

Glasgow: health in a changing city

a descriptive study of changes in health, demography, housing,
socioeconomic circumstances and environmental factors
in Glasgow over the last 20 years



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Abbreviations/glossary

Organisations

DRS

Development and Regeneration Services. A service department of Glasgow City Council.

III

An acronym for the '*Informing Investment to reduce health Inequalities in Scotland*' project, developed by the Scottish Public Health Observatory.

ISD Scotland

Information Services Division, part of NHS National Services Scotland.

ILO Unemployment

The definition of unemployment recommended by the International Labour Organisation (ILO), a broader, more inclusive measure of unemployment than the claimant count.

NRS

National Records of Scotland, established following the merger of the General Register Office for Scotland and the National Archives of Scotland.

ONS

Office for National Statistics.

ScotPHO

Scottish Public Health Observatory – <http://www.scotpho.org.uk>.

WHOSIS

The World Health Organization Statistical Information System. This database contains the latest and trend data on core health indicators from WHO sources, including the annual World Health Statistics Report and the statistical annexes of the World Health Report.

Terms

Absolute poverty

Absolute poverty is defined as individuals living in households whose *equivalised income is below 60 per cent of inflation adjusted median income in 2010/11*. This is a measure of whether those in the lowest income households are seeing their incomes rise in real terms.

Data zones

Data zones are groupings of 2001 Census output areas with populations of between 500 and 1,000 household residents. There are 6,505 data zones across Scotland (694 in Glasgow) which nest within local authority boundaries.

<http://www.scotland.gov.uk/Publications/2005/02/20697/52626>

Deprivation deciles

Deciles are ten equal groups into which a population can be divided according to the distribution of a particular variable. In this context, deprivation deciles refer to groups of data zones ranked into 10% population shares according to an area deprivation measure. For example, the most deprived decile refers to the population living in the 10% of most deprived areas, while the least deprived decile – at the other end of the distribution – refers to people living in the 10% of least deprived areas.

Employment rate

The Labour Force Survey (LFS) definition of employment is anyone (aged 16 or over) who does at least one hour's paid work in the week prior to their LFS interview, or has a job that they are temporarily away from (e.g. on holiday). Also included are people who do unpaid work in a family business and people on government supported employment training schemes, in line with ILO definitions.

The employment rate is the proportion of the working-age population who are in employment; for this measure the working-age population is defined as comprising men aged 16-64 and women aged 16-59.

Food poverty

Food poverty is the inability of individuals and households to obtain an adequate and nutritious diet, often because they cannot afford healthy food or there is a lack of shops in their area that are easy to reach.

Fuel poverty

The Scottish Government defines a household as being in fuel poverty “if, to heat a home to a satisfactory standard, they need to spend more than 10% of their household income on fuel”ⁱ. The likelihood of a household experiencing fuel poverty is influenced by income, fuel costs and energy efficiency of the dwelling.

GIMD

Glasgow Index of Multiple Deprivation, a Glasgow version of the Scottish Index of Multiple Deprivation, based on SIMD rankings of Glasgow data zones and weighted to ensure equal population in each ‘Glasgow’ deprivation decile. See Appendix 1 for more details.

Health inequality gap

A health inequality gap is a measure of the gap in health status between specified groups. It can be based on different measures of health and can be measured against different characteristics and in different ways. In this report, the term is used to denote the difference in life expectancy between different groups e.g. between the most and least deprived deciles of Glasgow or between men and women or across different neighbourhoods.

ⁱ Scottish Government. *Scottish Government's fuel poverty policy*. Available at: <http://www.gov.scot/Topics/Built-Environment/Housing/warmhomes/fuelpoverty> (accessed October 2015)

In-work poverty

The *rate of in-work poverty* is defined as all individuals living in households where at least one member of the household is working, either full or part time, but where the household income remains below the relative poverty threshold, which can be calculated either *before* or *after* housing costs.

Job density

The job density is the number of jobs per working age resident and is used as indicator of labour demand. A job density greater than 1 indicates that there is more than one job per person for the working-age population.

NO₂

Nitrogen dioxide. An air pollutant that increases the likelihood of respiratory problems. In cities most of the nitrogen dioxide comes from motor vehicle exhausts.

Overcrowded household

Number and percentage of total households with an occupancy rating of less than or equal to -1. An occupancy rating of -1 implies that a household has one fewer room than required, whereas +1 implies that they have one more room than the standard requirement.

PM₁₀

Particulate matter of diameter less than or equal to 10 micrometers (microns). One of the most harmful of air pollutants which particularly affects the respiratory system.

Relative poverty

Relative poverty is defined as individuals living in households whose *equivalised income is below 60 per cent of median income in the same year*. This is a measure of whether those in the lowest income households are keeping pace with the growth of incomes in the economy as a whole.

SIMD

Scottish Index of Multiple Deprivation. SIMD provides a *relative* measure of deprivation based combining 38 indicators across seven domains, namely: income; employment; health; education, skills and training; housing; geographic access; and crime. The overall index is a weighted sum of the seven domain scoresⁱⁱ. There have been different revisions usually denoted by the year of revision, e.g. SIMD2004 refers to the 2004 initial version of the index; SIMD2012 refers to the 2012 revision. For further information see: <http://www.scotland.gov.uk/Topics/Statistics/SIMD>

ⁱⁱ Scottish Government. *SIMD Background and methodology*. Available at: <http://www.gov.scot/Topics/Statistics/SIMD/BackgroundMethodology> (accessed October 2015)

Executive summary

Glasgow's poor health profile has been widely documented and a range of health and social problems continue to affect the city's residents. This is, however, not a static picture and population health is likely to be impacted by changes in political governance, by new policy directions and by economic forces. Given this changing context, it is important that trends in health in the city are monitored, particularly the health inequality gap, and that there is an understanding of what is happening to health at the local level.

This report is primarily concerned with describing life expectancy trends since the early 1990s in Glasgow and examining these in terms of changes in neighbourhood-, deprivation- and gender-related inequalities. Additionally, in order to reflect the broader context for these health trends, a description is given of changes in population, housing, environmental and socioeconomic circumstances at a city and neighbourhood level.

Over the past 20 years (between 1991-1993 and 2012-2014), life expectancy at birth in Glasgow has increased at a similar rate to Scotland as a whole. Nevertheless, Glaswegians continue to have considerably shorter life expectancy than Scots overall. The gap between female life expectancy in Glasgow and in Scotland has remained relatively unchanged over the period (in 2012-2014 the gap was 2.4 years), whereas the male life expectancy gap widened slightly to over 4 years in the mid-1990s, but reduced in the last decade (in 2012-2014 the gap was 3.8 years).

Over this period life expectancy at birth improved for both sexes, but more so for men in Glasgow (increasing by 5.2 years) than for women (increasing by 3.7 years). At the end of the period (2012-2014), male life expectancy in the city as a whole was 73.4 years and female life expectancy, 78.7 years. As a result of the greater improvements seen for men, while the gender gap has reduced slightly over the last 20 years, a 5.4-year gap remains.

At a neighbourhood level, there is now a 15-year gap in male life expectancy at birth across the 56 neighbourhoods in Glasgow (ranging from 66.2-81.7 years) and an 11-year gap in female life expectancy (ranging from 73.1-84.3 years). Over a 13-year period between 1995-1999 and 2008-2012, male life expectancy increased across all neighbourhoods, whereas female life expectancy appeared to have fallen in four areas of the city. There is no clear or consistent relationship between changes in life expectancy and changes in neighbourhood characteristics, such as deprivation score, neighbourhood regeneration or population change.

Life expectancy in the city has improved for women and men across all of the deprivation deciles in the city over the last 15 years (between 1995-1997 and 2010-2012). However, wide deprivation-related inequalities remain. For men in the least deprived decile, life expectancy at birth is estimated to be 13.5 years higher than for men in the most deprived decile, a gap that has remained constant since the mid-1990s. For women, however, the deprivation-related gap in life expectancy increased over the period from 8.1

years to 10.7 years by 2010-2012. Moreover, male life expectancy has improved more than female life expectancy, particularly in the most deprived deciles of the city.

Further work is needed to understand the relatively poorer trajectory in female life expectancy and particularly how this affects women in the more deprived parts of Glasgow. Qualitative approaches are needed to explore the diverging health trajectories of certain neighbourhoods and to understand why in certain areas female life expectancy appears to have fallen over time. The fact that in a 20-year period from the early 1980s to early 2000s there was no improvement in male life expectancy in the most deprived parts of the city/region also merits further study.

There is not a straightforward relationship between the social and demographic trends highlighted in this report and health trends. The social and demographic trends show how Glasgow has changed and will continue to change. The city's population is growing, has become more ethnically diverse and, as with every other local authority in Scotland, the number and proportion of older people is set to rise significantly. Community regeneration continues to be a strategic priority across the city. Patterns of housing tenure are changing, with private renting on the rise. Changes to welfare and taxation, policies relating to people on low income and the availability of good quality employment will continue to impact on the population's health.

In a changing socioeconomic and political context, there is a need to monitor and understand health and health inequality trends. These analyses also show the importance of incorporating a gendered perspective to monitoring, understanding and reducing inequalities.

Overall, this work highlights the continuing detrimental influence of structural and material inequalities on health, and the importance of progressive policies to tackle poverty, exclusion and inequality. The evidence of what works to reduce health and social inequalities is well-documented. While much of what needs to be done lies within the power of national government – for example, fiscal and welfare policies, wider governance processes, and national strategies to close educational and health inequalities – policies at more local levels are also essential. Indeed aspects of a wide range of local policies can contribute to addressing health inequalities if they are developed with that as an aim. Support and leadership in relation to living wage employment, income maximisation, poverty-proofing and proportional targeting of services and investment, housing and regeneration strategies, improvements to the built and natural environment, paying attention to social contexts and investing in active travel are all examples. This report also highlights the potential importance of approaches at neighbourhood levels, to prevent and mitigate the effects on health of wider social and economic inequalities.

Action to address Glasgow's and Scotland's health inequalities is urgently needed. To achieve a shift *'from word to deed'* – from policy to action – will require greater attention to the health impacts of a range of policies and action at all levels to reduce inequalities in power and resources.

1. Introduction

Glasgow's poor health position is well-known and persists. Nevertheless, Glasgow's health profile is changing and is likely to be affected by recent changes in political governance, by new policy directions and by global and local economic factors. Given this changing context, it is important that trends in health in the city are monitored, particularly the health inequality gap (as measured here by the gap in life expectancy), and that there is an understanding of what is happening to health at the local level.

This report is primarily concerned with documenting health trends in Glasgow over the last 15 years, as measured by life expectancy estimates. There are many macro and local influences on population health. Therefore, part of the report is devoted to describing changes in population, housing, the environment, economic factors and other socioeconomic circumstances at a city level and at a more local, neighbourhood level. The report also touches on the influence of global trends, government policies – such as austerity and welfare reform – and more localised determinants, such as regeneration policy and environmental quality.

The following section of this report provides a background context relevant to the study in terms of health trends, political changes and economic impacts. **Section 3** outlines the study aims, the data and methods used, and limitations of the analysis. **Section 4** then provides an overview of changes in demography, housing and socioeconomic circumstances and environmental factors in Glasgow. **Section 5** details changes in life expectancy at a city level, within neighbourhoods and in relation to deprivation. There follows a discussion section (**Section 6**), policy implications (**Section 7**) and conclusions (**Section 8**).

2. Background

This section provides a summary of Glasgow's recent health trends alongside a description of key features of Glasgow's transition from an industrial to a service-based economy. An overview of changes in political governance and policy in Scotland over the last 15 years is then given, noting the significant impact of the financial crisis of 2007/08.

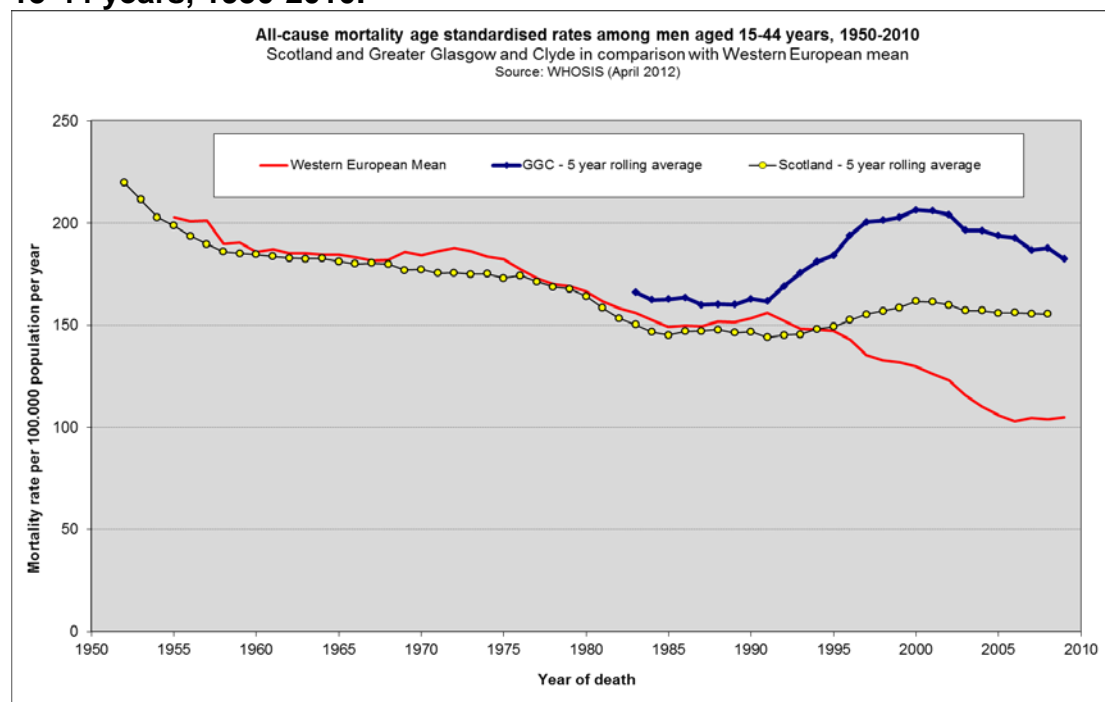
2.1 Health trends

Studies have highlighted Glasgow's multiple health and social problems, measured across a range of indicators, and have illustrated Glasgow's poor health position relative to other parts of Scotland^{1,2} and indeed within the UK³. Research comparing mortality trends over the last 20 to 25 years among a range of European regions showed that mortality in Scotland, and especially the West of Scotland, was particularly high and rates of improvement were relatively slow compared with other areas in the UK and Europe that have also experienced industrial decline⁴.

Increasing regional health inequalities across Scotland have become apparent in the last 20 years and inequalities in mortality in relation to social class and deprivation have widened⁵. Analysis in Let Glasgow Flourish^{1 (p72)} (a report published in 2006, that provided a comprehensive review of health and its determinants in Glasgow and the West of Scotland) suggested that life expectancy among men in the most deprived quintile of Greater Glasgow had not improved over a 20-year period (1981-2001) and might even have reduced slightly. Another UK study underlines this finding. It showed that between 1991 and 2001 premature mortality rates improved across the UK's persistently deprived areas – except for males in Scotland. This was particularly the case in deprived areas of Glasgow, where premature mortality rates for males rose significantly⁶.

In a study comparing mortality trends in Scotland within a European context⁷, one of the most concerning trends identified was the lack of improvement in young working-age mortality among men and women since the mid to late 1980s in Scotland. The mortality trend in this age group was even more concerning in Greater Glasgow and Clyde (GGC), where there was a clear rise in mortality in the 1990s, particularly among men (Figure 1).

Figure 1: All-cause mortality age standardised rates among men aged 15-44 years, 1950-2010.



Poverty and relative deprivation are important drivers of health inequality; deprivation accounts for most, but not all of the regional differences in mortality across Scotland. However, work comparing mortality in Glasgow, Liverpool and Manchester – cities of comparable size with similar industrial histories – has demonstrated an ‘excess’ of mortality in Glasgow compared with the other cities across all levels of deprivation⁸. This ‘excess mortality’ cannot be explained by current indices of deprivation and is the focus of a major ongoing research programme⁹.

2.2 Glasgow’s transition from an industrial to a service-based economy

Over the last 35 years, there have been dramatic and rapid changes in Glasgow’s population, economic base and housing. These changes, while not unique among UK cities, stand out because of their magnitude and the rapidity of change. The following social, demographic and housing trends drawn mainly from Let Glasgow Flourish highlight the scale of these changes:

- Glasgow’s population declined rapidly from the 1950s onwards and by 2001 the city’s population had dropped to below 600,000, representing a reduction of over 500,000 people. Since the mid-2000s the city’s population has started to rise again.

from the early 1980s up to the mid-2000s:

- Population loss was especially evident in the peripheral estates and in the most deprived parts of the city.

- The number and proportion of residents aged between 25 and 44 increased over a period when the overall population was in decline, leaving Glasgow with a relatively young population profile.
- The number of households increased overall and, within this, there was a growth in single adult households, a drop in two parent family households and a rise in lone parent households.
- Jobs in the service sector – comprising finance, business, the public sector, retail and hospitality – increased as manufacturing jobs reduced. For example, while 34% of Glaswegians in employment worked in manufacturing in 1971 by 2005 this had reduced to 6%¹⁰.
- Jobs in occupations considered as ‘middle class’ employment doubled reflecting the growth in the service sector.
- Rising numbers of women had paid employment (by 2003, 51.5% of jobs in the city were held by women) and there was a growth in part-time work (rising from 20% of jobs in 1981 to 29% in 2003).
- Levels of prosperity rose and there was a general reduction in levels of deprivation – as measured, for instance, by increased car ownership and reduced levels of overcrowding (in Greater Glasgow the percentage of people living in an overcrowded household reduced from 24% in 1981 to 7% in 2001).
- There were rising income levels for those in employment.
- Unemployment rates fell significantly.
- Owner-occupation rates doubled in Glasgow (from 24% in 1981 to 49% in 2001) with growth both in the city centre and in the peripheral estates.
- The quality and condition of housing in the city was transformed.

In short, in the 20 years from 1981 onwards there were significant socioeconomic changes in Glasgow and parts, but not all, of Glasgow became more affluent and ‘middle class’ⁱⁱⁱ with a similar profile to most other UK cities. Yet, Glasgow’s overall health profile and health trends – as highlighted earlier – did not match those in other comparable UK cities.

2.3 Inequalities policy

The issue of health inequalities has become an increasingly important priority for the Scottish Government. In 2008, Equally Well¹¹, the report of the Ministerial Task Force on Health Inequalities, was published and was followed by a detailed action plan. The Task Force was reconvened in 2012 to undertake a review of new evidence, look at lessons learned and identify new areas of work. In 2014, NHS Health Scotland produced an Inequalities Policy Review for the Task Force which reviewed the current policy and the evidence about what works to address health inequalities¹². In addition, a monitoring framework has been established by the Scottish Government to measure long-term trends in health inequalities between the least and most deprived areas in Scotland across a range of health measures¹³. Tackling inequalities (in general) and promoting equality of opportunity and outcome is now one of

ⁱⁱⁱ This trend is underpinned by the shift of employment from manual work and manufacturing to jobs in the service sector. It is entirely debatable whether many of these new ‘middle class’/service sector jobs have the same status and truly represent an improvement in terms and conditions of employment.

the Scottish Government's overarching priorities as set out in their programme for government¹⁴ and national performance framework, Scotland Performs¹⁵.

2.4 Changes in political governance and the effects of the financial crisis

In contextualising the health issues facing Glasgow, one needs to consider the impact of significant changes in the political governance of Scotland over the last two decades and the ongoing consequences of the global financial crisis of 2007/08 on people's economic circumstances.

Political control of social and health policy has shifted since the advent of Scotland's devolved parliament in 1999. The parliament has responsibility for a broad range of devolved matters including education, housing, sport, the arts, environment, local government, (many aspects of) transport, social care and health. To date most aspects of fiscal policy and the welfare system have remained matters reserved to the UK Parliament, although this may change to a degree as a result of the Smith Commission agreement¹⁶ on the transference of further powers to the devolved parliament.

In late 2007 and early 2008 the global financial crisis struck, leading to a UK recession, a collapse in the housing market, rises in unemployment, implementation of austerity measures and many other related effects. 'Austerity' measures instigated by the UK government have focused on reducing public sector spending and related changes to the welfare system. There is growing evidence that these changes are beginning to have an adverse impact on vulnerability to and levels of poverty^{17,18,19}.

The health consequences of financial crises can often be observed very rapidly, for example falls in road traffic casualties and rises in suicides²⁰, although there is no evidence of the latter in Scotland²¹. Changes in political governance and social protection in response to the most recent global financial crisis are likely to impact on health^{22,23} and, more generally, it is evident that political ideologies and economic context strongly influence health and inequalities^{24,25}.

The impact of these economically and politically-driven changes, alongside the continuing health problems that Glasgow faces, make it all the more important to monitor changes in health in the city.

3. Aims and methods

3.1 Aims

The purpose of this report is to describe and summarise trends in life expectancy within Glasgow over the last decade within the context of a changing city.

3.2 Approach

The work is structured around two main components of analysis:

1. An overview of demography, housing, socioeconomic circumstances and environmental factors in the city at a Glasgow level and by neighbourhood.
2. An analysis of life expectancy at birth by gender at a Glasgow level, by neighbourhood and by deprivation decile, with a specific focus on changes in the health inequality gap.

The analysis of changes in demography, housing and socioeconomic circumstances was based on simple descriptive analysis of trends in key indicators drawn from various administrative sources.

The life expectancy calculations required population and mortality data (sourced from NRS) which were pre-processed and reformatted via SPSS (a statistical software package). Abridged life tables (based on five-year age groups) were constructed using standard methods and a macro-driven Excel workbook was used to make the life expectancy calculation. Further details of the approach taken are provided in Appendix 1.

3.3 Data sources

The data used and referred to in the report come from a variety of administrative sources. Graphs are labelled to indicate the sources used in each analysis.

Many of the demographic trends and comparisons are taken from the Understanding Glasgow web resource (www.understandingglasgow.com). Where summary trends are derived from Understanding Glasgow, a reference is given to the relevant website section and page.

Much of the data at a neighbourhood level was derived from the GCPH's neighbourhood health profiles²⁶ and some graphs are taken from a GCPH report derived from the profile data²⁷.

The figures pertaining to housing stock (including completions and demolitions) and to housing tenure were produced by Development and Regeneration Services, Glasgow City Council, and are based on Council Tax Register data and other housing stock information.

3.4 Geography

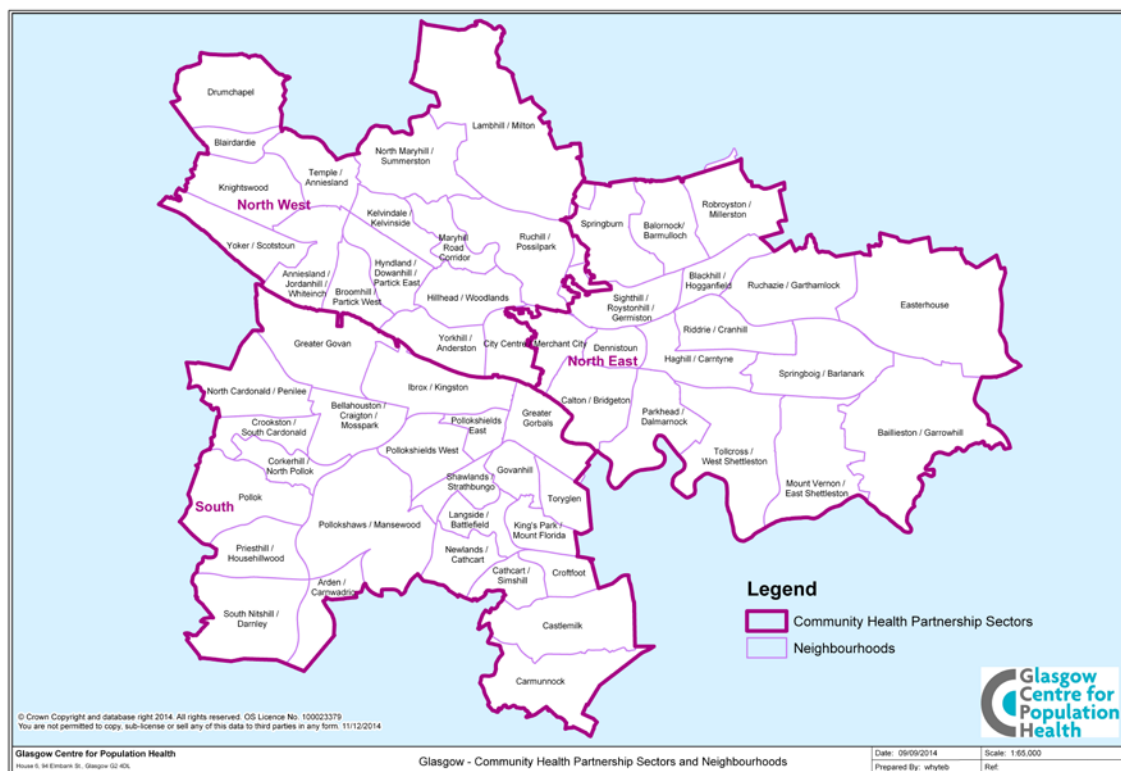
The neighbourhood analyses in the report are based on 56 neighbourhoods in Glasgow. These neighbourhoods, previously known as housing forum areas, were originally devised by staff in Development and Regeneration Services, Glasgow City Council, in consultation with housing associations.

They are designed to reflect real neighbourhoods which residents would recognise. Many of the neighbourhood boundaries are delineated by roads, railways or river systems, which create natural/man-made barriers between communities. The GCPH has used these neighbourhoods to produce neighbourhood profiles in 2008 and 2014.

Neighbourhood populations vary considerably in size. For example, just over 1,700 people live in Carmunock in the south of the city while nearly 20,000 people live in Hillhead and Woodlands in the west of the city.

The map below illustrates the geographic locations of Glasgow's neighbourhoods.

Figure 2: Glasgow – Community Health Partnership Sectors and Neighbourhoods.



3.5 Limitations

There are caveats worth noting in relation to this study.

Firstly, this is a quantitative analysis of secondary data from administrative sources, limited by the data that was readily available to be analysed. Qualitative data have not been used.

Secondly, the trends shown are relatively short, going back to the start of the 1990s at the earliest point. Thus, the impact of earlier events, such as the de-industrialisation period of the 1970s and 1980s, is not measured directly, although, arguably, the impact of earlier processes is still being seen in the health and socioeconomic trends in the city.

Finally, the analysis presented, while focused mostly on neighbourhood level changes does not attempt to be comprehensive in its breadth or depth of coverage of the social determinants of health. That said, an overview of key demographic, housing, socioeconomic and environmental trends is given and other pertinent factors such as changes to the social security system and health behavioural trends are commented upon.

4. An overview of changes in demography, housing, socioeconomic circumstances and environmental factors in Glasgow

4.1 Introduction

Here we present a broad overview of trends in key social determinants that are relevant to the life expectancy trends presented and discussed later in the report (Section 5). For the majority of factors a short summary is provided first for Glasgow as a whole and then more detail is provided at a neighbourhood level. For some variables it is only possible to provide a city level or Scottish-level summary.

4.2 Population²⁸

City level

There has been modest population growth in Glasgow since 2005 after decades of decline. In 2014 the city's population stood at 599,650. This is in the main a consequence of increased net migration into Glasgow with the number of (mainly non-UK) migrants arriving in Glasgow exceeding the number of residents leaving. Additionally, the birth rate in Glasgow overtook the death rate in 2007 and this, alongside inward migration, has contributed to a rise in the city's population in recent years.

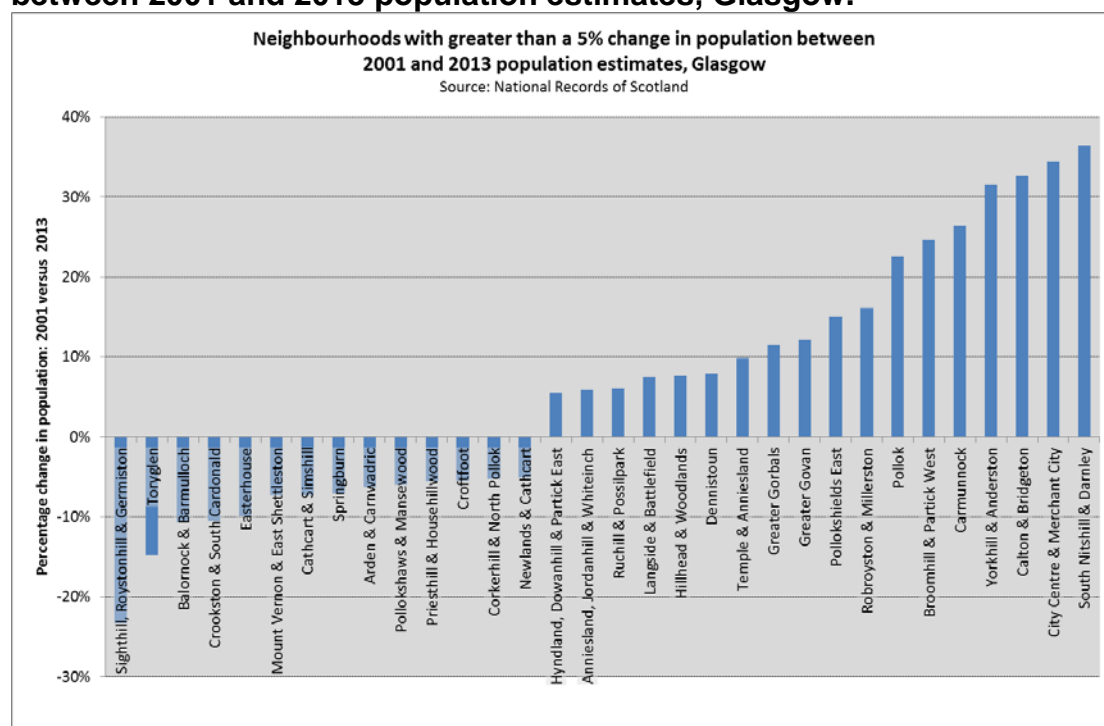
Partly as a consequence of these trends the age structure of the city is changing. Over the last 30 years, there has been a reduction in the proportion of children (0-15 years) and older people (65+ years) as the working-age population (aged 16-64 years) has risen. In 2014, 70% of the population were aged 16-64 years, compared with 63% in 1981.

Neighbourhoods

There have been substantial changes in the population sizes of many of Glasgow's neighbourhoods in the last 12 years. Between 2001 and 2013, the majority of neighbourhoods experienced a population increase, but in a minority there was a reduction in population.

Figure 3 highlights neighbourhoods that have had at least a 5% increase or decrease in population size over the period 2001 to 2013. In this period, Sighthill, Roystonhill & Germiston lost 23% of its population and Toryglen experienced a 15% drop in population. In contrast, the population of South Nitshill & Darnley increased by more than third (36%), the City Centre & Merchant City's population rose by 34% and Calton & Bridgeton's population rose by 33%. Overall 18 neighbourhoods experienced an increase in population of over 5% in the period, while 14 experienced a drop in population of over 5%.

Figure 3: Neighbourhoods with greater than a 5% change in population between 2001 and 2013 population estimates, Glasgow.



A council briefing paper provides more comprehensive details of city-wide and neighbourhood level changes in Glasgow’s population between 2001 and 2011²⁹.

Projections

The National Records of Scotland forecast³⁰ that Glasgow’s population will grow by 15% between 2012 and 2037, an increase of 90,000 people. These projections also suggest that the city’s population is set to get older with the population over 50 years of age predicted to rise by 57,000 between 2012 and 2037 to nearly 240,000. In terms of proportionate increases, the populations aged 65-74 and 75+ are predicted to increase by 51% and 48%, respectively, over the next 25 years.

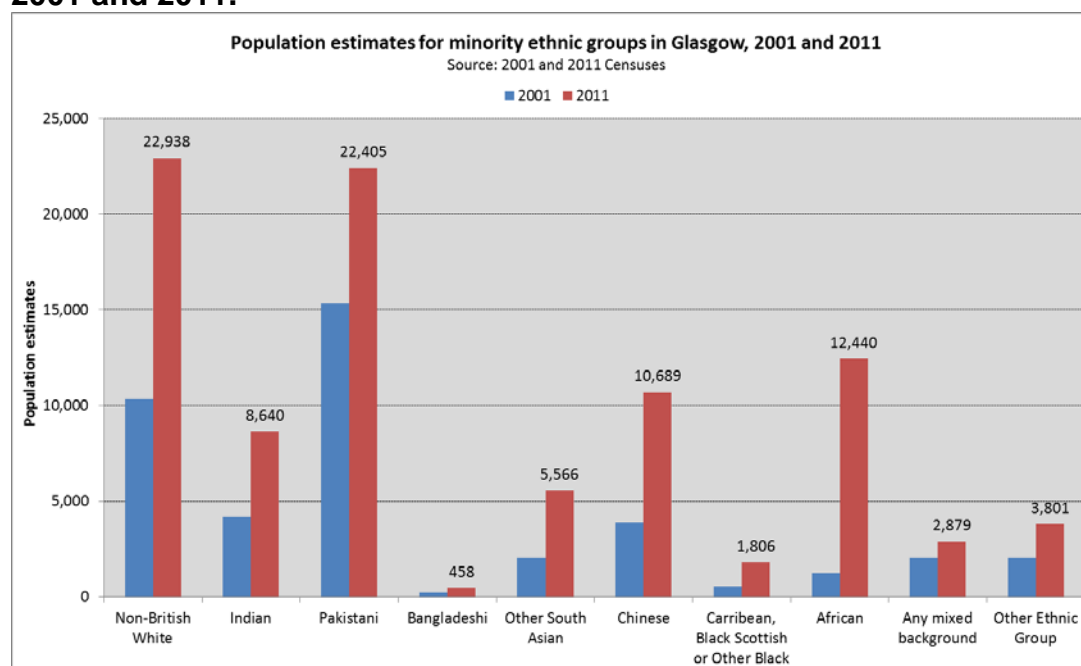
It is worth noting that Glasgow City Council have analysed the NRS population and household projections, pointing out the uncertainty in the assumptions underlying these projections, in particular, in relation to future household formation rates. Their conclusions are that the NRS principal projection results for Glasgow may be too high and that alternative NRS projections based on a low migration scenario may be more realistic³¹.

4.3 Ethnicity

City level

Glasgow has the most ethnically diverse population in Scotland and the ethnic population of the city continues to grow. In 2001, 5% of Glasgow's population were from a black and minority ethnic (BME) group, rising to 12% in 2011. Figure 4 illustrates that there have been population rises in all the main minority ethnic groups.

Figure 4: Population estimates for minority ethnic groups in Glasgow, 2001 and 2011.



Neighbourhoods

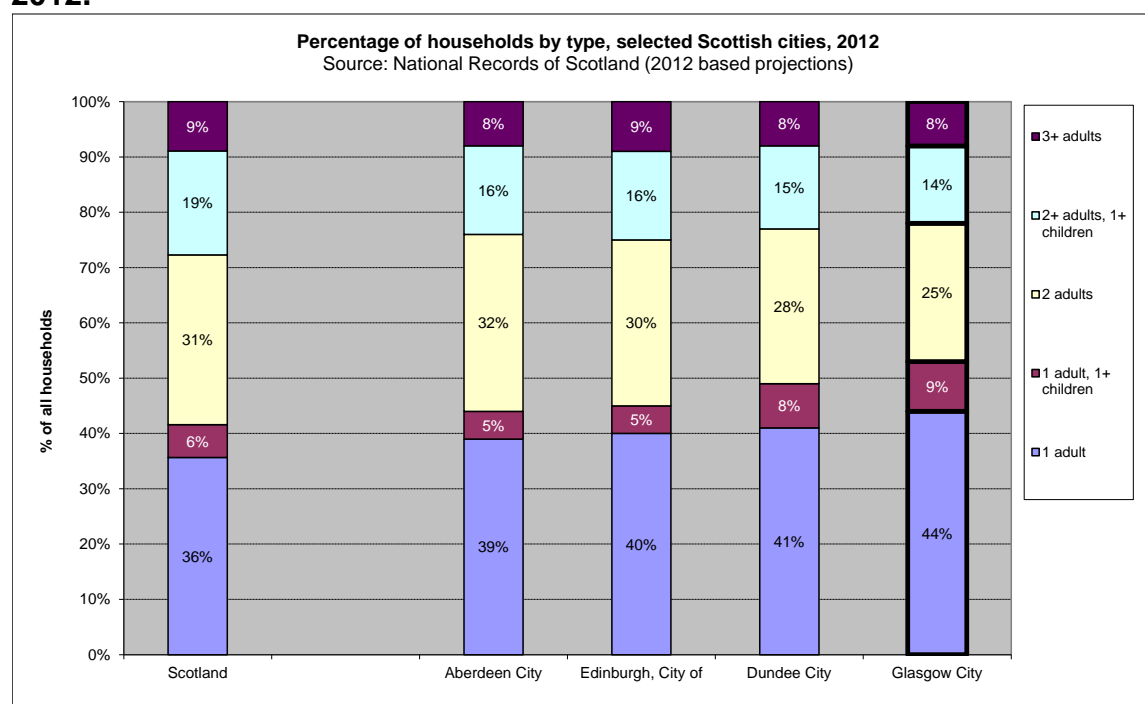
There was a rise in every Glasgow neighbourhood in the percentage of their population that was from a BME group between 2001 and 2011. Pollokshields East remained the neighbourhood with the highest percentage of its population from a BME group in 2011 (53%); in Pollokshields West the figure was 37% and in Govanhill it was 33%. In other neighbourhoods, particularly in the east of the city, BME groups made up less than 5% of the overall population (Figure 5).

4.4 Households

City level

In 2012, Glasgow was the Scottish city with the highest proportion (9%) of single parent households – one adult with one or more children – and of single adult households (44%) – Figure 6. The latter figure stands out among Scottish cities and is considerably higher than in Scotland as a whole, where only 36% of households are made up of single adults.

Figure 6: Percentage of households by type, selected Scottish cities, 2012.



Neighbourhoods

Glasgow has a higher than average proportion of householders living alone, but the proportion of lone householders varies considerably across the city as Figure 7 – which shows householders living alone as a percentage of all household residents^{iv} – illustrates. In the City Centre & Merchant City, 36% of residents lived alone (in 2011), but the proportion of people living alone varied substantially across the city and was considerably lower in some neighbourhoods; for example, in Robroyston & Millerston only 9% of residents were living on their own.

^{iv} Please note the denominator used here is the resident population living in households and not households. Therefore the percentages shown for Glasgow are not comparable with those shown in Figure 6.

In a significant number of neighbourhoods over half of all households with children are single parent households, while at the other end of the scale this figure reduces to one in ten (in Pollokshields West).

A Glasgow City Council briefing notes that overall the household formation rate in Glasgow has slowed down with a lower growth in single person households and a fall in the number of lone parent households in the city 2001 and 2011.

Projections

Household projections produced by National Records of Scotland³³ forecast that the total number of households in Glasgow will grow from 286,134 in 2012 to 354,006 in 2037, a rise of 24%. Alongside this rise, the make-up of households is predicted to change. Single adult households are predicted to rise, forming the majority of households (57%), while the proportions of 'three adult' are predicted to decline. Households with children are predicted to rise in absolute numbers but to become less common proportionately as other types of households increase more. Within this group, the number of single parent households ('single adult and children') is predicted to rise slightly.

There is always uncertainty with regard to any projections and Glasgow City Council take the view that lower rates of population and household growth are more likely. These are reflected in household projections for Glasgow wards from 2012 to 2022 produced by Glasgow City Council³⁴.

4.5 Housing stock

City level

Between 2001 and the end of 2013 the overall housing stock in Glasgow increased by 10,865, a 4% increase on the housing stock figure for 2001. In the period 2001-2013, 37,356 new dwellings were built, a figure that equates to 13% of the housing stock of the city in 2001. Over this period the proportion of new housing being built annually in Glasgow equated to 10-18% of all new housing in Scotland.

Over the same period, 2001-2013, 25,344 homes were demolished, equating to 8% of the housing stock in 2001. Housing demolitions in Glasgow contributed a large proportion of the total demolitions across Scotland in the period: 50% of all recorded demolitions in Scotland in 2000/01, reducing slightly to 30% in 2011/12³⁵.

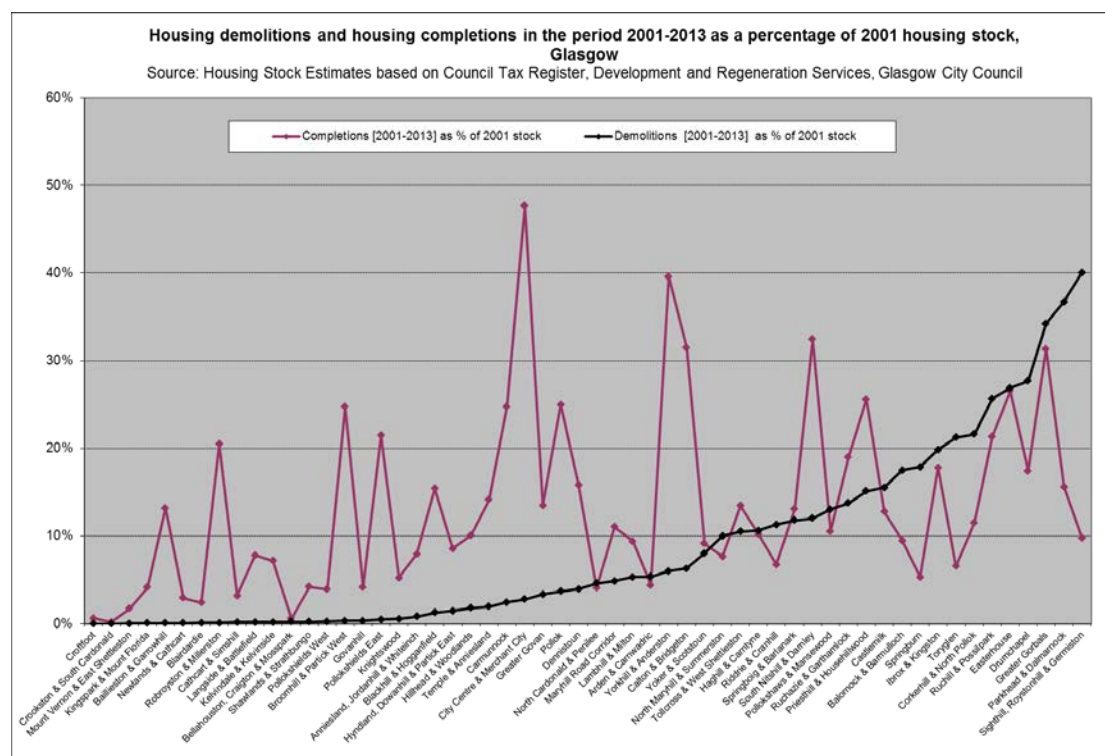
Neighbourhoods

New houses were built in every neighbourhood over the period 2001-2013. In some neighbourhoods less than 50 new houses were built, but in the majority of neighbourhoods there were several hundred built, and in some neighbourhoods the figures were in the thousands. For example, in the City Centre & Merchant City neighbourhood 2,843 new houses were built in the

period 2001-2013; this would have represented 48% of the housing stock in the neighbourhood in 2001.

Figure 9 shows the number of houses built and demolished between 2001 and 2013 expressed as a percentage of total housing stock in 2001. The data are presented by neighbourhood in order of level of demolition.

Figure 9: Housing demolitions and housing completions in the period 2001-2013 as a percentage of the 2001 housing stock, Glasgow.



Over the whole period (2001-2013) there 12,012 more dwellings built in Glasgow than were demolished. At a neighbourhood level, in 38 of the 56 Glasgow's neighbourhoods the number of new homes built exceeded the number of homes that were demolished. In five neighbourhoods (Greater Gorbals, Calton & Bridgeton, South Nitshill & Darnley, Yorkhill & Anderston and City Centre & Merchant City), the number of new dwellings built represented an increase of more than 30% on the housing stock level in 2001.

Sighthill; Roystonhill & Germiston was the neighbourhood which proportionately experienced the largest level of demolitions with 40% of the 2001 housing stock having been demolished. In addition, a range of other neighbourhoods had over 20% of their housing stock (as at 2001) demolished: Ibrox & Kingston; Toryglen; Corkerhill & North Pollok; Ruchill & Possilpark; Easterhouse; Drumchapel; Greater Gorbals; Parkhead & Dalmarnock^v. In these neighbourhoods, with the exception of Greater Gorbals (where a similar proportion of new housing has been built) and Ruchill &

^v Demolitions in this neighbourhood were, in part, undertaken to enable the construction of the athletes' village and other infrastructure for the 2014 Commonwealth Games.

Possilpark, high levels of demolitions correlate with a population reduction over the period – see Figure 3.

4.6 Housing tenure

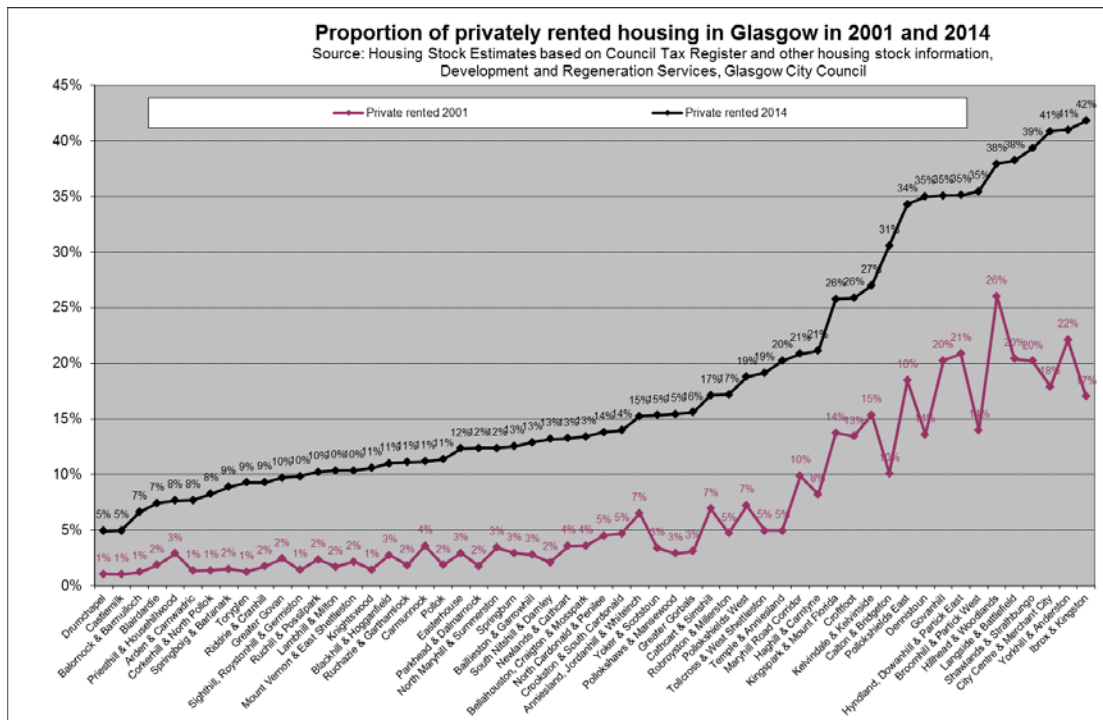
City level

There have been significant changes in housing tenure in the city in the last 12 years. The proportion of houses that are socially rented^{vi} in Glasgow has reduced from 45% in 2001 to 36% in 2013. There has been a small reduction in the proportion of owner occupied housing, which has reduced to 44.5% of all housing, while private renting has more than doubled from 8% in 2001 to 19% in 2013. These trends broadly reflect national trends, although levels of private and social renting are higher in Glasgow and owner occupation is lower³⁶.

Neighbourhoods

The overall Glasgow trends are broadly mirrored at a neighbourhood level. Figure 10 illustrates the change in private renting between 2001 and 2014. In this period the proportion of housing that was rented privately increased in every neighbourhood in Glasgow and in many neighbourhoods more than doubled. Ibrox & Kingston has the highest level of private renting in the city, at 42%, although the level of private renting is almost equally high in the City Centre & Merchant City and Yorkhill & Anderston (both 41%).

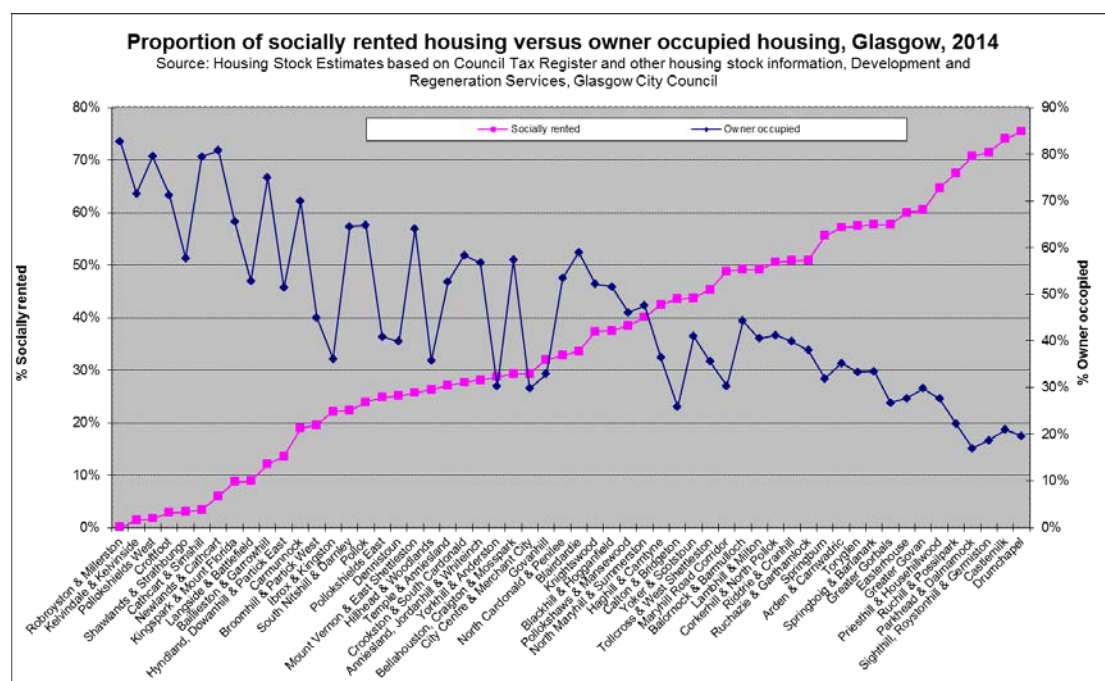
Figure 10: Proportion of privately rented housing in Glasgow in 2001 and 2014.



^{vi} i.e. rented from a housing association.

Figure 11 illustrates the distribution of proportions of socially rented housing versus owner occupied housing at a neighbourhood level across the city.

Figure 11: Proportion of socially rented housing versus owner occupied housing, Glasgow, 2014.



A clear pattern is evident: where the proportion of housing that is socially rented is high, owner occupation is low and vice versa. There is also a relationship between private and social renting: levels of private renting tend to be higher where social renting is lower and where social renting is higher private renting tends to be lower. There is no clear association between private renting and owner occupation levels.

It is an aspiration of the Scottish Government to create socially mixed communities³⁷ and this is reflected in its encouragement of multi-tenure housing developments³⁸. In this regard the polarity of housing tenure across Glasgow is notable. Nevertheless, there are also parts of Glasgow where there is a relatively even split of housing tenure. The neighbourhoods of Calton & Bridgeton, Govanhill, City Centre & Merchant City, Yorkhill & Anderston, Dennistoun and Hillhead & Woodlands all had a similar level of private renting, social renting and owner occupation in 2014.

4.7 Socioeconomic factors

Census-based measures

Alongside changes in the structure and make-up of Glasgow's population over the last decade, there have been other important changes in socioeconomic features of the population.

More households than ever before have access to a car: the percentage of households with access to one or more cars in Glasgow rose from 43% in 2001 to 49% in 2011. This is still low in comparison with Scotland as a whole, for which the equivalent rise in car access was from 63% to 69%. The increasing dominance of car use is further illustrated by the percentage of number of households with more than one car. In Glasgow, in 2011, 12% of households had access to two or more cars, while the rate for Scotland as a whole was double this at 27%.

The percentage of overcrowded households in Glasgow decreased between 2001 and 2011 from 22% to 17% continuing a long-term downward trend in the level of overcrowding. Nevertheless, Glasgow still has higher levels of overcrowded households than Scotland (in 2011, 9% of households were overcrowded). There are also wide geographic variations in the levels of overcrowding: across Glasgow's neighbourhoods in 2011, overcrowding ranged from 31% in the City Centre & Merchant City to 6% in Newlands & Cathcart.

*Employment/unemployment/benefits*³⁹

In terms of employment, Glasgow has a higher job density than other Scottish cities with the exception of Aberdeen. Between 2001 and 2011, the employment rate for Glasgow residents rose by 21%; this rise was considerably above that in the wider conurbation (+12.2%) and for Scotland (+11.7%)⁴⁰. However, its employment rate – which was 65.6% in 2014 – remains lower than the Scottish average (72.5%) and lower than in Aberdeen and Edinburgh, but higher than in Dundee.

Unemployment is relatively high in Glasgow compared with other Scottish cities and other neighbouring local authorities. The International Labour Organisation (ILO) unemployment rate for Glasgow increased from 6.5% in 2007 rising to above 11% in 2010 and has reduced in the last couple of years to 9.2% (in 2014), an unemployment rate below that in Dundee but considerably higher than in Aberdeen or Edinburgh. In Glasgow, underemployment (reflecting the number of employees who want or need to work more) rose from 5.7% in 2007 to 12.2% in 2012, but reduced to 8.5% in 2013.

Approximately 30% of households have no adults in employment. This figure has not changed appreciably in the last eight years and is significantly higher than in the other Scottish cities and in comparison with UK cities.

Glasgow has had a consistently higher rate of adults claiming out-of-work benefits than other Scottish cities although that rate has declined from 29.2% in 2000 to 18.4% in 2014. Similarly, the city has had a relatively high rate of adults claiming incapacity benefits, albeit that rate has also reduced significantly (from 17.7% in 2000 to 12.3% in 2014).

Analysis of the 2011 Census, confirms what one might expect: higher employment rates in Glasgow’s wealthier areas and low employment rates in the more deprived areas. As noted earlier, unemployment has increased as has part-time work. However, evidence of positive change (between 2001 and 2011) across four indicators (employment, unemployment, part-time employment and levels of qualifications) has been identified particularly in the following neighbourhoods: Yorkhill & Anderston, City Centre & Merchant City, Calton & Bridgeton, Dennistoun, Easterhouse, Greater Gorbals, Toryglen, Ibrox & Kingston, Pollok and Pollokshaws/Mansewood.

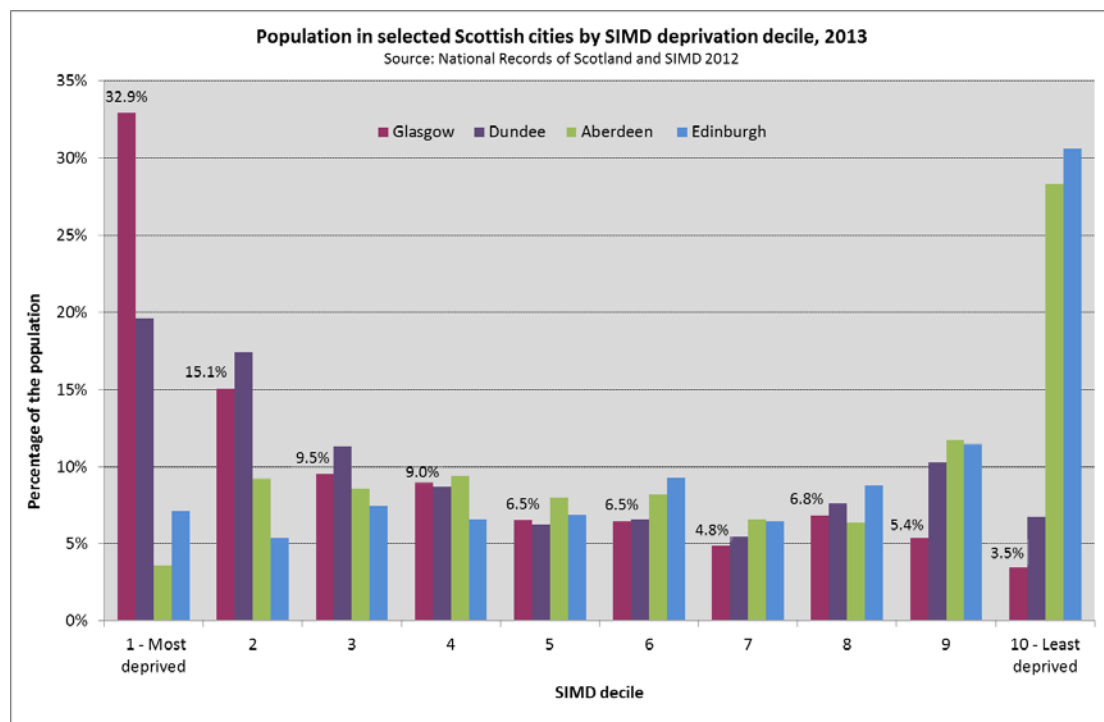
4.8 Deprivation

Deprivation in Scotland is measured most commonly using the Scottish Index of Multiple Deprivation (SIMD). The index was introduced in 2004 and there have been three revisions in 2006, 2009 and 2012. A new revision, SIMD2016, is due to published in 2016.

City level

Based on SIMD2012, Glasgow had the highest concentration of deprivation in Scotland. Almost half of Glasgow’s residents – 286,000 people – resided in the 20% of most deprived areas in Scotland, while 20,600 people (3.5% of the population) lived in the 10% of least deprived areas in Scotland (see Figure 12).

Figure 12: Population in selected Scottish cities by SIMD deprivation decile, 2013.

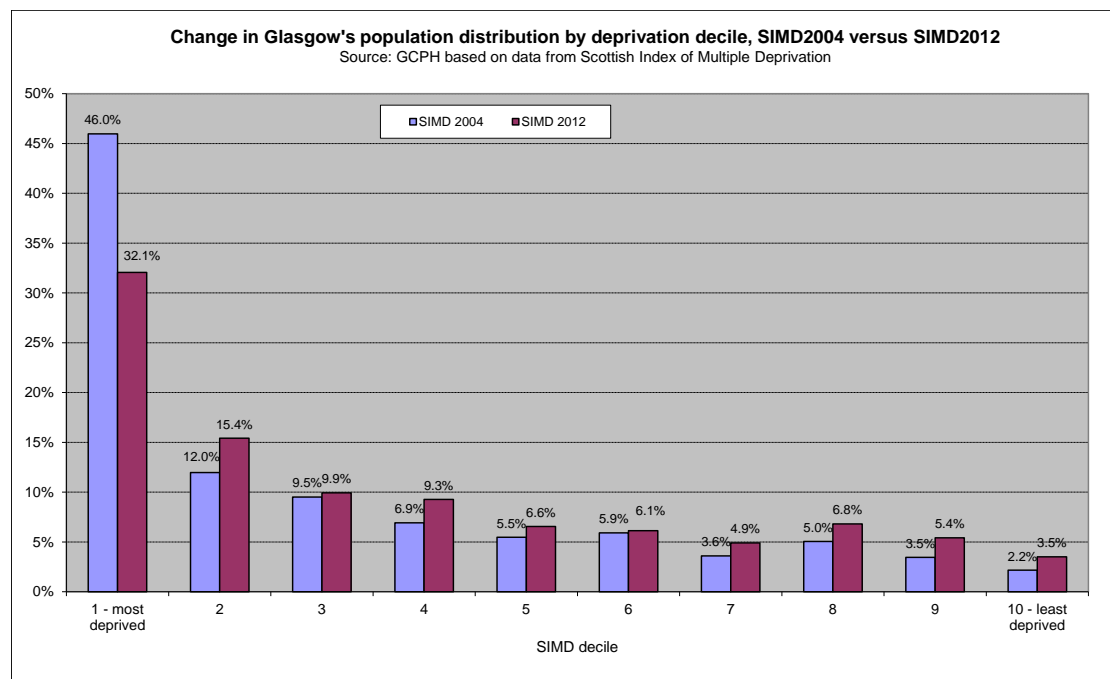


This is distinctly different from the deprivation profiles of Edinburgh and Aberdeen, where approximately 30% of the population are from the most affluent areas.

However, over the last decade levels of deprivation in Glasgow have reduced relative to the rest of Scotland. Of Glasgow's 694 data zones, 533 zones (77%) shifted to a lower deprivation ranking comparing SIMD2012 with SIMD2004.

Figure 13 illustrates how Glasgow's population has become relatively less deprived in comparison with the rest of Scotland by comparing the distribution of Glasgow's population by deprivation decile at two points in time approximately nine years apart, represented by SIMD2004 and SIMD2012^{vii}. The overall distribution of population by deprivation shifts to the right (*to lower deprivation*). This is most notable in decile 1, the most deprived decile: under SIMD2004, 46% of Glasgow's population was in the most deprived decile nationally, but this figure had reduced to 32% by SIMD2012.

Figure 13: Change in Glasgow's population distribution by deprivation decile, SIMD2004 versus SIMD2012^{viii}.



Figures 14 and 15 illustrate the changing deprivation profile of two of the city's neighbourhoods, City Centre & Merchant City and Yorkhill & Anderston. In both neighbourhoods, their resident populations have become relatively less deprived over the past decade. This shift has been accompanied in both

^{vii} The SIMD2004 index was based on the 2001 population, while SIMD2012 was related to the 2010 population.

^{viii} Populations compared are 2001 Census-based population estimates for SIMD2004 and 2010 small area population estimates (SAPE) for SIMD2012.

neighbourhoods by significant increases in new housing and rises in population.

Figure 14: Change in deprivation profile of City Centre & Merchant City.

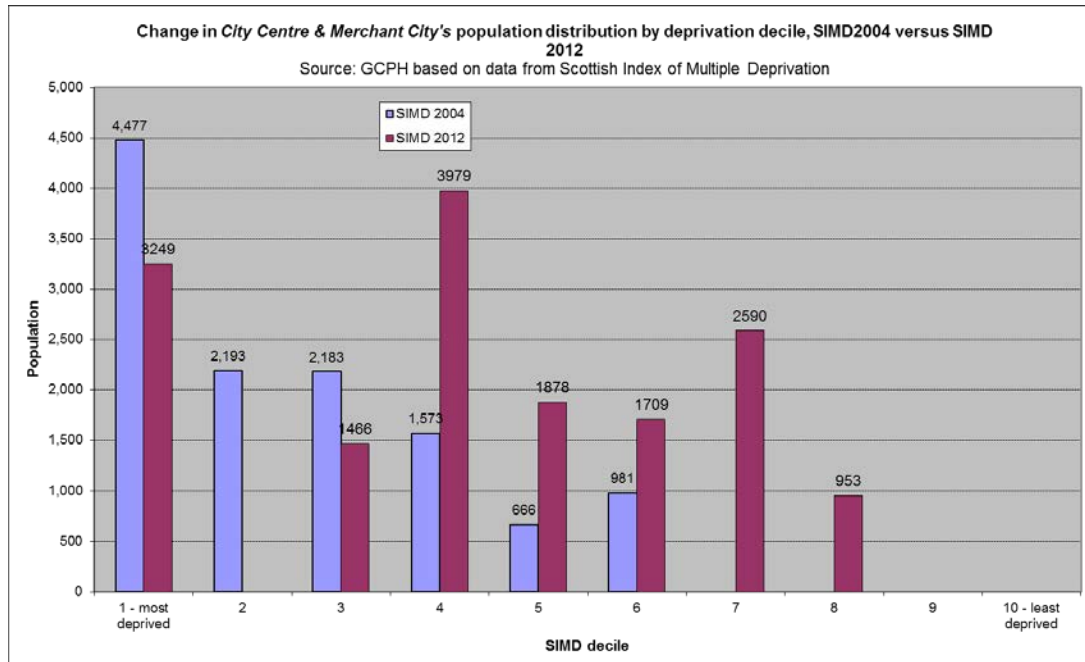
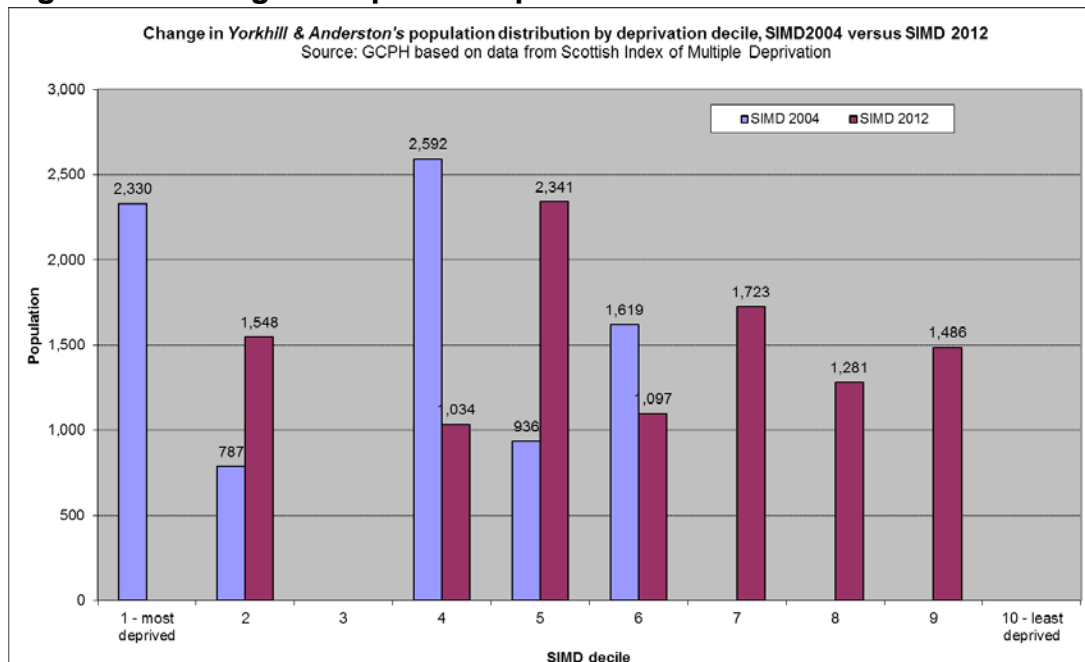


Figure 15: Change in deprivation profile of Yorkhill & Anderston.



Comparing changes in ranking of data zones across Glasgow's neighbourhoods, 51 out of the 56 neighbourhoods had experienced net improvements in the relative deprivation ranking of their data zones between SIMD2004 and SIMD2012, indicating that the shift to a relatively less deprived position was widespread across the city. Analysis of the trend in employment

deprivation, which is broadly^{ix} comparable between different revisions of SIMD, shows that employment deprivation in the working-age population of Glasgow reduced by four percentage points from 23% according to SIMD2004 to 19% according to SIMD2012. In addition, there was a reduction in employment deprivation across all but three of the neighbourhoods in Glasgow. This is important because it illustrates that in terms of at least one facet of deprivation, employment deprivation, there has been an *absolute* reduction in deprivation alongside *relative* improvement in Glasgow's deprivation profile.

4.9 Poverty⁴¹

In this section, long-standing dimensions of poverty are highlighted through measures such as child poverty and fuel poverty. However, the number of people in poverty and the nature of poverty is changing rapidly in the current context of welfare reforms and austerity. In this regard two relatively new issues have emerged: *in-work poverty* and rising levels of *food poverty*. Data in this section come from a variety of sources and some measures can only be shown at a city or Scottish level.

4.9.1 Child poverty

City level

In 2014, 33% of all children in the city were estimated to be living in poverty⁴²; levels of child poverty are considerably higher in Glasgow than in other Scottish cities and neighbouring local authorities.

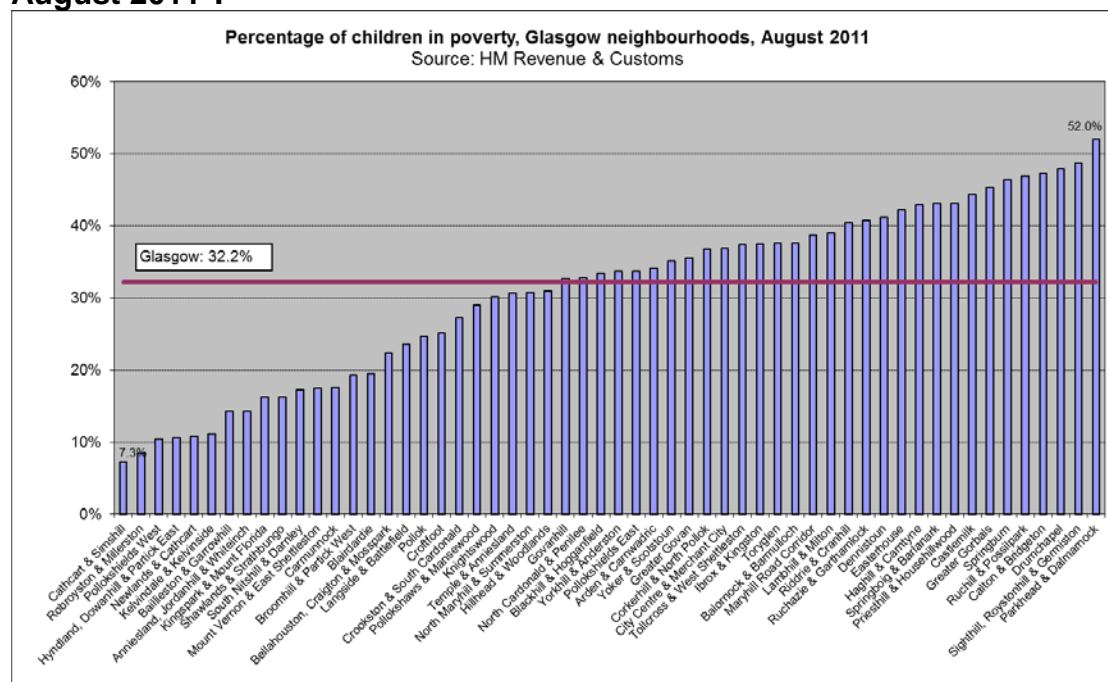
In 2012, 22% of children lived in workless households, 8% higher than the Scottish average, while a fifth of households had a net annual income of less than £10,000.

Neighbourhoods

The distribution of child poverty and vulnerability to child poverty varies dramatically across Glasgow. Figure 16, based on data from 2011, shows that in some neighbourhoods over 50% of children were living in poverty compared with less than 10% in other parts of the city, representing a five-fold difference in a key measure of life circumstance.

^{ix} The working-age population used as a denominator in the measure has changed slightly. Previously the working-age population included men aged 16 to 64 (inclusive) and women aged 16 to 59 (inclusive). In SIMD2012, a best-fit working-age population covering men aged 16 to 64 (inclusive) and women aged 16 to 60 (inclusive) was used.

Figure 16: Percentage of children in poverty, Glasgow neighbourhoods, August 2011^x.



4.9.2 Fuel poverty

Three factors influence whether a household is in fuel poverty: low household income; fuel costs; and energy efficiency of homes. In Glasgow, 36% of houses were estimated to be affected by fuel poverty in the period 2011-13⁴³, a similar figure to the Scottish average. Glasgow had more households in fuel poverty than Edinburgh and Aberdeen – where 26% and 30% of households were estimated to be affected by fuel poverty – but had a lower prevalence of fuel poverty than Dundee (42%). As the method of calculating fuel poverty has been changed recently, trends in fuel poverty are not available.

4.9.3 In-work poverty

In-work poverty is a measure of how many working households are affected by poverty. When considered as a proportion of overall relative poverty in Scotland after housing costs, the contribution of in-work poverty is actually increasing – indicating that employment is not a guaranteed route out of poverty. By 2013/14, in Scotland, 50% of working-age adults were in poverty (after housing costs) and 56% of children were experiencing poverty living in households where at least one adult was in employment. There are no

^x **Definition of percentage of children in poverty:** Number of children living in families in receipt of child tax credits whose reported income is less than 60% of the median income or in receipt of income support or (income-based) Jobseekers allowance, divided by the total number of children in the area (determined by child benefit data).

published figures for Glasgow but it is reasonable to expect that there would be a similar, or possibly even higher, figure for Glasgow.

4.9.4 Food poverty

Food poverty is another related facet of poverty which links to other forms of poverty and which has been highlighted by the emergence and increasing prevalence of food banks. The provision of food parcels and food aid has grown significantly in Scotland and the rest of the UK in the last five years. In 2009, there was one Trussell Trust food bank operating in Scotland. By October 2013, this had increased to 42 established food banks with a further 17 in development. More recent figures gathered by the BBC suggest that 10,489 people (a third of whom were children) visited the Trussell Trust's 48 food banks in Scotland in December 2014, which was a 13% increase on the equivalent month a year before⁴⁴. The number of people using Trussell Trust Scotland-based food banks increased by 398% between 2012/13 and 2013/14.

A Scottish Government study⁴⁵ found that, as of mid-September 2013, 35 organisations were providing food aid in Glasgow, between them delivering 26 food parcel services and 27 'soup kitchens'. Providers who participated in the study were in agreement that welfare reform, benefit delays, benefit sanctions and falling incomes had been the main factors driving the recent trend observed of increased demand for food aid.

The study's findings suggest that soup kitchens in Scotland are used mainly by homeless people who tend to have long-standing health problems, such as substance dependency or poor mental health. Food banks are also mainly used by people who are housed but who have little or no income.

Unlike other locations, Glasgow City also has a third category of clients: destitute migrants. As a group this tends to include people who are homeless or threatened with homelessness, and mainly comprises asylum seekers whose application for asylum has been rejected.

4.9.5 Poverty trends and projections

The Scottish Government publishes national estimates of relative poverty before and after housing costs. Under both measures relative poverty has reduced over the last 15 years: in 1994/95, 21% of Scots were defined as being in relative poverty (before housing costs), but by 2013/14 this figure had dropped to 14%, equating to 730,000 people. This reflects more people moving into employment and increases in hours worked. The percentages of children, working-age adults and pensioners living in poverty (before housing costs) were all at a similar level, around 14-15%, in 2013/14.

However, after housing costs are accounted for, poverty in Scotland has not decreased to the same extent. This is particularly true for families with children. This reflects rent values increasing at a faster rate than income, combined with changes to housing benefit eligibility, meaning little

improvement in the standard of living.

In 2013/14 the proportion of children in Scotland experiencing poverty (after housing costs) remained at 22%, after increasing from 19% in 2011/12. However, the Institute for Fiscal Studies forecasts a large increase in children living in relative and absolute poverty in Scotland by 2020. This forecast does not take account of the 2015 budget, in which cuts to the welfare budget were announced, including benefits caps, restrictions on first time tax credits and family benefits and a freeze on most working-age benefits.

While these forecasts are for Scotland, we know that Glasgow already has a higher proportion of people living in poverty across all age groups and clearly many more Glaswegians, particularly children, are likely to suffer poverty in the future if these projections come to pass.

4.10 Physical environment

4.10.1 Vacant and derelict land

While there have been major changes in housing in Glasgow over the last decade, other aspects of Glasgow's physical environment have changed relatively little. Seven per cent of land in Glasgow is vacant and derelict, a much higher proportion than in other neighbouring local authorities; in the north east sector of the city this figure rises to 10%⁴⁶. As a consequence six out of ten Glaswegians live within 500m of vacant and derelict land.

4.10.2 Air quality

A report by Public Health England, estimated that over 300 deaths in Glasgow in 2010 were attributable to anthropogenic PM_{2.5} air pollution⁴⁷. A more recent DEFRA report estimated that between 44,750-52,500 deaths per year in the UK could be due to the combined impact of particulate matter and nitrogen oxides⁴⁸; suggesting there is an even greater burden of mortality due to air pollutants in Glasgow.

Air quality monitoring in Glasgow is restricted to a limited set of monitoring sites. The annual mean levels of PM₁₀ particles^{xi} in the air in Glasgow have been reducing overall but a number of sites breached the air quality objective between 2000 and 2014⁴⁹. In relation to annual mean concentration of NO₂, one city centre monitoring site in Glasgow (Hope Street) has consistently breached the Air Quality Strategy (AQS) objective since 1998. In a 2013 assessment, a DEFRA report⁵⁰ found that Glasgow had 76.2km of road exceeding the NO₂ limits^{xii} and that the maximal annual mean level of NO₂ in the Glasgow Urban Area was 68µg/m³ compared with the EU directive limit of 40µg/m³.

^{xi} PM₁₀ is among the most harmful of all air pollutants, particularly affecting the respiratory system.

^{xii} Under the EU Ambient Air Quality Directive annual concentration levels of NO₂ should not exceed 40µg/m³.

4.10.3 Active travel

There are limited data on trends in active travel. Census data highlight a slight increase in cycle commuting (from 1% to 1.6%) in Glasgow between 2001 and 2011 and a reduction in pedestrian commuting (from 26.8% to 25.1%)^{xiii} over the same period. Data from another source, Glasgow City Council's cordon count surveys of cyclists and pedestrians coming into and leaving the city centre, suggests that cycling trips, and to a lesser degree walking trips, are increasing. There has been a 78% increase in cyclists and an 11% increase in pedestrians entering and leaving the city centre daily in the period 2009 to 2014⁵¹. It is likely that improvements to infrastructure and Glasgow's cycle hire scheme, which was launched in June 2014, will have contributed to the increased levels of cycling.

4.11 Other aspects of the social and economic environment

4.11.1 Education^{52,53}

There have been improvements in educational outcomes in recent years in Glasgow. School attainment in the city's schools has been rising steadily over the last ten years and more pupils than ever are moving onto positive destinations – higher or further education, training or employment. However, Glasgow pupils still have lower attainment levels on average than pupils in other local authorities.

There are also more adults with higher level qualifications in Glasgow compared with a decade ago. In 2001, 39% of adults had qualifications at Higher grade or above, but by 2011 this figure had risen to 48%. In part, this change is a generational shift as an older population with less formal qualifications is replaced by a younger population with more academic qualifications.

Nevertheless, educational inequalities among adults are stark: while a quarter of Glaswegian adults have a university degree, a similar proportion have no educational qualifications. The proportions of the adult population with a qualification at Higher grade or above vary considerably between neighbourhoods, ranging from 24% in Balornock and Barmulloch to 82% in Hyndland, Dowanhill and Partick East.

4.11.2 Community safety

There have been reductions in recorded crimes across Scotland in recent years; over the ten years between 2005/06 and 2014/15, recorded crime dropped by 39%⁵⁴, continuing a steady decline in recorded crime in Scotland since a peak in 1991. Glasgow tends to have higher level of recorded crimes and offences than other neighbouring local authorities and other Scottish

^{xiii} From Census tables QS702SC (2011) and Table A3 (2001). These tables refer to journeys to usual place of work or place of study.

cities (2,350 crimes and offences per 10,000 population in Glasgow compared with 1,189 per 10,000 in Scotland in 2014/15), but reported levels of many crimes have been declining since 2006. This includes reductions in violent crime, although reported levels of non-sexual violent crime in Glasgow remain nearly twice the national average (23 violent crimes per 10,000 population in Glasgow compared with 12 per 10,000 in Scotland in 2014/15).

Perceptions of antisocial behaviour in Glasgow have changed in a positive direction also. Thirty per cent of Scottish Household Survey respondents in Glasgow stated vandalism, graffiti and other damage to property was common in 2005/6 but this had reduced to 15% by 2014. Similarly perceptions of intimidation and harassment and rowdy behaviour being common have fallen considerably over the same period⁵⁵.

4.11.3 Social capital

Research on social capital suggests that Glaswegians are less likely to volunteer, participate in social groups, engage reciprocally with neighbours, trust others and have a poorer perception of their neighbourhood than people in other UK cities. On most measures, levels of social capital are lower in more deprived neighbourhoods.

Volunteering has been shown to be lower in Glasgow than in most other Scottish cities⁵⁶ and in comparison with Liverpool and Manchester⁵⁷. A study of 'clyde-siders' – those who volunteered during the 2014 Commonwealth Games – highlighted the challenge of attracting volunteers who were not in employment or with limited volunteering experience. The one-off, high profile nature of this event however, made it difficult to draw more generic conclusions about everyday volunteering⁵⁸.

Positive perceptions of reciprocity and trust are highest in the least deprived parts of Glasgow and lowest in the most deprived areas. In comparison with Liverpool, levels of perceived reciprocity were lower in Glasgow and comparable with those in Liverpool, while levels of trust were lower in Glasgow compared with both Liverpool and Manchester. In contrast to Liverpool and Manchester, more Glaswegians felt able to influence decisions affecting their local area and more Glaswegians than Scots believe in their ability to influence decisions affecting their local authority.

Due to a lack of survey data on trends, there is relatively sparse evidence to assess how social capital has changed over time.

One measure of social participation that can be measured temporally is voter turnout at elections. While voter turnout in all types of election has tended to be lower in Glasgow than in other Scottish cities and surrounding local authorities, turnout has increased at general elections over the last 15 years. At the 2001 General Election turnout was 46% in Glasgow, but turnout has risen at every general election since and reached 61% in 2015. There was also a high turnout in the city for the 2014 referendum on Scottish independence – Glasgow had a turnout figure of 75% compared with 84.5%

for Scotland as a whole⁵⁹. However voter turnout at Scottish Parliamentary elections has remained at a low level and unchanged (at around 41%) since 2003, while turnout for local government elections dropped from 44% overall in 2007 to 33% in 2012⁶⁰.

The percentage of households with access to the Internet – a very indirect and debatable measure of social networks – has doubled in the last decade, standing at 71% in 2012.

4.12 Summary comments

The preceding description of changes in the demography, housing, social, economic circumstances and environmental factors in Glasgow over recent years is important as changes in people's life circumstances are likely to have direct and indirect impacts on health. It is clear that Glasgow as a whole and specific neighbourhoods within the city have undergone significant change over the last decade. It is also apparent that there are social policies and economic factors that are having profound influences on people's lives.

In the next section, trends in health, as measured by male and female life expectancy at birth, are presented for Glasgow, for its neighbourhoods and in relation to deprivation.

5. Changes in life expectancy in Glasgow

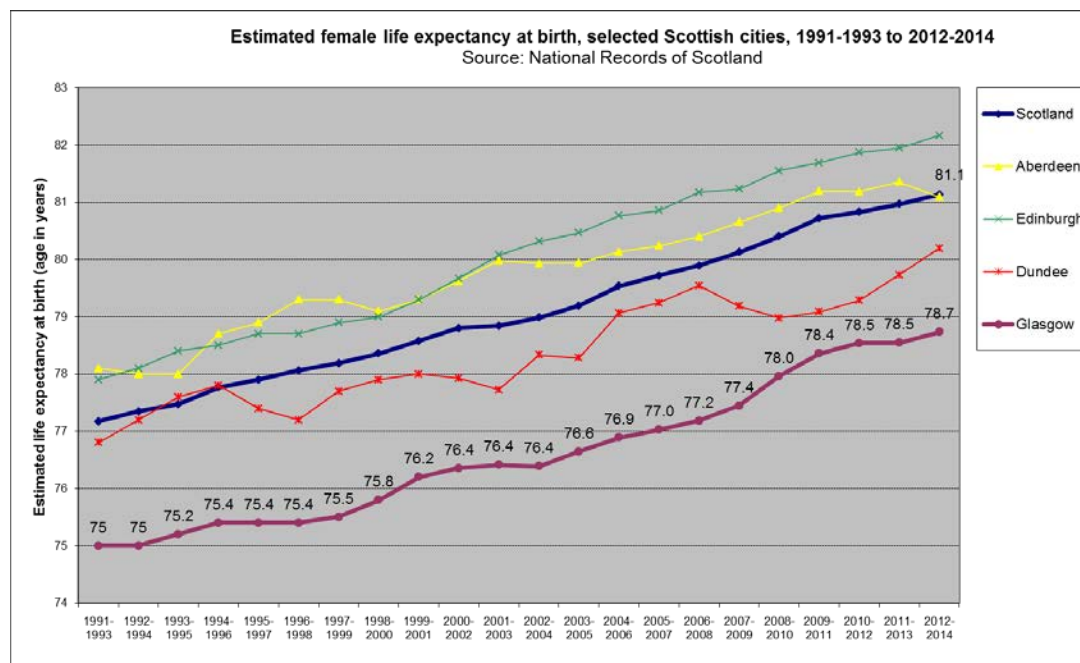
Life expectancy is a recognised measure of overall population health used in population health comparisons. The strengths of this measure are that historic trends can be calculated and estimates can be made (and compared) at a range of different geographical levels. It is worth noting that life expectancy estimates are calculated from life tables based on historic mortality rates which may not hold in the future.

While national and local authority estimates of life expectancy are produced annually by ONS and National Records of Scotland, there has been no detailed study of life expectancy trends within Glasgow over the last decade. The analysis reported here fills this gap by exploring both geographic- and deprivation-related life expectancy trends within the city.

5.1 Trends in life expectancy for Glasgow in comparison with other selected cities and Scotland

National Records of Scotland (NRS) publishes regular updates on life expectancy for Scotland and administrative areas within Scotland⁶¹. Figure 17 shows trends in female life expectancy at birth estimated across three-year periods over a 20-year period from 1991-1993 to 2012-2014 for selected Scottish cities, including Glasgow, compared with Scotland.

Figure 17: Estimated female life expectancy at birth, selected Scottish cities, 1991-1993 to 2012-2014.



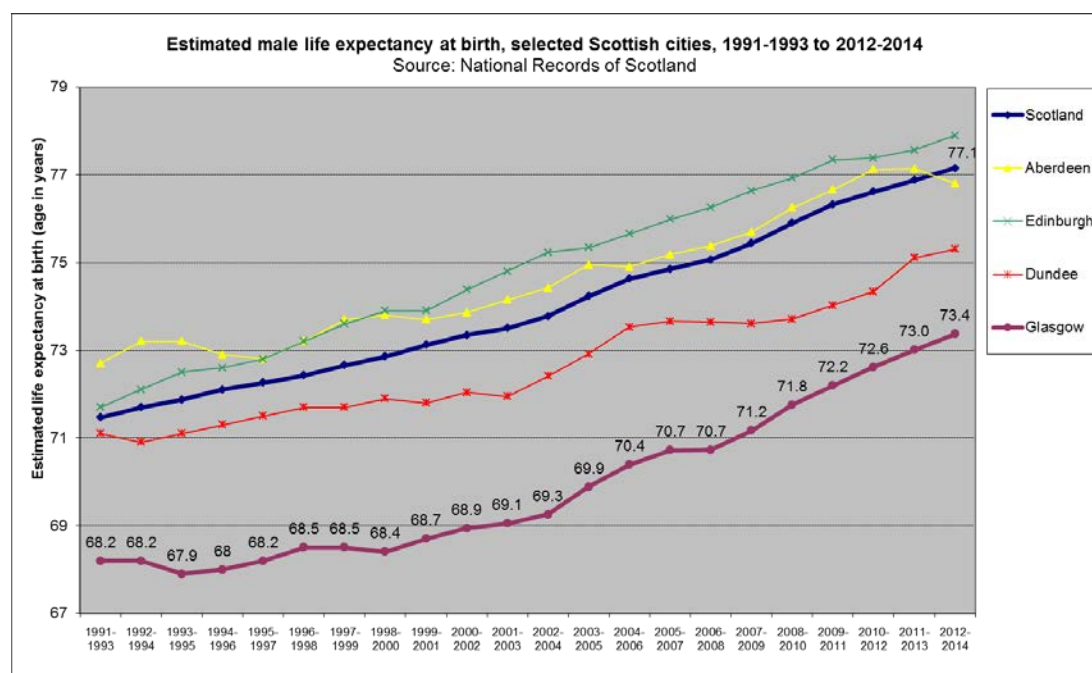
Female life expectancy in Glasgow, while improving, remains lower than in the other Scottish cities, although the life expectancy gap between both Dundee, and Aberdeen, and Glasgow has narrowed. In 2012-2014, a girl born in Glasgow was estimated to be likely to live for 78.7 years, 3.7 years longer

than in the early 1990s, but still 2.4 years less than girls in Scotland as a whole. This gap in female life expectancy between Scotland and Glasgow has remained relatively unchanged over the last two decades.

Male life expectancy in Glasgow has also been rising over the last 20 years (Figure 18). Between 1991-1993 and 2012-2014 male life expectancy at birth increased in both Glasgow and Scotland, but the increase in Scotland of 5.7 years was greater than that for Glasgow (5.2 years).

As a result of diverging trends, the gap in male life expectancy between Glasgow and Scotland increased and then narrowed again over a 20-year period. The widening of the gap occurred in the early period, growing from 3.3 years in 1991-1993 to over 4 years in the mid 1990s. However, over the last decade (since 2002-2004) the gap in life expectancy narrowed slightly; by the period 2012-2014 Scottish men lived approximately 3.8 years longer than Glaswegian men.

Figure 18: Estimated male life expectancy at birth, selected Scottish cities, 1991-1993 to 2012-2014.

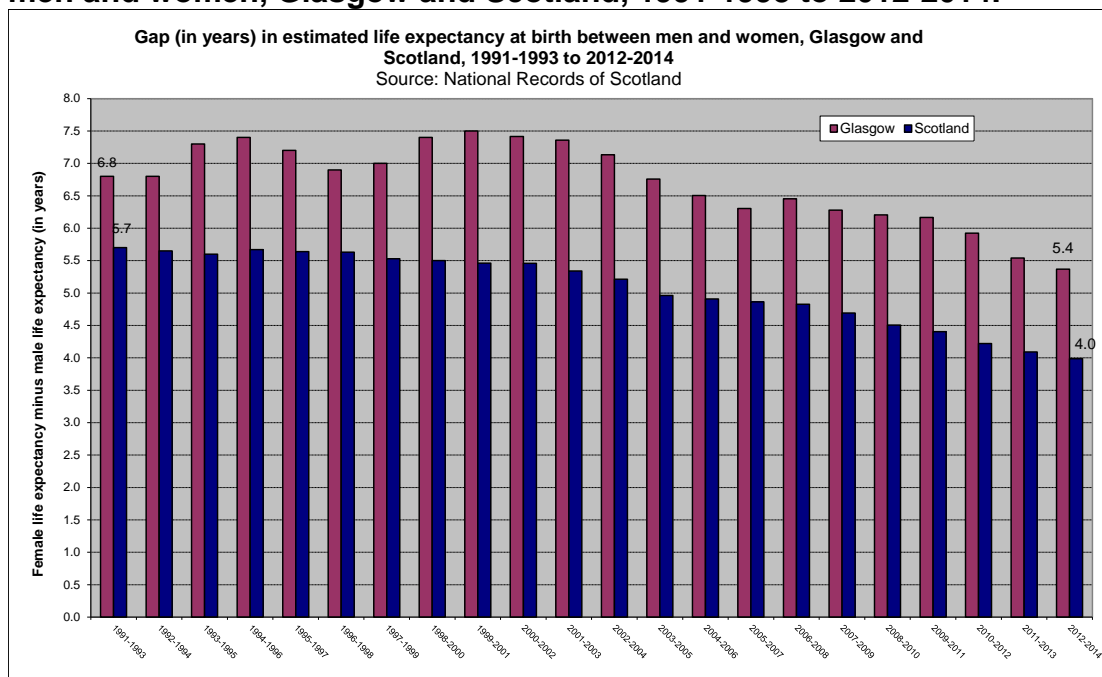


It is notable that between the early and mid-to-late 1990s there was relatively little improvement in estimated life expectancy for men or women in Glasgow. Both started to rise around 2000. To be specific, in the seven years between 1991-93 and 1998-00, male life expectancy in the city rose by only 0.2 years and female life expectancy by only 0.8 years, while in the following 14 years up to 2012-2014, male life expectancy rose by 5 years and female life expectancy by 2.9 years.

In Scotland there has been a steady narrowing of the gap between male and female life expectancy from 5.7 years in 1991-1993 to 4.0 years in 2012-2014, while in Glasgow the gender gap was wider at the beginning of the period (6.8

years, 1991-1993) but has narrowed in the last 15 years to 5.4 years in 2012-2014 (Figure 19).

Figure 19: Gap (in years) in estimated life expectancy at birth between men and women, Glasgow and Scotland, 1991-1993 to 2012-2014.



5.2 Trends in life expectancy for Glasgow neighbourhoods

Estimated life expectancy at birth was compared across 56 neighbourhoods in Glasgow over the period, 1995-1999 to 2008-2012. It is worth noting that because populations are relatively small at a neighbourhood level, there is larger uncertainty in the estimates of life expectancy. For presentation purposes confidence intervals^{xiv} around the life expectancy estimate are not shown. Nevertheless, caution should be exercised when interpreting the life expectancy estimates due to their relatively wide confidence limits.

5.2.1 Female life expectancy trends by deprivation decile

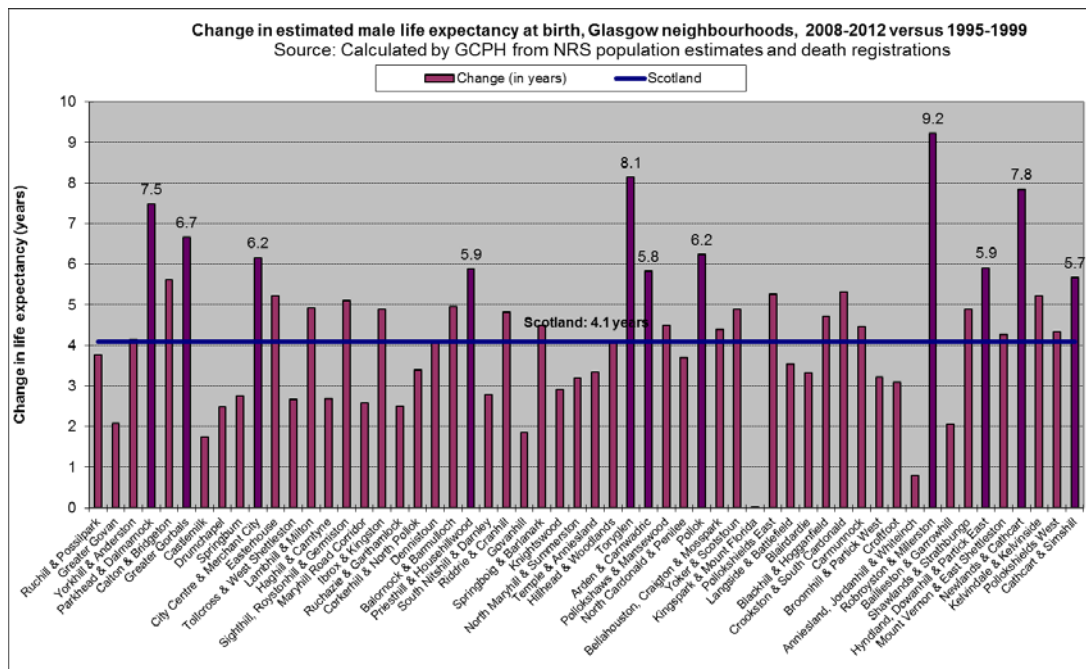
Figure 20 shows the distribution of estimated female life expectancy at birth across Glasgow's neighbourhoods compared with Glasgow as a whole and Scotland in the period 2008-2012. Estimates of female life expectancy at birth range from 73.1 years in Ruchill & Possilpark to 84.3 years in Kelvindale & Kelvinside and in Cathcart & Simshill, representing an 11-year gap. Eleven neighbourhoods have higher life expectancy than the Scottish average, while 44 have life expectancy that is lower than the Scottish average.

^{xiv} Confidence intervals provide a measure of the likely accuracy of the estimate. There is a 95% chance that the true population life expectancy value lies between the 95% confidence intervals (95% CI).

Only six neighbourhoods had higher male life expectancy than the Scottish average, leaving the majority, another 50 neighbourhoods, with male life expectancy estimated to be lower than the Scottish average.

Figure 23 highlights the changes in estimated male life expectancy at birth across the 56 neighbourhoods over the period 1995-1999 to 2008-2012. There were increases in estimated male life expectancy in all Glasgow's neighbourhoods, with the exception of Kingspark & Mount Florida where there was no change.

Figure 23: Changes in estimated male life expectancy at birth, Glasgow neighbourhoods, 2008-2012 versus 1995-1999.



On average there was a rise of 4.3 years in estimated male life expectancy at birth across Glasgow's neighbourhoods. In 11 neighbourhoods, male life expectancy increased by 5.7 years or more: in Parkhead & Dalmarnock (+7.5 years), in Newlands & Cathcart (+7.8 years), in Toryglen (+8.1 years) and in Robroyston & Millerston (+9.2 years). Gains in life expectancy were reasonably evenly spread across the spectrum of neighbourhoods from low to high life expectancy.

These analyses also show that the likelihood of a 15 year old Glaswegian living to his or her 65th birthday has increased over a 13-year period (1995-1999 to 2008-2012) to 75% for boys and 85% for girls; this compares with 83% and 89%, respectively, for 15 year old Scottish boys and girls in 2008-2012.

Gains in life expectancy have been greater among men than women in the last decade and as a result have led to a narrowing in the gap in life expectancy between men and women.

such as life expectancy is not straightforward, but some general observations can be made. In the neighbourhoods where male and female life expectancy are highest, very little housing has been demolished and populations have remained fairly stable. There are exceptions to this, in Robroyston & Millerston, Pollok, Pollokshields East & Carmunock^{xvii} populations have risen, levels of new housing are high and there have been relatively high increases in male and female life expectancy.

Neighbourhoods with the lowest life expectancy are generally characterised by population losses, large scale demolitions and relatively high levels of new housing being built. However it is worth noting that there are also exceptions to this type of patterning. Parkhead & Dalmarnock, while still in the bottom ten neighbourhoods for male and female life expectancy, has shown relatively large increases in male and female life expectancy in recent years. Yorkhill & Anderston is another neighbourhood, where while female life expectancy is still relatively low, there has been an increase; and the population has increased by a third over the period, reflecting a high level of new housing completions and relatively low level of demolitions. In Greater Gorbals, Toryglen and Priesthill & Househillwood, male and female life expectancy have improved against a backdrop of largescale housing demolitions and new housing developments. City Centre & Merchant City has shown improvement in male life expectancy, as its population has risen on the back of new housing developments.

Easterhouse is the neighbourhood that has displayed the greatest increase in female life expectancy – male life expectancy has also improved relatively – and the greatest relative improvement in its ranking on female life expectancy in the city. In the period covered, the population of Easterhouse has reduced by a quarter; and, while a quarter of housing has been demolished, a similar proportion of new housing has been built. This can be contrasted with Drumchapel which has had a similar reduction in population and a larger proportion of demolitions, but where female life expectancy appears unchanged over the last decade and male life expectancy remains among the lowest ten neighbourhoods. In Castlemilk, which has experienced slightly lower levels of demolitions and new house building compared with Easterhouse and Drumchapel, but which has lost a fifth of its population, life expectancy has remained relatively low, particularly among men.

In Table 1, six neighbourhood typologies are characterised based on changes in life expectancy, population and housing over the last 12 years or so. The first two groups are defined by neighbourhoods characterised by similar loss of population and housing changes but different life expectancy trajectories. The third and fourth typologies identify neighbourhoods characterised by reductions in female life expectancy and those with below average increases in male life expectancy. The fifth group includes neighbourhoods with above average increases in life expectancy, accompanied by population rises and large amounts of new housing. The sixth group identifies neighbourhoods

^{xvii} Carmunock's population was only just over 1,700 in 2012. So estimates of life expectancy in the neighbourhood have wide confidence limits and trends in estimated life expectancy need to be treated with great caution.

where either male or female life expectancy has improved at a rate above the Glasgow average, but where there has been little change in population and housing.

These groupings are pragmatic and others could be postulated. Nevertheless, this typology highlights neighbourhoods with differing health, housing and demographic trends which would potentially benefit from more detailed investigation.

Table 1. Neighbourhood typologies based on changes in life expectancy, population and housing.

Neighbourhood type	Example neighbourhoods	Life expectancy comment relevant to:
Lower than average life expectancy with limited improvement, significant loss of population, large-scale housing changes	Ruchill & Possilpark	Both genders
	Drumchapel	Both genders
	Sighthill, Roystonhill & Germiston	Females
	Corkerhill & N Pollok	Females
	Castlemilk	Males
	Ruchazie & Garthamlock	Males
Above average life expectancy improvements, significant loss of population, large-scale housing changes	Parkhead & Dalmarnock	Both genders
	Easterhouse	Both genders
	Priesthill & Househillwood	Both genders
	Greater Gorbals (NB no loss of popn)	Both genders
Female life expectancy reduction (4 neighbourhoods identified over last 15 years)	Toryglen	Males
	Drumchapel	Females
	Maryhill Road Corridor	Females
	Croftfoot	Females
	Anniesland, Jordanhill & Whiteinch	Females
Below average improvements in male life expectancy, minimal population and housing changes	Greater Govan,	Males
	Tollcross & West Shettleston	Males
	Springburn	Males
	Govanhill	Males
	Kingspark & Mount Florida	Males
Above average life expectancy improvements, population has risen significantly, large rises in new housing	City Centre & Merchant City	Both genders
	Robroyston & Millerston	Both genders
	Pollok	Both genders
	Yorkhill & Anderston (NB Male life expectancy improvement is modest)	Both genders
Above average life expectancy improvements, no significant population or housing changes	Langside & Battlefield	Females
	Hillhead & Woodlands	Females
	Pollokshields West	Females
	Hyndland, Dowanhill & Partick East	Males
	Newlands & Cathcart	Males

5.3 Trends by deprivation decile

In this analysis the population of Glasgow has been allocated to deciles of deprivation for a Glasgow specific deprivation index (GIMD2004) based on SIMD2004. The purpose of creating this Glasgow-specific index was to create an even distribution of population by deprivation across the city.

The main life expectancy analyses presented here are based on the GIMD2004 index, although other analyses (not reported) were carried out based on GIMD2012, SIMD2004 and SIMD2012. The GIMD2004 index was chosen over SIMD because it avoided the analysis being skewed by Glasgow's uneven distribution of population in relation to SIMD deprivation – only 3.5% of Glasgow's population is in the least deprived decile of

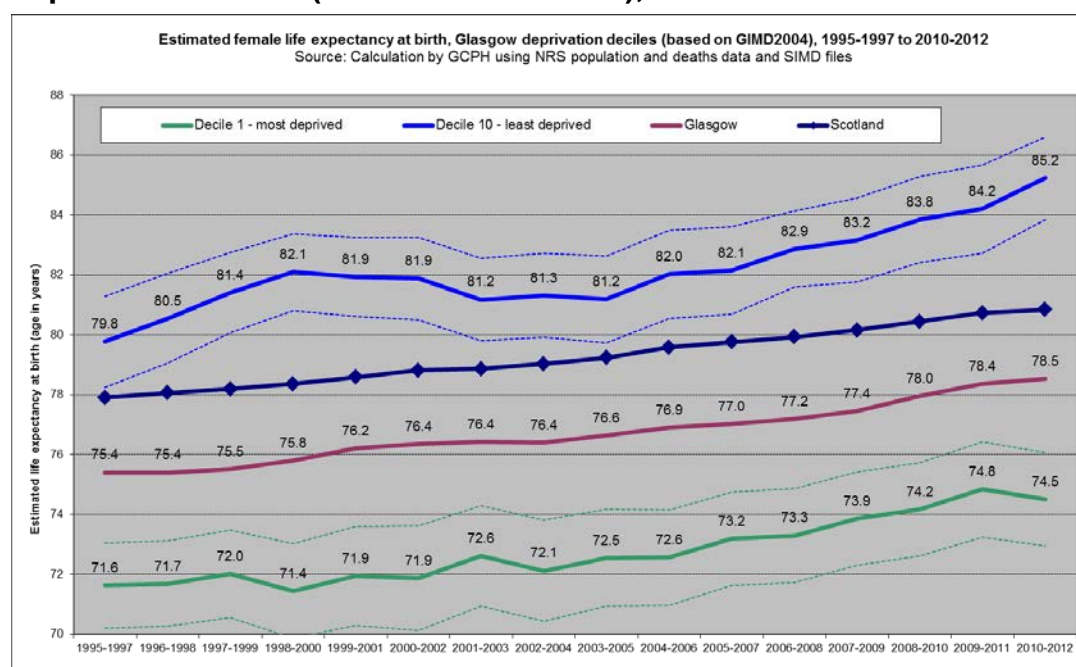
SIMD2012, while nearly a third of the population is in the most deprived decile. The GIMD2004 index was preferred to GIMD2012 because the earlier index provides a more accurate delineation of deprivation at the start of the period of analysis.

Estimates of life expectancy at birth were calculated for rolling three-year periods from 1995-1997 to 2010-2012, which equates to a 15-year trend overall.

5.3.1 Female life expectancy trends by deprivation decile

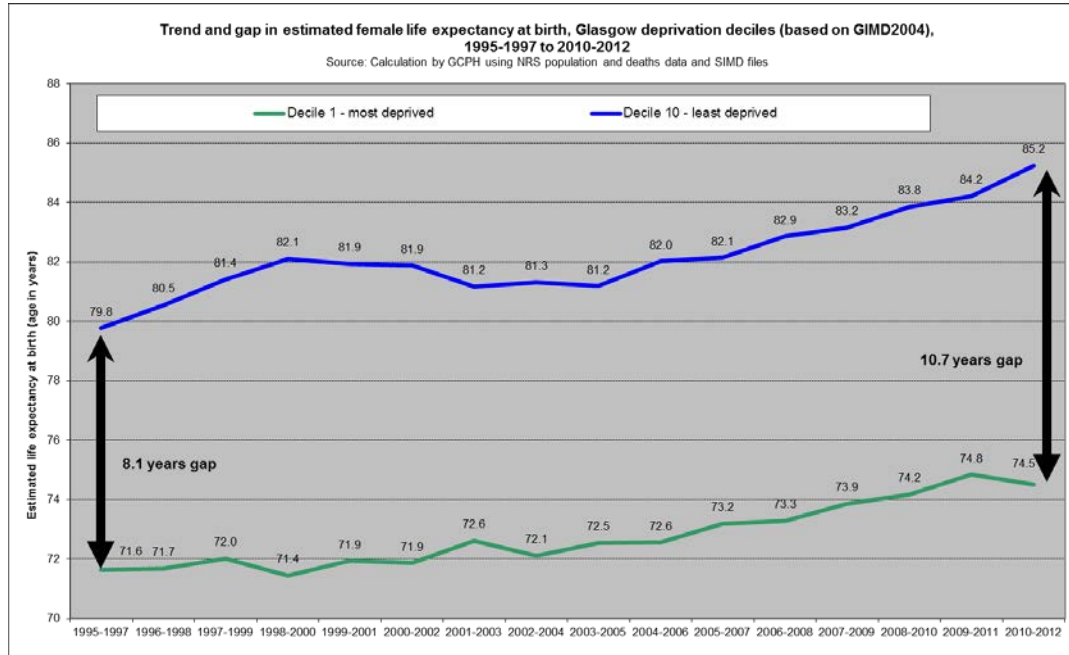
Estimated female life expectancy at birth rose in each deprivation decile over this 15-year period. Figure 25 illustrates the trends in the most deprived and least deprived deciles (with 95% confidence intervals) compared with Glasgow overall and with Scotland.

Figure 25: Estimated female life expectancy at birth, Glasgow deprivation deciles (based on GIMD2004), 1995-1997 to 2010-2012.



In the most deprived decile, female life expectancy increased by 2.9 years while in the least deprived decile the increase was 5.5 years. The gap in female life expectancy at birth between women living in the most and least deprived deciles has fluctuated over time, but the general direction of travel over time has led to a widening of the gap: in 1995-97, women in the most deprived decile had 8.1 years shorter life expectancy compared with women living in the least deprived decile and this divide had increased to 10.7 years by 2010-12. This is illustrated in Figure 26.

Figure 26: Trend and gap in estimated female life expectancy at birth, Glasgow deprivation deciles (based on GIMD2004), 1995-1997 to 2010-2012.

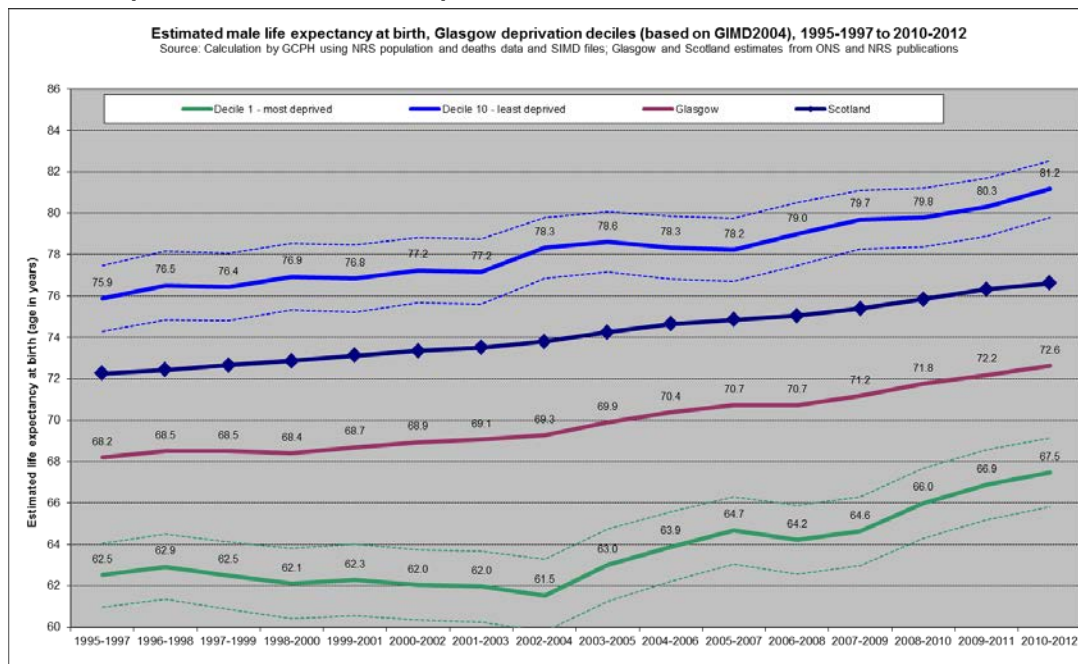


It is worth bearing in mind that this is the gap between the central estimates of life expectancy not taking account of the 95% confidence intervals – see Figure 25. However, even after taking account of uncertainty – represented by the confidence intervals – it still appears that the gap in life expectancy between the most and least deprived decile was at the very least 7.8 years at 2010-2012 and that this gap has widened over the period.

5.3.2 Male life expectancy trends by deprivation decile

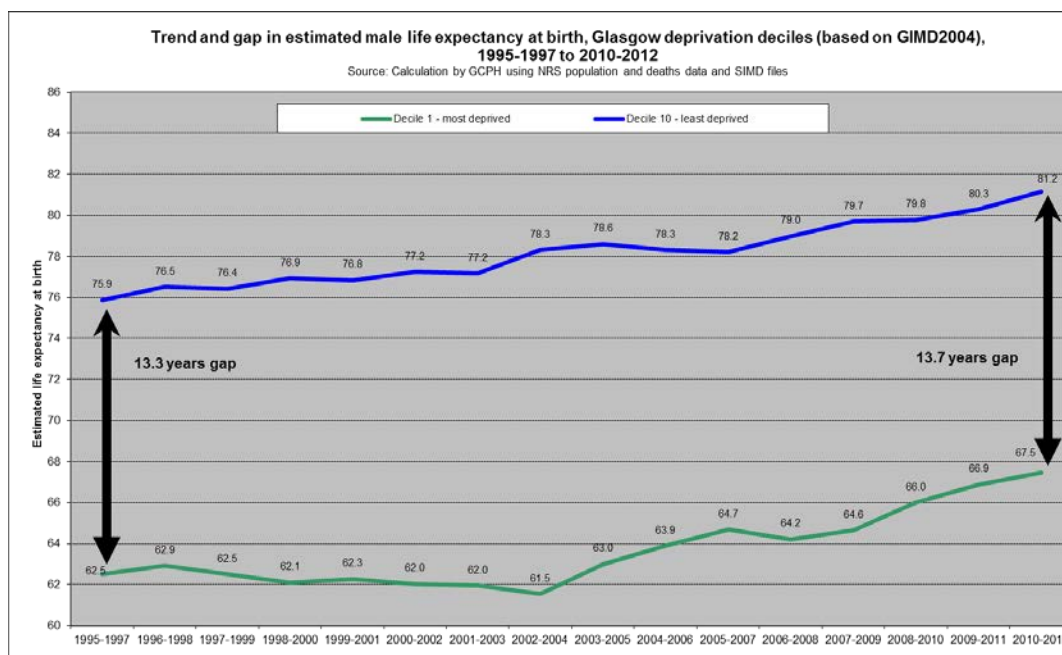
Similarly to female life expectancy trends by deprivation, male life expectancy at birth rose in each deprivation decile over the 15-year period analysed. Figure 27 illustrates the trends in the most deprived and least deprived deciles (with 95% confidence intervals) compared with Glasgow overall and with Scotland.

Figure 27: Estimated male life expectancy at birth, Glasgow deprivation deciles (based on GIMD2004), 1995-1997 to 2010-2012.



In the most deprived decile, male life expectancy increased by 4.9 years, while in the least deprived decile the increase was 5.3 years. The gap in life expectancy between the most and least deprived deciles has widened and then narrowed again over the period studied. Overall, comparing the start and end period studied, there has been marginal increase in the gap in male life expectancy between the most and least deprived deciles from 13.3 years to 13.7 years. This is illustrated in Figure 28.

Figure 28: Trend and gap in estimated male life expectancy at birth, Glasgow deprivation deciles (based on GIMD2004), 1995-1997 to 2010-2012.



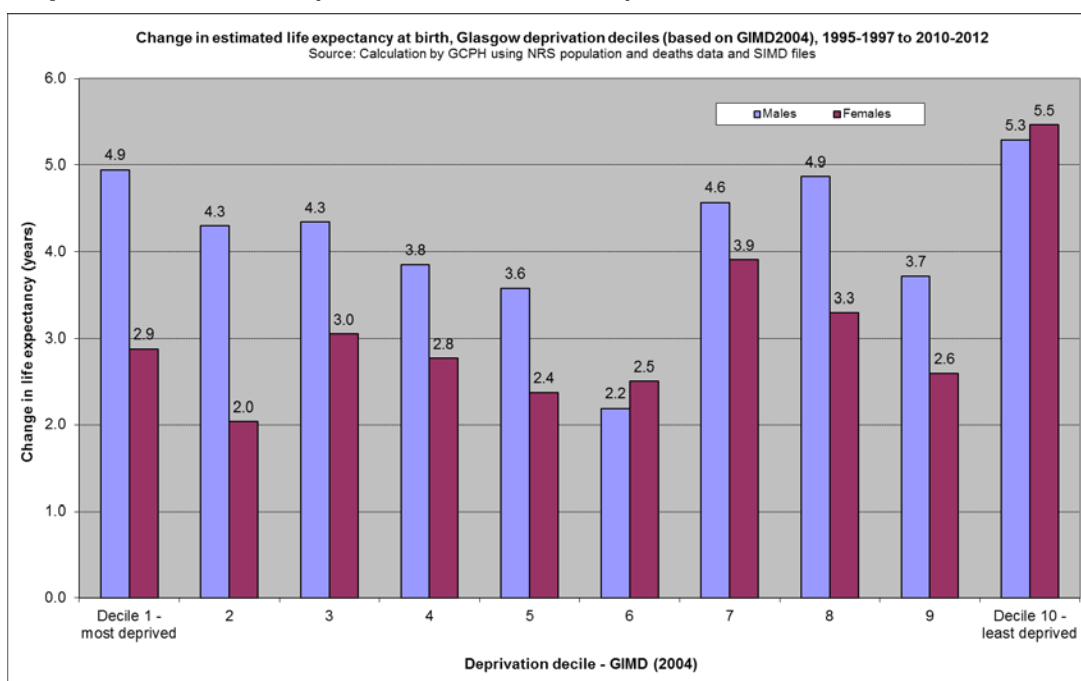
It is again worth bearing in mind that this is the gap between the central estimates of life expectancy not taking account of the 95% confidence intervals – see Figure 27. After taking account of uncertainty – represented by the confidence intervals – it still appears that the gap in life expectancy between the most and least deprived decile was at the very least 10 years as at 2010-2012.

This graph also shows that there was no apparent increase in male life expectancy in the most deprived Glasgow decile from the mid 1990s until the mid 2000s. This graph is truncated before the mid-1990s. However, previous analysis of life expectancy trends for Greater Glasgow by Carstairs deprivation quintile^{xviii} showed that male life expectancy at birth in the most deprived quintile of the region did not rise and may even have reduced slightly between the early 1980s and 2000 – in the period 1981-85 the estimate of male life expectancy for the most deprived quintile was 65.3 years, while 20 years later in 1998-2002 this had dropped to 64.4 years.

5.3.3 Male and female life expectancy compared

Comparisons of the trends in male and female life expectancy by deprivation decile show that, in addition to the greater increases in male life expectancy in Glasgow overall, male life expectancy has increased more than female life expectancy in the majority of deprivation deciles and, in particular, in the most deprived half of Glasgow (deciles 1-5) – see Figure 29.

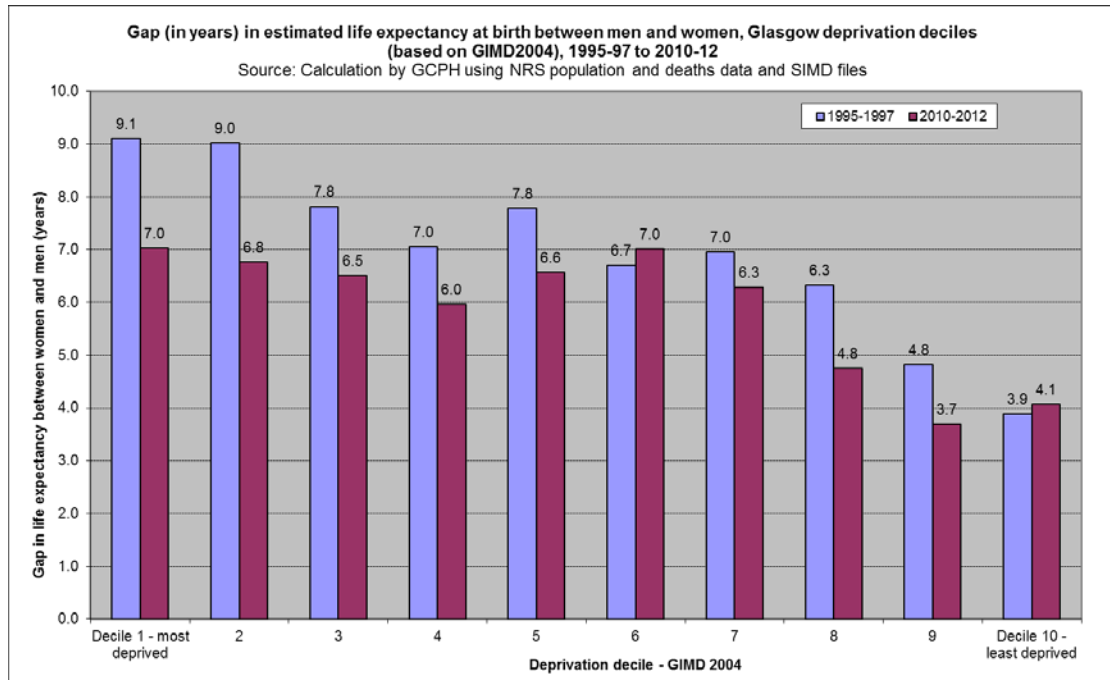
Figure 29: Change in estimated life expectancy at birth, Glasgow deprivation deciles (based on GIMD2004), 1995-1997 to 2010-2012.



^{xviii} Carstairs deprivation index was originally developed by Vera Carstairs and Russell Morris in 1991. It is based on four census indicators: low social class, lack of car ownership, overcrowding and male unemployment. The reference here is to analysis by deprivation quintile, where a population is ordered by deprivation using small area geographies and divided into five equal populations.

As a consequence of the generally greater rises in male life expectancy, the male-female gap in life expectancy has narrowed in eight out of the ten deciles, most notably in the more deprived deciles (Figure 30).

Figure 30: Gap (in years) in estimated life expectancy at birth between men and women, Glasgow deprivation deciles (based on GIMD2004), 1995-97 to 2010-12.



Despite this narrowing, the gap between male and female life expectancy remains widest in the more deprived areas. In the least deprived decile the gap is narrowest and has remained relatively stable over the 15-year period at approximately 4 years.

6. Discussion

6.1 Health trends

The focus of the analyses presented here has been to report on life expectancy trends within Glasgow since the early 1990s, and specifically to examine these in terms of changes in neighbourhood-, deprivation- and gender-related inequalities. Over this period life expectancy at birth improved considerably for both men and women in Glasgow (and in Scotland as a whole). The gap between female life expectancy in Glasgow and that for Scotland remained relatively unchanged over the period (at 2.4 years), whereas the male life expectancy gap has fluctuated; widening from 3.3 years in 1991-1993 to over 4 years in the mid-1990s, but then reducing in the last decade (to 3.8 years in 2012-2014).

Between 1991-1993 and 2012-2014, life expectancy at birth improved more for men (increasing by 5.2 years) than for women (increasing by 3.7 years) in Glasgow. At the end of the period, male life expectancy in the city as a whole was 73.4 years and female life expectancy, 78.7 years. As a result of the greater improvements seen for men, the gender gap in life expectancy has reduced over the period. A similar pattern is seen for Scotland as a whole and can be observed over the same period in other UK cities also.

As estimated in the period 2008-2012, there was a 15-year gap in male life expectancy at birth across the 56 neighbourhoods in Glasgow (ranging from 66.2 years – 81.7 years) and an 11-year gap in female life expectancy (ranging from 73.1 years to 84.3 years). Compared with 1995-1999, the gap in life expectancy for men across the spread of Glasgow neighbourhoods had narrowed slightly for men (by 0.6 years) and more so for women (by 2.8 years).

Male life expectancy increased in all neighbourhoods between 1995-1999 and 2008-2012, whereas female life expectancy appears to have actually fallen in four areas of the city. There is no clear and consistent relationship between changes in life expectancy and changes in neighbourhood characteristics, such as deprivation score, neighbourhood regeneration or population change.

Improvements in life expectancy over the last 15 years have occurred for both women and men in all of the deprivation deciles in the city. Wide health inequalities remain between people living in the most and least affluent deciles. The gap is 13.5 years for men, and this has remained constant since the mid-1990s. For women however, deprivation-related gap in life expectancy has increased over the period, to 10.7 years. Moreover, male life expectancy has improved more than female life expectancy, particularly in the most deprived deciles of the city.

These trends prompt some key questions. Why have increases in life expectancy for women not kept pace with those for men? In this regard Glasgow is not unique. The gap in life expectancy between men and women

has narrowed across Scotland and the same trend can be observed over the same period in many other UK cities.

What factors have led to the improving trend in male life expectancy, particularly in the most deprived decile in Glasgow since the mid 2000s? The gap in female life expectancy gap between the most and least deprived areas has widened because of lower rises in life expectancy among women living in the most deprived areas. What underlies this? A wider concern is that there is no sign of a reduction in socioeconomic inequalities in life expectancy.

It is worth reemphasising the need for caution in interpreting the changes in life expectancy at a neighbourhood level due to their smaller populations and consequently larger uncertainties in the estimates of life expectancy. Nevertheless there are interesting patterns and trends in life expectancy for neighbourhoods in Glasgow.

Overall, analysis at a neighbourhood level, shows that life expectancy remains strongly, negatively associated with levels of poverty in the city. In certain neighbourhoods, such as Yorkhill & Anderston, City Centre & Merchant City and Robroyston & Millerston, it is evident that large population rises, accompanied by new housing and reductions in deprivation, have been associated with improvements in life expectancy. It is therefore likely that changes in population composition have contributed at least in part to the rises in life expectancy.

In other parts of the city, changes in life expectancy are less clearly associated with population and housing changes. For example, contrast the rises in life expectancy in Easterhouse, particularly for women, with the lack of improvement in life expectancy in Drumchapel, which has had a similar reduction in population and accompanying housing demolitions. Further analysis of causes of death may help to explain the different trajectories of these two communities.

There are clearly limitations to what can be understood from a relatively limited set of administrative data. Table 1 (page 43) illustrates one way of characterising health and social change at a neighbourhood level in Glasgow in the last dozen years. However, in order to gain a fuller understanding of what has been happened in these different neighbourhoods, qualitative approaches are needed to explore in more depth the lived experiences of residents and global and local drivers that may have been impacting on health in these communities.

This study has not focused explicitly on health behaviour. However, there are clearly concerns about many health-related behaviours in Glasgow⁶²; behaviours which are the direct, or proximal, causes of much ill-health, and which are known to be strongly associated with deprivation, disadvantage and stress of various sorts. Adult smoking rates in Glasgow are higher than the Scottish average but have reduced over the last ten years (to 27% by 2012). Alcohol-related deaths rose steeply from the early 1990s but have reduced slightly in recent years; but, rates of alcohol-related deaths in Glasgow remain

the highest in Scotland for both men and women. Drug-related deaths and problematic drug use in Glasgow are double the Scottish average. The proportion of Glasgow residents achieving the recommended levels of physical activity is similar to that in other cities, but fewer women than men, fewer older people and fewer people in the most deprived areas of the city achieve the recommended levels. Obesity rates have risen over the last ten years locally and nationally; just under a quarter of the adults in Glasgow city are obese and approximately two-thirds are defined as overweight. Damaging behaviours are, in the main, more common in the more deprived areas of the city. Men smoke more and consume alcohol above the recommended limits more often, but more women than men are obese.

This work has highlighted a relative lack of improvement in female life expectancy relative to men and damaging health behaviours may offer part of the answer. A recent study pointed to the rise in alcohol-related harm among women in Glasgow⁶³ and (at a city level) identified a cohort of women born in the 1970s for whom the alcohol-related death rate increased disproportionately compared with men. There are undoubtedly a range of new causes that are contributing increasingly to the burden of mortality among Scottish women^{7 (pp. 48-49)} and these are worthy of further investigation in a Glasgow context. It is also worth commenting that while health behaviours are clearly important determinants of health, their influence is proximal. It has been argued convincingly by many that social structures and environments mediate access to opportunity, to employment and to a decent level of income and that these are the fundamental underlying determinants of differences in health outcome^{74,75,77}.

One final important finding from the life expectancy analysis is the observation that male life expectancy in the most deprived Glasgow decile remained very low, around 62 years, and did not improve from the mid-1990s until the mid-2000s. Previous analysis of life expectancy trends for Greater Glasgow by Carstairs deprivation quintile highlighted a similar finding. Male life expectancy at birth in the most deprived quintile of the region did not rise and may even have reduced slightly between the early 1980s and 2000 – in the period 1981-85 the estimate of male life expectancy for the most deprived quintile was 65.3 years, while 20 years later in 1998-2002 this had dropped to 64.4 years.

6.2 Changing demographic context

In the first part of this report, the changing social, demographic and environmental context of Glasgow was outlined. From this analysis it is clear that Glasgow has grown to become an increasingly ethnically diverse city. Due to the limited scope of this study, it has not been possible to consider the relationships between health, inequality and ethnicity. To do so – given the limited data available – would have been a difficult undertaking but as more comprehensive data on health and ethnicity appear such a study could be considered in the future.

Housing in Glasgow is changing, in the period 2001-2013 over 37,000 new dwellings were built and over 25,000 houses were demolished. In the future,

Glasgow's population is forecast to grow although there is uncertainty over the magnitude of this growth. NRS suggest the population will rise by 15% in the next 25 years and over the same period the city's population will become older with the population over 50 years of age predicted to rise by 57,000 to nearly 240,000. However, it is worth noting that Glasgow has a relatively young population in comparison with most other local authorities and the predicted increase in the proportion of older people in the population is much less than in neighbouring suburban local authorities such as East Dunbartonshire and East Renfrewshire.

Alongside this, NRS project that there will be a 24% rise in the number of households in the city by 2037. As outlined earlier, there is considerable uncertainty with regard to future migration levels and household formation rates and Glasgow City Council take the view that lower rates of population and household growth are more likely.

It is likely that the make-up of households will change also. Single adult households already make up nearly half of all households and are predicted to continue to rise, albeit potentially with lower growth than initially predicted. There are already large geographic differences in the proportion and distribution of single adult and single parent households across Glasgow's neighbourhoods.

These trends – leaving aside debate and uncertainty over the absolute magnitude of change – suggest that in the short to medium term and beyond there will be increasing challenges in planning housing, health and social care services for an ageing and potentially more isolated and vulnerable population.

6.3 Changing context around poverty

Glasgow has the largest concentrations of deprivation in Scotland, but there have been reductions in deprivation within the city relative to other parts of Scotland. However, as outlined earlier, there are reasons to be concerned about the changing nature of poverty, including the rise of in-work poverty, the rapid emergence of food banks and similar services.

The rise in private renting across the city is in part an indication of economic constraints and decreased access to mortgages and borrowing, leading people who might have bought with a mortgage being forced or choosing to rent instead. In addition, with the supply of new housing not meeting demand, some people may be renting privately because of the limited supply of social housing. Across the UK and in Scotland, people who are social renters are at higher risk of poverty^{64,65}. However, levels of vulnerability are only slightly lower among private renters and across the UK over the last decade there has been a large increase in households from the private rented sector affected by poverty⁶⁶.

Relative poverty rates are higher in Glasgow than in Scotland as a whole already. Austerity measures in general, and the current implementation and

extensions to welfare reform, are likely to exacerbate poverty locally and nationally. Further rises in relative and absolute measures of income related poverty are predicted across the UK. In Scotland, income-related poverty rates affecting children are predicted to rise sharply and increases in poverty are predicted for both working-age parents and non-parents. Poor households with children and poor working-age households are expected to be most affected by tax and benefit reforms⁶⁷.

Further research is needed to increase our understanding of the health trends summarised in this paper. Our current plans are outlined in Appendix 2. Nevertheless, the analysis collected in this report and from other related evidence, has clear policy implications. These are discussed in the following section.

7. Policy implications

Glasgow's most pressing, over-arching problem is the scale and range of health and social inequality in the city. To a large extent, how inequalities are addressed nationally and locally will determine whether the wide disparities in social circumstances, opportunity and health across our population are reduced.

The evidence from national trends in health inequalities in mortality and hospitalisation alongside the Glasgow analyses reported here do not suggest that the health inequalities are narrowing. After 15 years of devolved government in Scotland, some health improvements can be highlighted but wide health inequalities remain.

In Glasgow, there has been a strong focus over a long period on how to reduce poverty or at least alleviate the impacts of poverty. Recent examples include the city's Poverty Leadership Panel⁶⁸, the Glasgow living wage campaign⁶⁹, efforts to prevent poverty-related stigma and exclusion in Glasgow schools⁷⁰, and continued initiatives to regenerate housing and communities. Nevertheless, the limited powers at the disposal of the local authorities do not provide sufficient tools for them to significantly impact on the root causes of poverty and inequality. Action from the UK and Scottish Government is also needed.

The UK government's commitment to austerity measures, including their 'welfare reform' policies and reductions in social security budgets, is predicted to lead to higher levels of poverty. The 'Pulling in different directions' report⁷¹, which investigates the impact of the changing economic context and changes to social security on health and health inequalities in Scotland, notes that the "net changes to social security are highly regressive" and that lone parents, large households, households with at least one disabled member and with young adults – groups already under financial strain – will be especially vulnerable to the proposed changes in social security.

Arguably, the devolved administration in Scotland does not yet have sufficient fiscal control over taxation and the benefits system to address income inequalities, but has been placing increasing emphasis on tackling health and social inequalities through initiatives such as Equally Well, the Keep Well programme⁷², and its Ministerial Taskforce on Health Inequalities. The recent report from the Independent Adviser on Poverty has added a renewed call for action on specified priority areas including in-work poverty, the life chances of young people, housing affordability, as well as recommending a more progressive system of local taxation⁷³.

There is now a multitude of policy documents that focus on how to tackle health and social inequality. The evidence is clear that multiply linked social factors – including income inequality, discrimination, educational disparities and differential access to services and facilities (such as good quality housing, good quality food, a safe environment) – are at the root of differences in health outcomes⁷⁴. It is known that approaches which create fairer more

redistributive fiscal policy (e.g. progressive systems for taxing income and wealth), provide adequate welfare support, improve accessibility of services, give intensive input for disadvantaged groups and effect structural changes in the environment (e.g. area wide traffic calming schemes, separation of pedestrians and vehicles) are those most likely to be effective in reducing health inequalities⁷⁵.

The 'Informing Investment to reduce health Inequalities in Scotland' project developed through ScotPHO has modelled the potential impact of 11 interventions across the determinants of health (including 'upstream', 'downstream', individually-focused and population-wide interventions), on overall population health and health inequalities⁷⁶. The findings, reflecting the best evidence, were that regulatory and tax changes – which affect income at a population level – were the most effective interventions for reducing inequalities, while interventions focused on individual agency were likely to have much less impact on inequalities.

*The Marmot Review*⁷⁷ suggested a five-point approach, emphasising the importance of a good start in life, enabling children and adults to maximise their capabilities, the creation of fair employment and good work for all, a healthy standard of living and creating healthy and sustainable places and communities and strengthened ill-health prevention. In 2014, a British Academy report focused on what actions could be taken by local authorities to tackle health inequalities⁷⁸. The proposals put forward by a range of authors included implementing a living wage policy, a focus on early childhood education and care, reducing speed limits in residential areas, a 'health first' approach to tackling health-related worklessness, using participatory budgeting to improve mental capital and building age-friendly communities.

The key messages in Health Scotland's health inequalities policy review for the Ministerial Task Force on Health Inequalities were that actions were required to address the *fundamental drivers* of social inequality (imbalances in the distribution of power, money and resources), *wider environmental influences* (such as the availability of good work, housing and education) and *individual experiences*. The review emphasised the need to prioritise a preventive approach and the requirement for political commitment and leadership at national and local levels.

In addition to national policy, there is a range of more locally and community focused policy that has the potential to regenerate and revitalise communities, and in turn, to impact positively on health and health inequalities.

The Christie Commission has provided a lead with proposals on how to support communities to have more influence on how their neighbourhoods and the services within them develop⁷⁹. The Land Reform Bill⁸⁰, recently introduced to the Scottish Parliament, has the potential to increase community control and ownership of land and to enable sustainable development in rural and urban contexts.

Asset-based approaches may play a part⁸¹, as may enhancements to planning such as the development of a Place Standard for Scotland⁸². Reducing the amount of vacant and derelict land in the city, in tandem with creating better quality natural environments, has the potential to improve people's lives and their health and wellbeing⁸³. An example of this type of initiative is Stalled Spaces Glasgow⁸⁴ which focuses on the temporary use of vacant land, under-utilised open space and of sites earmarked for development where work has been delayed or postponed.

As has already been shown, there have been major changes in housing in Glasgow over the last decade involving over 35,000 new dwellings being built, over 23,000 housing demolitions and in many cases residents being relocated to new areas. The impetus for much of this has come from the stock transfer of housing from the council to housing associations in 2003⁸⁵. The broad aims of new investments in housing improvement, including changing the mix of housing types and creating mixed tenure neighbourhoods, are to regenerate both housing and communities and, ultimately, to contribute to improvements in health and quality of life for residents.

The social and health impacts of housing and community regeneration in some of Glasgow's most vulnerable communities are the focus of the GoWell research and learning programme⁸⁶. The learning from this programme suggests that how regeneration is done, and how people are supported in communities undergoing change, needs as much attention as what is done. GoWell advocates greater communication with communities about changes that are planned as part of regeneration initiatives and greater support to enable community residents to influence plans and implementation. The work has also emphasised that the consistency and impact of approaches over time is important and that long-term issues cannot be addressed by a series of short-term initiatives.

In relation to active travel, increasing everyday walking and cycling would have benefits for both the physical and mental health of Glasgow's residents, would help to improve air quality, enable a shift to a low carbon economy and help to create safer, more liveable streets and more cohesive communities⁸⁷. Policy in relation to active travel, air quality and health policy are not as well linked as they should be. Glasgow needs an integrated active travel, air quality and public transport strategy backed up by long-term and significantly expanded investment in safe, well-designed infrastructure to encourage more active travel. However, investment needs to be carefully targeted to ensure that inequalities in participation are not widened and that more equal participation in walking and cycling is achieved⁸⁸.

The GCPH evidence narrative⁸⁹, summarising ten years of learning, describes the complexity of 'improving health and addressing health inequalities' and advocates for integrated action across a range of issues, including poverty, early years, neighbourhood environment and social contexts. Again, there is recognition of the importance of both *what* actions are taken and *how* things are done. Working in partnership to develop locally appropriate responses is

important and human interactions and the quality of relationships are underpinning factors.

The work described in this current report has been carried out as part of the GCPH's observatory function, which aims to monitor trends in health inequalities in Glasgow and to shed light on new and emerging issues. In this study we have tried to connect national policy with local neighbourhood circumstances. Neighbourhood level analysis can be a powerful lens for understanding the local impact of national policy and for feeding back into national policy.

Specific local data can inform local action and can be used to monitor progress, taking account of differing local contexts and different potential impacts. There is also recognition that national policies will not work without effective local delivery systems focused on health equity, which will require effective participatory decision-making involving individuals and local communities. This report is a resource for that, along with all the other community level data and knowledge which comes from direct community engagement.

Part of the work looks ahead to important future challenges such as demographic change and the impacts of welfare reform. Although predicting future impacts and trends is difficult, this is critical for effective planning and building resilience.

In summary

The study reaffirms known health challenges and identifies new concerns:

- Despite improvements in life expectancy for men and women in the last 15 years, life expectancy for people living in Glasgow remains significantly lower than the Scottish average, and there has been no appreciable narrowing of the gap between the two.
- The gap in life expectancy between the most deprived and affluent communities in Glasgow persists.
- A widening in the gap in female life expectancy has been identified between our most and least deprived areas.
- A relatively poor trajectory for female life expectancy compared with males has been observed over recent years, particularly in the most deprived half of Glasgow.

In terms of policy there have been positive developments. Addressing health inequalities has become a clear and distinct priority for the Scottish Government. Helpfully, there is also now substantial evidence about a range of national and local policies that could be actioned to create a more equal society and to reduce health inequalities. The effectiveness of efforts to reduce Glasgow's and Scotland's health and social inequalities will depend on

the actions taken and their focus, and will require sustained effort and political will.

An environmental strategy for Gothenburg City began with the words '*from word to deed*'⁹⁰, succinctly pointing to the need to move from policy into action. Action to address Glasgow's and Scotland's health inequalities is urgently needed across a range of fronts. The focus on health and social inequalities in Scotland similarly needs to shift '*from word to deed*'.

8. Conclusions

This report has presented an overview of health and demographic change in Glasgow over the last 15 years with a specific focus on assessing how different aspects of health inequality, as measured by life expectancy have changed.

Monitoring of health inequalities will be a continuing core focus of the GCPH's work. Further research is needed to understand the local factors in Glasgow that may have influenced changes in life expectancy at a neighbourhood level and also the differential health improvements between men and women in the city in the last 15 years. Details on plans to develop this work are provided in Appendix 2.

The GCPH strives to understand the global and national trends and drivers in relation to health and inequality, as well as seeking to understand what is happening within communities. This study, along with other related work undertaken at the Centre, is intended to feed into and influence the debate and action on how to address the fundamental causes of health and social inequalities in our society.

Appendices

Appendix 1: Methodology for life expectancy calculation

Data

Population estimates and mortality data were accessed to construct the life tables required to calculate life expectancy. Population data for the period 1996-2012 were accessed for Glasgow from the small area population estimates (SAPE) for Glasgow's 695 data zones^{xix} published by National Records of Scotland (NRS) – formerly the General Register Office of Scotland, GROS(S). Death registration data recorded by NRS were also obtained at a data zone level for the same period.

Pre-processing

The data zone level mortality and population data for Glasgow were aggregated to neighbourhood level and by deprivation decile (see further explanation below) using look-up files.

Calculation

The calculation of life expectancy was carried out via a macro-driven Excel workbook using Chiang (II) methodology, as devised at ONS in 2003. The estimates were based on abridged life tables using five-year age groupings. Separate estimates of male and female life expectancy at birth including 95% confidence intervals were calculated.

The x-axes of the life expectancy graphs give the mid-year for each life expectancy estimate e.g. 2010 represents the life expectancy estimate for the period 2008-2012.

Deaths for non-residents that were registered in Glasgow were excluded from the calculation, whereas the approach taken by NRS has been to include, or impute, deaths of non-Scottish residents who die within Scotland into local life expectancy calculations. Given these slightly different approaches, there are small differences in the estimates of life expectancy presented here compared with NRS and ScotPHO estimates.

Deprivation decile analysis

For the deprivation analysis, the population of Glasgow was allocated to deciles of deprivation based on a Glasgow specific deprivation index derived from SIMD. This index, GIMD (or the Glasgow Index of Multiple Deprivation), was created using only Glasgow data zones, ranking these data zones by SIMD deprivation scores and then allocating the data zones to Glasgow specific deprivation deciles of equal population size. Each decile has approximately 60,000 people, equating to 10% of the city population. The purpose of creating this Glasgow specific index was to create an even distribution of population by deprivation across the city.

^{xix} One data zone covers an unpopulated area, so only 694 populated data zones were used.

The main life expectancy analyses presented in this report were based on the GIMD2004 index, although other analyses were carried out based on GIMD2012, SIMD2004 and SIMD2012. These analyses produced broadly similar trends.

Appendix 2: Further research

More detailed quantitative and qualitative work is required to understand how changes in Glasgow's population, related to migration, physical regeneration, changing economic circumstances and changing cultural influences may have impacted on health (and life expectancy) in different neighbourhoods. Currently, there are three specific projects that the GCPH will be taking forward to build on the findings of this report.

1. Analysis of historical census data

We intend to analyse census data from 1971 up to 2011 in order to describe and better understand changes in the composition, socioeconomic profile and health of Glasgow's population at city and neighbourhood level. This will provide longer historical trends with which to understand change in the city and will complement other qualitative enquiry approaches.

2. Understanding female mortality trends in Glasgow

We have started to explore the relatively poorer trajectory of life expectancy for women in the city. Initial analysis will focus on detailed analysis of the gender- and cause-specific mortality trends that underlie the life expectancy trends presented in this paper. As part of this work we plan to investigate the static life expectancy trends for men living in the most deprived areas of Glasgow during the 1990s.

3. Life expectancy and peer research study

This study seeks to better understand the different health and social trajectories of specific neighbourhoods through in-depth data collection. The intention is to work with two pairs of neighbourhoods: the first, a pair of post-war out-of-town Council estates (Drumchapel and Easterhouse); and the second, a pair of post-industrial inner city neighbourhoods (Bridgeton/Dalmarnock and Anderston/Finnieston).

The research will situate the experience of those living in these neighbourhoods within the social, cultural and economic experience of the city more broadly. It will take the perspective that change plays out differently in different places as communities experience enablers and barriers to health locally, utilise different sets of resources and adapt to new roles and positions in the economy of a city region. This will contribute towards our understanding of why some communities fare better than others in response to social and urban change and how the health of the inhabitants of some of Glasgow's poorest neighbourhoods might be improved. This includes providing some insight into how different types of regeneration strategies and activities play out differently in seemingly similar neighbourhoods.

Data collection methods will include secondary source quantitative and qualitative data, as well as a substantial component of data collected and directed by the inhabitants of these communities (peer researchers).

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