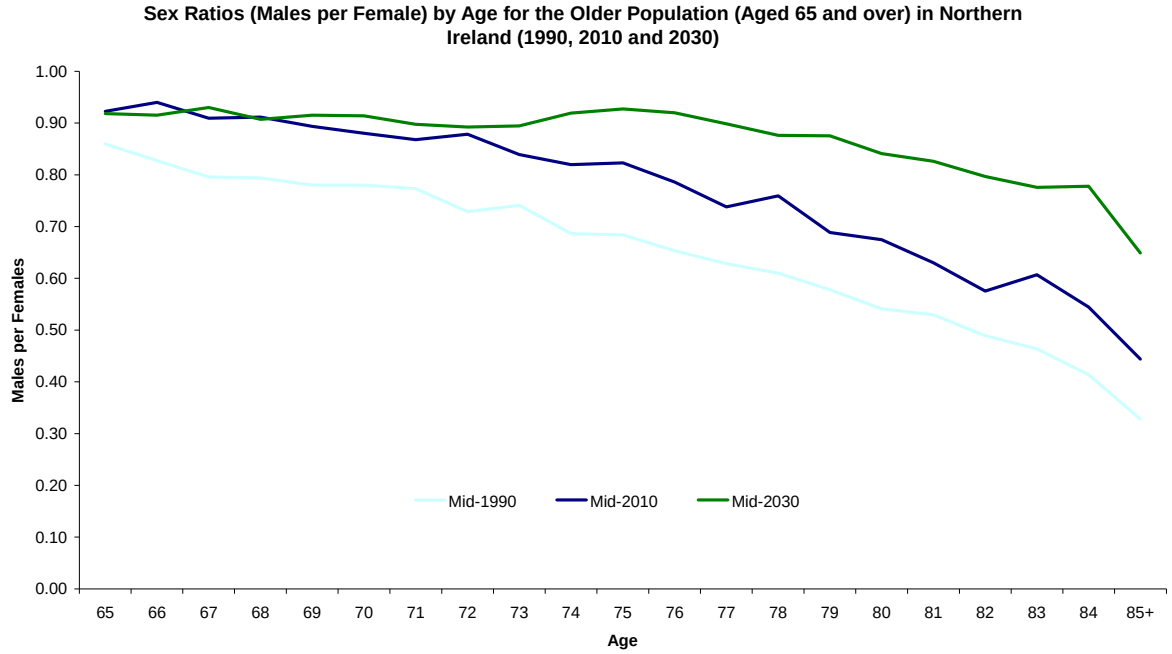


7. LIVING ARRANGEMENTS OF OLDER PEOPLE (CURRENT AND FUTURE)

Although life expectancy has improved, roughly only half of the life expectancy from age 65 will be in good health. Together with the increasing older population, this will have implications for the provision of care and other services. Some of the provision of care can be provided by other household members, reducing the need for institutional care.

Life expectancy has improved over the last century and is projected to improve steadily in future years. This improvement applies to both males and females, although female life expectancy is consistently higher than that of males. One of the implications is that a married couple of the same age would be expected to live longer together than in the past. This point is illustrated by Figure 17, showing the sex ratio (males per female) in Northern Ireland for 1990, 2010 and the projected figures for 2030.

Figure 17: Sex ratios (males per female) by age for the older population (aged 65 and over) in Northern Ireland (1990, 2010 and 2030)



In 1990, there were at least two females for every male from 82 years of age onwards; in the oldest old age group, there are even three females for every male. As the life expectancies for males and females have improved in parallel, so have the sex ratios between 1990 and 2010. For the projected populations in 2030, the sex ratio starts to drop much later. For the oldest old population, there are projected to be three females for every two males. This will have an impact on the living arrangements of the older population, which will be described later in this section.

Before looking at the living arrangements of the older population, figures on their marital status can provide some useful background. Figure 18 shows the percentage of the male older population who are married (or re-married), according to the Censuses of 1981, 1991 and 2001. There appears to be very little difference with similar patterns of declining percentages of married men as they get older. In contrast, the percentage of females who are married has increased for age bands 65 to 69 to 80 to 84 years in the period 1981 to 2001, see Figure 19. This can be directly linked to increases in life expectancy of their husbands.

Figure 18: Percentage of the older male population (aged 65 and over) who are married, by age-group, (1981, 1991 and 2001 Censuses)

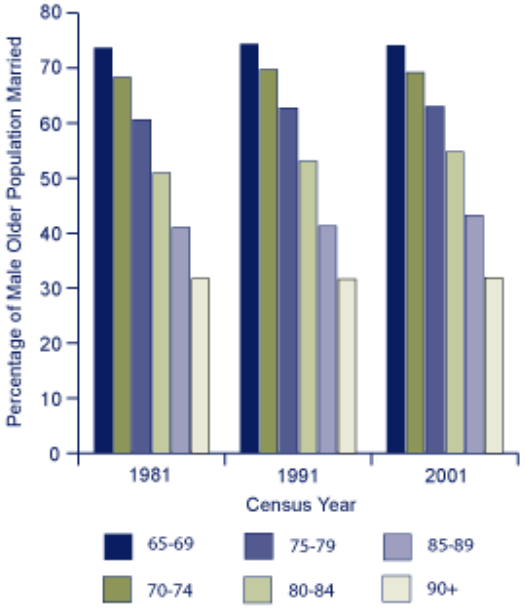
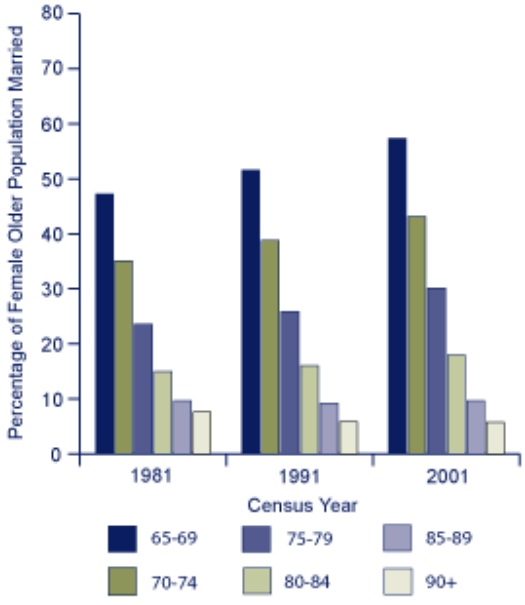
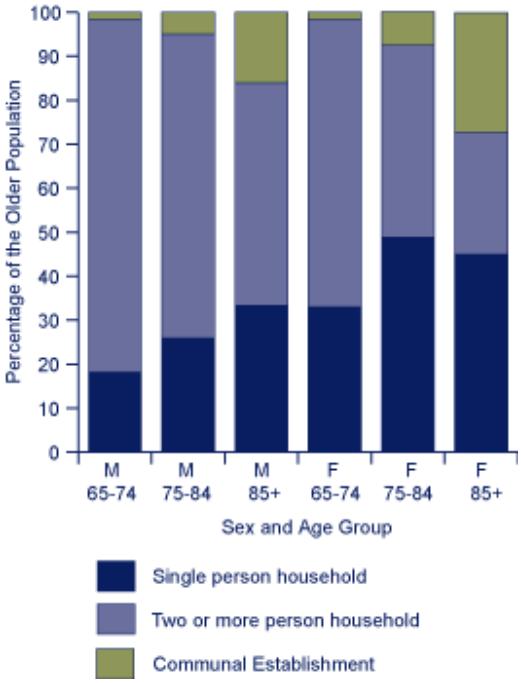


Figure 19: Percentage of the older female population (aged 65 and over) who are married, by age-group (1981, 1991 and 2001 Censuses)



The 2001 Census provides a picture of the living arrangements of the older population. Firstly, it can identify the population in communal establishments, mainly nursing and residential homes, and those in households. In turn, households can be categorized by the number and composition of its household members. Figure 20 shows the distribution of males and females in older age groups with different types of living arrangements.

Figure 20: Living arrangements for the male and female older populations (aged 65 and over), by age (2001 Census)

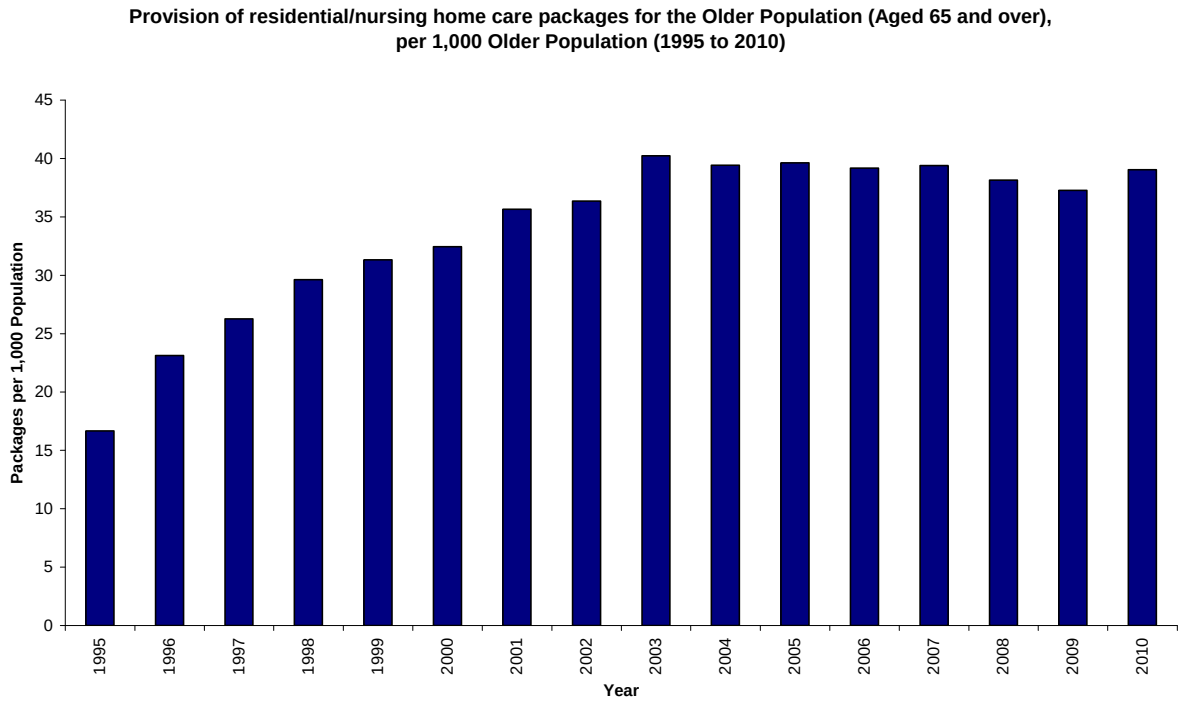


The graphs on marital status have already shown a decreasing percentage of married couples as the population ages. This is reflected in the declining proportion of persons in households with two or more persons as the population ages. On the other hand, a larger proportion of the older population live in communal establishments (e.g. nursing homes) and single person households.

Bearing in mind that there is an excess of females over males in the older population (see Figure 17), when comparing males and females in the same age band, a larger proportion of females are living in single households or communal establishments. Again, this can be explained by the difference in life expectancy, as females outlive their spouses. Indeed, of the unmarried female older population in 2001, 75 per cent were widows, and thus can be expected to have lived as a couple previously. Clearly it is important to understand the trends in living arrangements as the population ages, especially with regards to communal establishments.

The Department for Health, Social Services and Public Safety Northern Ireland (DHSSPSNI) publishes community statistics, which includes the number of care packages provided to the older population in nursing and residential homes [13]. These figures do not include private treatment in nursing and residential care homes, but could give some indication on the trend in providing this care to the older population. Figure 21 shows the number of these care packages, as measured by DHSSPSNI, expressed as a rate per 1,000 older population for the period 1995 to 2010.

Figure 21: Provision of residential/nursing home care packages for the older population (aged 65 and over), per 1,000 older population (1995 to 2010)

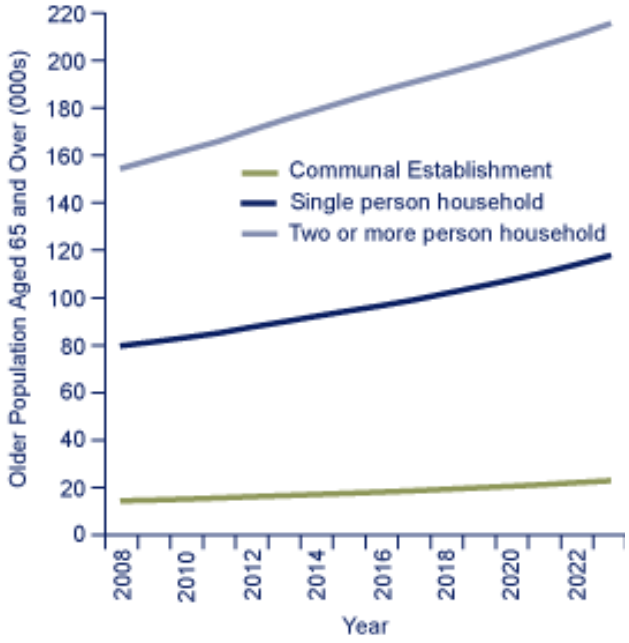


From the DHSSPSNI statistics there would seem to be a period of expansion in the provision of care packages in the period 1995 to 2003, before stabilising at a fairly constant rate at around 40 packages per 1,000 older population. The rising number of the oldest old population as a proportion of the older population, who could be expected to require more care, is not reflected in a rising number of residential/nursing home care packages since 2002. This could be the result of improving general health of the older population, or the provision of care by other household members. Added to this DHSSPSNI has a policy of promoting independent living especially in the older population.

It is also important to look at the future numbers of older people and their potential living arrangements and this can be done by examining the household projections for the older population. The 2008-based household projections are created by applying trends in household formation to the population projections [14]. In the first step, it removes the population in communal establishments by applying the 2001 Census age-sex specific proportion of persons in communal establishments. This assumption is supported by the DHSSPSNI figures on the provision of residential and nursing home care packages.

The allocation of the projected household population to different household types is based on the trends in household formation between the 1991 and 2001 Censuses, whilst ensuring that the household projections are coherent with the population projections. Figure 22 shows how the projected older population is distributed over three different types of living arrangements.

Figure 22: 2008-based household population projections for the older population (aged 65 and over) by living arrangement, (2008 to 2023)



The older population (aged 65 and over) in communal establishments is projected to remain relatively small (six per cent); its increase is driven by the size of the older population and particularly the proportion aged 85 and over. Nearly one in three of the older population is projected to live in a single person household throughout the period 2008 to 2023, with the remainder living in households with two or more persons.

The improvement in life expectancy for both males and females has led to couples staying together longer. There will be relatively fewer surviving partners who either live alone or rely on care provided by other family members or in a communal establishment. This will have implications for the delivery of care services in Northern Ireland, but also for the provision of accessible housing, public transport and state benefits.

8. CONCLUSION

The population of Northern Ireland continues to increase in size and is also becoming increasingly older in structure. This paper has shown that these demographic trends will continue for the foreseeable future. Indeed the latest population projections indicate that over the next thirty years the population in Northern Ireland is set to age faster than all the other United Kingdom countries.

This paper outlines some of the causes of the population ageing. As in the rest of the developed world, the twentieth century has seen some remarkable reductions in the mortality rates of the Northern Ireland population. This has led to people living longer. Coupled with this, marked falls in fertility levels have been witnessed in Northern Ireland. Today each woman of childbearing age has on average two children – this compares with average fertility rates of four children per woman of childbearing age a few generations ago. These are the dominant causes of population ageing in Northern Ireland.

This paper sets out some of the challenges of measuring and understanding population ageing. Whilst we know that the population is living longer and advances mean more people will reach older ages in the future, what is not fully clear is the scale of the impact this will have on public policy.

As an example the Department for Health Social Services and Public Safety (DHSSPSNI) estimate that on average a person aged 85 will cost ten times more to deliver health services to than a person aged 40. Fixing these health costs at today's prices, demography alone would be projected to add around 15 per cent to the cost of health services in the next decade. Clearly if the future older population is healthier than the older population of today, then the

financial impact on the health service should be less than that this, but under more pessimistic scenarios the costs could also increase.

From a planning and public health perspective, better measurement and understanding of the health needs of an ageing population is required. Whilst mortality data has formed the basis of health information systems over the last one hundred and fifty years, there is an increased need to measure morbidity across the lifespan. To help meet this challenge the 2011 Census will include more detailed questions on health than ever before. Added to this NISRA in partnership with the Public Health Agency have started the Northern Ireland Longitudinal Study to look at temporal changes in levels of morbidity and mortality. However more needs to be done to inform policy in this important area.

Looking to pensions there will clearly be a period of significant change ahead. The United Kingdom Government has indicated that the state retirement age will rise to 65 years for women by 2020 and to higher ages for both women and men beyond that. Even with this change the old-age dependency ratio (the ratio of the number of people of pensionable age to people of working age), will still rise. Indeed Lord Turner has indicated that he should have been more ambitious with the rising age timetable laid out in his original report on state pension provision. As indicated, it is likely there will be further changes to state retirement age in the future – added to this the United Kingdom is currently consulting upon phasing out the default retirement age.

Mirroring the debate in health services, the old-age dependency ratio was considered to reflect the impact of the ageing population on pensions. However this measure may now be out of date, as more people will live and work beyond state retirement age. Thus we need new ways of measuring the impact of the older population on economic policy; both directly in terms of work and indirectly in terms of the provision of care of, for example, grandchildren thus enabling economic benefits for wider family circles.

From a demographic perspective the impact of an ageing population on family demography is often overlooked. This paper outlines changes witnessed over the last 30 years in family demography and gives an indication of likely future changes. As survival improves, older couples will stay together longer. However the number of single older person households will also increase. Amongst other things these changes will have implications for the provision of accessible housing and public transport.

Finally and perhaps most importantly, it is vital that those who provide social and economic research to help frame policy, work harder to provide a richer tapestry of information on the older population. There is remarkable heterogeneity amongst this group. It is no longer sensible to treat everyone aged 65 or more as a single category as has been done in the past. To help spark this debate NISRA have for the first time adopted in Northern Ireland more detailed internationally accepted age-related classifications outlined in this paper. It is for others in the future to reflect on this and to change these definitions when the appropriate time comes.

References

[1] Latest 2010-based population projections are available at:
http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2010-based-projections/index.html

[2] Pension Commission reports by Turner are available at:
http://www.webarchive.org.uk/wayback/archive/20070801230000/http://www.pensionscommission.org.uk/index.html

[3] Government consultation on phasing out default retirement age is available at:
http://www.bis.gov.uk/retirement-age

[4] The Older People strategy document, 'Ageing in an Inclusive Society' can be found at:
http://www.ofmdfmni.gov.uk/age-ageing-in-an-inclusive-society

[5] Suzman R, Willis D, Manton K. *The Oldest Old.* Oxford University Press; 1992.

[6] The current pension policy is available at:
http://www.dwp.gov.uk/policy/pensions-reform/the-pensions-act-2007

[7] Statistisches Bundesamt Deutschland (2010): http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/EN/Navigation/Statistics/Bevoelkerung/GeburtenSterbefaelle/GeburtenSterbefaelle.psml

[8] European population estimates are available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/population/introduction

[9] World population estimates and projections can be found at: http://www.un.org/popin/data.html

[10] Further information on the Continuous Household Survey is available at: http://www.csu.nisra.gov.uk/survey.asp29.htm

[11] Healthy Expectancy Calculation by the Sullivan Method: A Practical Guide. See: http://www.ehemu.eu/pdf/Sullivan_guide_final_jun2007.pdf

[12] Further information on the 2011 Census can be found at: http://www.nisranew.nisra.gov.uk/census/start.html

[13] The Department for Health, Social Services and Public Safety community statistics area available at: http://www.dhsspsni.gov.uk/index/stats_research/stats-cib/statistics_and_research-cib-pub/adult_statistics/statistics_and_research-cib-community_statistics.htm

[14] Northern Ireland Statistics and Research Agency, Household Projections, at: http://www.nisra.gov.uk/demography/default.asp21.htm

VOTE OF THANKS PROPOSED BY PROFESSOR BRENDAN WHELAN, (TILDA PROJECT) TRINITY COLLEGE DUBLIN

Background

I begin by complimenting the speakers on how well they had described the ageing issue and its many consequences. My remarks will focus on the contribution that longitudinal studies of ageing, now under way or being initiated in many countries, can make to understanding the impacts of population ageing and how policy could deal with them. I illustrate my presentation by reference to the Irish Longitudinal Study on Ageing (TILDA) which was launched in the Republic in 2006 and embodies many of the features which characterise longitudinal studies of ageing internationally. I note that proposals for a similar study in Northern Ireland are under discussion.

Longitudinal Studies of Ageing

These studies are **multi-domain** covering all the key aspects of older people's lives: their health status and healthcare usage; their economic situation in terms of whether they are at work or not; their financial well-being as measured by pension levels and assets holdings; their social lives including the extent of contact with friends and relatives and the nature of inter-generational transfers (both in the form of material gifts and exchange of assistance). TILDA covers all of these domains by employing a multi-disciplinary team of researchers.

A second key feature of these studies is that they are based on large **representative samples** of the population. TILDA involved interviewing more than 8,500 person aged fifty and over and their spouses/partners of any age. The sample was selected using the ESRI's RANSAM system (Whelan 1979) in such a way as to give each age-eligible member of the non-institutional ROI population an equal probability of selection.

Thirdly, the **longitudinal nature** of the studies allows much stronger inferences to be drawn about causal processes than could be gained from cross-sectional studies. The first wave of TILDA interviews was carried out in 2010 and subsequent waves will be conducted at two yearly intervals. These will allow us to identify early risk factors for various diseases and to provide early warning of emerging trends. For instance, will increasing obesity moderate or reverse the trends in mortality?

Fourthly, each longitudinal study uses a **range of data collection techniques** including computer-aided personal interviewing, self-completion questionnaires and medical tests. TILDA is unique in terms of the range and depth of biological and mental tests that it utilises. All the sample members are invited to visit special health assessment centres where detailed health measurements, including blood samples, can be conducted by specially trained nurses. Most of the studies in other countries limit their tests to what can be collected, usually by lay interviewers, in the respondents' homes.

Finally, in view of the significant resources expended on these studies, it is usual for the resulting data (suitably anonymised) to be deposited in a **public archive** so that researchers from around the world can access it and so maximise the research output from the dataset. The TILDA data will be lodged in ISSDA, the Irish Social Science Data Archive.

Results

The first results of the TILDA study have been published in Barrett et al. (eds) 2011. Among the many findings, the following were particularly striking:

1. **Insurance status** (whether respondent has a medical card or voluntary health insurance) and **socio-economic status**, as indicated by education and occupation, both have very substantial effects on many aspects of health and health-related behaviour. It will be a major focus of future work to build up an understanding of how these mechanisms operate and how appropriate interventions could be designed.
2. Even at this early stage, there is evidence of significant levels of **undiagnosed disease** in areas such as bone health (osteoporosis), cardiovascular health and eye health. A high level of poly-pharmacy (use of an excessive number of medications) also appeared in the data.
3. There exist **substantial disparities** in income and assets within the older sections of the population. Up to three quarters of the ROI population are mainly reliant on the State pension in old age. Relatively low levels of occupational pension coverage were recorded – no more than half of the population appear to be covered by these schemes. This suggests that future policy will have to focus on new areas in order to encourage better coverage.

4. **Inter-generational transfers** of both financial gifts and non-financial assistance are widespread. Many of these transfers go from the older to the younger generation (assistance with mortgages, looking after grandchildren etc.) emphasising the positive role played by older people in Irish society.

Conclusion

I conclude by thanking the authors again and expressing the hope that my remarks have shown how longitudinal studies of ageing can complement and enhance the work of mainstream demographers and statisticians.

References

Barrett A., Savva G., Timonen V. Kenny R.A. (eds), (2011). *Fifty Plus in Ireland 2011*. TILDA The Irish Longitudinal Study on Ageing, Trinity College Dublin. (available at www.tcd.ie/tilda/publications)

Whelan B.J.(1979) RANSAM: A National Random Sample Design for Ireland. *The Economic and Social Review* 10 (2); 169-174