Local demographic change in Scotland

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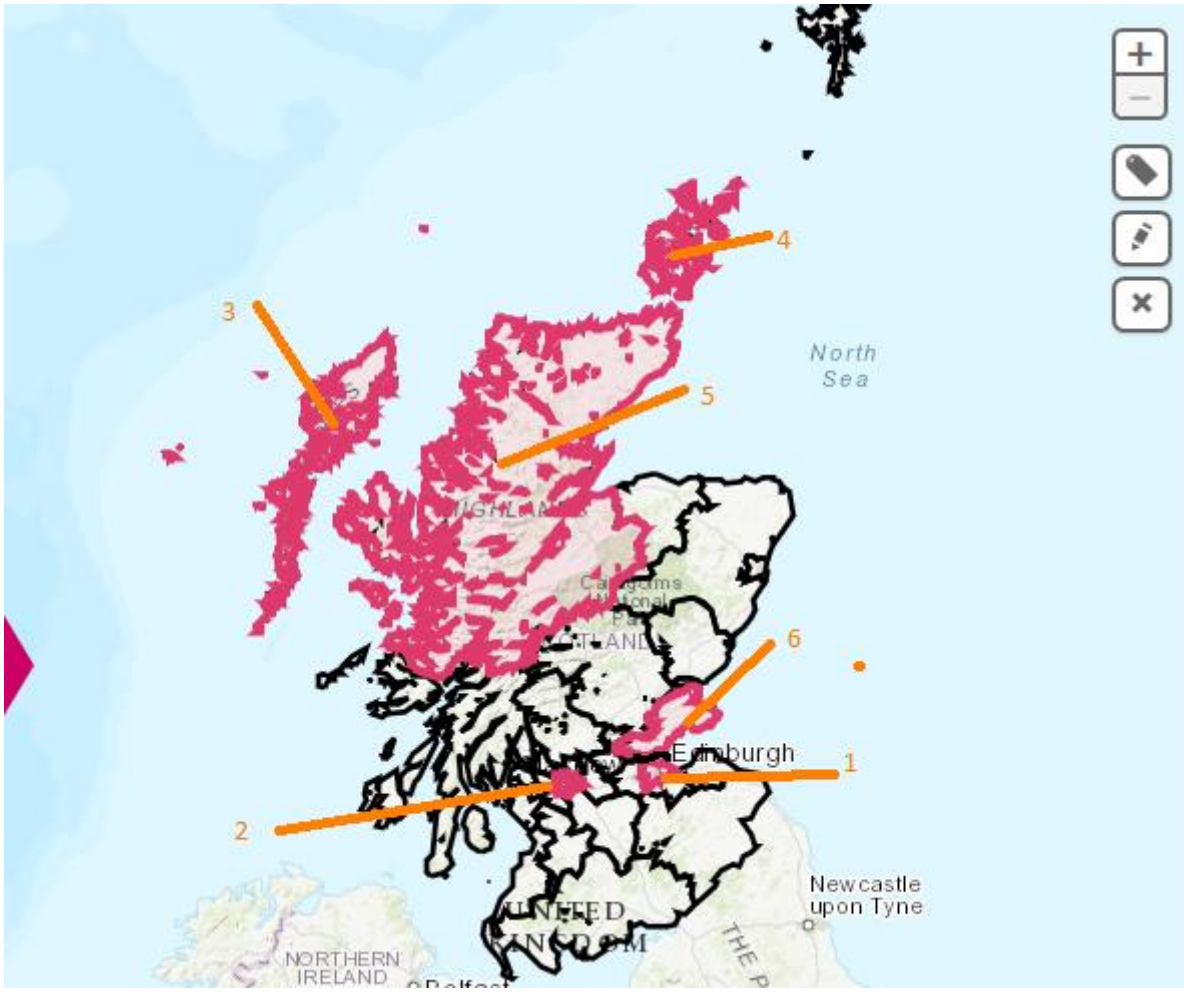
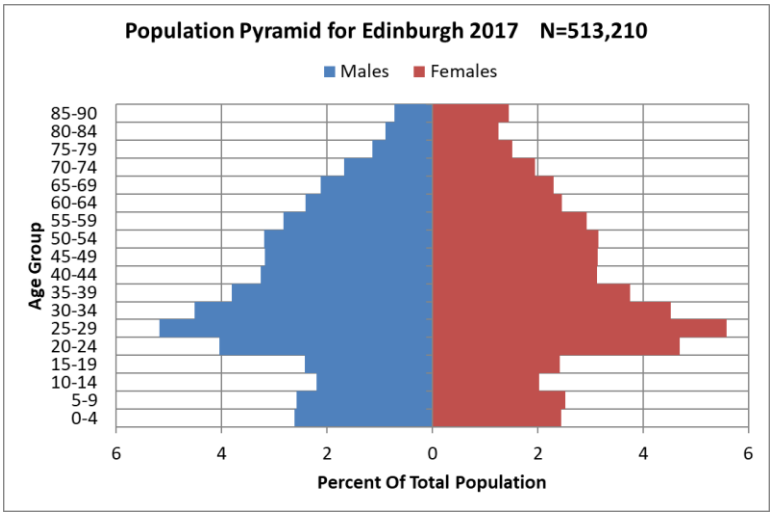
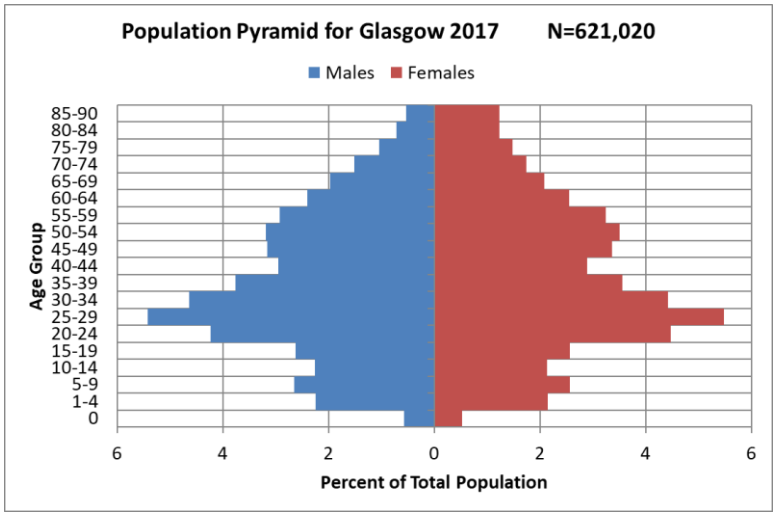
Introduction

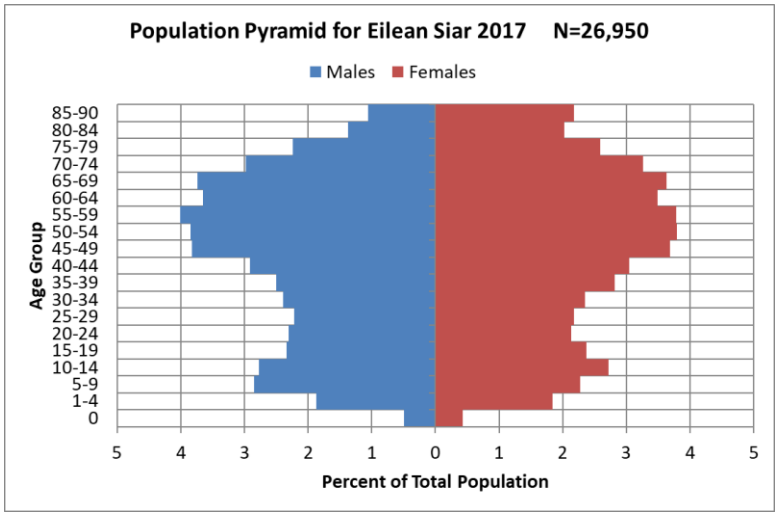
The aim of this report is to use the most recent demographic data to present and reflect on the diversity of demographic profiles, the likely future change and the associated challenges across Scotland. Six council areas are examined as casestudy areas are illustrated in the map below including Edinburgh (1), Glasgow (2), Eilean Siar (3), Orkney (4), Highland (5) and Fife (6). These areas reflect the diversity in the types area across Scotland including both urban and rural areas, differing extents of area deprivation and both rural places that are remote and close to urban centres.

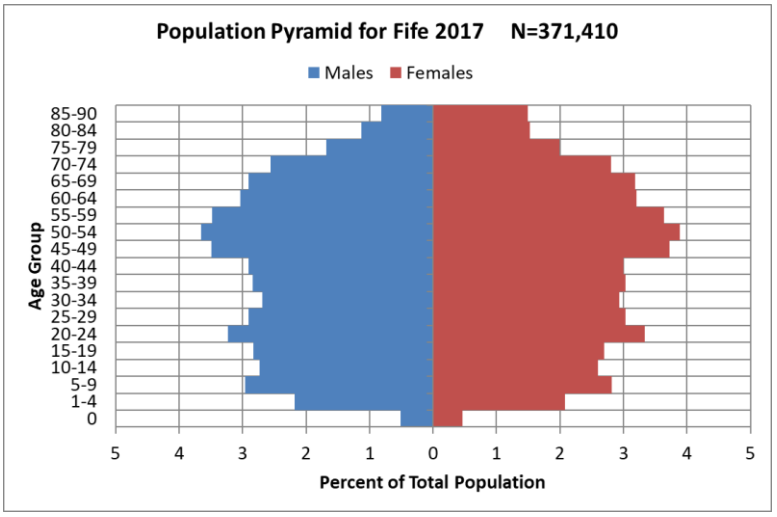


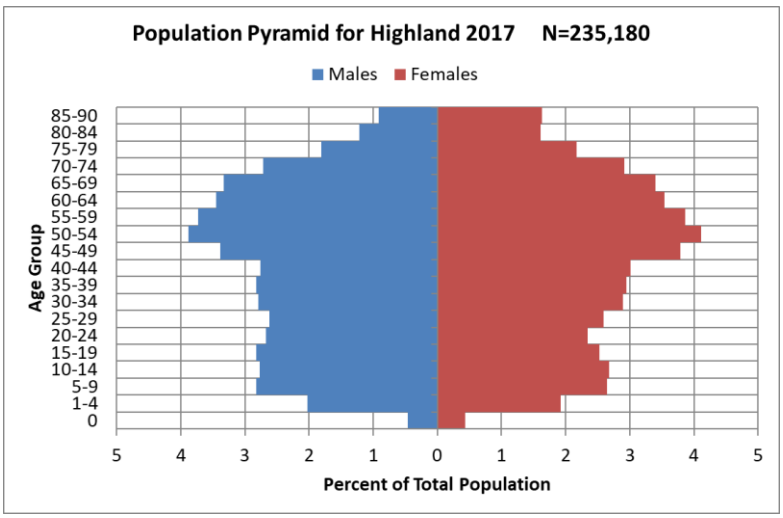
Population age structure

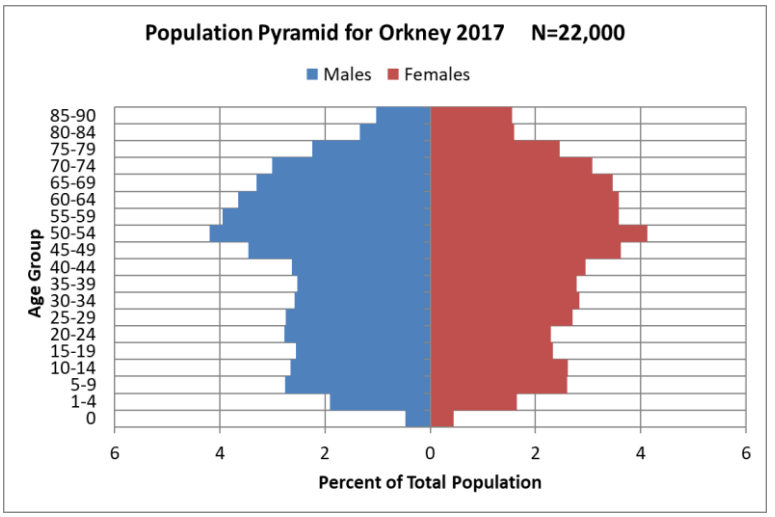


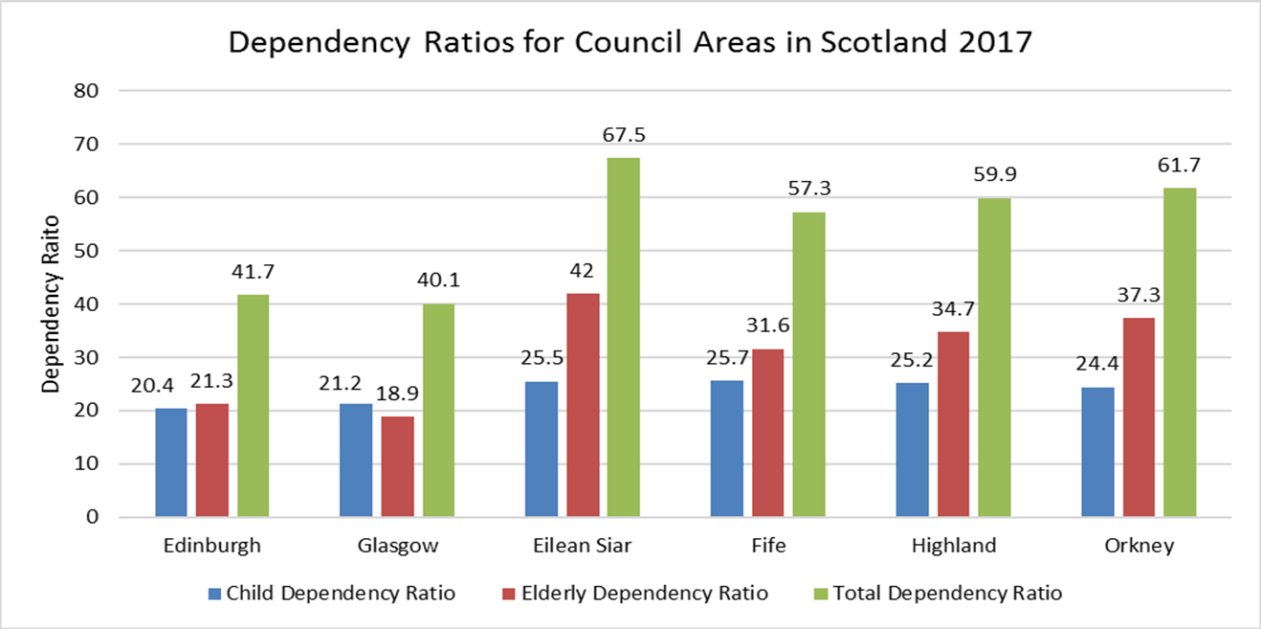












This section analyses the population age structure across the case study areas using population pyramids and dependency ratios. All the data used for this section is from the National Records of Scotland website[1].The Child and Elderly Dependency Ratios are the number of Children (0-14) or Elderly (65+) compared to 100 working aged people (15-64). Therefore, the Total Dependency Ratio is simply the number of Children and Elderly compared to 100 working aged people.

Comparing population pyramids for urban areas like Edinburgh and Glasgow, with rural areas we see a larger proportion of 25-29 year olds, linked to young adults coming to these areas to study or work. However, in more rural areas such as Eilean Siar or Orkney, we see a more elderly population structure. This leads to a higher (elderly) dependency ratio in these areas as seen on the graph above.

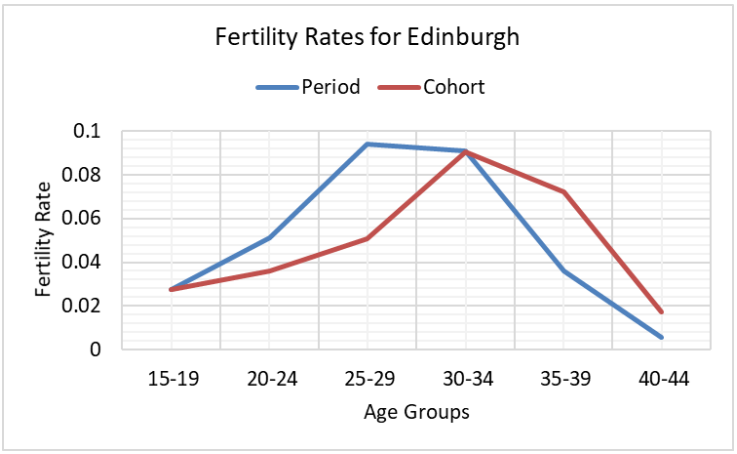
Projections suggest that in these rural areas the elderly dependency ratios will increase, leading to the concerns around provision of health and care services for older people in such areas and the vibrancy of local communities. If the ageing populations in rural areas is not countered by migration, we may run into the problem of rural areas becoming unsustainable. This suggests that the government will need to make policies to encourage younger people to move to these rural areas. Highland has been growing exceptionally quickly recently which

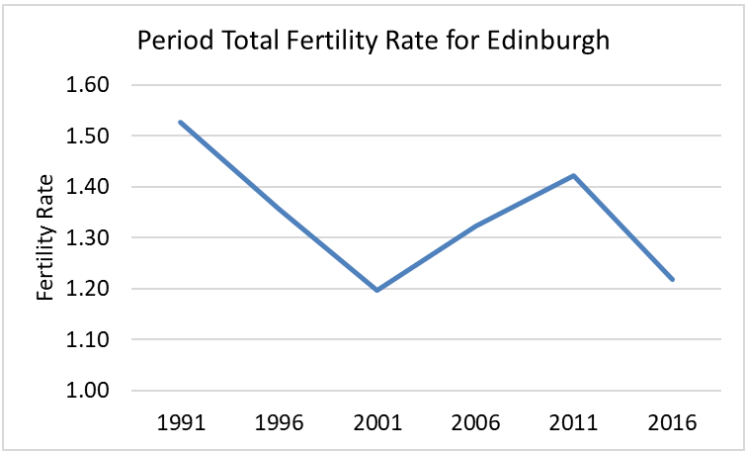
[1] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/population-estimates-time-series-data)

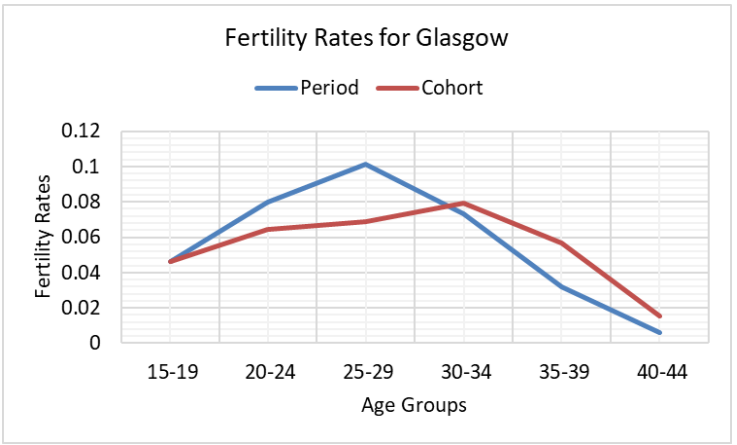
has attracted a very large amount of young people to the area which is increasing the number of young working age people to the area substantially.

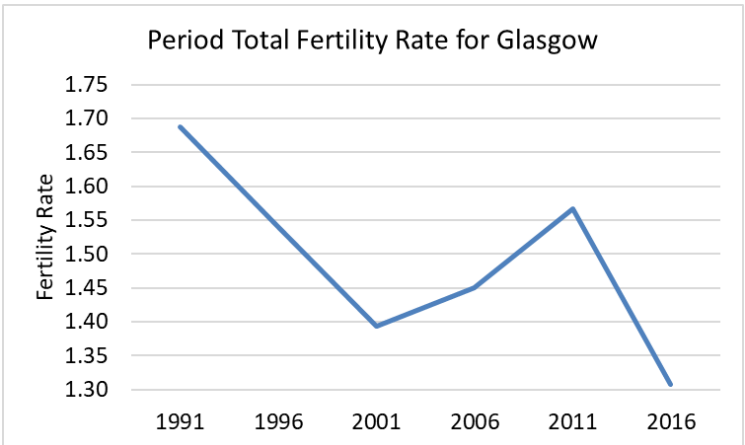
The age structure of an area will influence other aspects of demographic change for example, mortality and migration. If there are more old people in an area, there will generally be more deaths than an area with more young adults. As for migration, if there are more young adults and students in an area, this may encourage other young adults and students into the area also.

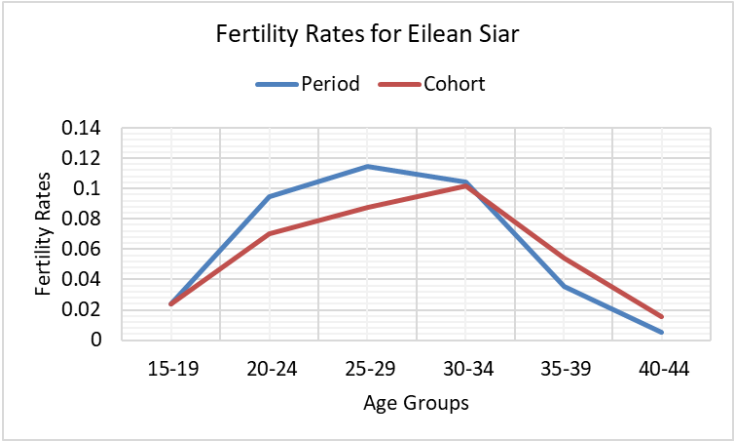
Fertility

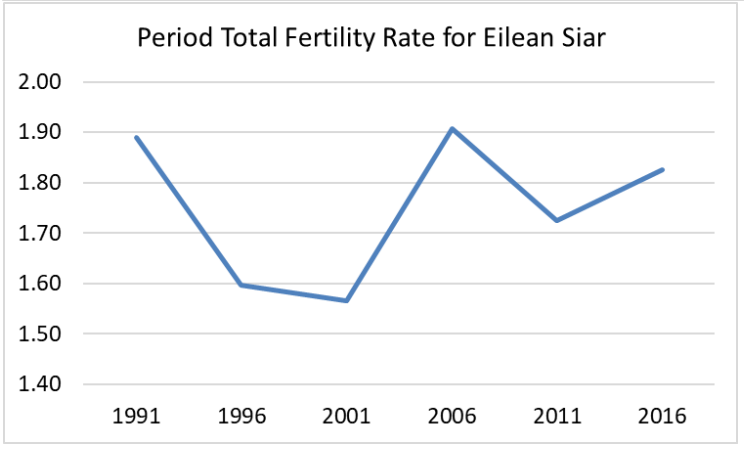


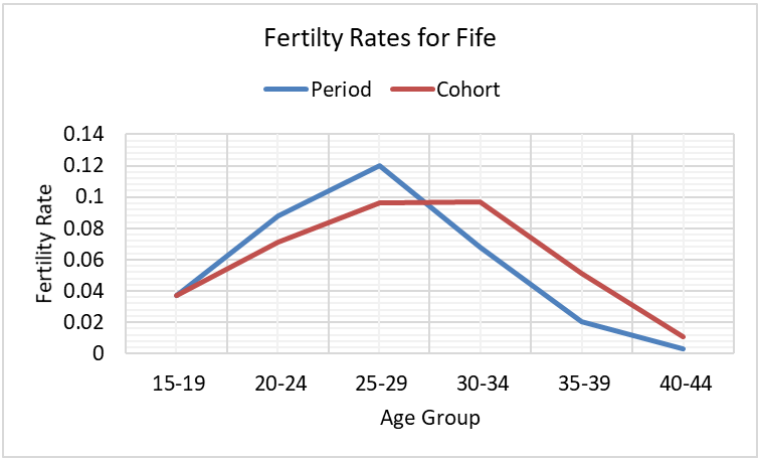


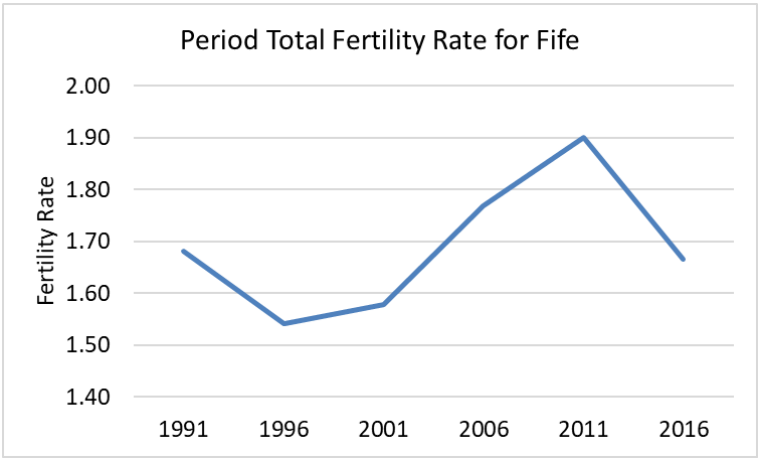


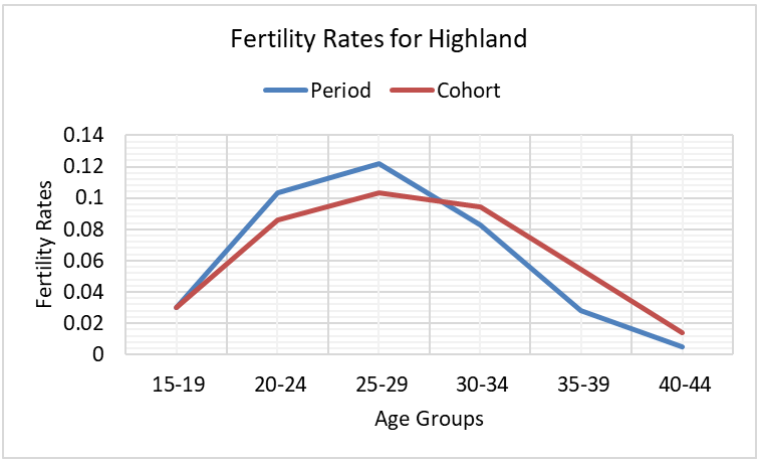


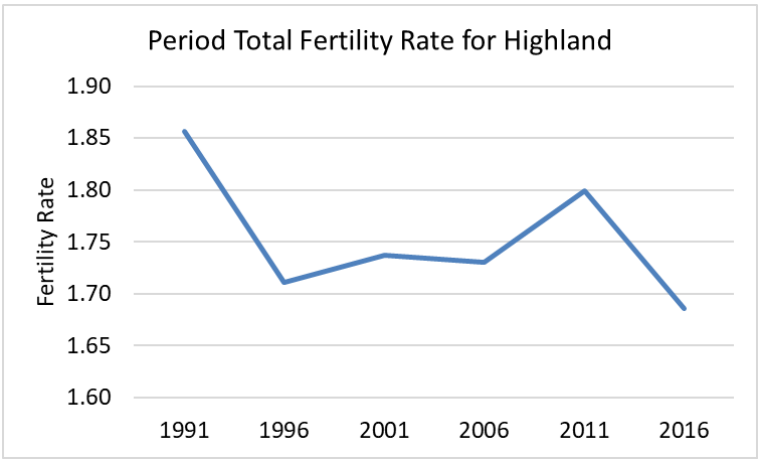


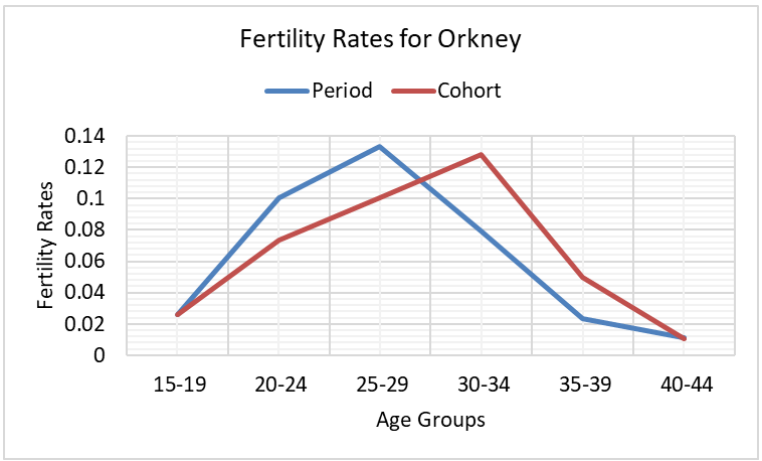


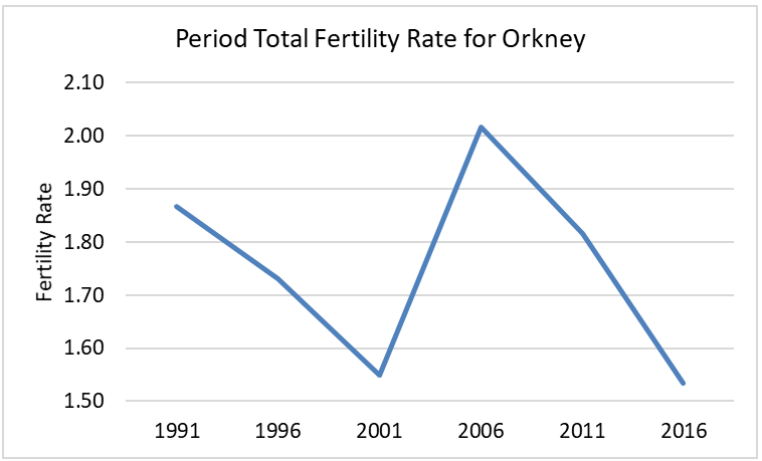












The section examines levels of fertility (relates to the numbers of babies women have) within Scottish districts. The data used for this section is from the National Records of Scotland[2].The Total Fertility Rate (TFR) is the number of children a woman can expect to have at a certain point in her life at a particular point in time. The period TFR shows the number of children a woman would have across the childbearing ages if exposed to fertility

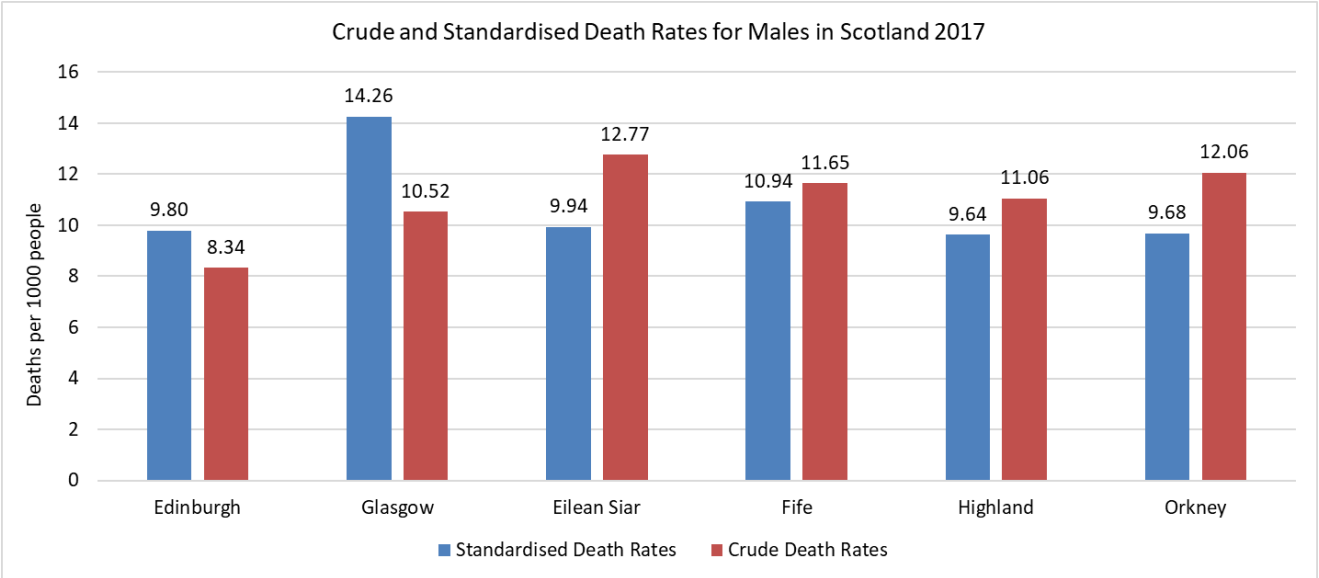
[2] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/births/births-time-series-data

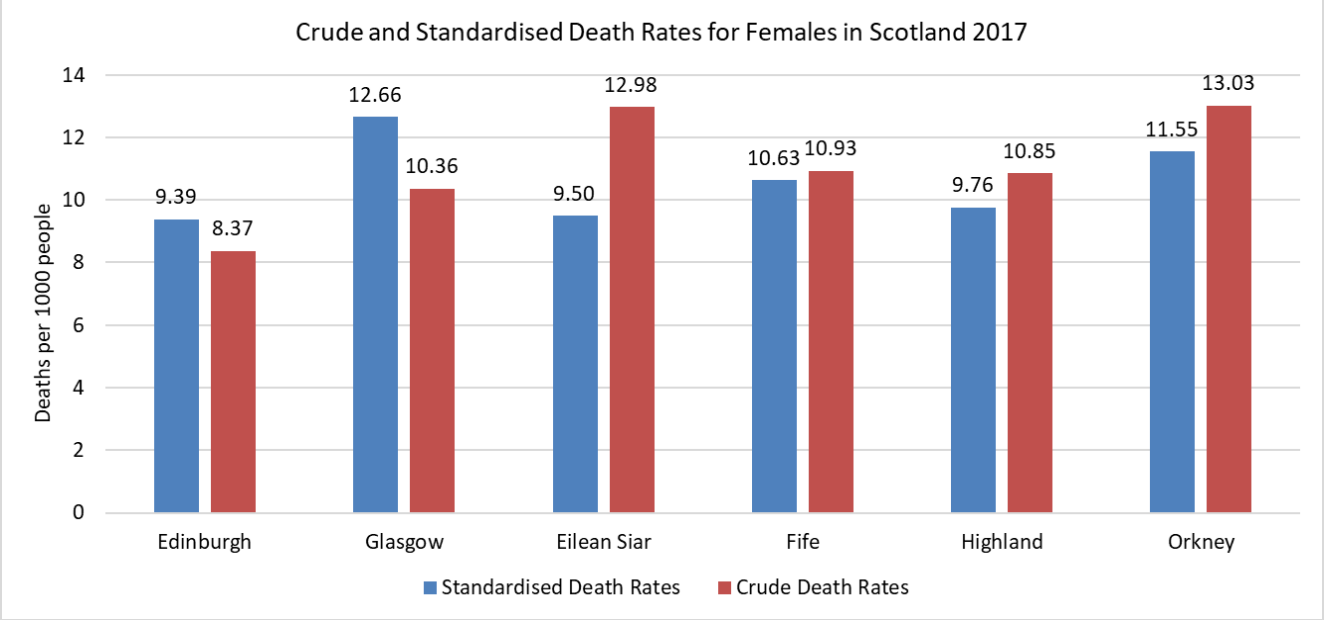
rates measured using a snapshot of data for 1991.The cohort TFR show the number of children a woman would have on average if she experienced the fertility rates as actually observed as she passed through the child bearing ages.

Comparison of the period and cohort TFRs shows that women are having children later in life, going from a peak fertility rate at 25-29 years old in 1991 to 30-34 years old in 2017. Meaning that most women are delaying having children later than they were 16 years ago. The graphs showing changes in PTFR graphs reveal that the fertility rate is dropping again after an increase to a peak in 2011. (Eilean Siar and Orkney do not follow this trend) Such variations in these rates make population projections challenging. For example, the 2011 boom was not predicted and caused many problems especially with school capacity due to the unexpected leap in fertility rates (the boom was relatively consistent across the entire UK). The projections produced here assume the decline after 2011 continues.

This increase in fertility is not continuing and as such will affect the government's policies for services related to children (ie, School places), due to the boom in 2011 the government will have had to implement policies to deal with the unexpected boom and as such will have to change those policies due to the decrease in fertility. If the government does not take into account the declining fertility rates they will overestimate the children in population.

Mortality





This section examines levels of mortality (deaths) across Scotland. The data used is from the National Records of Scotland website[3]. Crude Death Rates are the number of deaths per 1000 people

The Standardised Death Rates take account of the population structure for an area and therefore are a much more reliable way to measure mortality. The Crude Rate for Scotland is 10.70 for Males and 10.64 for Females.

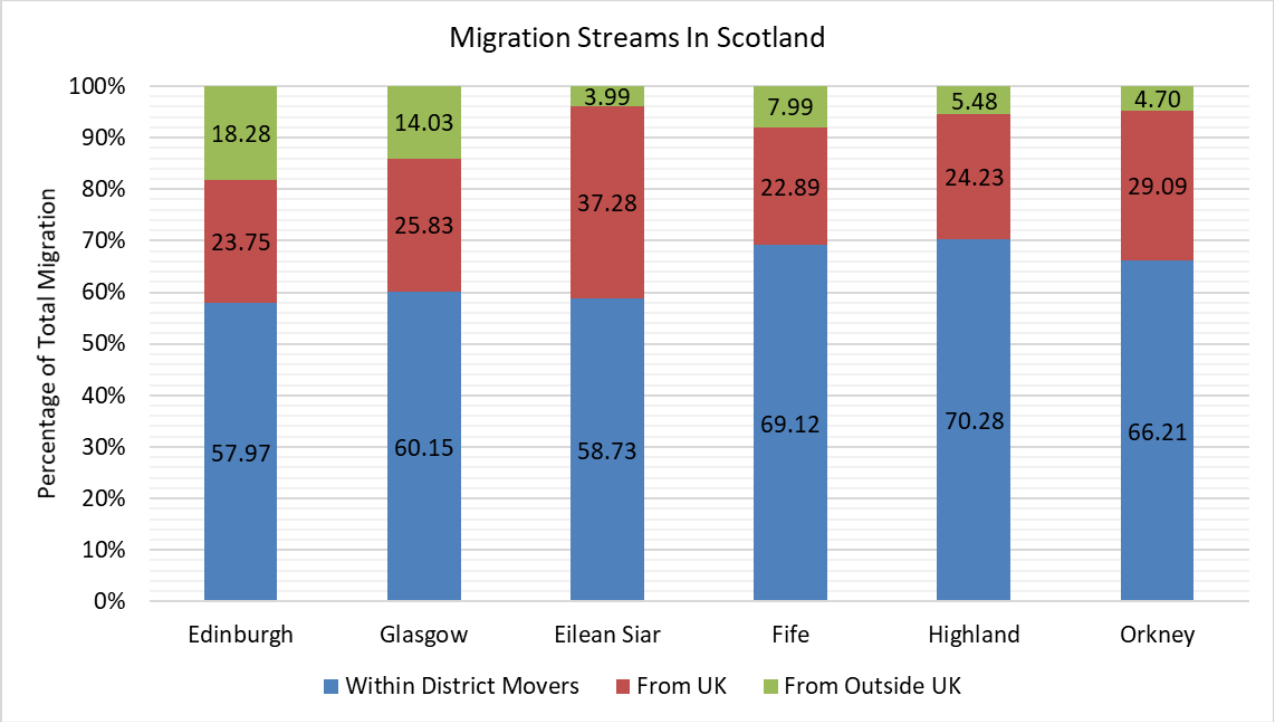
[3] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/general-publications/vital-events-reference-tables/2016/section-5-deaths

A few key notes from these graphs, rural areas with a large elderly population (Eilean Siar and Orkney) have fairly high crude death rates, but lower standardised death rates. The elderly population explains this, as generally, there will be more deaths as elderly people are more likely to die. However, if you standardise the death rates for these areas the standardised ratios are significantly lower than the crude rates.

Glasgow provides some very stark results around mortality. The crude death rates are about average for Scotland, however, when you standardise these death rates for the younger age structure in Glasgow they are significantly higher than the death rates for the other areas considered and Scotland as a whole. The unusually high standardized rate for Glasgow has been previously dubbed “The Glasgow effect” where the mortality rates are unusually high in comparison to the rest of the UK including similarly deprived areas such as Manchester or Liverpool. Theories for the Glasgow effect are an area of research interest and this remains a contested area.

Recent research has suggested that the improving mortality rates from the past two decades has stalled or even reversed. This is especially apparent for elderly people according to (Green, M. Dorling, D. Minton, J. ,2017) however all age groups have saw a rise in mortality rates. This research also suggests that these discrepancies are not related to location either as there are little geographical pattern to the changes. There are no clear explanations to explain this increase.

Migration



The focus of this section is migration, a component of population change that is rather hard to measure as there are many definition, measures and data on migration in the UK. One of the main sources for migration, and that which is used here, is the census question “Did you live at this address 1 year ago” Another method (not presented here) uses data on migration from is doctors records. The data used for this section is from the National Records of Scotland website[4]

In this analysis three streams of migration are presented including flow: Within Areas, From the UK and From Outside UK.

Within area migration is when you move from one address to another from inside the same area. This is the largest stream of migration.

From UK migration is concerned with flows from another area in the UK to a new area. This is fairly high in rural areas such as Eilean Siar and Orkney.

Migration from outside the UK is when someone moves from outside of the UK to a council area. This is high in urban areas such as Edinburgh or Glasgow.

[4] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/migration/migration-statistics

Short distance moves are the most common consistently throughout the areas I have studied.

International migration to urban areas is very high in Edinburgh and Glasgow, this will be due to a huge influx of students and young people coming in to work.

Migration of young people to Highland is also unusually high, this can be attributed to a very large growth in Highland after a lot of investment in the area. This impacts the population projections rather heavily; however, it is unknown whether this migration stream will continue.

Population Projections

These projections are calculated using the cohort component methodology. To sum up this method, we take the population in 2016 then add the expected births between 2016 and 2026, then subtract the expected deaths between 2016 and 2026 then add the expected net migration (this can be negative). This then gives us the population projection for 2026.

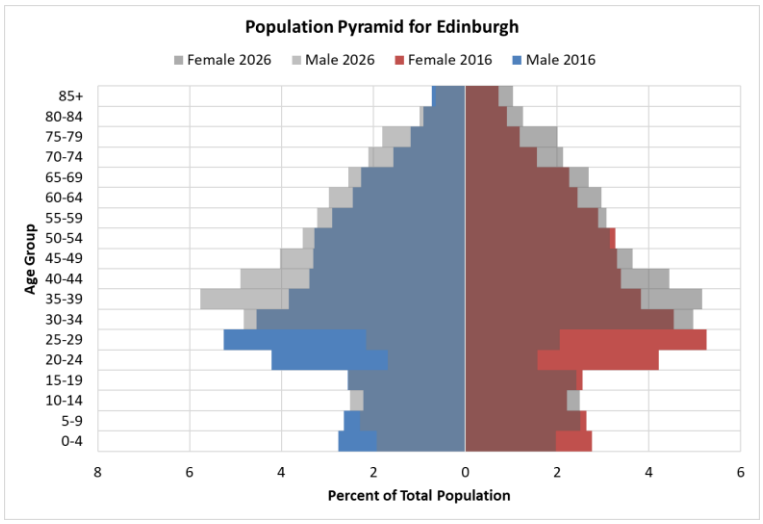
For these projections, I am assuming the current mortality and migration rates continue into the future with a decrease in fertility rates (as to follow the declining trend). However, these rates are hard to predict and get less accurate the further in the future you try to predict. Migration is the hardest component of change to predict due to the fact that the data we have currently is not entirely accurate and policy changes can completely shift the migration statistics.

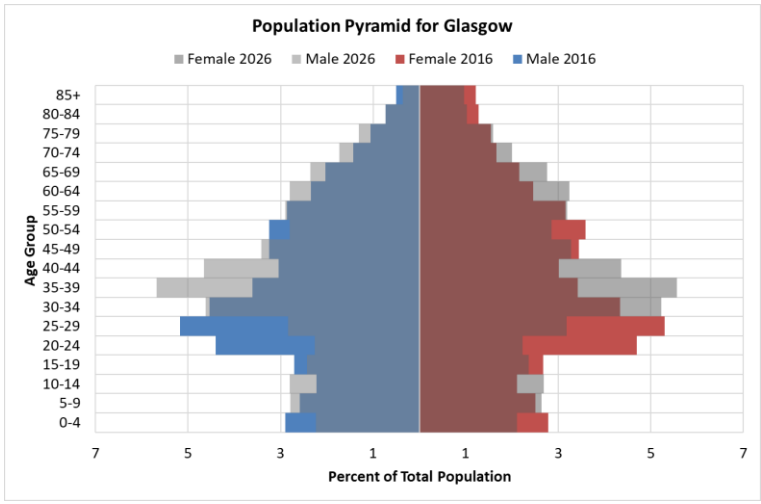
These predictions are therefore least accurate at young and old ages and as previously mentioned, get less accurate the further into the future.

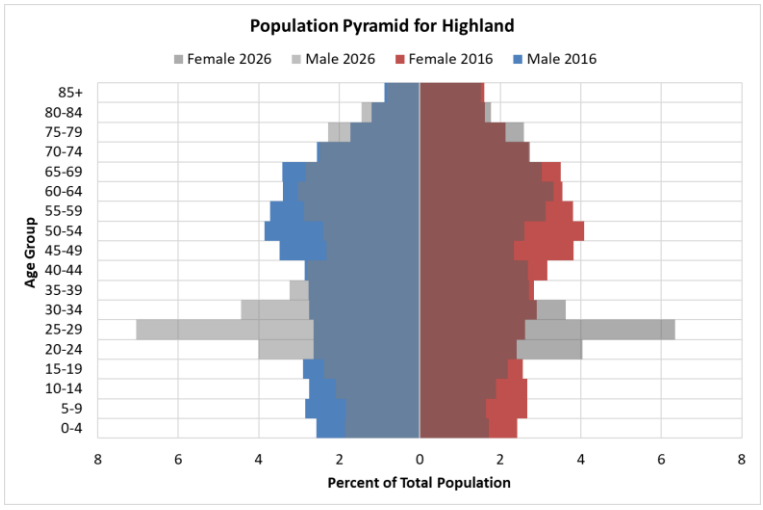
From both the table of population projection and the population pyramids below, we can see that more rural locations are ageing at a faster rate than urban areas. This demonstrates potential issues with providing services for an older population and vibrancy of such communities if the assumptions of the projections hold.

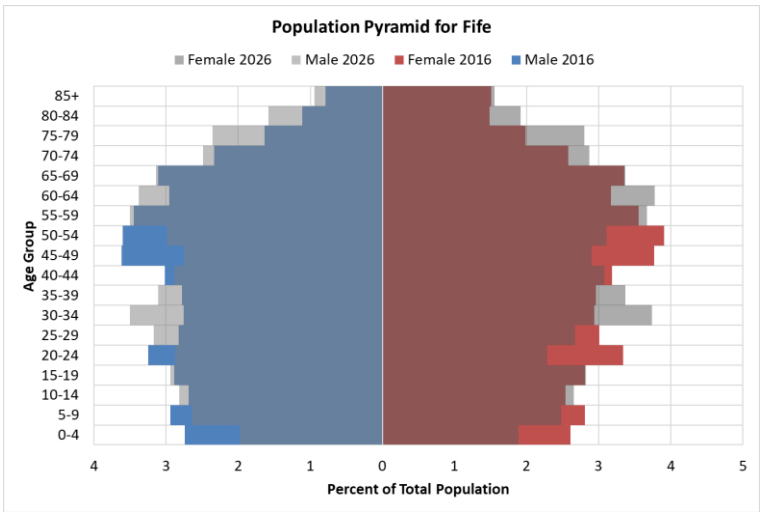
We can see that Highland has an unusual projection in that its pyramid changes shape dramatically. This may be due to the very high migration that is present in the area immediately prior to the projection that was mentioned earlier in the report. We might take the view that this recent migration in unusual and not likely to continue. Local knowledge of planners is essential to evaluate this issue.

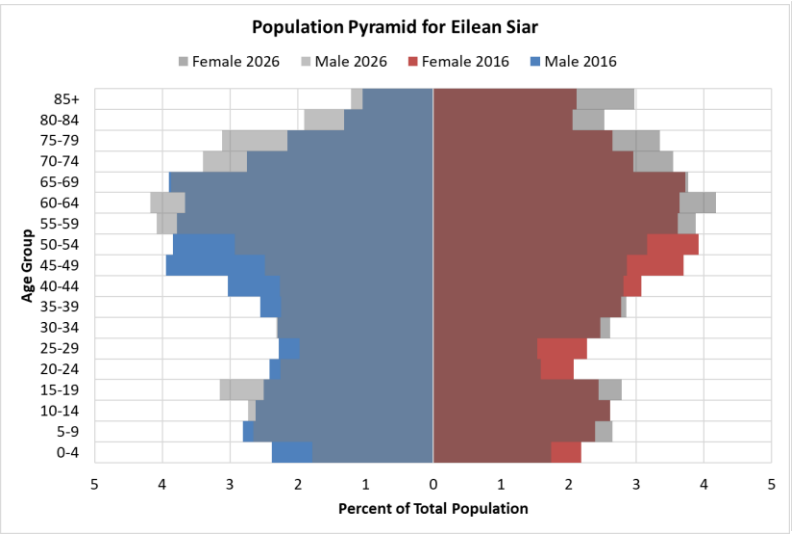
Area	Pop 2017	Pop 2026	% Change	Elderly % 2017	Elderly % 2026
Edinburgh	493,556	518,643	5.1	15.0	17.3
Glasgow	615,070	684,945	11.4	13.5	14.8
Eilean Siar	26,900	26,045	-3.2	25.1	29.7
Fife	370,330	384,757	3.9	20.1	23.0
Highland	234,770	283,905	20.9	21.7	21.5
Orkney	21,850	21,036	-3.7	23.1	28.9

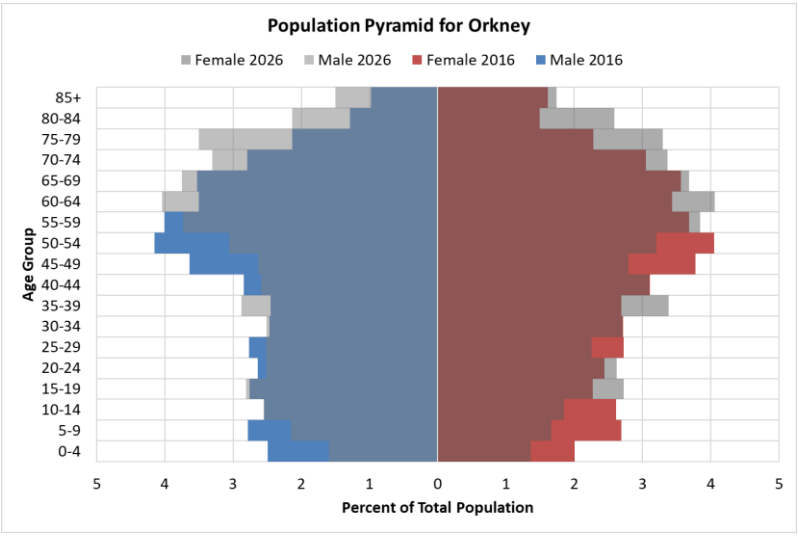












Conclusions

- Scotland is becoming more divided in its local demographic profiles especially between rural and urban areas.
- Rural areas such as Orkney that already have the most elderly population structure are ageing at rates faster than urban areas such as Edinburgh.
- There is some evidence of widening inequalities in mortality.
- International migration is predominantly to urban areas and to a lesser extent rural area.
- Linking to concerns around population ageing in rural areas one aim might be to encourage migration of young adults to such areas. Improvements in internet speed to facilitate home working might be one practical strategy.
- The trend towards women having children later on in life appears a key driver of the increase in fertility up to 2010 in Scottish areas. This increase in fertility appears temporary being reversed in the latest demographic data across all areas.
- Importance of local knowledge and data when planning service provisions, particularly in areas such as the Highlands where recent migration experiences may be temporary in nature.
- Highland is the only area that I examined that is not becoming more elderly due to the high migration.

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