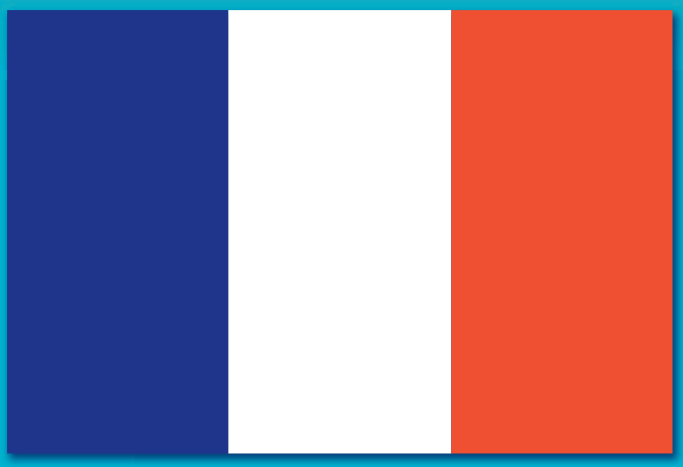
Glasgow Centre for Population Health

Case Study

Health and its determinants in West Central Scotland compared to Nord-Pas-de-Calais in France



Case study: Health and its determinants in West Central Scotland compared to Nord-Pas-de-Calais in France.

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August 2011

Contents

Acknowledgements

As with the main report, grateful thanks are due to a considerable number of people who assisted in the creation of this case study. The authors would particularly like to acknowledge the help of the following:

- Mr. Olivier Lacoste and colleagues, Observatoire Régional de la Santé (ORS), NPdC.
- The National Records of Scotland (NRS) (formerly the General Register Office for Scotland) for the use of mortality, population and census data. Particular thanks to Eileen Crichton for the provision of particular census data extracts.
- Information Services Division (ISD) Scotland, in particular Morven Ballard, Kenny McIntyre, Etta Shanks and Claire Nolan.
- Institut national de la santé et de la recherche médicale (INSERM), including data from the Centre d'épidémiologie sur les causes médicales de décès (CepiDc), for vital statistics and population data.
- Protection maternelle et infantile (PMI) du Nord et du Pas-de-Calais, for chil and maternal health data.
- Deborah Shipton, GCPH, for additional analysis of Scottish Health Survey data.
- Nic Krzyzanowski and Ryan Stewart at the Scottish Government for the provision of Scottish Household Survey data.
- Tom Spencer at the Scottish Government (Social Justice Statistics) for helpful advice in relation to the calculation of Gini coefficients using Scottish Household Survey data.
- Gary Lai, University of Edinburgh, for initial analyses of national and regional income inequalities data.
- The Luxemburg Income Study (LIS) database team, for use of their database and helpful advice on comparing income inequality between regions.

- David K. Jesuit, Associate Professor, Department of Political Science, Central Michigan University, for advice and syntax used to calculate bootstrapped confidence intervals for the Gini coefficients.

Finally, thanks to Fiona Crawford and Pete Seaman, both of the Glasgow Centre for Population Health, for their useful comments on earlier drafts of this case study.

Please note that a detailed list of all the data and sources used to produce this case study, including formal citations, is provided in the Appendix to the main report. However, we would like to acknowledge the use of:

- UK data archive material (for access to data from the Scottish Health Survey; Scottish Household Survey; 2001 Census (Standard Area Statistics). Note also that Census output is Crown copyright and is reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland.
- Other UK and European datasets (INSEE Populations of the French Republic 1982, 1990, 1999 and 2006); The Mannheim Barometer Trend File, 1970-2002; Eurostat (including Urban Audit perception and statistics data); SoDa (Solar Radiation Data); Nomisweb; The Electoral Commission; La Figaro and the French Ministry of the Interior).

Executive Summary

This case study – along with three others – is an accompaniment to the report entitled: *Health and its determinants in Scotland and other parts of post-industrial Europe: the 'Aftershock of Deindustrialisation' study - phase two*.

The case study presents the results of analyses of routine administrative and survey data for two post-industrial regions: West Central Scotland (WCS) and Nord-Pas-de-Calais (NPdC) in France. This is part of a larger set of analyses exploring the reasons behind the poor health profile of WCS in comparison to other parts of Europe that have also experienced the economic, social and health impacts of post-industrial decline.

As with the main section of the report and the other case studies, our aim here is to respond to two key questions:

1. Can WCS's relatively poorer health status be explained purely in terms of socio-economic factors (poverty, deprivation etc.)?
2. Do comparisons of other health determinant information identify important differences between WCS and this post-industrial region of France?

The main findings of the case study are:

- **Male life expectancy** in NPdC, which was lower than in WCS at the start of the 1980s, overtook the Scottish region in the early 1990s. **Female life expectancy** in NPdC was consistently higher than WCS over a thirty-year period.

- Measures of **health and function** fail to provide clear insights into the reasons behind WCS's poor health outcomes. Many measures of subjective health are similar in the two regions. Some aspects of physical health (e.g. bodily pain, general self-rated health) are worse in WCS, while

some aspects of mental, emotional and social health (e.g. life satisfaction, feeling calm and peaceful) are worse in NPdC.

- **Socio-economic** factors alone are unlikely to explain WCS's poor health status relative to NPdC. Several measures (e.g. current levels of, and historic trends in, unemployment and employment) compare favourably in WCS. Relative poverty levels are slightly higher in NPdC, though the difference is not substantial.

- Others measures of socio-economic status (home ownership; car ownership; social class) show substantial differences but may be influenced by cultural differences. Male 'NEET' (not in employment, education or training) rates are, however, higher in the Scottish region.

- Most **population** measures (the dependency ratio, population density, and sex ratio) are similar in the two regions. However, fertility rates are higher in NPdC.

- Measures of **social health** show greater variation. WCS has a higher percentage of 'vulnerable' (lone parent and single person) households and a higher percentage of adults with no formal qualifications compared to NPdC. Marriage rates are also marginally lower in the Scottish region.

- In terms of the **physical environment**, WCS has lower exposure to sunshine (and therefore Vitamin D) but also less overcrowding than NPdC.

- Certain aspects of **health behaviours**, such as diet and female smoking compare poorly in WCS compared to NPdC. Male smoking rates are similar in both regions.

- Patterns of **alcohol consumption** are different in the two regions, with adults in WCS more likely to confine their drinking to once or twice a week and adults in NPdC more likely to report drinking on a daily basis. There is

some evidence that women (but not men) are more likely to be problem drinkers in WCS.

- In addition, aspects of **maternal and child health** (e.g. births to teenage mothers, breastfeeding rates) compare unfavourably in WCS relative to NPdC.

1.0 Introduction

1.1 Background

This case study accompanies the report *Health and its determinants in Scotland and other parts of post-industrial Europe: the 'Aftershock of Deindustrialisation' study - phase two* and provides more in-depth comparisons between West Central Scotland (WCS)[i] and Nord-Pas-de-Calais (NPdC). Its scope is limited to comparisons of routine data on health determinants and outcomes in these two regions: for a discussion of the historical, cultural and social context in which these differences should be viewed, readers should refer to the main report.

In the first Aftershock report[1], we showed that life expectancy is increasing at a slower rate in WCS than other post-industrial European regions[ii]. This case study (one of four accompanying the main report) compares health and its determinants in WCS and the French region of NPdC in an attempt to provide more detailed insights into the reasons behind these trends.

1.2 Why compare these two regions?

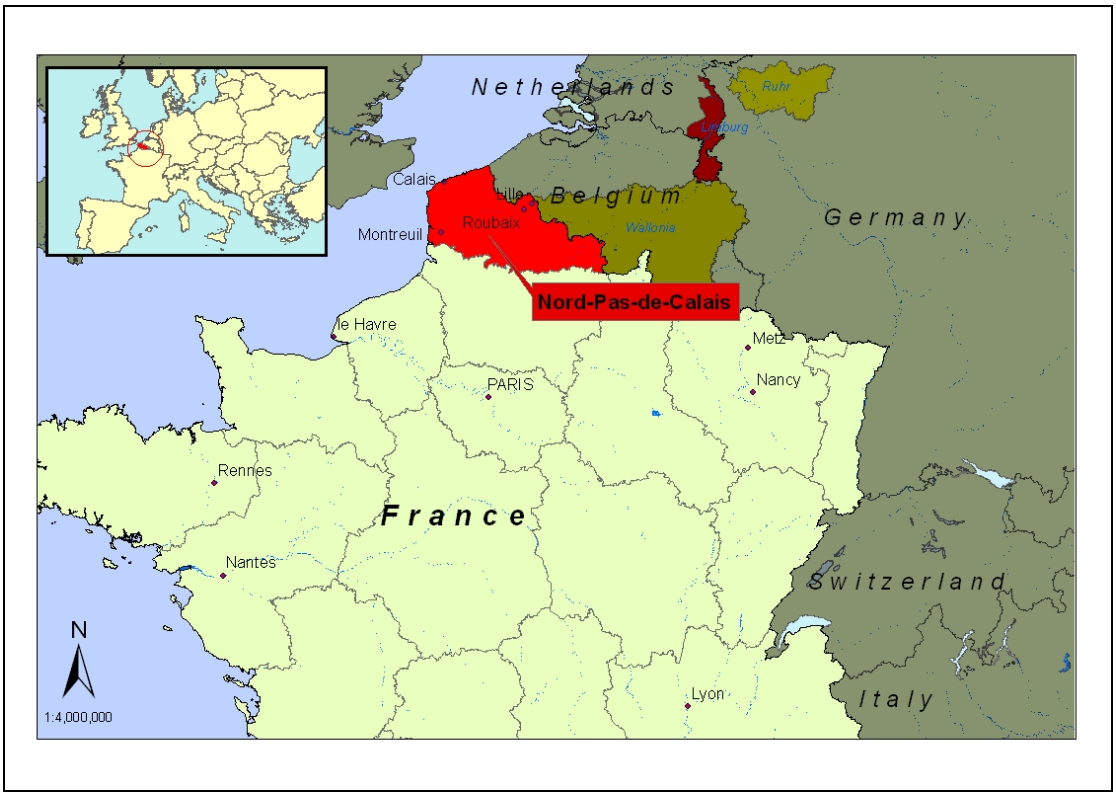
Located in Northern France and bordering Belgium (Figure A), NPdC has a population of just over four million. It was one of a number of European regions highlighted in the first Aftershock report. Both NPdC and WCS share an industrial heritage. In the early 1970s, half of those in employment in these regions worked in mining, manufacturing, utilities or construction. Both regions experienced severe deindustrialisation over the last 30-40 years, with industrial employment accounting for a quarter of jobs or fewer by 2005.[1] This adjustment process brought some gains (allowing new industries to emerge

[i] West Central Scotland includes 11 local authorities: East Ayrshire, East Dunbartonshire, East Renfrewshire, Glasgow City, Inverclyde, North Ayrshire, North Lanarkshire, Renfrewshire, South Ayrshire, South Lanarkshire, and West Dunbartonshire.

[ii] 'The Aftershock of Deindustrialisation – trends in mortality and other parts of post-industrial Europe' was published in 2008 by the Glasgow Centre for Population Health and NHS Health Scotland and sought to research sought to: (a) identify other regions in Europe which had experienced comparable levels of deindustrialisation; and (b) collect and analyse long-term trends in mortality for all the identified regions.

and reducing industry-related deaths and injuries) but was also accompanied by social dislocation (such as reductions in household income, population loss and a degraded physical environment[2]). NPdC, like WCS, also remains disadvantaged relative to its parent country[iii] on a range of health outcomes and determinants, especially life expectancy, alcohol consumption, obesity and prosperity (Table 1).

Figure A[iv]



However, despite this common ground, health outcomes in the regions remain distinctive. While all-age male mortality rates in WCS are only slightly higher than in NPdC, age and cause-specific mortality rates differ markedly in the two regions. In addition, mortality rates for women have remained consistently higher in WCS than in the French region, while mortality is improving at a faster rate in NPdC compared to WCS for both males and females. Examining differences in important determinants of health in, and across, both regions may highlight potential reasons for these differences.

[iii] Scotland for WCS, France for NPdC.
[iv] Note: map is not to scale.

Table 1 Selected health-related indicators in France and Nord-Pas-de-Calais

Indicator	France	Nord-Pas-de-Calais	Source
Male life expectancy at birth (2007)	77.5	74.2	*INSEE.*
Female life expectancy at birth (2007)	84.3	82.2	*INSEE.*
% adults rating their general health as excellent/very good/good (2002-03)	87.0%	85.7%	*Enquête santé 2002-2003.*
% of 15-74 year olds smoking every day (2005)	26%	27%	*Baromètre santé 2005, INPES.*
% of 15-74 year olds who drink every day (2005)	14.4%	17.0%	*Baromètre santé 2005, INPES.*
% of adults aged 18+ who are obese - BMI 30+ (2009) *	14.5%	20.5%	*INSERM, 2009.*
Unemployment rates (2006)	11.1%	14.8%	*Recensement 2006.*
Percentage of households with no car (2006)	19.5%	22.3%	*Recensement 2006.*
Manual workers as a % of all employees (2006)	25.8%	30.4%	*Recensement 2006.*

* Self-reported figures, which are likely to understate the true extent of obesity.[3]

1.3 Aim and approach

As with the main section of the report and the other case studies, our aim here is to respond to two key questions:

1. Can WCS's relatively poorer health status be explained purely in terms of socio-economic factors (poverty, deprivation etc.)?
2. Do comparisons of other health determinant information identify important differences between WCS and other regions?

The approach taken here was to assemble a range of comparable social, economic and health-based data for NPdC and WCS (and where possible, sub-regions). Indicators were grouped beneath the headings used in the main report. These included:

- Health and function, covering aspects such as life expectancy and self-assessed health and well-being;
- Prosperity and poverty;
- Population-related factors;
- The social environment (including educational attainment, and vulnerable households);
- The physical environment;
- Health behaviours; and
- Child and maternal health.

Many of the limitations of this approach – such as gaps in the data, cultural differences (e.g. in car or home ownership), and variation in the history and context of deindustrialisation – have been noted in the main report. They apply equally to this case study.

1.4 Geographies

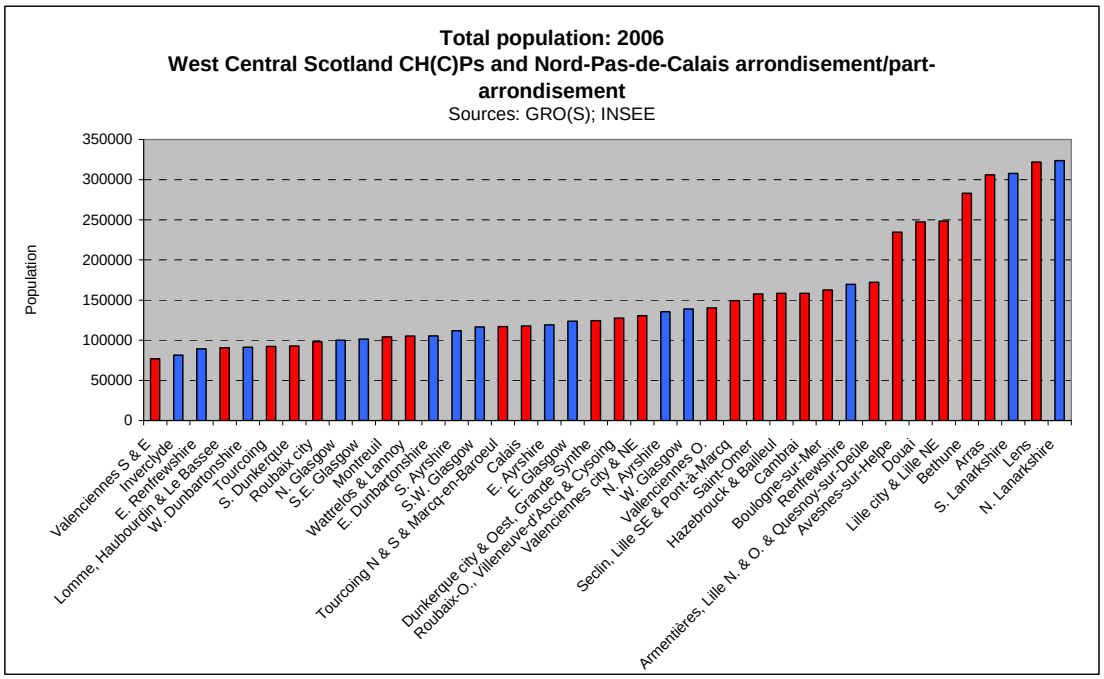
As noted in the introduction to the main report, one of the challenges in the project was to select appropriate geographies to compare health determinants and outcomes for regions and sub-regions. At a regional level, health determinant and outcome data were available on a consistent basis for the NPdC region and comparisons were made with WCS or a suitable proxy (e.g. Greater Glasgow (and Clyde) Health Board area[v], Strathclyde region[vi], South Western Scotland[vii]).

At a sub-regional level, the unit of analysis chosen for WCS was the Community Health Partnership (CHP)[viii, ix]. In 2006, there were 15 CHPs in WCS, with populations ranging from 81,000-323,000. The comparable NPdC geography was the arrondisment (district): there are 13 of these in the French region and all but three (Lille, Valenciennes and Dunkerque) have populations ranging from 100,000-320,000, consistent with WCS CHPs. Lille, Dunkerque and Valenciennes were split into smaller geographic units based on canton boundaries.

This process produced a final list of 40 districts (Figure 1). NPdC arrondisements/part-arrondisements are shown in red and WCS CHPs in blue.

[v] The former Greater Glasgow Health Board, which existed before 2006, covered Glasgow City, East Dunbartonshire and parts of West Dunbartonshire, East Renfrewshire, North and South Lanarkshire.
[vi] Strathclyde region includes the 11 local authorities of West Central Scotland plus Argyll and Bute.
[vii] South Western Scotland comprises the 12 local authority areas of the former Strathclyde region, plus Dumfries and Galloway.
[viii] For three indicators (low birth-weight babies, voter turnout and marriage rates), data constraints made it necessary to present data for alternative sub-regions.
[ix] Note that at the start of this project, there were five Community Health Partnerships in Glasgow City (referred to as Community Health and Care Partnerships (CH(C)Ps), although in this report we use the generic CHP abbreviation used elsewhere in WCS. However, in 2010 the boundaries of the Glasgow areas were redrawn, with the number of CHP areas reduced to three. This report presents data based on the old (five) boundaries.

Figure 1



Note: Vallenciennes O.=Saint-Amand-les-Eaux, Vallenciennes N., Bouchain & Denain; Valenciennes city & N.E.=Valenciennes city, Anzin & Condé-sur-l'Escaut.

1.5 Data sources and limitations

As in the other case studies, we drew on a diverse range of data sources to compare health in the two regions. These included administrative data (e.g. births, deaths, population), health surveys, Census data and other household surveys (such as Eurobarometer). Triangulating data in this way imposes a number of limitations. For some indicators (general, physical and emotional health) survey samples for NPdC are larger and potentially more robust than for WCS; for others the reverse is the case. Care was taken to ensure that concepts (e.g. unemployment, employment) and questions (e.g. measurement of daily smoking) were as directly comparable as possible. However, any findings must also be interpreted in light of the different cultures and public policies at work in the two regions. For example, home ownership is less common in France and there was no 'Right to Buy'[x] scheme subsidising social renters to purchase their property, as there has been in Britain.

[x] Introduced in 1980, the Right-to-Buy scheme gave tenants of council housing in the UK the right to buy the home they lived in. From March 2011, those renting social housing for the first time in Scotland or those returning to rent social housing no longer have the right to buy.

2.0 Health and function: a further analysis of health outcomes in the regions

In this section we update trends in life expectancy in the two regions, examine mortality data at a sub-regional level and compare self-reported measures of health and well-being, including subjective general health and life satisfaction, in WCS and NPdC.

2.1 Life expectancy and mortality

2.1.1 Trends in life expectancy in the two regions

The first Aftershock report showed that life expectancy increased at a faster rate in NPdC compared with WCS between 1983 and 2003. For men, life expectancy in the French region had overtaken WCS by the early 1990s. Female life expectancy, always higher in NPdC than WCS, increased its lead over time. Updating life expectancy figures to 2005-07 (as shown in Figures 2 and 3) suggests little change in these outcomes in the intervening period.

The gap in life expectancy between France and NPdC remained unchanged for men and narrowed for women between 1983 and 2007. Over the same period, the life expectancy gap between WCS and Scotland widened for both sexes.

Figure 2

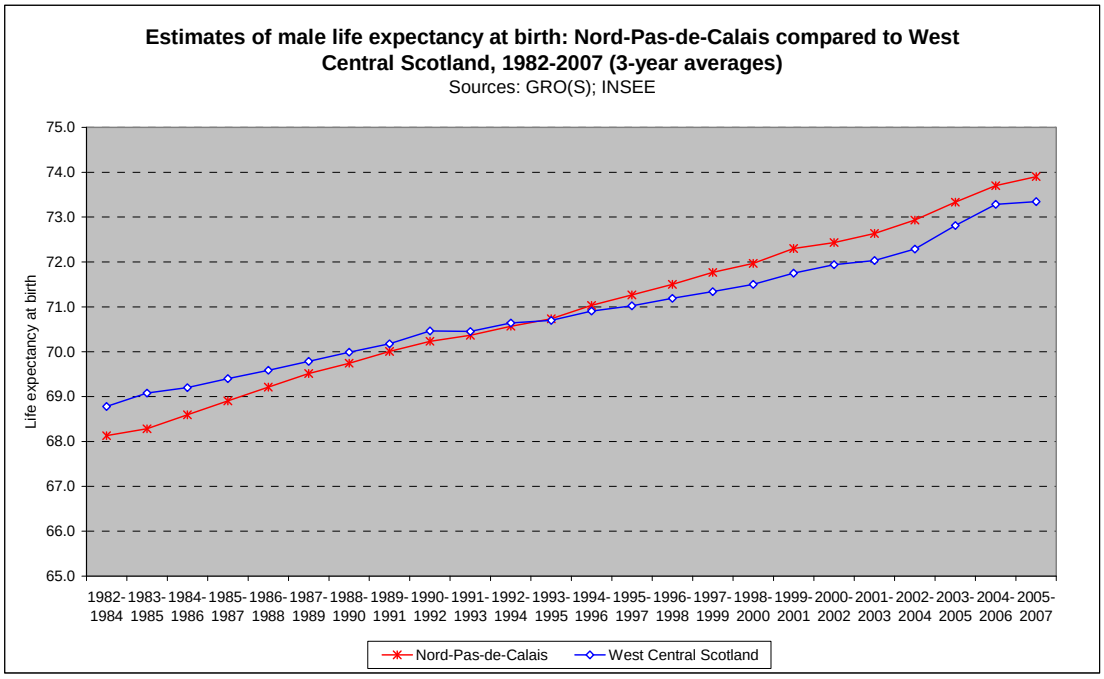
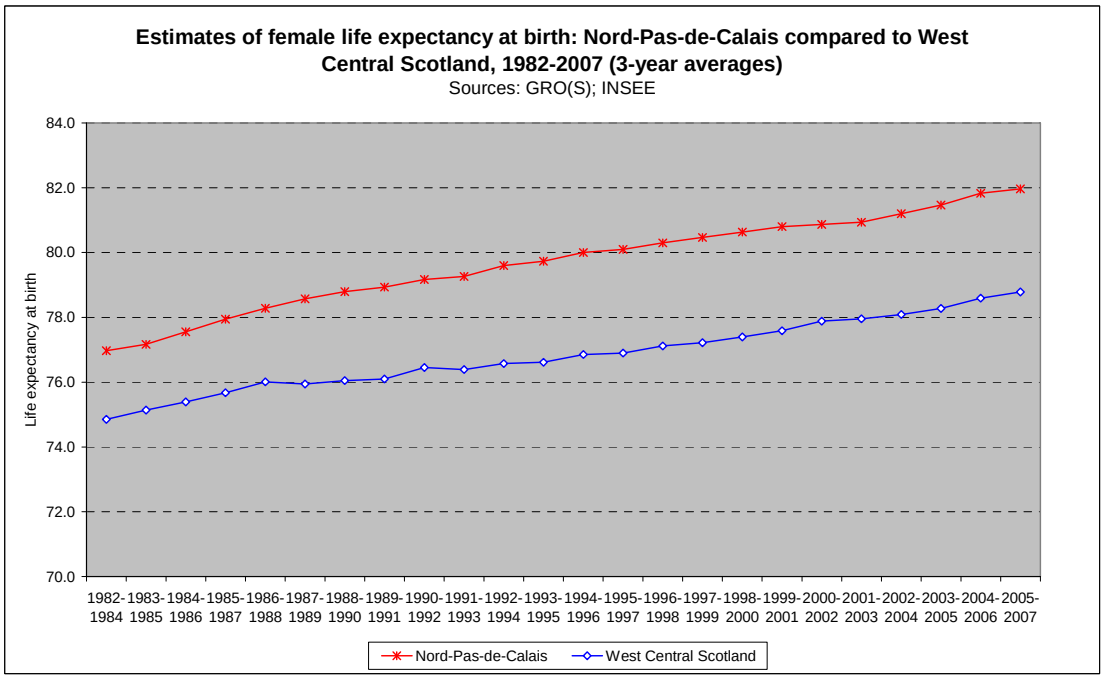


Figure 3



2.1.2 Age and cause-specific mortality

Analysis undertaken for the Aftershock report provides more detail on the different patterns of mortality in the two regions between 1982-84 and 2002-04. In summary:

- Mortality rates for children aged 0-14 were very similar in the two regions throughout.

- Mortality rates for younger working-age adults (aged 15-44) were lower in WCS at the start of the period. However, they increased over time to overtake falling rates in the French region.

- For middle-aged males (aged 45-64), mortality rates were consistently lower in WCS than in NPdC. By contrast, mortality rates for middle aged females (aged 45-64) were consistently lower in NPdC.

- Deaths from traffic accidents among all ages and suicide rates among those aged 45+ were lower in WCS than NPdC.

- Most female cancers (except breast cancer) were consistently higher in WCS. Chronic liver disease & cirrhosis and young adult suicide rates increased sharply in WCS over time.

- Mortality from ischemic heart disease, cerebrovascular disease and male lung cancer in WCS all reduced over time but rates were still higher than those observed in NPdC.

2.1.3 Sub-regional mortality

At a sub-regional level, the pattern of comparative mortality differs by gender. For men, only five of the 15 WCS CHPs had European age-standardised mortality rates (EASRs) substantially higher than those observed in NPdC districts: all five are in Glasgow (Figure 4). For women, the vast majority (12

out of 15) CHPs had mortality rates higher than in (comparably-sized) NPdC districts (Figure 5). This suggests that differences in mortality for men are more spatially concentrated, whereas for women they are region-wide.

Figure 4

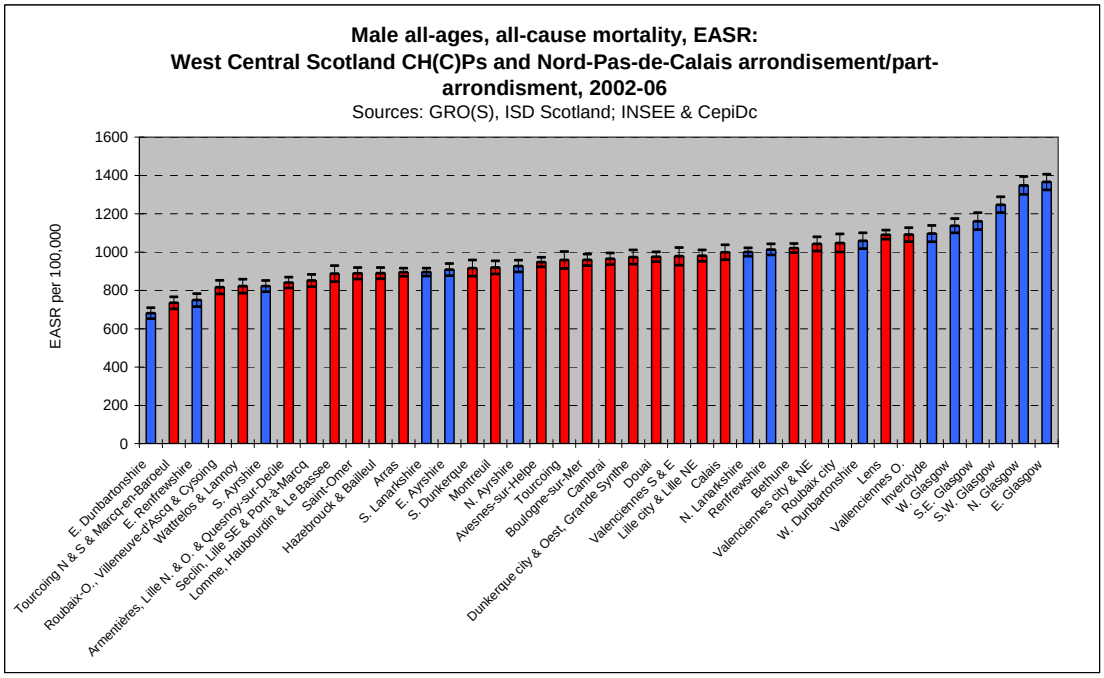
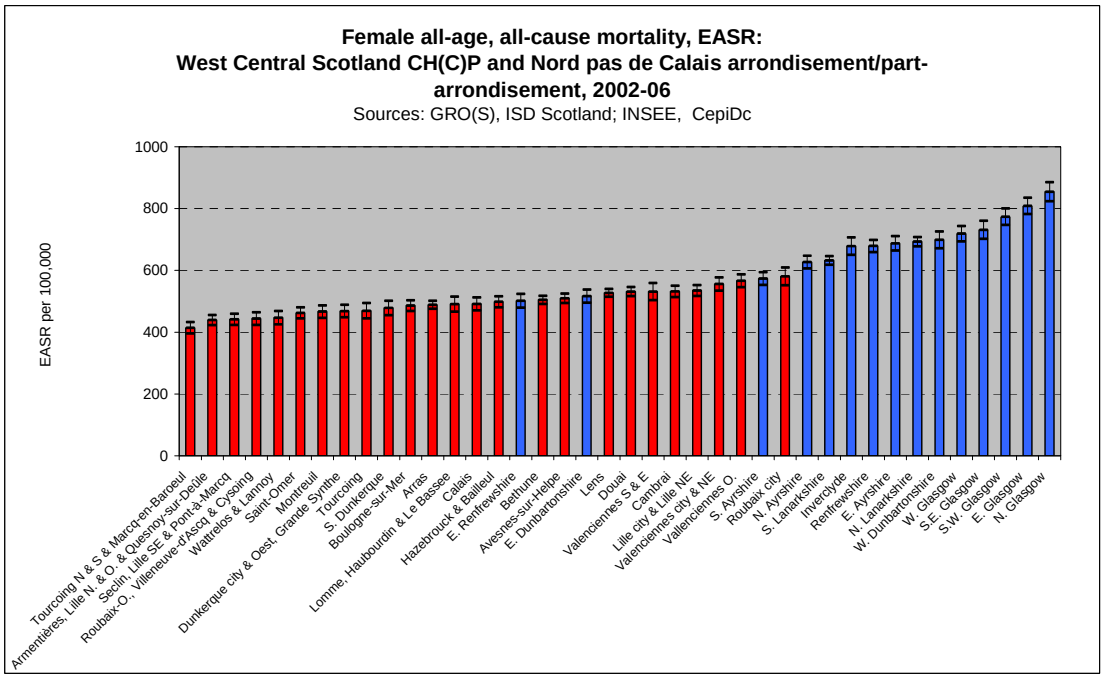


Figure 5



1.6 Self-reported measures of health and wellbeing

Subjective measures of physical and mental health, such as the SF-36, have been found to be good predictors of mortality.[4] This section compares responses to survey questions measuring respondents' subjective health and life satisfaction in the two regions.

2.2.1 The SF-12

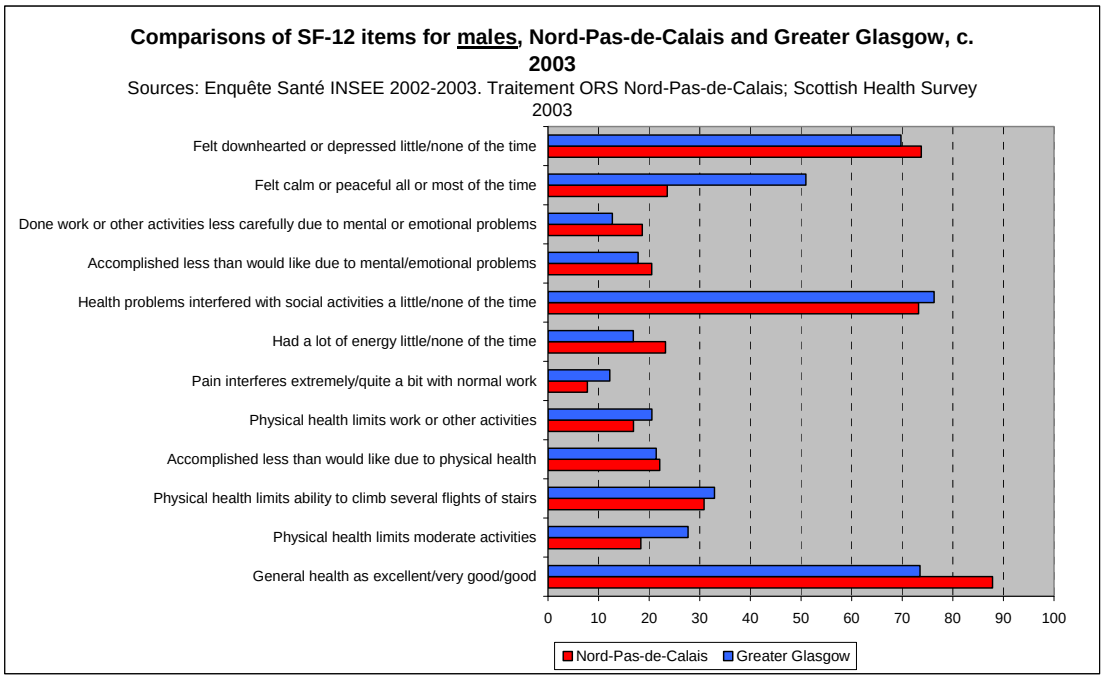
Our first comparisons looks at responses to individual items in a shortened version of the SF-36 questionnaire (the SF-12), asked in French and Scottish population health surveys conducted around 2003, to compare health status in WCS and NPdC. Topics covered include general health, physical functioning, physical role, bodily pain, vitality, social functioning, emotional health and mental health.[xi] Note that here Greater Glasgow is used as a proxy for WCS.

For men, responses to the SF-12 items were similar in the two regions for many of the aspects covered. There are a few areas where substantial differences were noted (Figure 6). Compared to NPdC males, Greater Glasgow males were:

- Less likely to rate their general health as excellent/very good/good;
- More likely to report that their physical health limited their daily moderate activities;
- Less likely to report they had a lot of energy little or none of the time;
- Less likely to report that they had done work or other activities less carefully due to mental emotional problems;
- Much more likely to report feeling calm or peaceful all or most of the time.

[xi] The format in which the French data was supplied meant it was not always possible to calculate confidence intervals for all SF-12 questions.

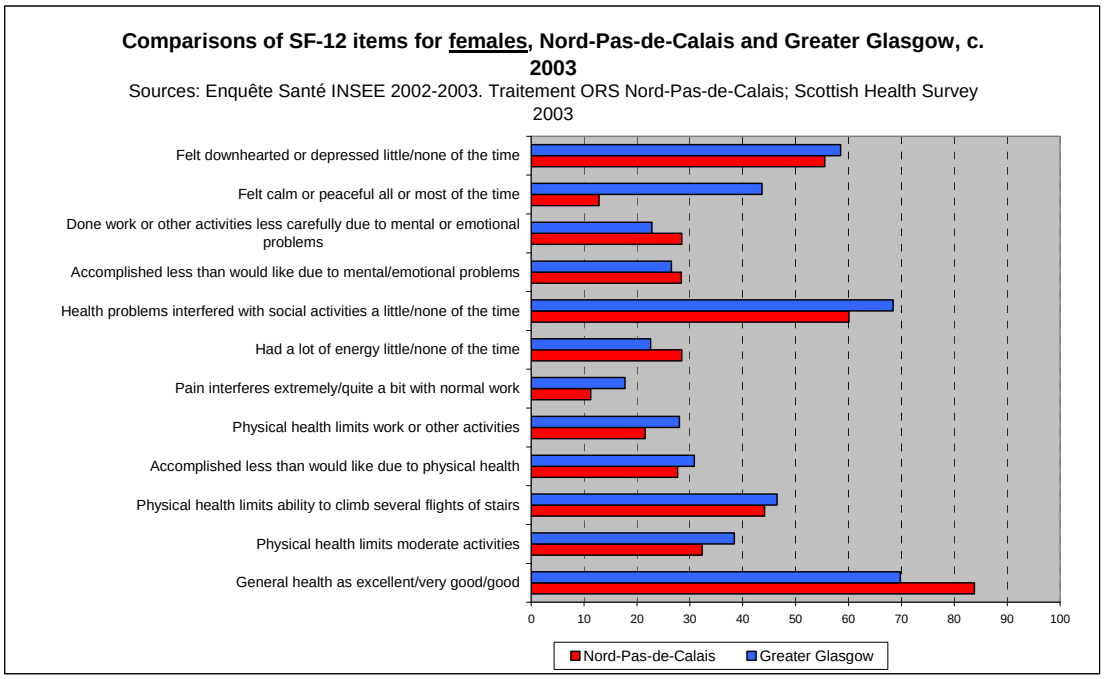
Figure 6



Sample sizes: NPdC=844; Greater Glasgow=502.

Results for women were similar, except that women in Greater Glasgow were also less likely to report that health problems interfered with their social activities (Figure 7).

Figure 7



Sample sizes: NPdC=901; Greater Glasgow=655.

Overall, this suggests that subjective health among adults in the two regions is similar across a range of indicators, but that adults in WCS compare less favourably on (some) aspects of physical health but rather more favourably on (some) aspects of mental, emotional and social health compared to those in NPdC.

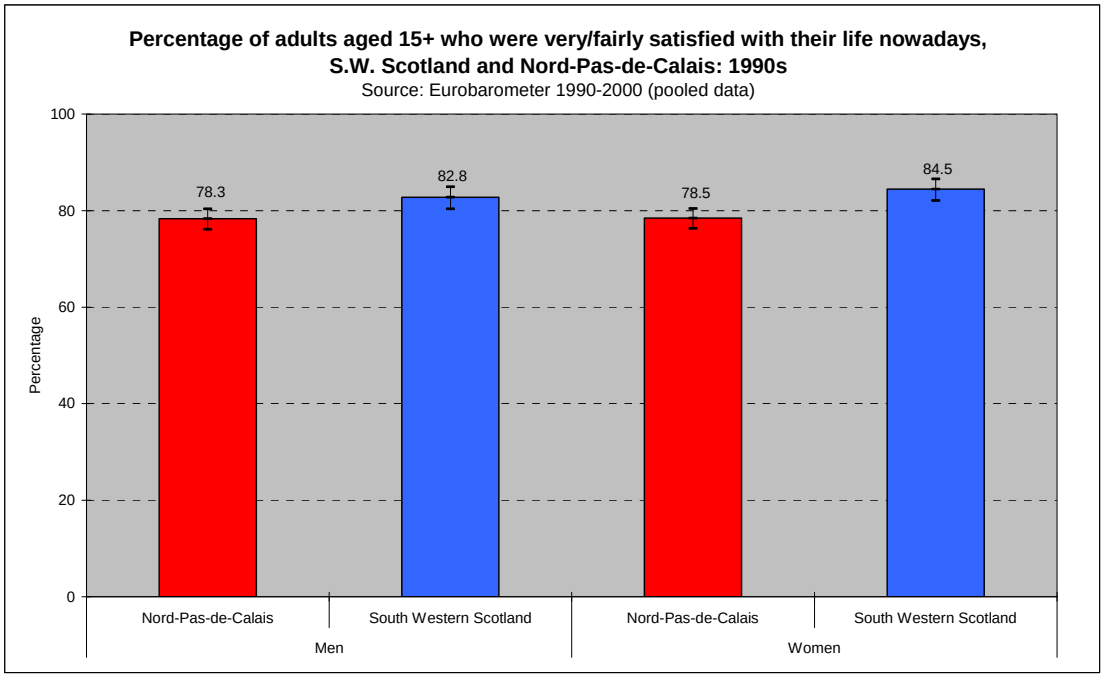
2.2.2 Life satisfaction

Since the 1970s, Eurobarometer has asked questions on life satisfaction. By pooling data from 1990-2000 it is possible to compare *the percentage of adults who were very/fairly satisfied with their life nowadays* in South Western Scotland (used as a proxy for WCS)[xii] and NPdC. Initial results suggest that life satisfaction scores in South Western Scotland compare favourably with NPdC: 82.8% of men and 84.5% of women in South Western Scotland were satisfied with their life nowadays compared to 78.3% and 78.5% in NPdC (Figure 8). This is consistent with data published elsewhere which shows Scotland has higher levels of reported life satisfaction than France.[5] This should be interpreted alongside data from the main report, which suggests life

[xii] South Western Scotland comprises the 11 local authorities used to define West Central Scotland plus Dumfries and Galloway and Argyll and Bute.

satisfaction for adults in Greater Glasgow and Clyde (another proxy area for WCS) is comparable to other UK regions but higher than levels reported in Wallonia, the East European and German regions.

Figure 8



Sample sizes: NPdC=707 men and 733 women. South Western Scotland=471 men and 473 women.

Summary: Health and function

- Life expectancy is improving at a faster rate in NPdC than WCS. Male life expectancy in the French region had overtaken that observed in WCS by the early 1990s. Female life expectancy has been consistently higher over a 25-year period.
- Patterns of mortality differ by age, sex and cause in the two regions. Consistently higher mortality rates for middle-aged women and rising rates for younger working-age adults appear to be driving the slower improvement in life expectancy in WCS.
- Differences for men are especially driven by very high mortality rates in Glasgow City compared to districts in NPdC. Mortality rates for women are higher than NPdC in 12 of the 15 WCS CHP areas, compared to similarly-sized French districts.
- Subjective health status in NPdC and Greater Glasgow (a proxy for WCS) can be compared using data from the SF-12 questionnaire: the regions are very similar in relation to the majority of measures of subjective health. Adults in Greater Glasgow compare less favourably with regard to a few aspects of subjective physical health, but more favourably in relation to certain aspects of mental, emotional and social health.
- Reported levels of life satisfaction were higher in the Scottish region than in the French region in the 1990s for both men and women.

3.0 Prosperity and poverty

As highlighted in the introduction to the main report, a key research question is whether WCS's relatively poorer health status can be explained purely in terms of socio-economic factors, such as poverty and deprivation. In this section, we present some data comparing a range of measures of prosperity and poverty in NPdC and WCS (labour market opportunity, car ownership, home ownership, social class and relative poverty) to test the plausibility of this idea.

3.1 Labour market opportunity

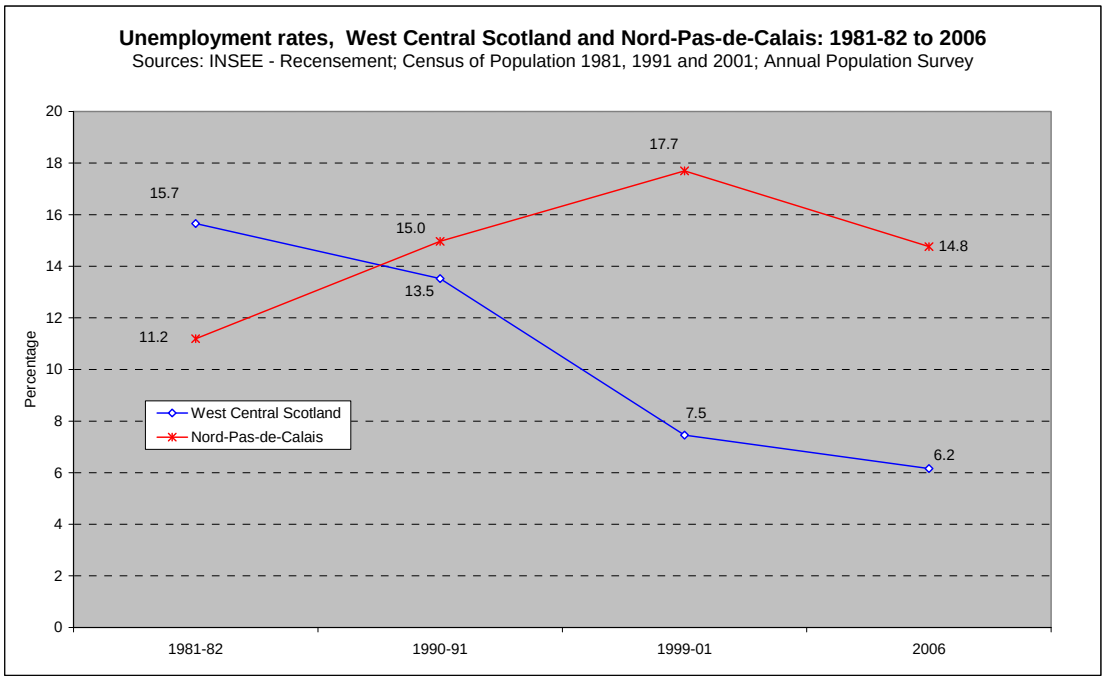
Lack of labour market opportunity has a negative impact on mental health and can increase the risk of suicide.[6] Many studies have found an association between unemployment and poor health and there is increasing evidence that similar associations are observed for other forms of involuntary inactivity. Health impacts of non-employment appear especially pronounced and long-lasting for young adults.[7] This section looks at various measures of labour market opportunity in NPdC and WCS.

3.1.1 Unemployment

The first measure used here is the percentage of economically active adults who describe themselves as unemployed. It should be noted that unemployment may have become less efficient as a marker of labour market opportunity over the last 20-30 years, as early-retirement and long-term sickness have increasingly functioned as a method of disguising unemployment.[8]

In 1981-82, unemployment rates in WCS were higher than those in NPdC (15.7% v 11.2%). Rising unemployment rates in NPdC and falling rates in WCS meant that by the mid-1990s, this position had reversed, with unemployment in NPdC more than 10 percentage points higher than WCS in 1999-01 (Figure 9).

Figure 9



3.1.2 Employment rates

As a supplementary measure of labour market opportunity, crude employment rates were calculated for men and women aged 15-64 for both regions for the period 1981-05.[xiii] This shows the number of *men (women) of <u>all ages</u> in employment as a percentage of all men (women) aged 15-64 resident in each region*. The gender division is important given the historically higher levels of female labour market participation in the UK compared to France.

The time trends presented here are subject to several important caveats. Data limitations mean that the Central Clydeside Conurbation has been used as a proxy for WCS for the period 1986-91. Note too that data is missing for WCS for the period 1982-85 inclusive (shown as a dashed line in the charts) years during which the UK endured a severe recession.

Despite these caveats, it appears that male employment rates in WCS region were comparable to those in NPdC in 1981 but had overtaken the French region by the late 1980s. This gap narrowed slightly from the late 1990s but did not close (Figure 10)

[xiii] Methods and data sources used to construct these time series are shown in Appendix A.

Female employment rates in WCS were consistently higher than those in NPdC. There is also some evidence that this gap widened over time (Figure 11).

Figure 10

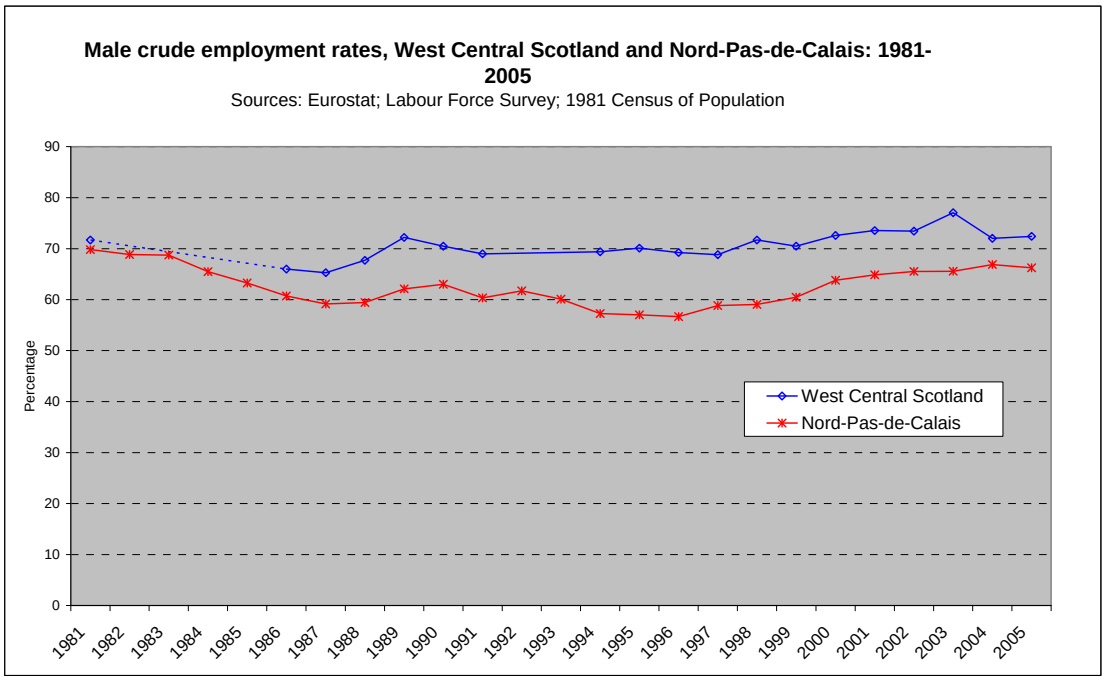
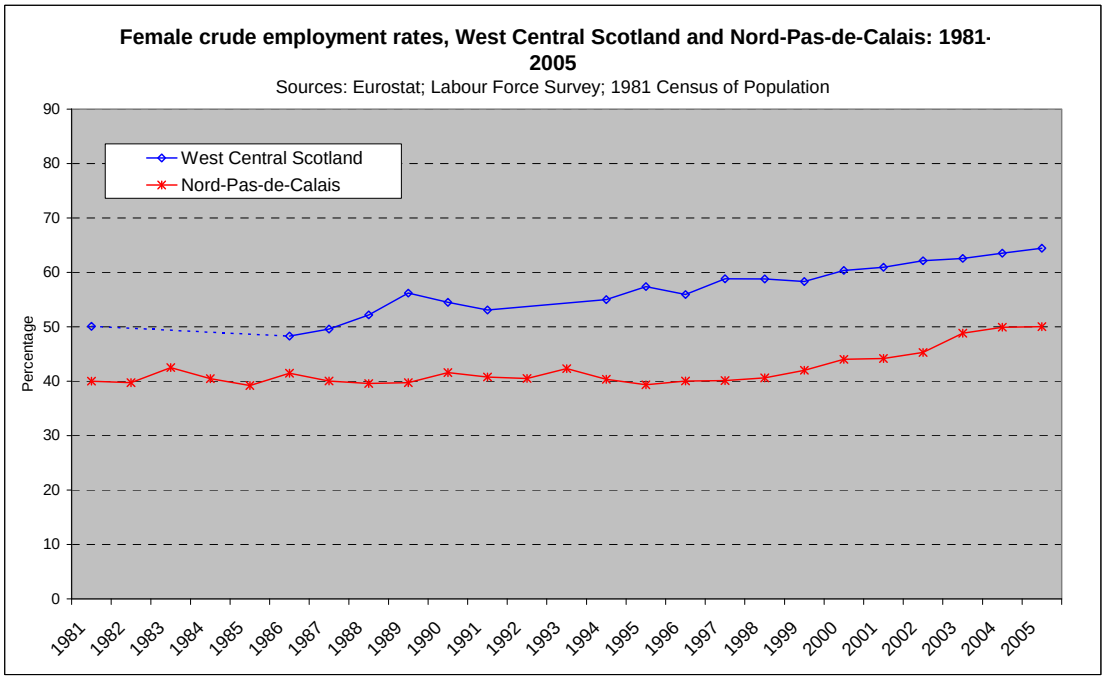


Figure 11



Using Census data, it is possible to produce a more detailed analysis of employment rates in each region for different age groups. Age and sex specific rates were calculated directly from Census data for four ten-year age groups and for males and females. We focus here on adults aged 25-64 (young adults are considered separately, given the greater numbers in education).

Male employment rates for those aged 25-34 were similar in both regions. However, WCS males aged 35-44 and 45-54 had lower employment rates than their counterparts in NPdC. For older males (aged 55-64), WCS had much higher employment rates (Figure 12). Female employment rates were higher in WCS for all four age groups (Figure 13), again suggesting higher levels of labour market opportunity for women in the Scottish region.

It should be noted that all the measures above look at the distribution of employment at an *individual* level. Comparisons of the percentage of workless households (where no adults of working age are in employment) show the UK in a less favourable light compared to France[xiv]. Regional comparisons of workless household rates would be a useful addition to the study of regional employment rates over time, but unfortunately the required data are not yet readily available for European regions.

[xiv] The Poverty Site. *European Union – In Jobless Households; 2011* Available at: http://www.poverty.org.uk/e07/index.shtml.

Figure 12

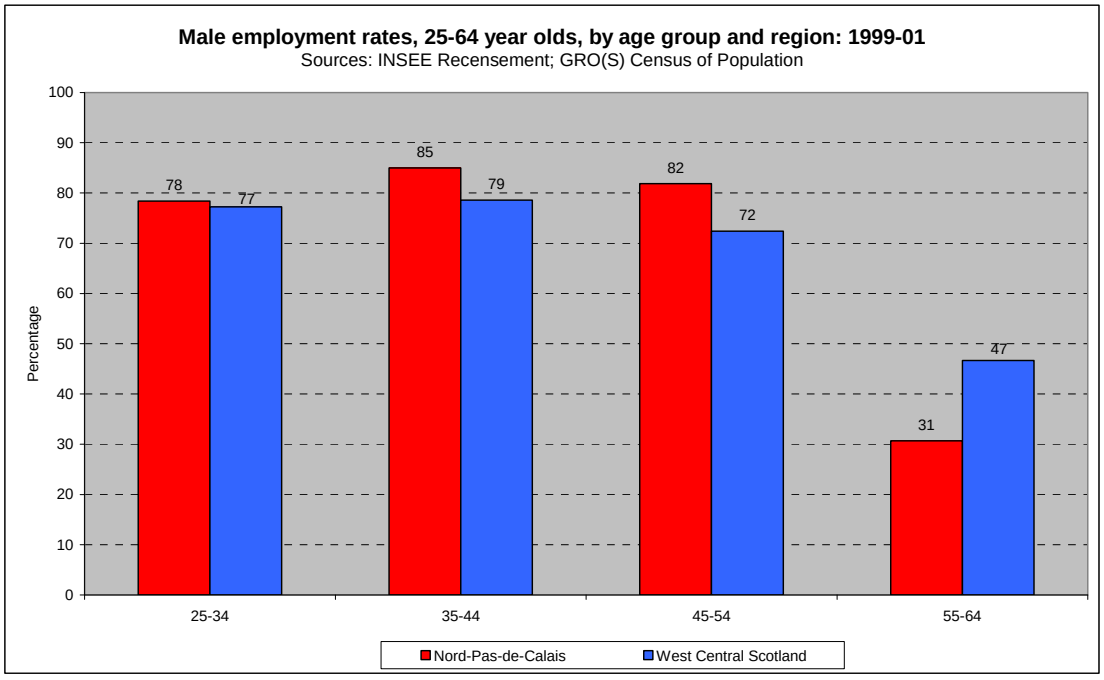
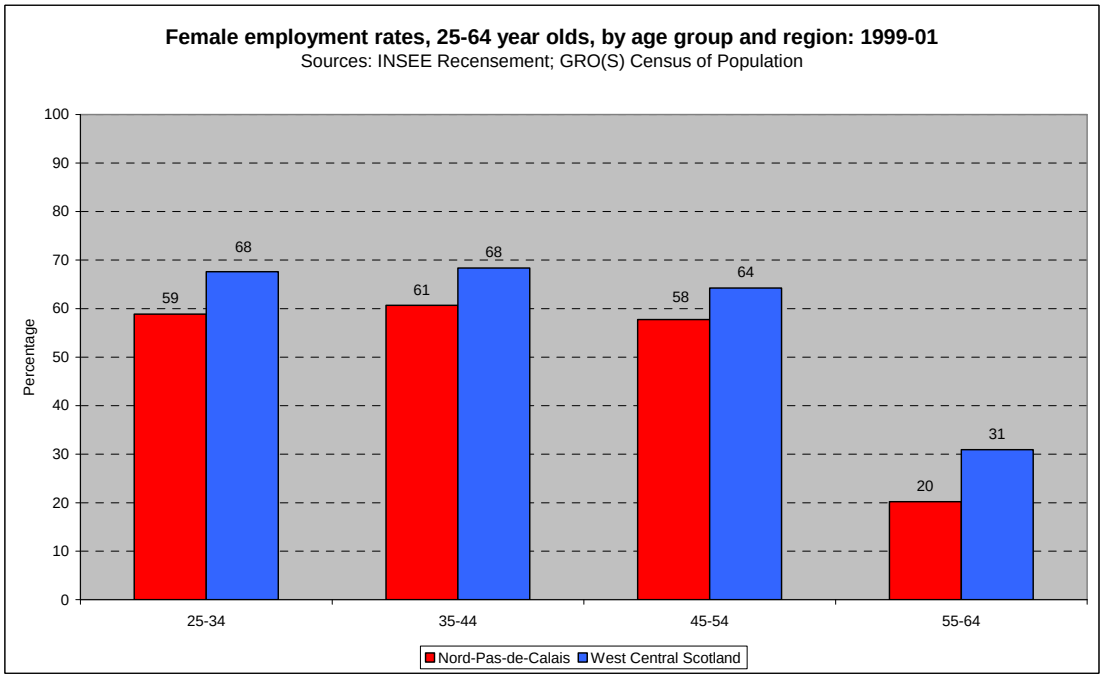


Figure 13



3.2 Social class

International comparisons of social class are not straightforward. The measure used here is *the percentage of adults classified as manual workers*. The (admittedly subjective) classification used here includes those in those in social class 'IIIm, IV & V' in WCS and 'Ouvriers' (manual workers) in NPdC. The retired, long-term unemployed/not otherwise classified were excluded from analysis for both regions.

The analysis suggests WCS had a higher percentage of its residents with a manual or unskilled background than NPdC (41.4% 33.8%) in 1999-01. Again, this gap narrowed only slightly over time (Figure 14).

Figure 15 shows that within WCS, the West and South East of Glasgow, along with East Renfrewshire and East Dunbartonshire, had relatively lower percentages of residents classified as manual workers. However, much of WCS (especially the other areas of Glasgow, the Ayrshire Coalfields, North Lanarkshire, West Dunbartonshire and Inverclyde) had rates that were comparable to those seen in the industrial cities of Tourcoing and Roubaix (the French areas with the highest figures for this measure). However, there are conceptual differences in the way these classifications work in practice[9]: being classified as a manual worker may mean something very different in NPdC than it does in WCS. This means we should be cautious about assuming that health varies in the same way by social group in the two regions.

Figure 14

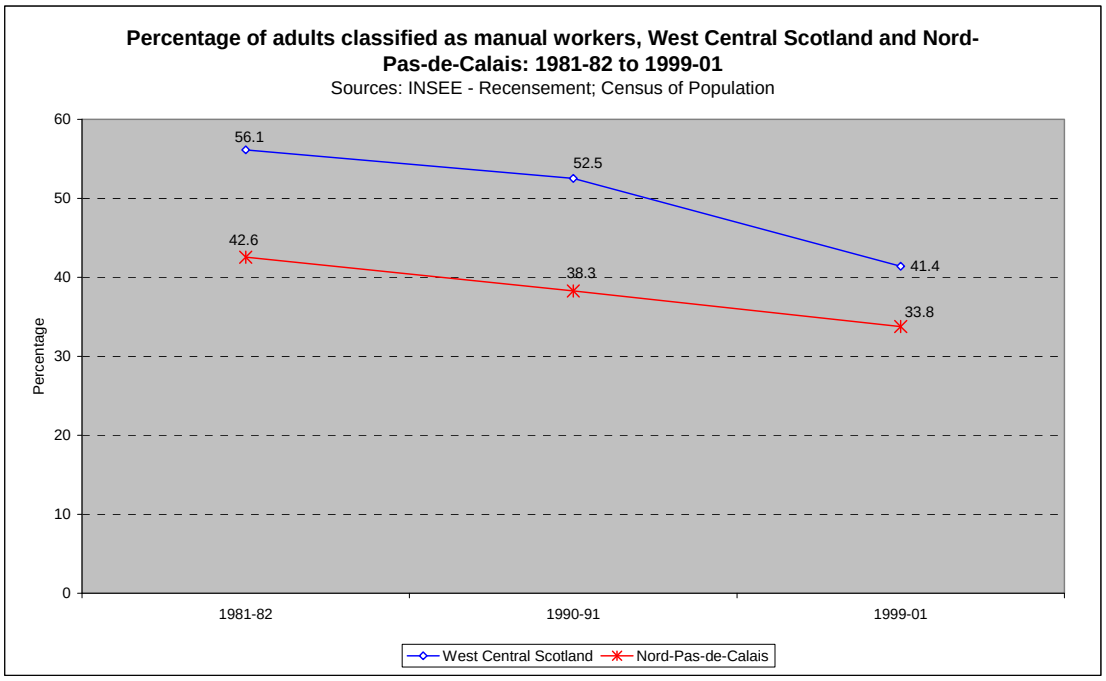
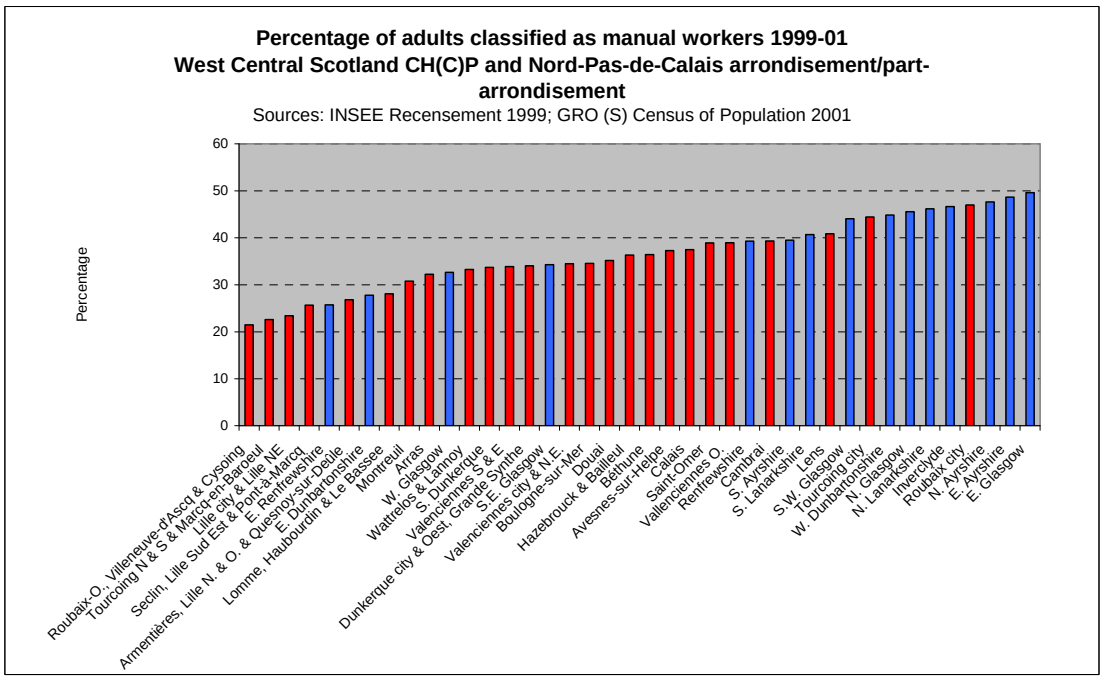


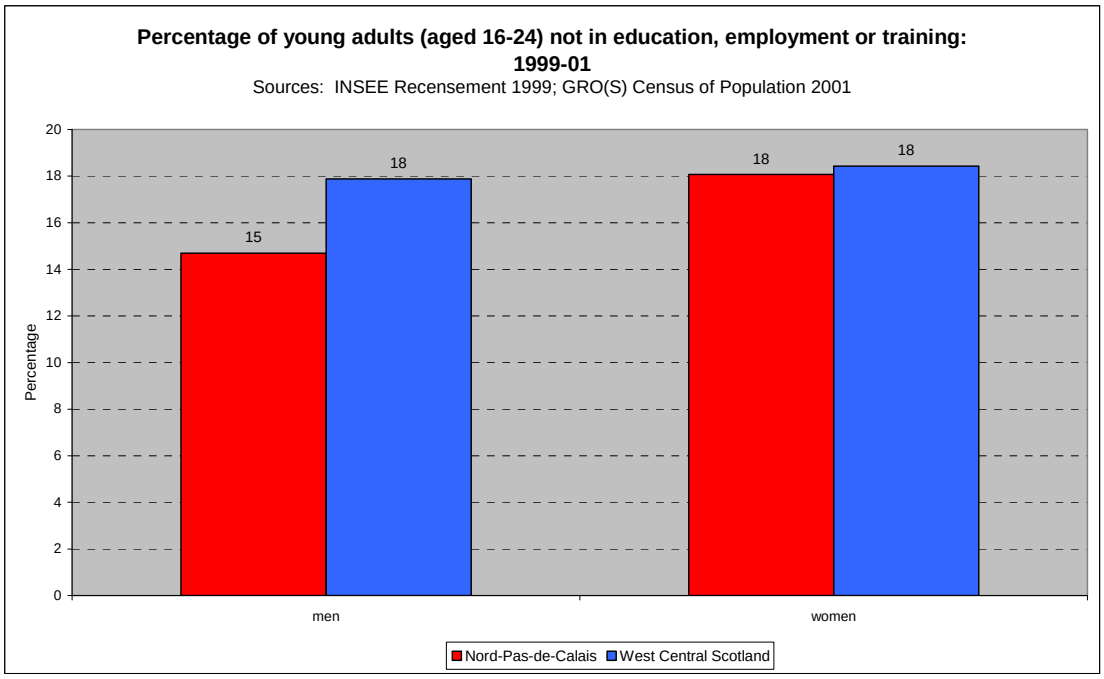
Figure 15



3.3 Young adults not in employment, education or training

This indicator shows the *percentage of young men (women) aged 16-24 not in education, employment or training* (NEET).[xv] At a regional level, WCS had a slightly higher percentage of young men (aged 16-24) NEET than NPdC: 18% compared to 15%. The percentage of young women NEET was similar in both regions (Figure 16).

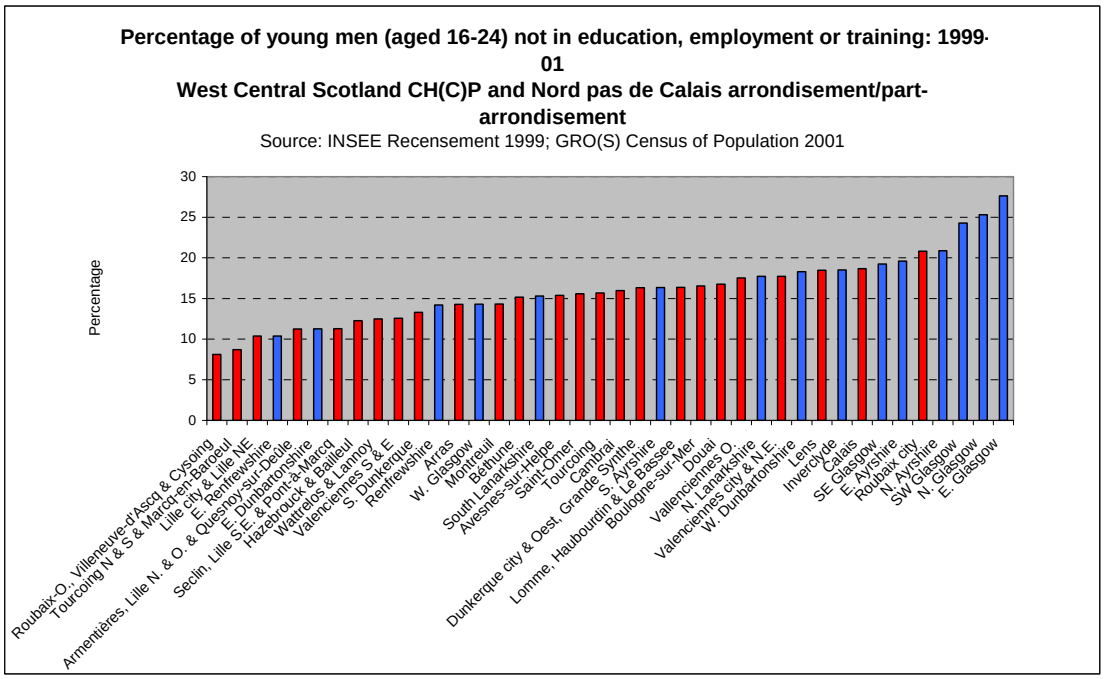
Figure 16



This result is driven by lower levels of participation in education for this age group in WCS compared to NPdC[10] and, within WCS, by the high percentage of young men NEET in the North, East and South West of Glasgow (Figure 17).

[xv] The NEET group for both regions includes those unemployed, retired or economically inactive for other reasons. Those in military service were considered to be in training.

Figure 17



3.4 Car ownership

This indicator shows the percentage of *private households without access to a car or van*. Note that lack of car access may not necessarily be synonymous with lack of prosperity: survey data from 2008 suggested that the percentage of households reporting that they could not afford a car was very similar in France compared to the UK (4% vs. 5%); however, car ownership levels are significantly higher in France.[xvi] Differences in car ownership may therefore reflect cultural factors as much as the level and distribution of income within each region. The quality, cost (and social desirability) of public transport may also be an influencing factor in relation to car ownership.

Between 1990-91 and 2006, the percentage of households without access to a car or van steadily decreased in both regions (Figure 18). However the percentage of WCS households without a car was high compared with NPdC at the start of the period (49.6% v 29.0%) and the gap had narrowed only slightly by 2006 (37.8% vs. 22.3%).

[xvi] In 2008, 5% of UK households and 4% of French households reported that they could not afford a car. For low-income households (below 60% of median income) the figures were 14% and 15% respectively (Source: statistics on income and living conditions, EU-SILC).

District-level analysis presented in Figure 19 suggests this difference is particularly driven by the high percentage of households without access to a car in Glasgow. For example, the districts of East Glasgow and Roubaix City have a similar population and industrial history, but the percentage of households without access to a car was more than 20 percentage points higher in the Scottish region.

Figure 18

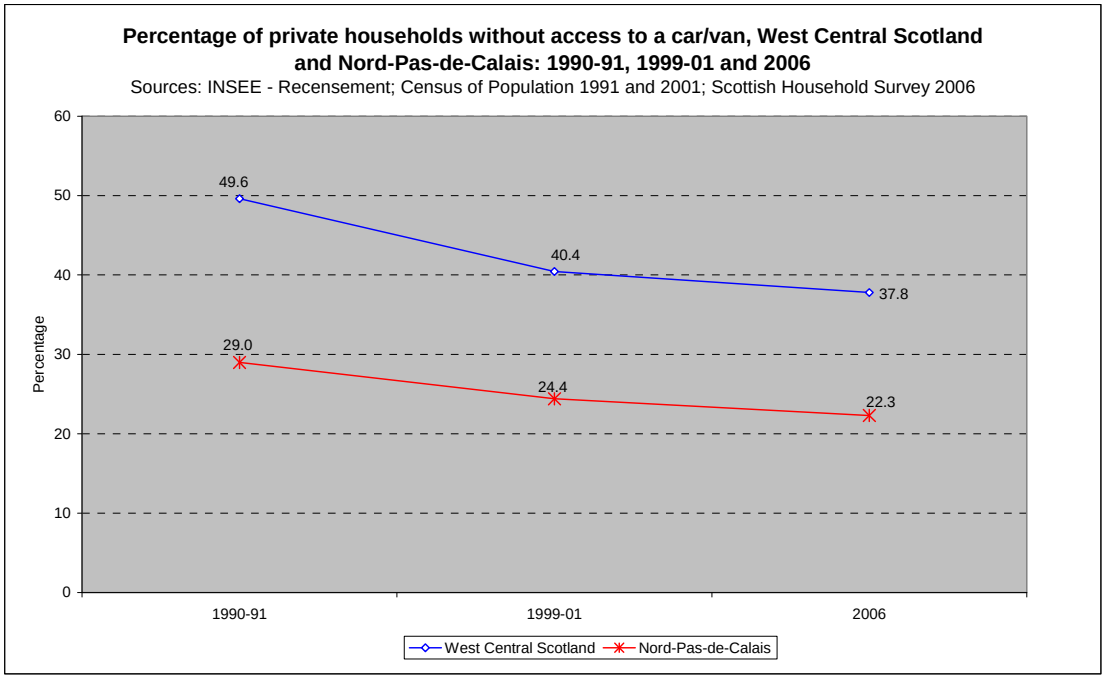
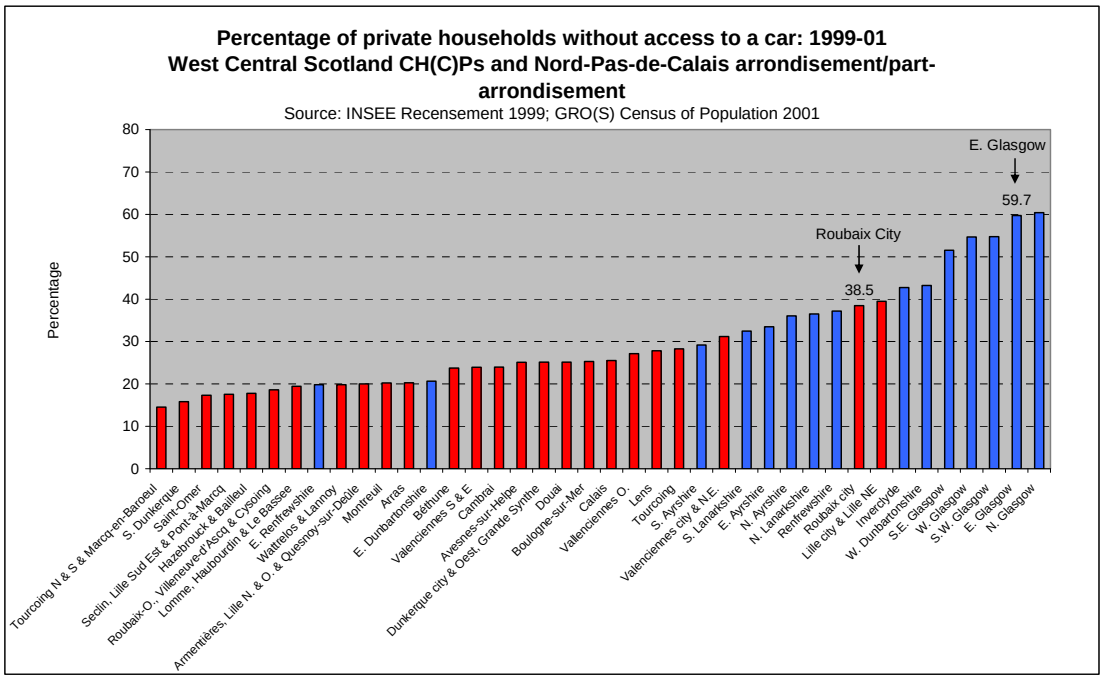


Figure 19

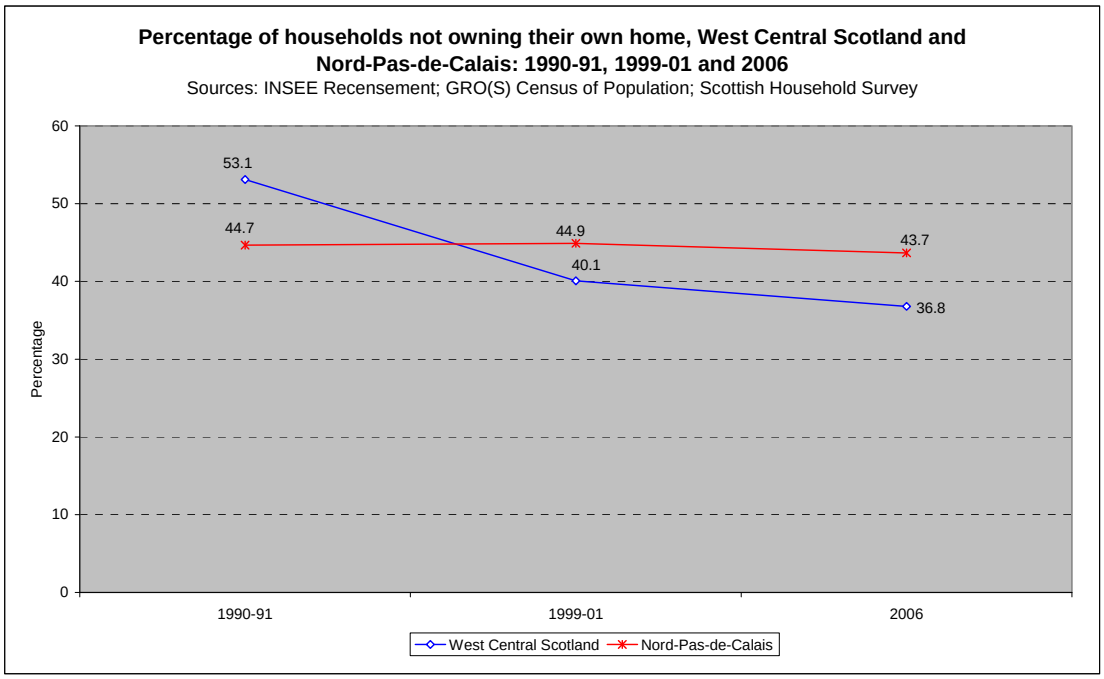


3.5 Home ownership

This indicator shows *the percentage of private households who do not own their own home (either outright or with a mortgage)*. Again, cultural differences should be taken into account in interpreting these results. Private renting is more common in France among those who do not own their own home than in Scotland.[11] In both countries social housing has become increasingly associated with poverty and disadvantage.[12] However, there is some evidence that social disadvantage is less pronounced among both social and private renters in France than in the UK.[13]

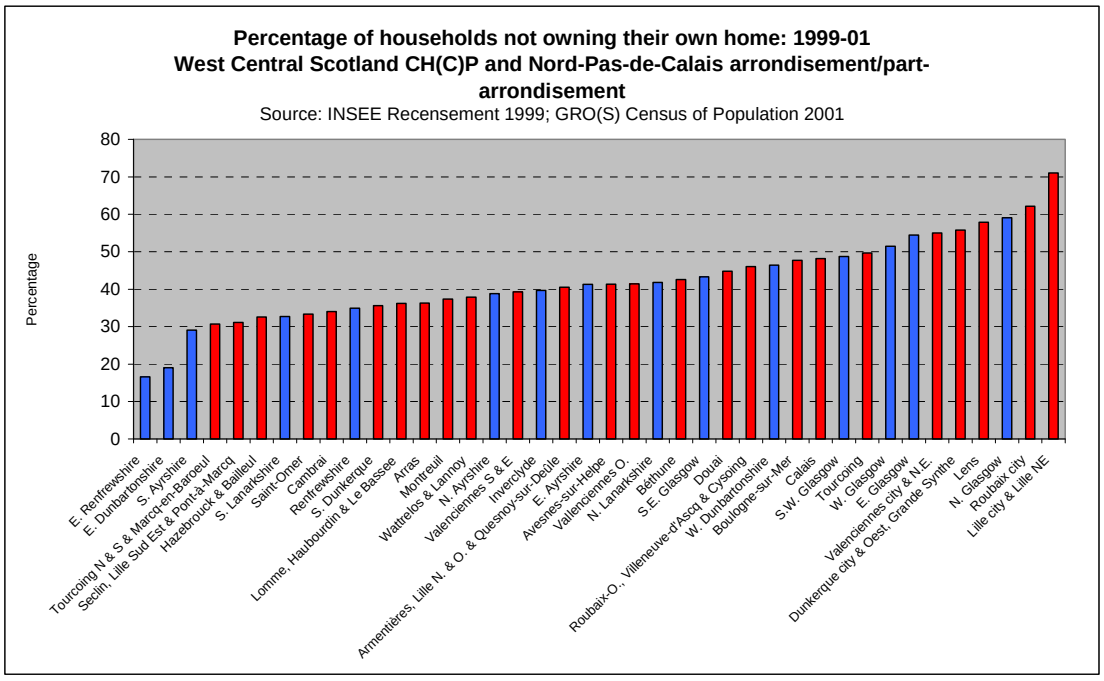
In 1990-91, more than half (53.1%) of households in WCS did not own their home: slightly higher than in Nord-Pas-de Calais (44.7%). Rapid growth in home ownership in WCS meant that its owner occupation rates surpassed those in the French region by 1999-01 and this gap had widened still further by 2006 (Figure 20).

Figure 20



Higher rates of owner occupation in WCS reflect the influence of the districts of East Renfrewshire, East Dunbartonshire, South Ayrshire, South Lanarkshire and Renfrewshire. Glasgow, North Lanarkshire, West Dunbartonshire and Inverclyde were much more comparable to NPdC on this measure (Figure 21).

Figure 21



3.6 Relative poverty, income inequality and geographic segregation

In the first Aftershock report, we highlighted the possibility that a possible explanation for WCS's poorer health might be greater levels of inequality: *"it is possible…our average level of wealth gives a misleading picture, hiding significantly large number of people who live in relative poverty"*[1]. This section compares relative poverty and the degree of geographic segregation by socio-economic indicators in NPdC and West Central Scotland. Note that in the main report, we also offer some more detailed comparisons of income inequality at a national and regional level.

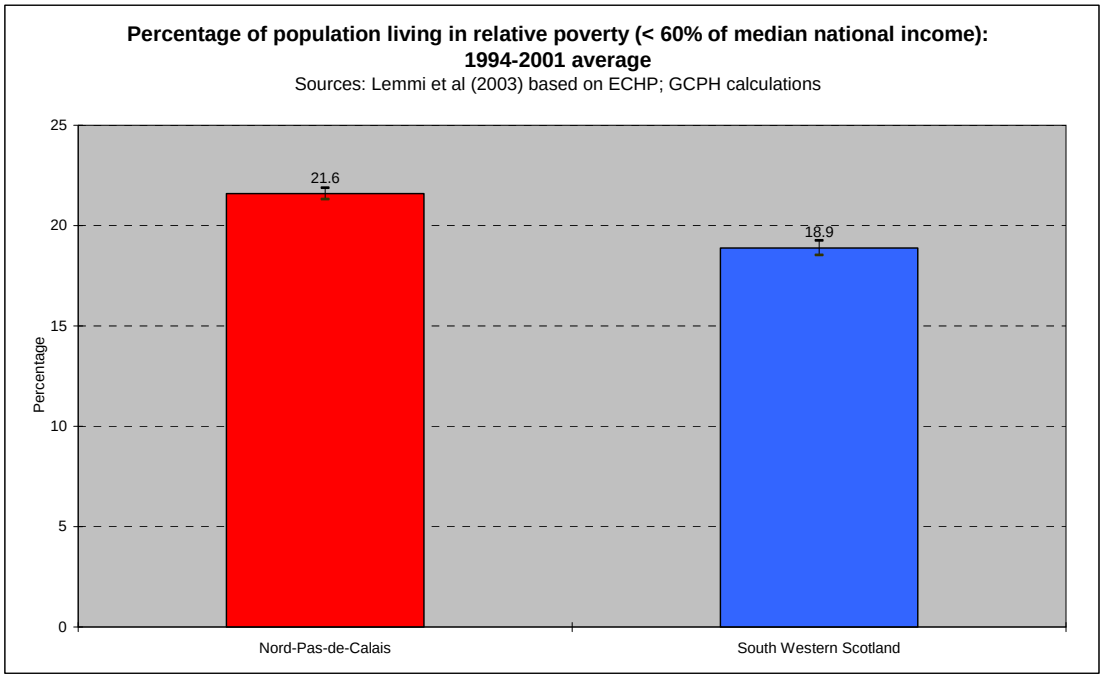
3.6.1 Relative poverty and income inequality

In the European Union, poverty is usually measured in relative terms: that is, showing income levels relative to national income standards. The most common indicator used is the percentage of people living in households with an income less than 60% of median national income. Lemmi et al (2003)[14] have published methods and data that can be used to estimate relative

poverty rates for a large number of NUTS II[xvii] regions, averaged for the period 1994-2001. These were used to estimate poverty rates for NPdC and South Western Scotland (our proxy for WCS).

In both regions, one in five people was classified in this way, but the percentage was slightly lower in South Western Scotland than in NPdC (18.9% vs. 21.6%). This difference was statistically significant but not substantial (Figure 22). In the main report, we show that income inequality in Scotland (as measured by the Gini coefficient[xviii]) was higher than levels seen in France. Income inequality in WCS is also higher than levels seen in NPdC (Figure 23). Despite higher average household incomes in WCS than NPdC, income is distributed more unequally in the Scottish region, leading to similar levels of relative poverty in the two regions.

Figure 22

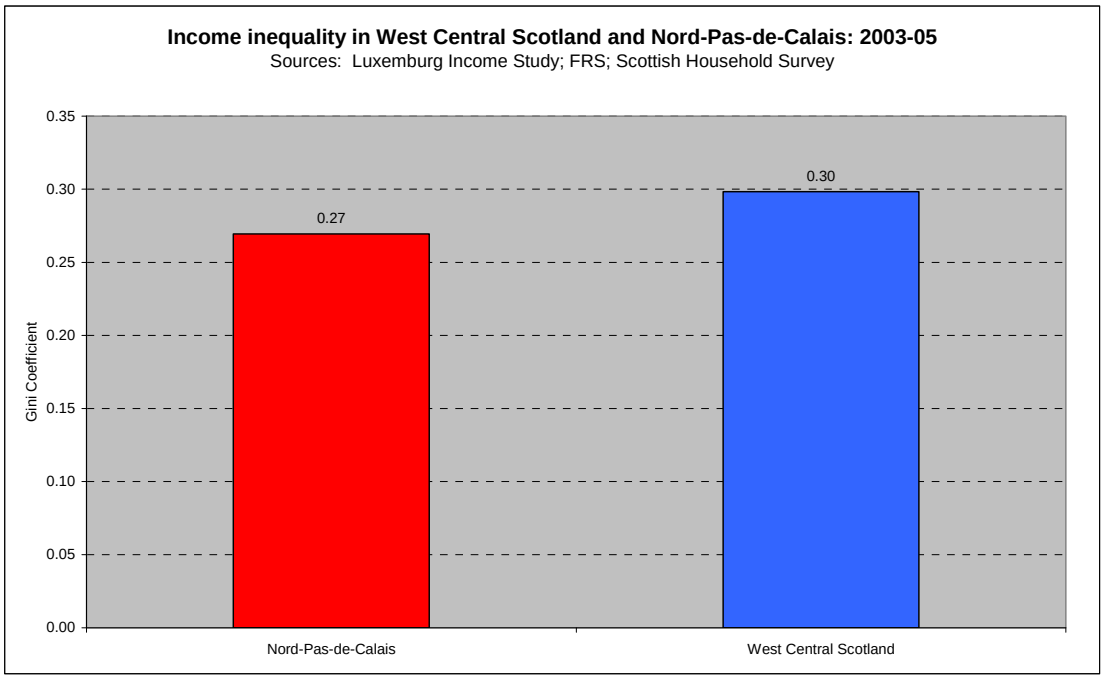


Sample sizes: Nord-Pas-de-Calais=3215; South Western Scotland=1279. ECHP is the European Community Household Survey.

[xvii] Nomenclatures of Units for Territorial Statistics (NUTS) are the standard geographies used by the European Union to divide countries into regions and sub-regions. NUTS II regions have populations between 800,000 and 3m.

[xviii] Originally developed by Corrado Gini, the Gini coefficient can have a theoretical value between zero and one, with zero indicating complete equality of income distribution and one complete inequality. In reality, most middle- and upper-income countries tend to have a Gini between 0.20 and 0.40.

Figure 23



Sample sizes: Nord-Pas-de-Calais=665; West Central Scotland=11907.

3.6.2 Concentrated disadvantage

3.6.2.1 The index of dissimilarity

Originally developed by Duncan and Duncan[15] to study racial segregation in U.S. cities, the index of dissimilarity measures how evenly two groups are distributed across small areas that make up a larger geography.[xix] Scored between zero and one, higher scores on the index indicate greater spatial dissimilarity for particular measures. Here the index of dissimilarity is applied to Census variables in NPdC and WCS, to ascertain whether levels of spatial segregation are greater in the Scottish region. The small areas chosen were 501 intermediate geographies (WCS) and 1215 'pseudo-communes'[xx] (NPdC). Although the index varies with the size of small areas chosen, this is

[xix] The formula for calculating the Index is: $\text{Dissimilarity Index} = \frac{1}{2} \sum_i \left| \frac{group_i}{group_{total}} - \frac{non-group_i}{non-group_{total}} \right|$ where *groupi* denotes the number of people/housegholds with a certain characteristic living in neighborhood *i*, *grouptotal* the number living in the entire region, and *non-groupi* and *non-grouptotal* are similarly defined for people/households without that characteristic.

[xx] Pseudo-communes were created by merging smaller communes and for larger urban areas, contiguous census tracts. A look-up table is available on request.

unlikely to be a problem here since the median population of these areas was similar in both regions[xxi].

3.6.2.2 Methods

For each neighbourhood in NPdC and WCS, the following indicators were calculated:

- Percentage of households who are not owner-occupiers
- Unemployment rates (as % of the economically active population)
- Percentage of households without car access
- Percentage of adults not in education with no formal qualifications
- Percentage of lone parent households
- Percentage of adults classified as manual employees

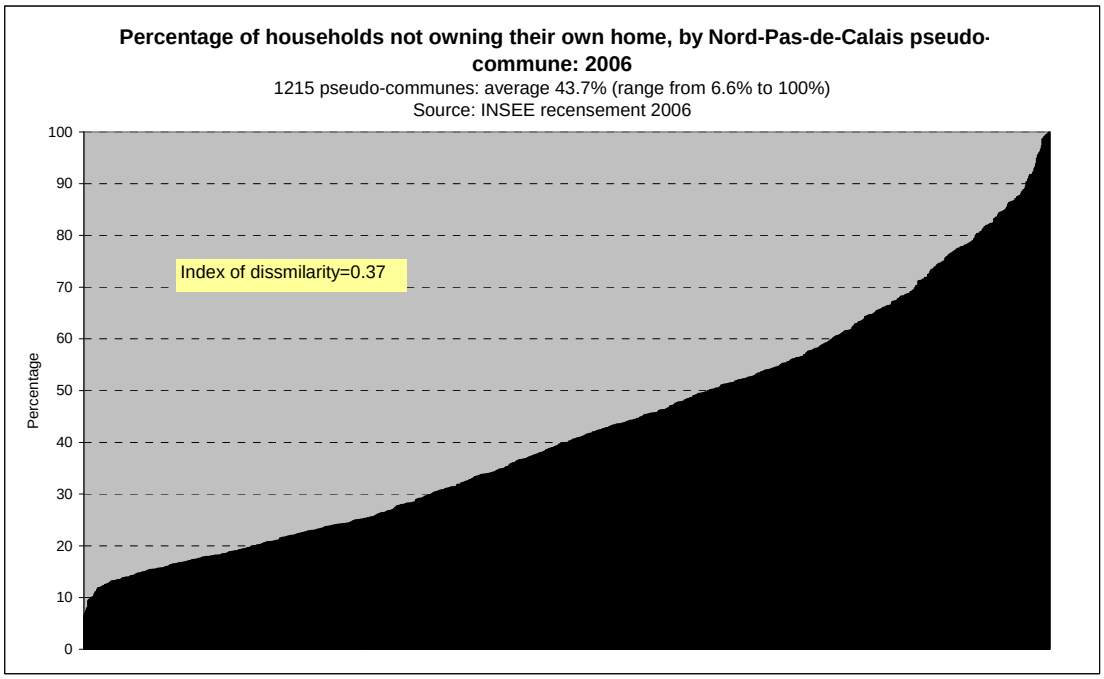
Indices of dissimilarity were then calculated for NPdC and WCS separately, to identify the degree of spatial inequality for each measure within the two regions.

3.6.2.3 Not owner occupiers

In NPdC, the percentage of households who do not own their own home ranged from 6.6% to 100% across 1,215 neighbourhoods (Figure 24). The percentage of households who did not own their home was lowest in neighbourhoods in Hem, Tourcoing-Nord and Nord-Est and Marcq-en-Barœul. In parts of Lille, Lens, Calais and Villeneuve-d'Ascq the percentage of households who did not own their own homes was close to 100%. *The dissimilarity index was 0.37.*

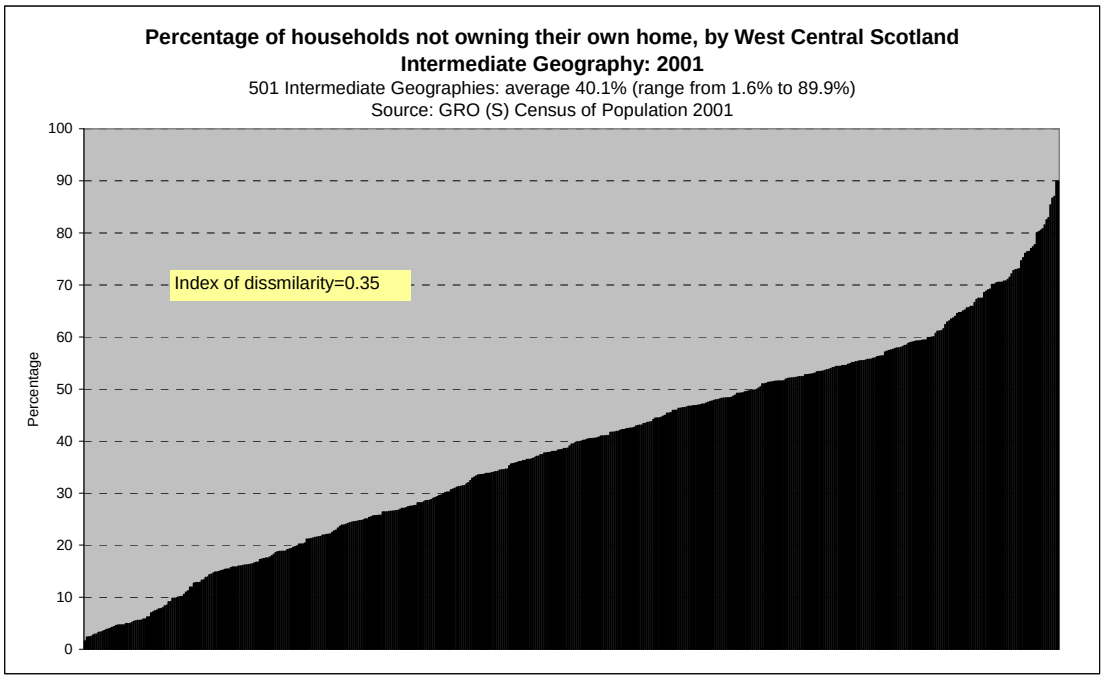
[xxi] Average number of households: 1833 per Intermediate Geography and 1313 per pseudo-commune. Average number of residents: 1925 per Intermediate Geography and 1447 per pseudo-commune.

Figure 24



In WCS, the percentage of households not owning their own home ranged from 1.6% to 89.9%. Levels of owner-occupation were almost 100% in some neighbourhoods in East Renfrewshire, Renfrewshire and South Lanarkshire. By contrast, more than 80% of households in some neighbourhoods in North, East and South West Glasgow (Barlanark, Sighthill, Keppochhill, Ibrox) and some peripheral Glasgow estates (including Easterhouse, Drumchapel North, Glenwood South) are not owner-occupied. *The dissimilarity index was 0.35.*

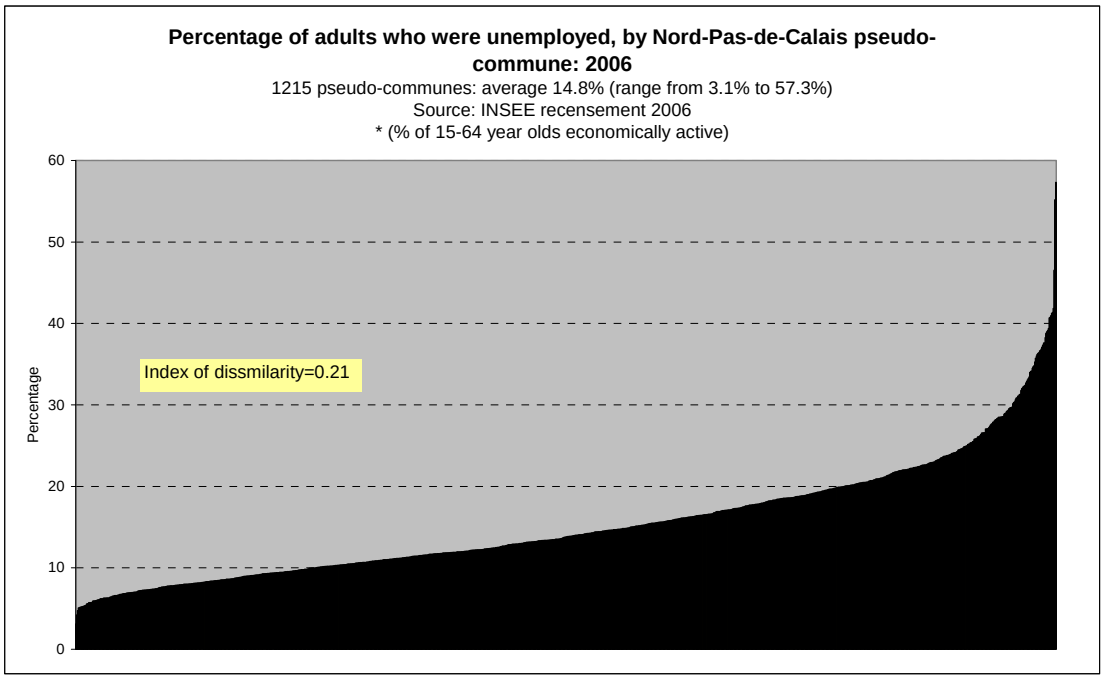
Figure 25



3.6.2.4 Unemployment rates

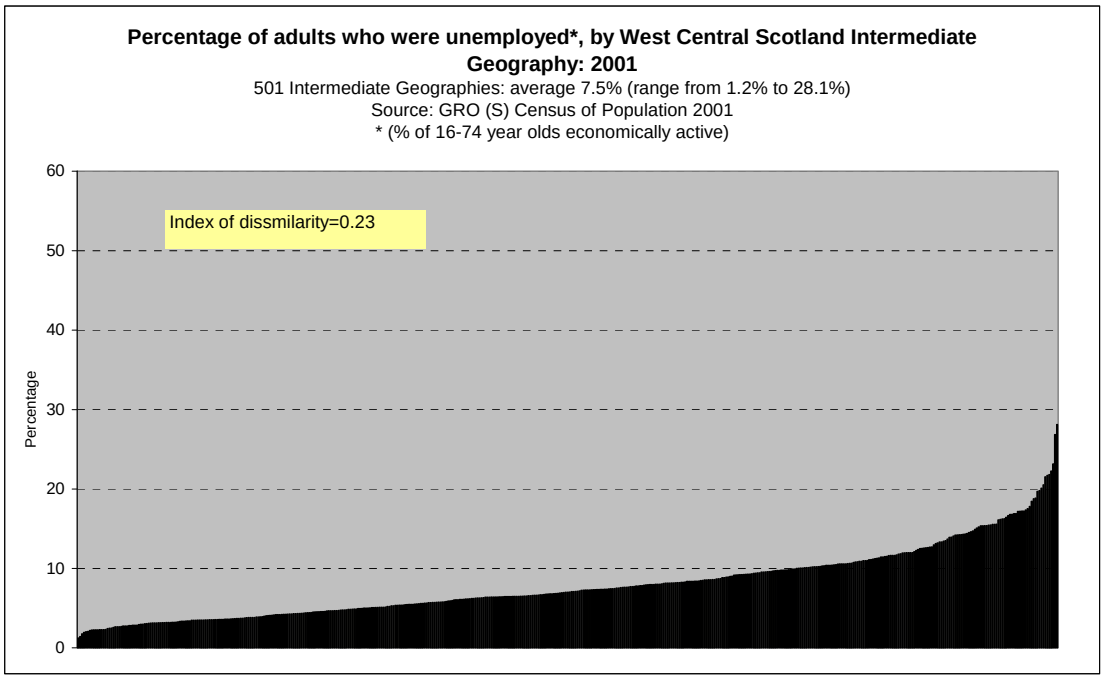
Unemployment rates in NPdC ranged from 3.1% to 57.3% across 1,215 neighbourhoods. Some neighbourhoods in Roubaix, the South of Lille City and Calais had unemployment rates in excess of 40%. In neighbourhoods in Lille-Ouest, parts of Vimy and Lomme-Ouest, unemployment rates were 5% or less. *The dissimilarity index was 0.21.*

Figure 26



In WCS, unemployment rates ranged from 1.2% to 28.1% across 501 neighbourhoods. In some neighbourhoods in East Renfrewshire and South Lanarkshire, unemployment rates were less than 2%, while in some Glasgow and Ayrshire communities one in five of the economically active population was unemployed. *The dissimilarity index was 0.23.*

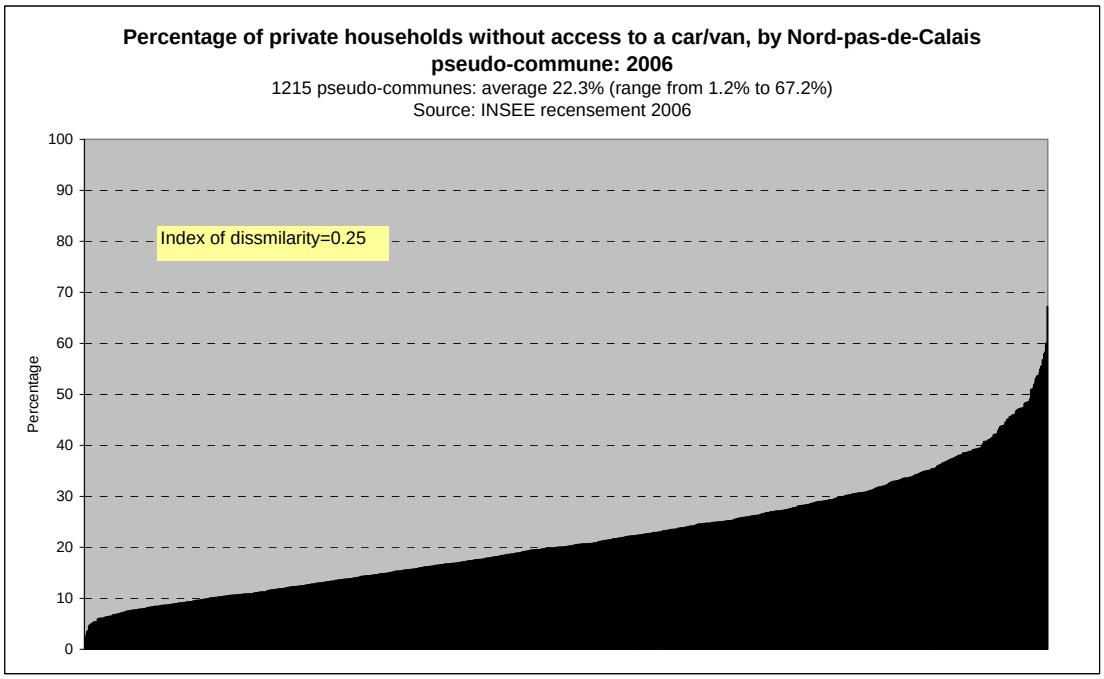
Figure 27



3.6.2.5 Car ownership

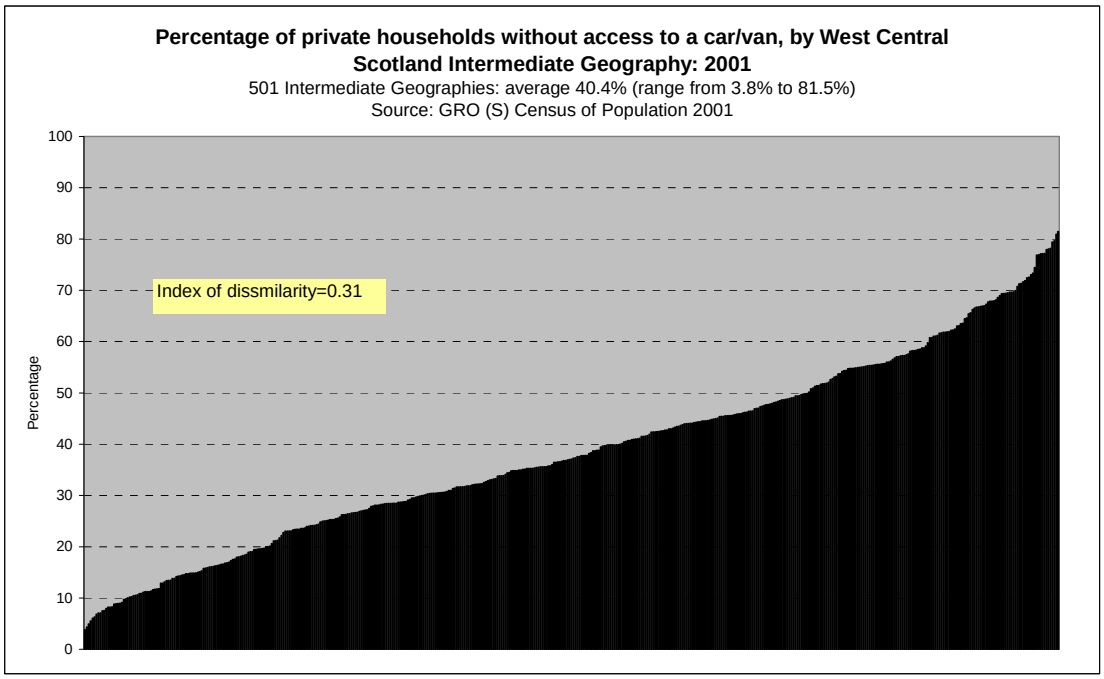
Within NPdC, the percentage of households who did not have access to a car ranged from 1.2% to 67.2%. In many neighbourhoods in Lille City (especially the city centre and university quarter) more than half of households do not have access to a car. At the other end of the spectrum, car ownership levels in some neighbourhoods in Marcq-en-Barœul, Tourcoing-Nord and Laventie rose to 95% or above. *The dissimilarity index was 0.25.*

Figure 28



Turning to WCS, lack of access to a car ranged from 3.8% to 81.5%. Less than one in ten households in parts of East Dunbartonshire, East Renfrewshire and rural Ayrshire and Renfrewshire did not have access to a car. In many of the most deprived neighbourhoods and peripheral estates of Glasgow City, more than eight of out of ten households did not have access to a car. *The dissimilarity index was 0.31.*

Figure 29

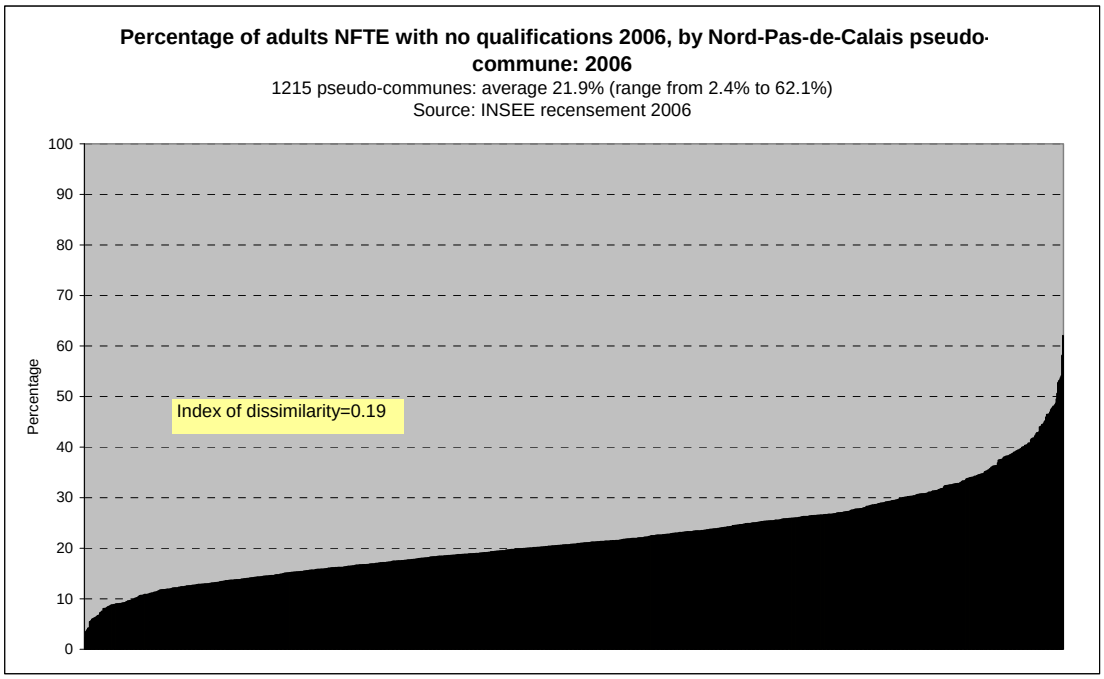


3.6.2.6 No formal qualifications

Low educational attainment is associated with poor health in both France[16] and Scotland[17]. In the social environment section of this case study, differences in educational attainment between WCS and NPdC are discussed in more depth. Here we focus on *within-region* variation in the percentage of adults not in full-time education (NFTE) with no formal qualifications.

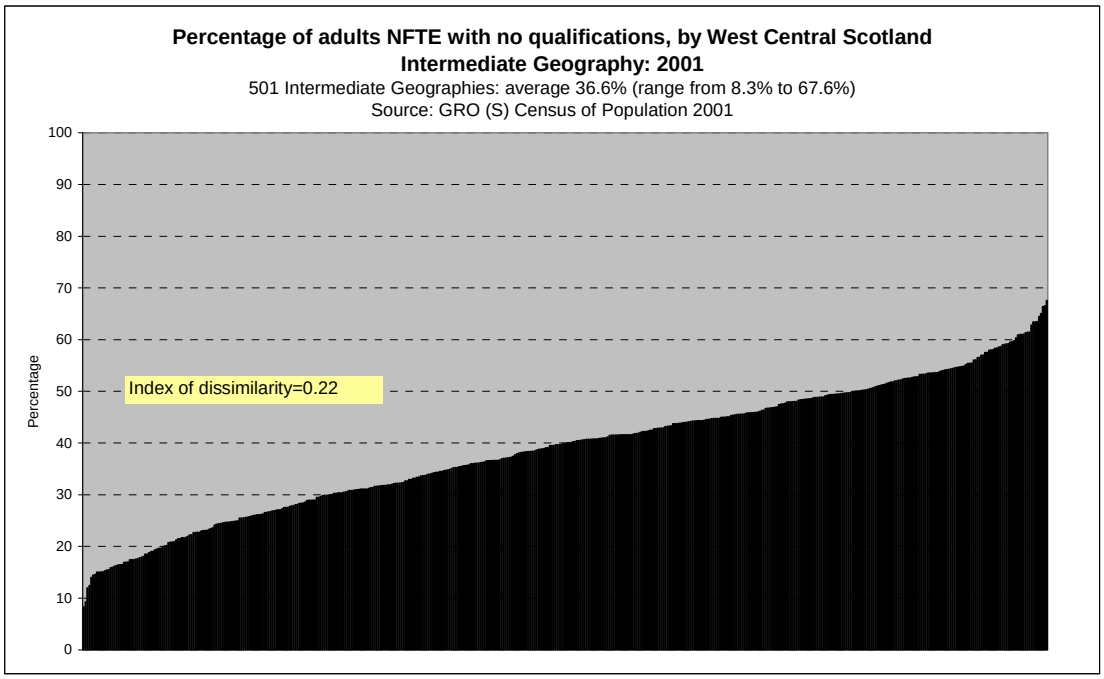
For this indicator, the neighbourhood range for NPdC was from 2.4% to 62.1%. In some neighbourhoods in Lille City, including the city centre and university quarter, less than one in twenty adults not in full-time education (NFTE) had no qualifications. By contrast, in the peripheral estates of Lille City and many communities of Roubaix, more than half of adults NFTE lacked formal qualifications. *The dissimilarity index was 0.19*

Figure 30



In WCS, the percentage of adults not in full-time education with no formal qualifications ranged from 8.3% to 67.6%. In some neighbourhoods in West Glasgow CHP (Partickhill and Hyndland, Dowanhill) less than 10% of adults not in FTE had no qualifications. In parts of North and East Glasgow CHP (Milton West, Possil Park, Dalmarnock, Old Shettleston and Parkhead North) this percentage increased to more than 65%. *The dissimilarity index was 0.22.*

Figure 31



3.6.2.7 Lone parent households

As discussed in the main report, lone parent households may be more vulnerable to a range of less positive health outcomes. In the social environment section of this case study, differences in the percentage of lone parent households between WCS and NPdC are discussed, but the focus here is on *within-region* variation in the percentage of households with dependent children headed by a lone parent.

In 2006, the percentage of NPdC households headed by a lone parent ranged from 5.5% to 67.4% at a neighbourhood-level. In some neighbourhoods of Lille, Roubaix, Valenciennes, Maubeuge and Calais, one-half to two-thirds of households were headed by a lone parent, while in communities in Béthune-Est, Bergues and Aire-sur-la-Lys, lone parent households accounted for just one in ten households with dependent children. *The dissimilarity index was 0.21.*

In WCS, the concentration of lone parent households at a neighbourhood level ranged from 4.6% to 66.2% on Census Day 2001. Neighbourhoods with the lowest percentage of lone parent households were found in East Ayrshire, East Renfrewshire and East Dunbartonshire. Those with the highest rates (60% or more) were located in the more deprived communities of Glasgow, including Easterhouse, Drumry, Ibrox and Drumchapel. *The dissimilarity index was 0.28.*

Figure 32

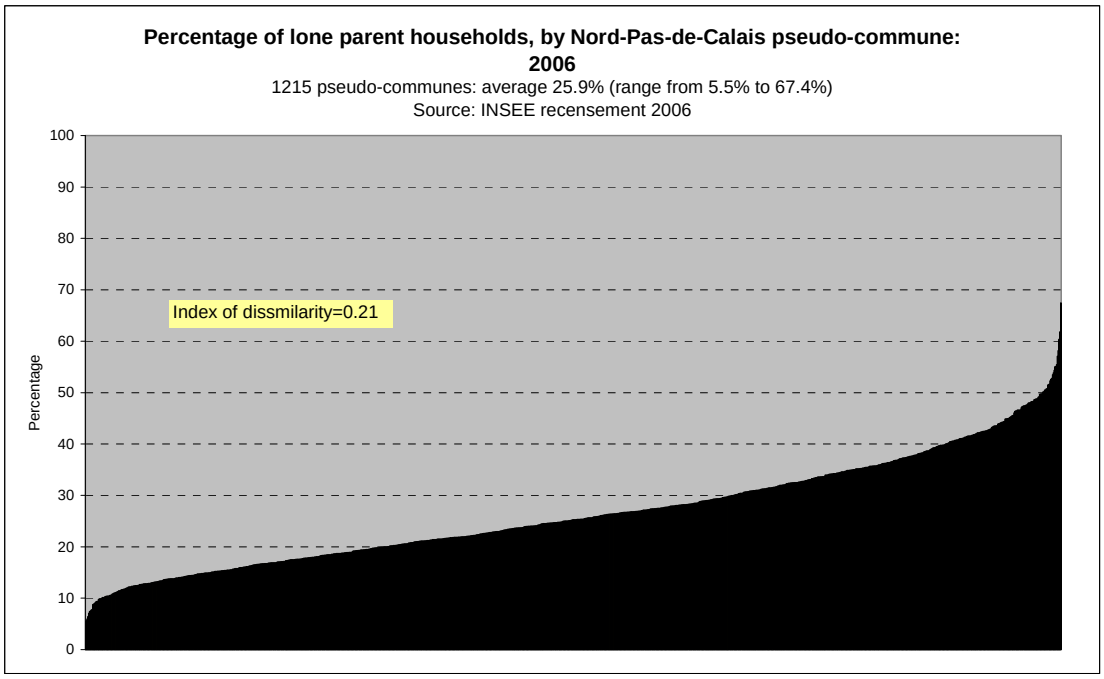
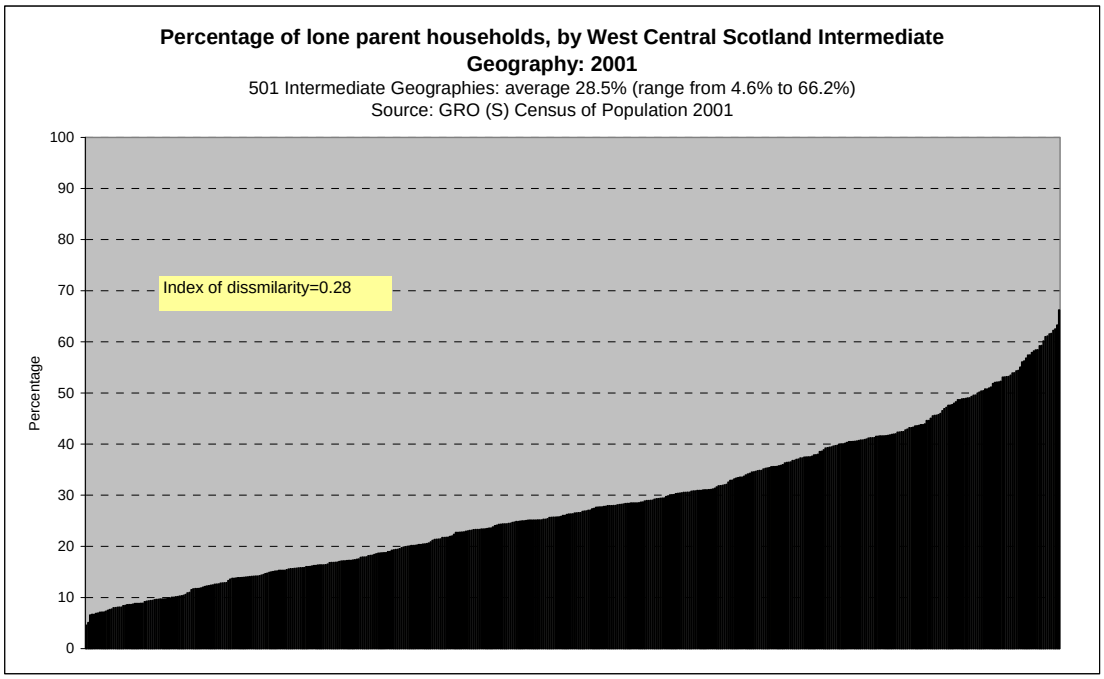


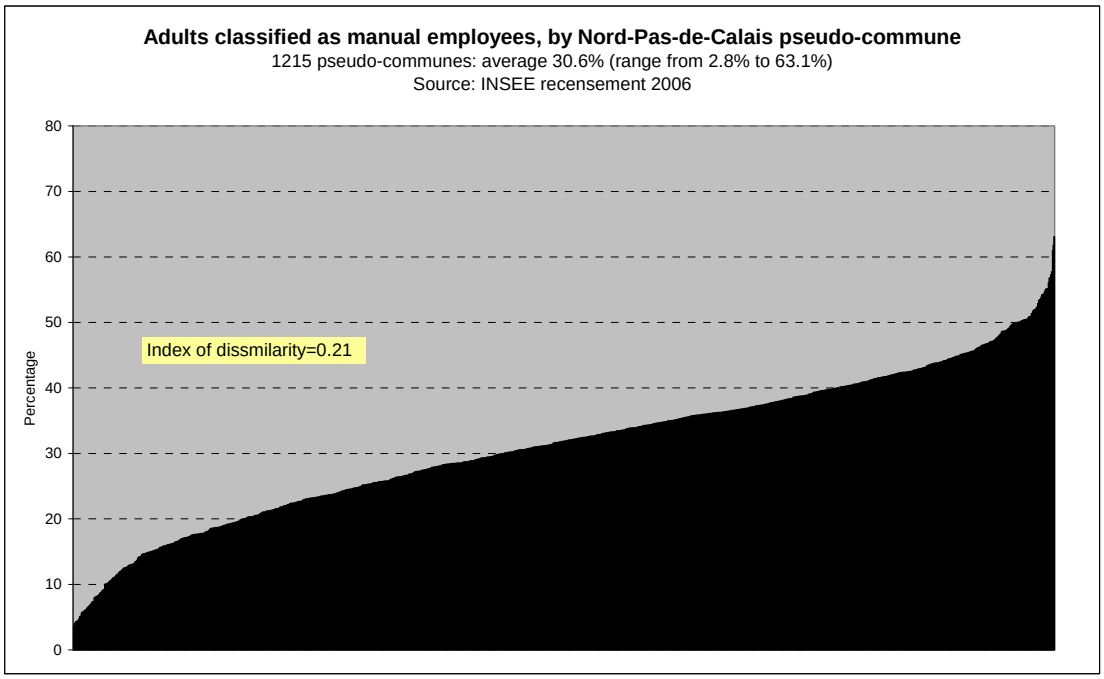
Figure 33



3.6.2.8 Manual employees

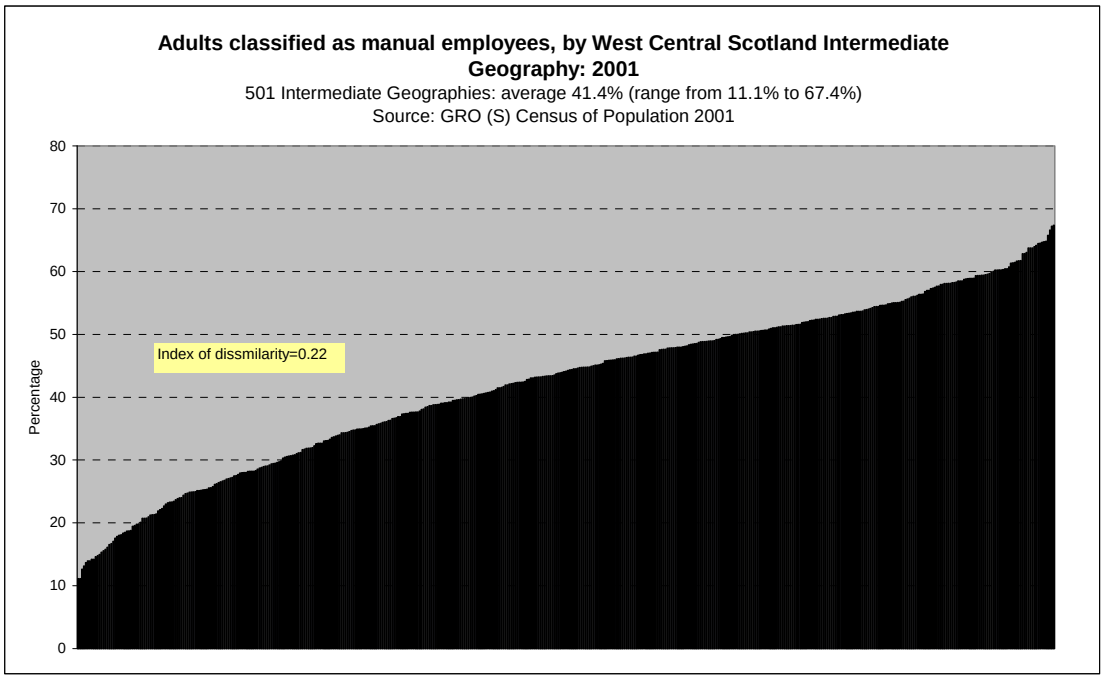
Across the 1,215 NPdC neighbourhoods, the percentage of adults classified as manual employees ranged from 2.8% to 63.1%. Neighbourhoods with the lowest concentration of manual employees were located in Lille City centre, Roubaix-Ouest and Marcq-en-Barœul. The highest concentrations of manual employees were found in neighbourhoods in the traditional industrial cities of Tourcoing and Roubaix and in towns with a coal-mining heritage. *The dissimilarity index was 0.21.*

Figure 34



The distribution of manual employees by neighbourhood in WCS ranged from 11.1% to 67.4%. Concentrations of residents classified as manual employees were very low in neighbourhoods in West Glasgow and the suburbs of East Renfrewshire and East Dunbartonshire. By contrast, two-thirds of the adult population of some neighbourhoods in Inverclyde, Lanarkshire and East Ayrshire were classified as manual employees. *The dissimilarity index was 0.22.*

Figure 35


Adults classified as manual employees, by West Central Scotland Intermediate Geography: 2001
501 Intermediate Geographies: average 41.4% (range from 11.1% to 67.4%)
Source: GRO (S) Census of Population 2001
Percentage
80
70
60
50
40
30
20
10
0
Index of dissmilarity=0.22

Summary: Prosperity and poverty

- In the early 1980s, unemployment rates were 4.5 percentage points higher in WCS than in NPdC.
- Falling rates in WCS and rising rates in NPdC meant that this position had reversed by the early 1990s. The gap continued to widen in the 1990s: by 1999-01, unemployment rates were 10.2 percentage points higher in the French region.
- Male *employment* rates in WCS were similar to those in NPdC in the 1980s and improved relative to the French region in the 1990s. Female employment rates were consistently higher throughout the period.
- Labour market opportunities varied by age and gender between the two regions. Older working age males and women of all ages had lower employment rates in NPdC compared to WCS.
- In 2001, young males in WCS were more likely to be not in education, employment or training (NEET) than their peers in NPdC. This was driven almost entirely by the high percentage of young men NEET in the North, East and South West of Glasgow City.
- Access to a car or van was consistently lower in WCS compared to NPdC between 1990 and 2006. This was particularly driven by low levels of car ownership in Glasgow City. However, this may reflect cultural differences as much as socio-economic factors.
- Between 1990 and 2006, the percentage of WCS households who did not own their own home decreased from 53.1% to 36.8%.
- The comparable figure for NPdC fluctuated around 44% over the same period, though it should be noted the French region has higher levels of private renting and did not have a 'Right to Buy' option encouraging social housing tenants to buy their properties.
- Relative poverty rates in South Western Scotland were slightly lower than in NPdC, though the absolute difference was small (18.9% *vs.* 21.6%). This may reflect greater levels of income inequality in the Scottish region: despite higher levels of absolute prosperity, it distributes this income in a more unequal way.

- Using the dissimilarity index, it is possible to test the extent to which measures of social (dis)advantage are spatially concentrated in WCS and NPdC. The results do not suggest spatial segregation was consistently greater in WCS: spatial segregation was similar for three indicators, higher in NPdC for one and higher in WCS for two.

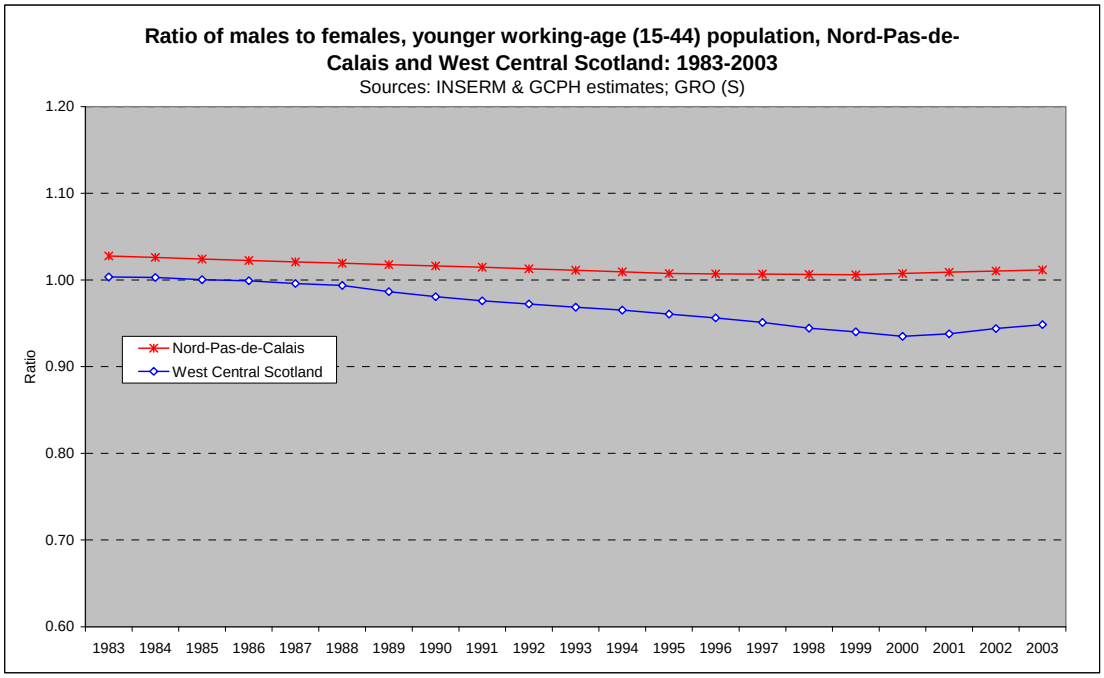
4.0 Population

As noted in the main report, population structure, and how it changes over time, can have positive and negative effects on the health of the population. This section looks at aspects of population that might influence regional differences in health: overall population trends; the gender ratio; the dependency ratio; population density; and births and fertility rates.

4.1 Sex ratio

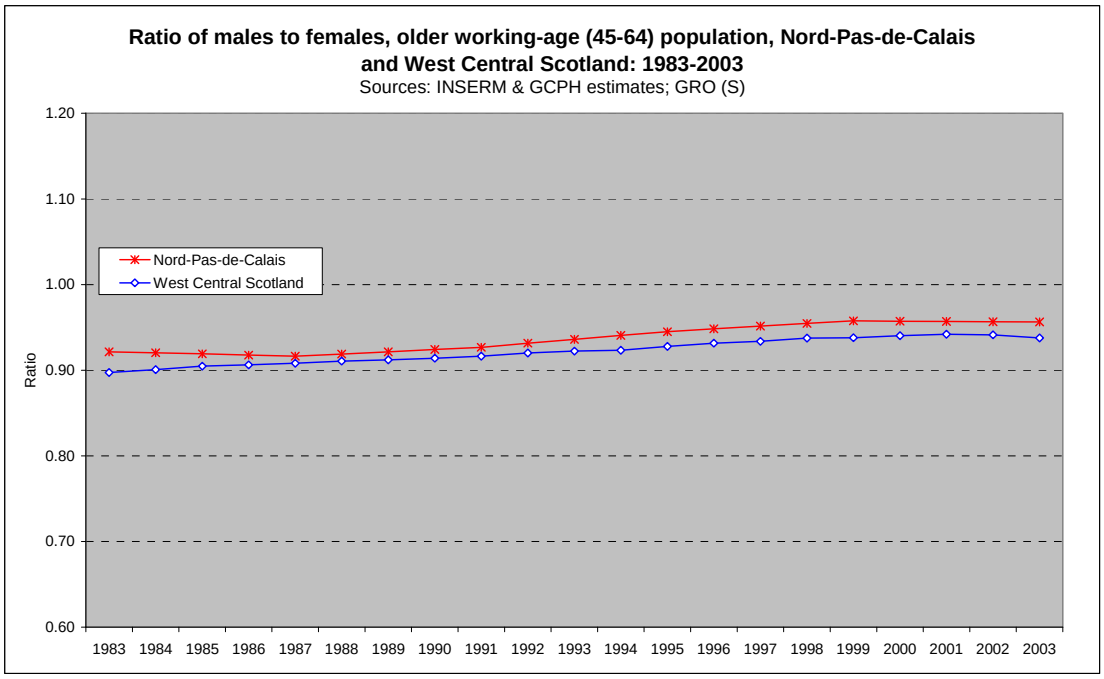
As discussed in the main report, a gender balance may be desirable for health: for example, by allowing higher marriage rates which have a positive impact on male health. Among young adults (aged 15-44), the number of male residents was broadly equal to the number of females in NPdC but in WCS women outnumbered men in this age group. The regional gap in the sex ratio for the two regions widened over time, driven by reduction in the young adult male population resident in the Scottish region (Figure 36).

Figure 36



For older working age adults (aged 45-64), the ratio of men to women was very similar in both regions, and increased very slightly over time (Figure 37).

Figure 37

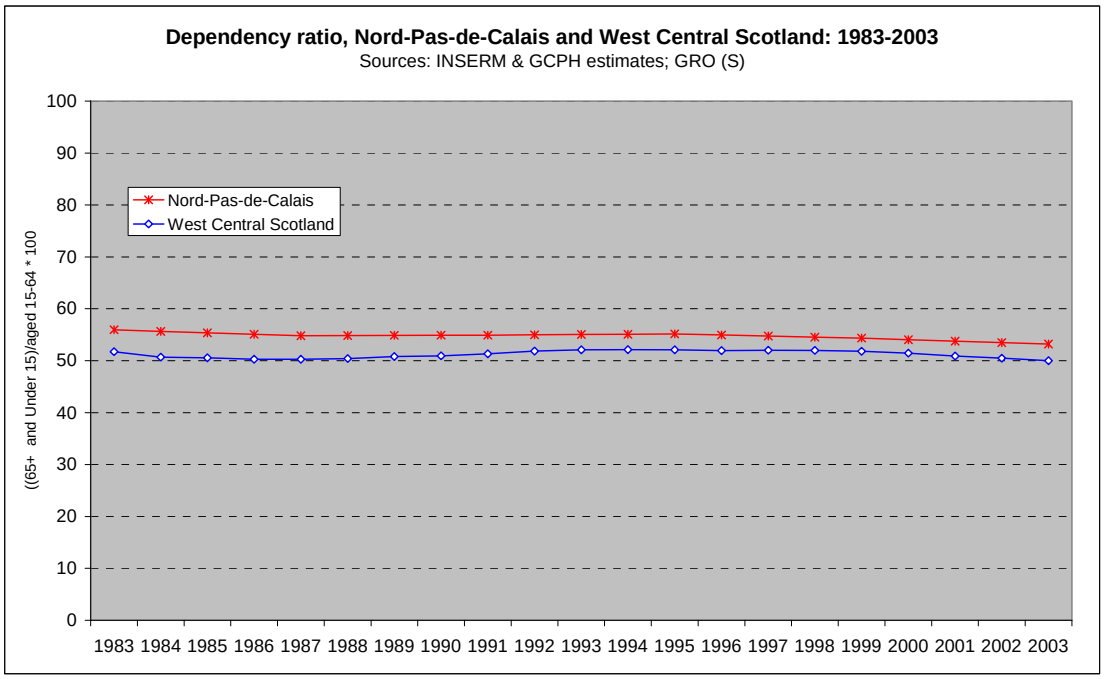


4.2 Dependency ratio

The 'dependency ratio' (defined crudely as the ratio of the 'economically dependent' population (i.e. the young and old[xxii]) to the working-age population) is an important demographic indicator for countries, regions and cities. Dependency ratios were very similar in the two regions in 2003: 53 per 100 in the French region and 50 per 100 in the Scottish region. Neither region saw a dramatic change in its dependency ratio between 1983 and 2003 (Figure 38).

[xxii] The dependency ratio here is calculated as the total population aged under 15 and 65+ divided by the total population aged 15-64 (and divided by 100).

Figure 38



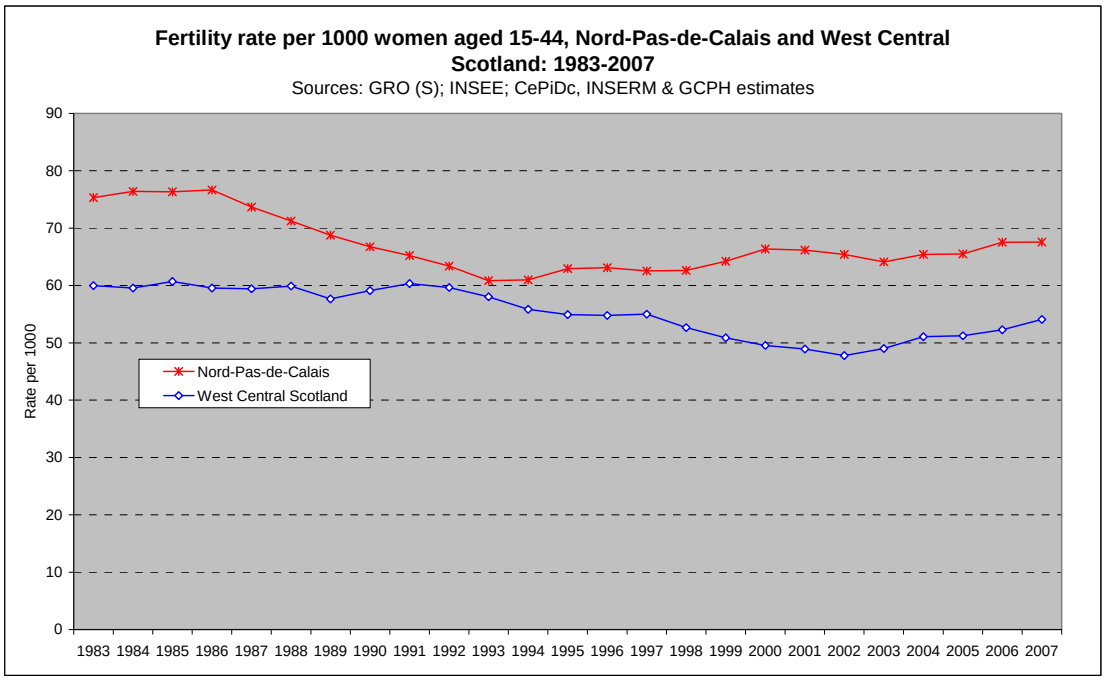
4.3 Population density

Population densities were very similar in the two regions: 324 people per sq km in NPdC and 316 per sq km in WCS.

4.4 Fertility rates

A natural complement to death rates in understanding population change is the fertility rate, expressed as the number of births per 1000 women aged 15-44 (Figure 39). Fertility rates were higher in NPdC (68 per 1000) than in WCS (54 per 1000) in 2007. In NPdC, fertility rates fell sharply in the late 1980s then recovered to levels last seen in the mid-1980s by 2007. WCS fertility rates were stable in the 1980s but then declined steadily in the 1990s, though since 2002 rates have recovered to levels last seen in the mid-1990s. Fertility rates were, however, consistently higher in NPdC throughout.

Figure 39


Fertility rate per 1000 women aged 15-44, Nord-Pas-de-Calais and West Central Scotland: 1983-2007
Sources: GRO (S); INSEE; CePiDc, INSERM & GCPH estimates
Rate per 1000
90
80
70
60
50
40
30
20
10
0
Nord-Pas-de-Calais
West Central Scotland
1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

Summary: Population

- In NPdC, the number of younger working-age males was roughly equal to the number of younger working-age females. In WCS, females outnumbered males in this age group.
- The dependency ratio, population density, and sex ratio for older working-age adults were all very similar in both regions.
- Fertility rates were higher in NPdC than WCS in 2007. Trends in fertility rates differed between the regions, but remained consistently higher in NPdC throughout.

5.0 Social environment

There is a clear association between the social environment and increased risk of mortality for all causes, especially those of interest here (lung cancer[18], suicide[19], drugs[19], assault[20] and liver disease[21]) *within* Scotland. This section considers whether there are any differences in the social environment between WCS and NPdC which may help explain variation in health outcomes between the regions. However, data availability limits our comparisons to education, vulnerable households and voter turnout (as a crude proxy for aspects of social capital).

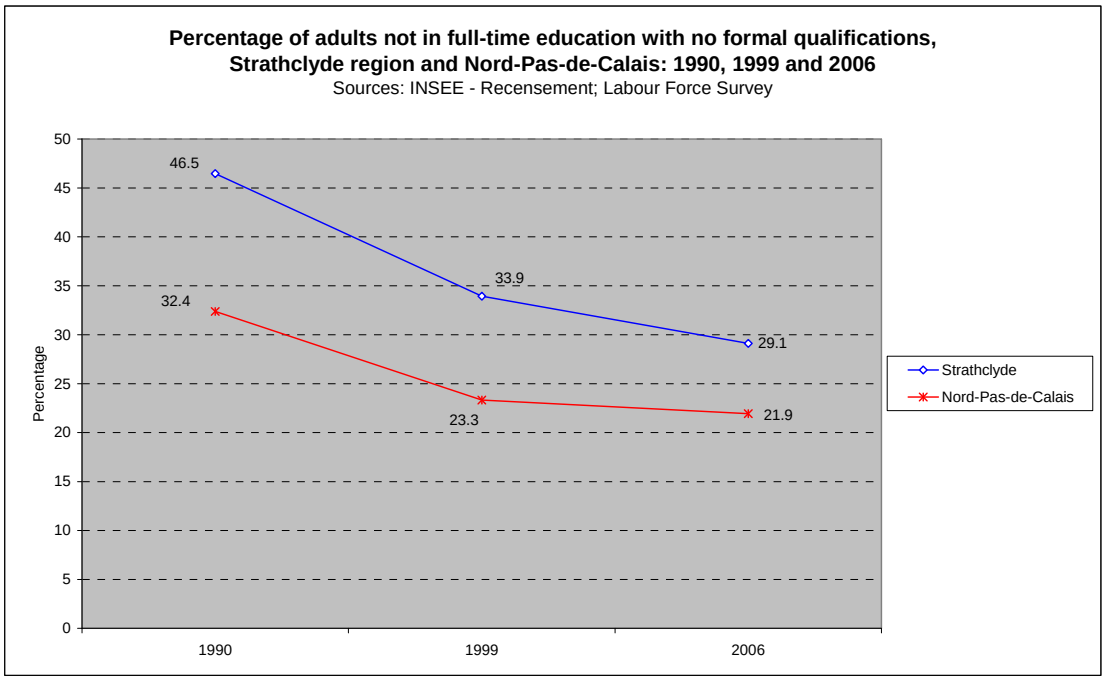
5.1 Lack of qualifications

This indicator looks at the percentage of adults *not in full-time education with no formal qualifications*. For the time series analysis, which draws on Labour Force Survey data for WCS, it was necessary to use the slightly larger Strathclyde region as a proxy for WCS.

It is important to bear in mind that the regions sit within countries with different approaches to education and skills. For example, French students have a more explicit choice between vocational or academic subjects at age 16 than those in Scotland.[22] Compared to France, the UK also has a greater percentage of its adult population with high level qualifications but a lower percentage with intermediate-level qualifications[23]. As a result, educational attainment may be more polarised in the UK than France. It is likely the regional data will be influenced by these national differences.

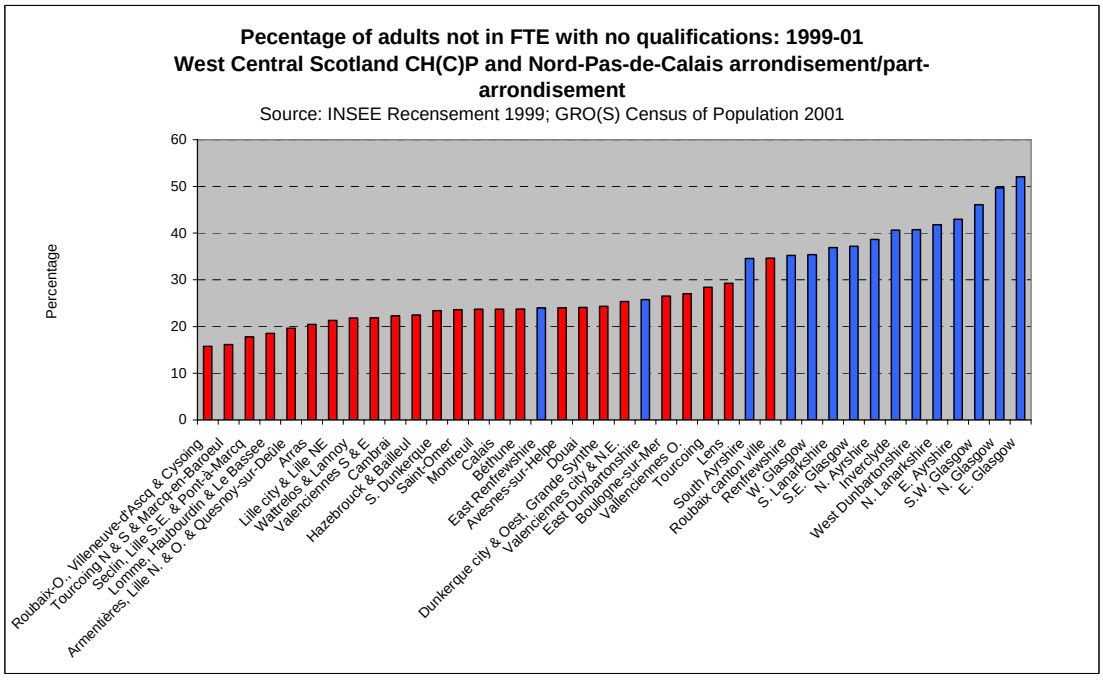
In 2006, nearly a third (29.1%) of adults in Strathclyde region not in full-time education had no formal qualifications. Although this percentage has improved markedly since 1990, when almost half (46.5%) of adults in the region were without qualifications, it remained consistently higher than NPdC throughout (Figure 40).

Figure 40



This appears to be a region-wide effect. Using Census data to compare CHPs with similarly-sized French districts, East Renfrewshire and East Dunbartonshire have a similar profile to NPdC on this measure, but the remaining WCS CHPs compare less favourably (Figure 41).

Figure 41

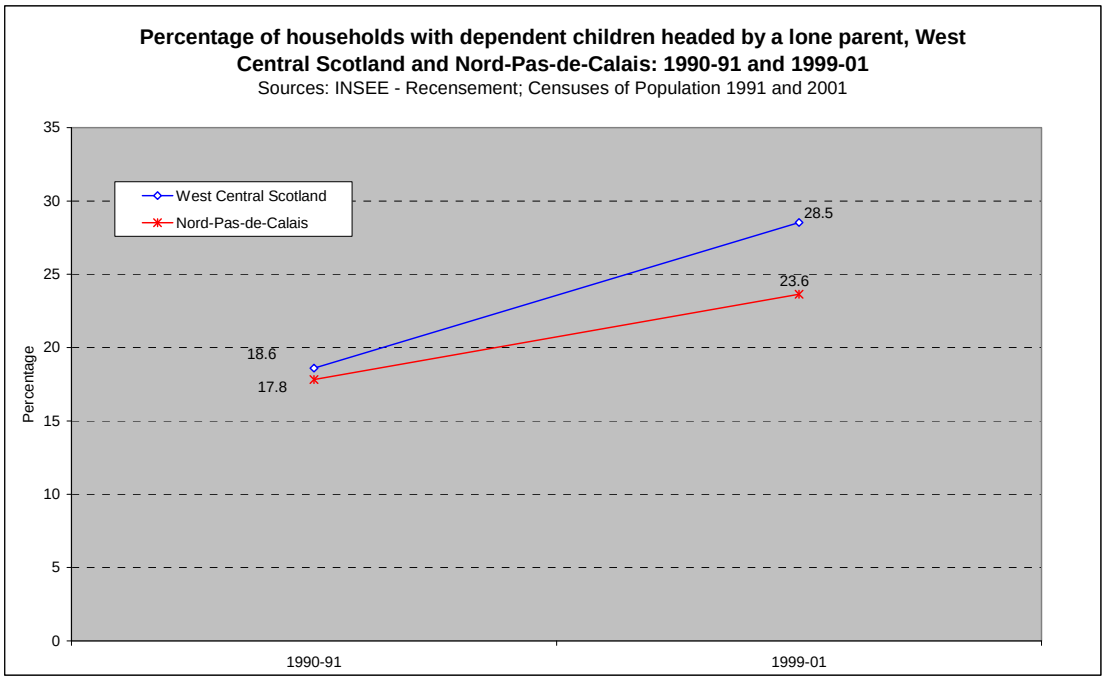


5.2 Lone parent households

This indicator shows *the percentage of households with dependent children headed by a lone parent*. For the French data, children are considered as 'dependent' up to the age of 25, while the Scottish data counts children as dependent only if they are either under 16 or aged 16-18 in full-time education. This is likely to overstate the French figures relative to Scotland.

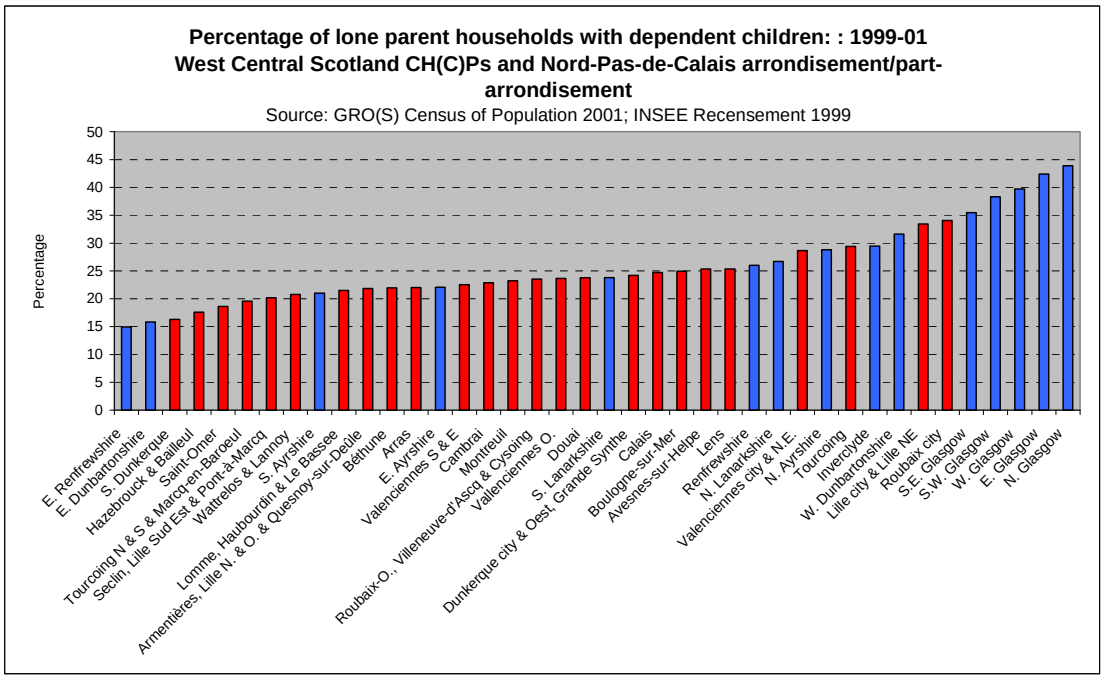
Despite this, in 1999-01, the percentage of households headed by a lone parent was higher in WCS than in NPdC: 28.5% compared with 23.6%. Both regions saw growth in lone parent households during the 1990s, but the rate of increase was faster in WCS, thereby widening the gap (Figure 42).

Figure 42



Polarisation was more marked for this measure in WCS. In much of Glasgow, 40-45% of households with dependent children were headed by a lone parent in 2001, but in East Renfrewshire and East Dunbartonshire this fell to around 15% (Figure 43).

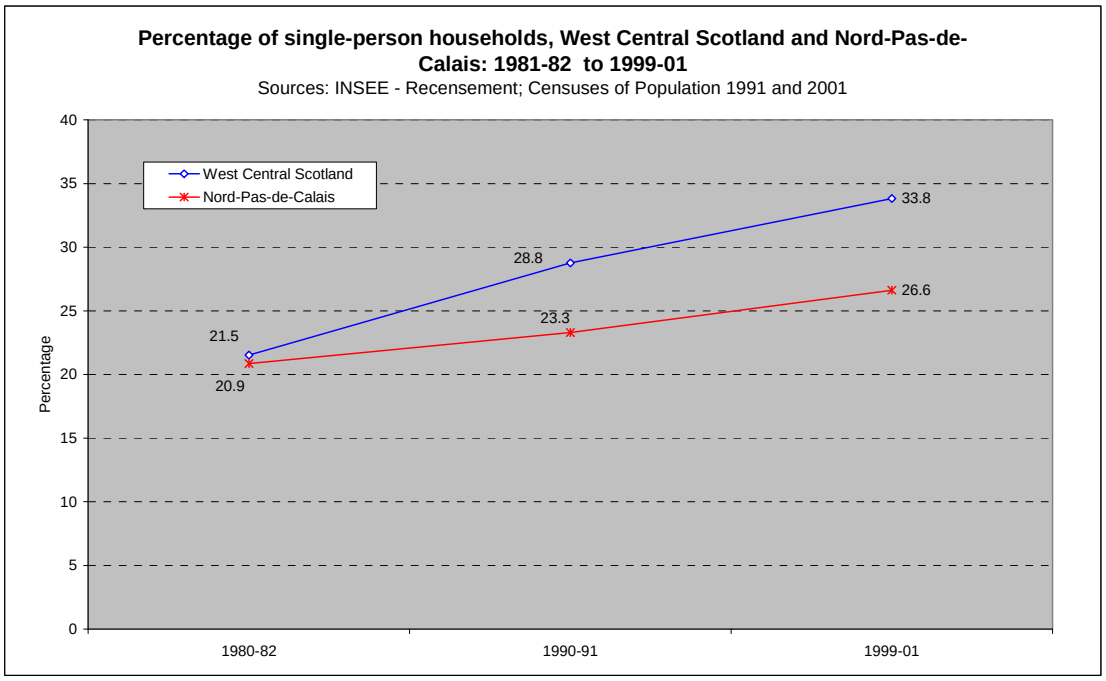
Figure 43



5.3 Single person households

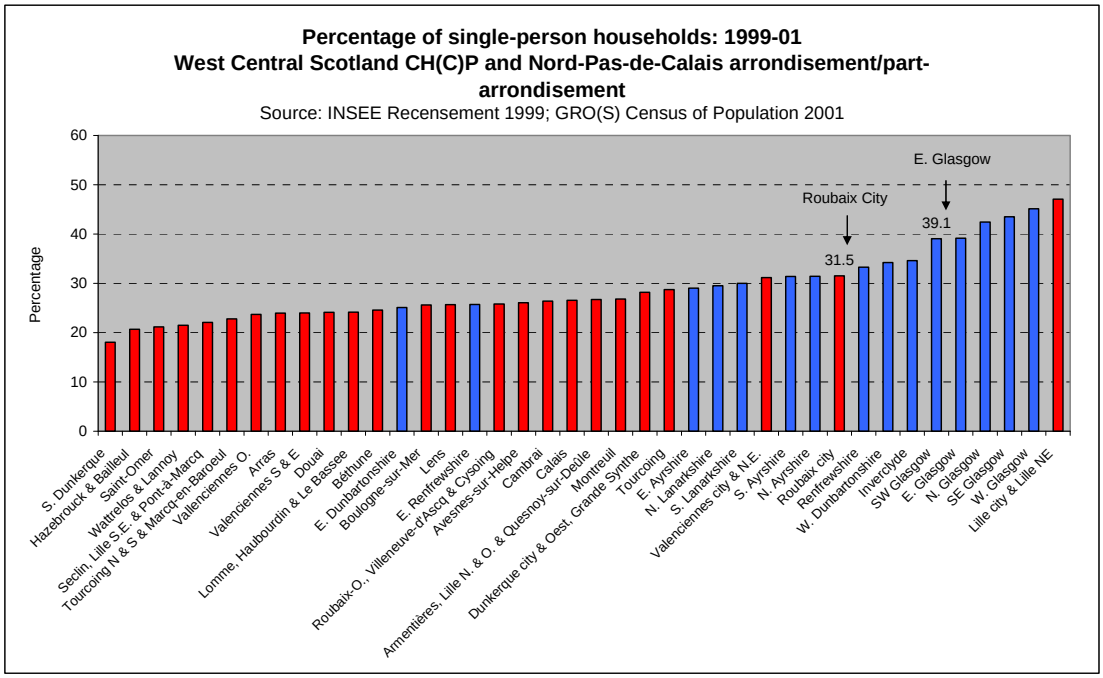
Our second measure of vulnerable households is *the percentage of households containing a single person*. In 1990-01, the percentage of single person households was much higher in WCS than in NPdC: 33.8% compared with 26.6%. The data are shown in Figure 44, which also shows that although the percentage of single-person households have increased in both regions, the rate of increase was much steeper in WCS. In 1981-82, the percentage of single person households was similar in both regions.

Figure 44



This appears to be particularly driven by the high percentage of single-person households in Glasgow City: while Lille City & NE also has a high percentage of single-person households, its population is much smaller than Glasgow (c. 250,000 vs. 580,000). Comparing the similarly-sized areas of Roubaix City with E. Glasgow, the percentage is eight percentage points higher than in the Scottish region (Figure 45).

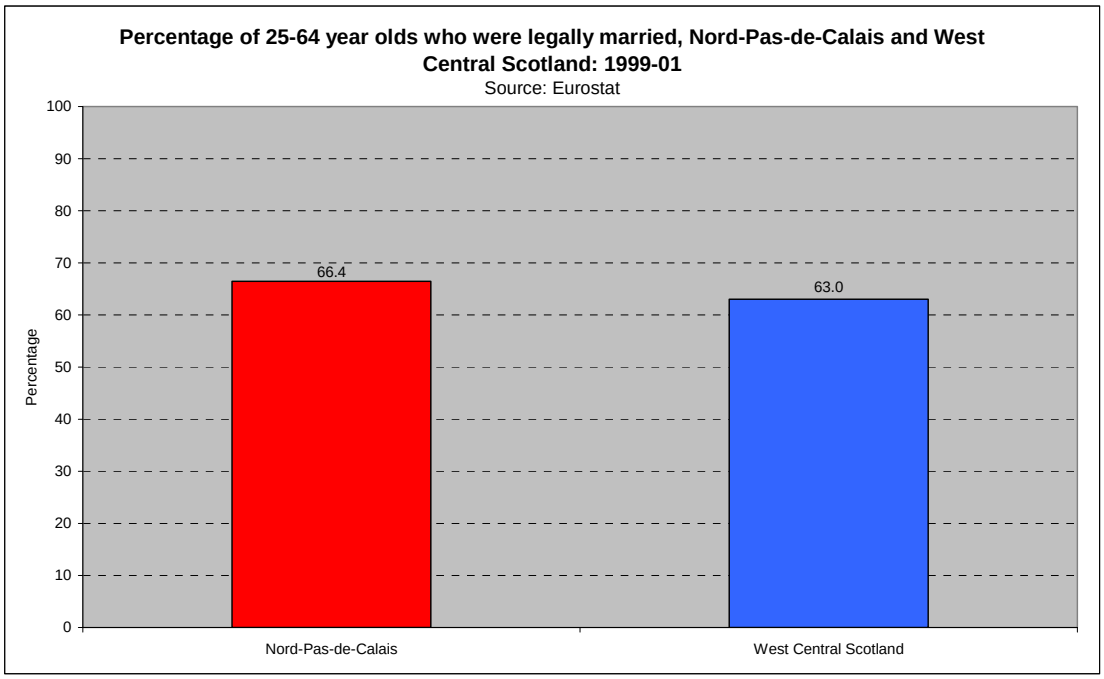
Figure 45



5.4 Marital status

This indicator shows *the percentage of adults aged 25-64 who were legally married (including those who were separated).* Overall, the percentage of adults in this age group defined as legally married was marginally higher in NPdC (66.4%) than in WCS (63.0%), though the differences were small (Figure 46).

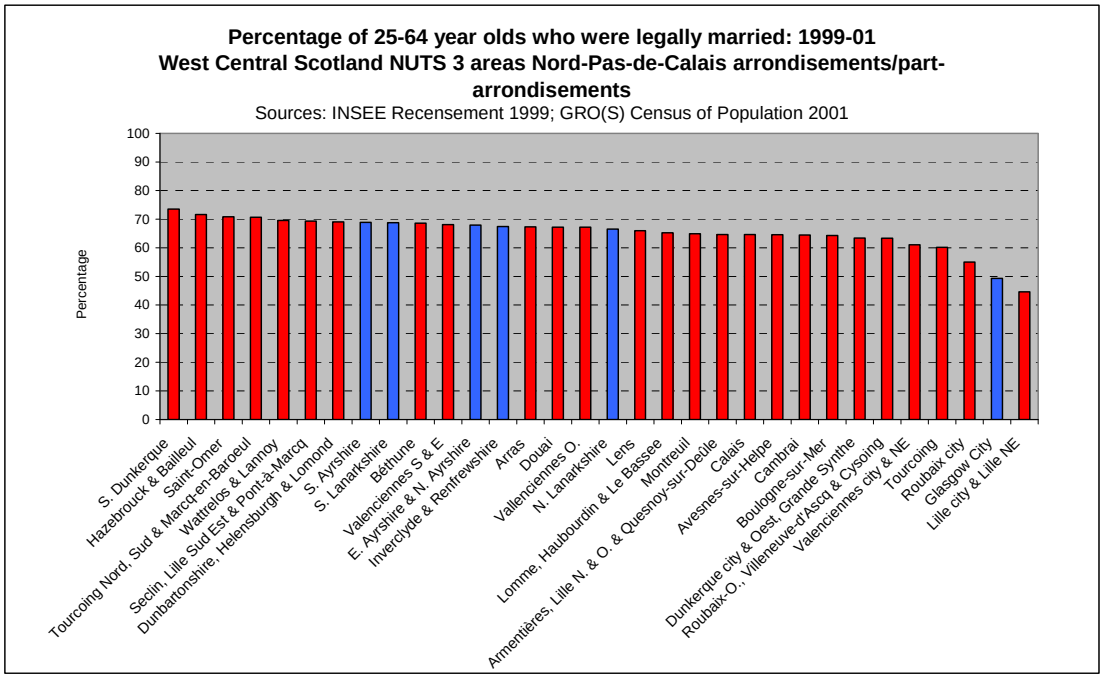
Figure 46



Note: Definition includes adults who were separated.

For most small areas within these regions, the percentage of 25-64 year-olds who were married ranged between 60% and 70%, though rates were much lower in the cities of Roubaix, Lille City & NE and Glasgow (Figure 47). The regional difference appears to be driven by Glasgow's larger population compared to Roubaix and Lille City.

Figure 47



5.5 Voter turnout

As discussed in the main report, an increasing amount of research in recent years has pointed to the importance of 'social capital' and social networks in relation to health status.[24, 25, 26, 27, 28] . However, robust measures of social capital that can be compared across European regions are very limited. Here we use voter turnout at parliamentary elections as a proxy for aspects of social capital levels in NPdC and WCS.

Figure 48 shows voter turnout in NPdC and WCS between 1992-93 and 2005-07. Levels of voter turnout were very similar in the two regions over time. Figure 49 shows how voter turnout varied at a sub-regional level[xxiii] in 2005-07. Again, there is little evidence of a stark regional divide in voter turnout, with both regions containing areas with relatively high voter turnout (Dunbartonshire East, PdC3[xxiv]) and areas with relatively low voter turnout (Glasgow East; N8).

[xxiii] UK Parliamentary constituencies and *circonscriptions legislatives* ('electoral constituencies').
[xxiv] See footnote to Figure 49

Figure 48

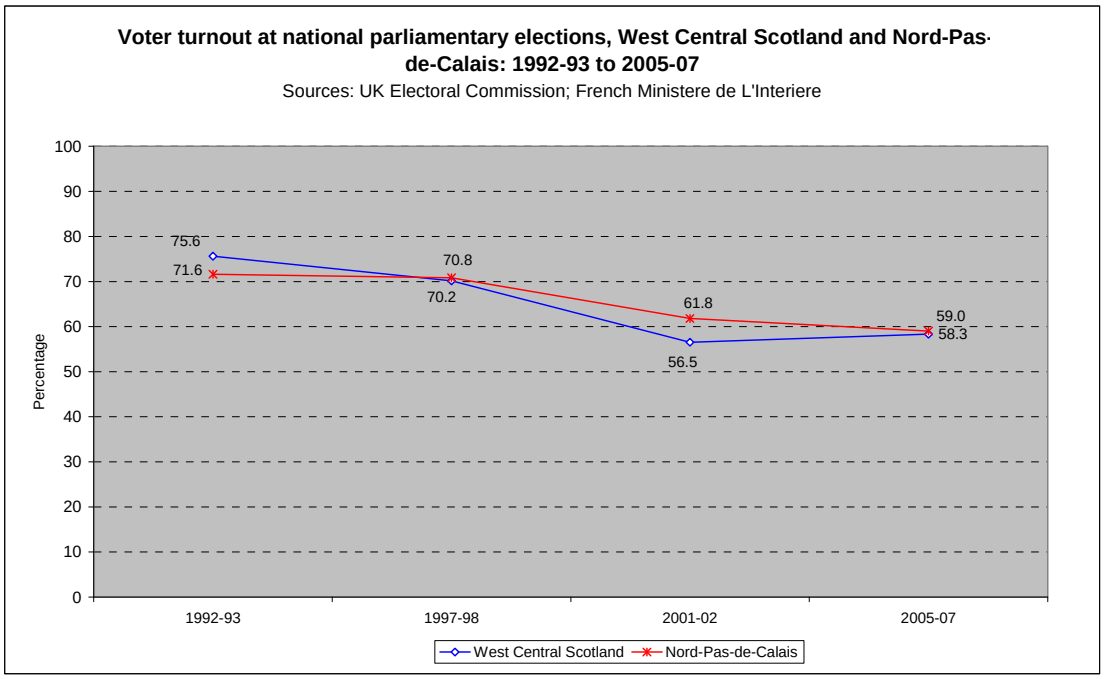
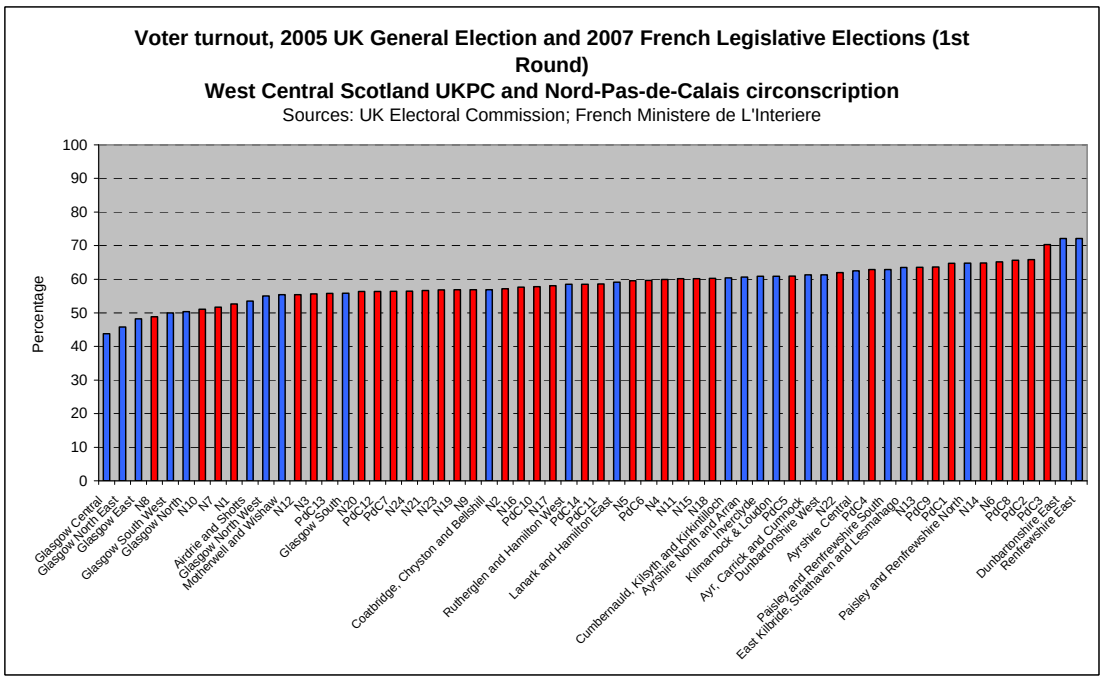


Figure 49



Note: For the French *circonscriptions legislatives* ('electoral constituencies'), N=Nord, P=Pas-de-Calais and the number refers to the relevant circonscriptions legislatives. For example, N8 refers to the eighth circonscriptions legislative in the Nord department.

Summary: Social environment

- Between 1990 and 2006, the percentage of adults lacking any qualifications was consistently higher in WCS than in NPdC.
- WCS households were consistently more likely than those in NPdC to be headed by a lone parent with dependent children throughout the 1990s.
- WCS also had a higher percentage of single-person households than NPdC in 2001 (33.8% vs. 26.6%) – the regional gap in this indicator has widened considerably since 1981-82 (21.5% vs. 20.9%).
- Around 2000, the percentage of 25-64 year olds who were married was marginally higher in NPdC (66%) than in WCS (63%).
- Levels of voter turnout were almost identical in the two regions.
- The data suggest that the Scottish region contains a relatively higher concentration of vulnerable households (e.g. lone parents) than NPdC.

6.0 Physical environment

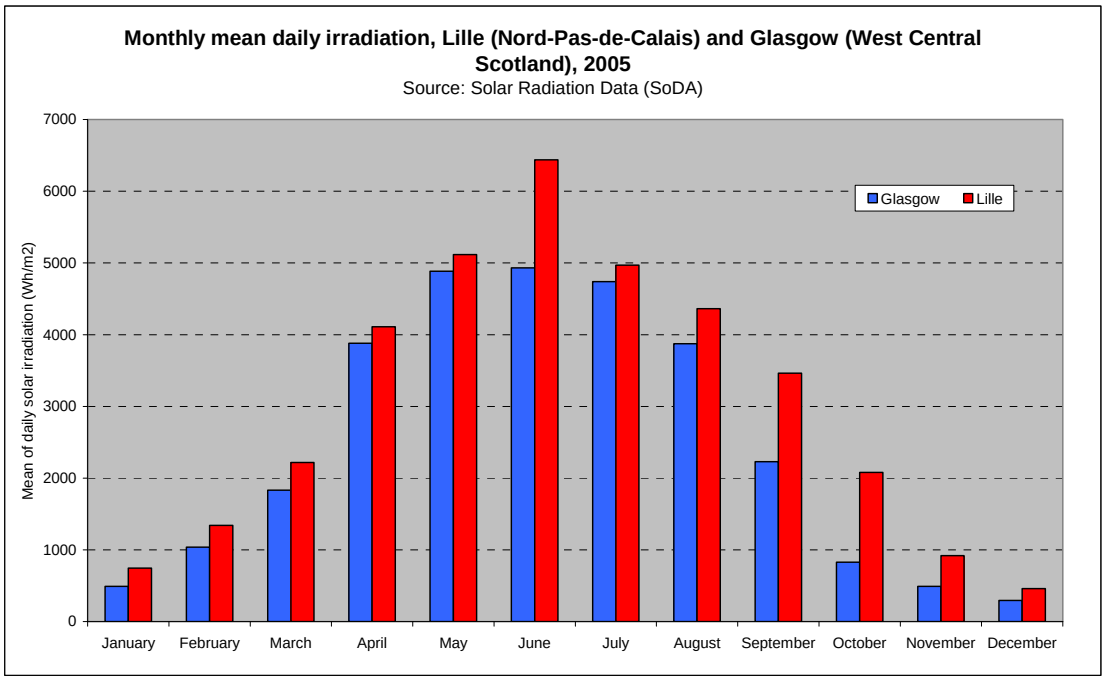
In this section we explore whether differences in the physical environment can account for the relatively poor health profile seen in the Scottish region. Data limitations mean the analysis is restricted to measures of climate and overcrowding in NPdC and West Central Scotland. The main report also includes some analysis of perceived neighbourhood safety but regional data was unfortunately not available for NPdC.

6.1 Climate

As noted in the main report, some authors have argued that Scotland's relatively poor health can, in part, be attributed to lower levels of sunlight.[29] Figure 50 (below) compares the monthly mean of solar irradiation (measured for Lille and Glasgow, proxies for the two regions) in 2005. Glasgow (the main city of WCS) received less sunshine ('daily irradiation') than Lille (the main city of NPdC) in every one of the 12 months of the year[xxv].

[xxv] Unfortunately, data are only available for 2005. Using one year's data may of course present a skewed picture, and it would be preferable to show data average over several years were such information available.

Figure 50



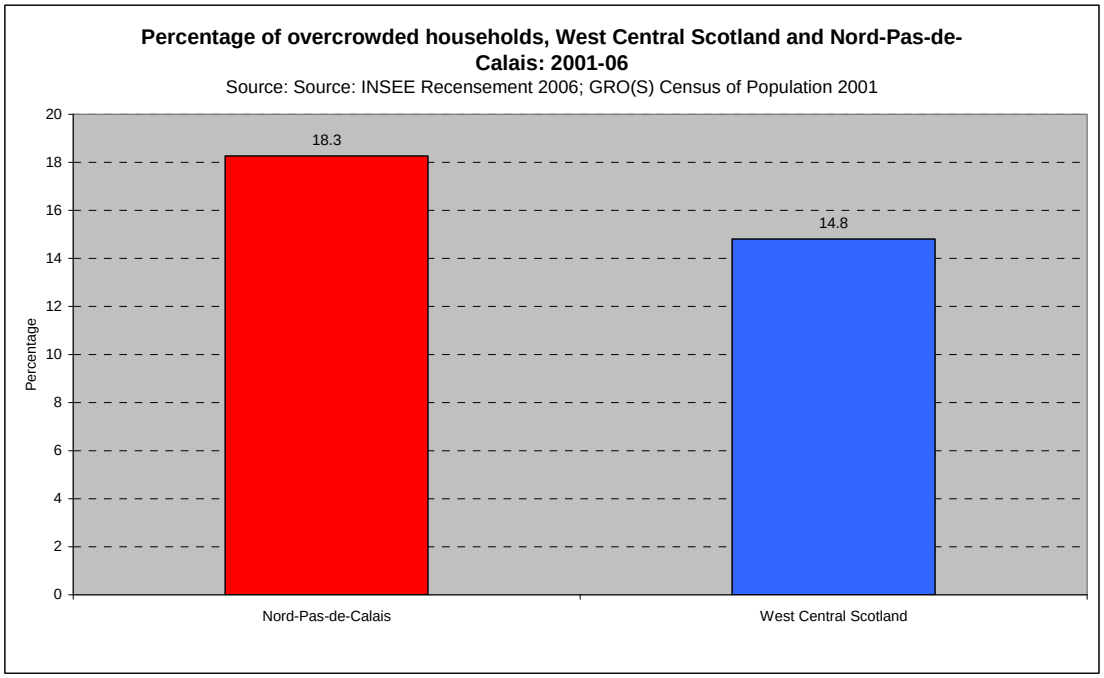
6.2 Overcrowding

It is also possible to compare overcrowding in NPdC and WCS. The measures used here is the *occupancy rating*, where the number of rooms available to a household is less than the minimum 'required' by that household[xxvi], taking into account household size and composition. Figures are from the 2006 and 2001 Population Censuses.

WCS compares favourably on this measure. In NPdC, almost one in five (18.3%) households was overcrowded on these terms in 2006, but in WCS this figure was lower, at 14.8% (Figure 51).

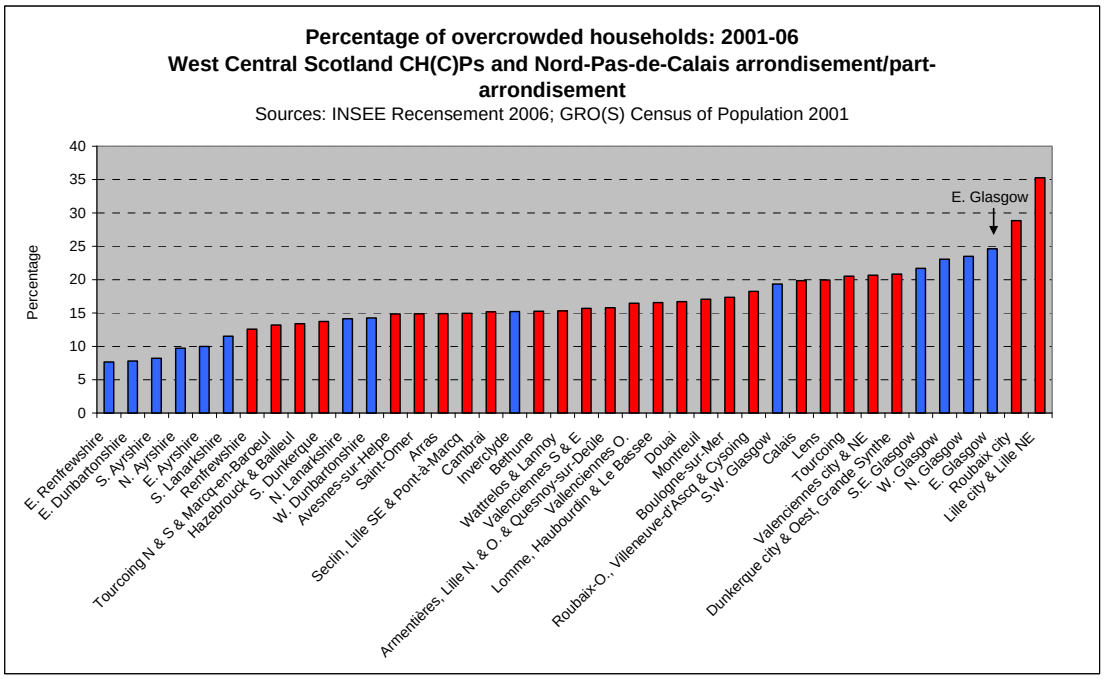
[xxvi] This assumes that every household; including one person households; requires a minimum of two common rooms (excluding bathrooms).

Figure 51



At a district level, WCS has districts with some of the lowest levels of overcrowding (East Renfrewshire, East Dunbartonshire and South Ayrshire), while overcrowding in Glasgow compares unfavourably with the majority of NPdC arrondisements. Nevertheless, overcrowding in the 'worst' Glasgow CHP (East Glasgow) is still lower than both Roubaix City and Lille city and Lille NE (Figure 52).

Figure 52


Percentage of overcrowded households: 2001-06
West Central Scotland CH(C)Ps and Nord-Pas-de-Calais arrondisement/part-arrondisement
Sources: INSEE Recensement 2006; GRO(S) Census of Population 2001
Percentage
40
35
30
25
20
15
10
5
0
E. Glasgow
E. Renfrewshire
E. Dunbartonshire
S. Ayrshire
N. Ayrshire
E. Ayrshire
S. Lanarkshire
Renfrewshire
Tourcoing N & S & Marcq-en-Baroeul
Hazebrouck & Bailleul
S. Dunkerque
N. Lanarkshire
W. Dunbartonshire
Avesnes-sur-Helpe
Saint-Omer
Arras
Seclin, Lille SE & Pont-à-Marcq
Cambrai
Inverclyde
Bethune
Wattrelos & Lannoy
Valenciennes S & E
Armentières, Lille N. & O. & Quesnoy-sur-Deûle
Valenciennes O.
Lomme, Haubourdin & Le Bassee
Douai
Roubaix-O., Villeneuve-d'Ascq & Cysoing
Montreuil
Boulogne-sur-Mer
S.W. Glasgow
Calais
Lens
Tourcoing
Valenciennes city & NE
Dunkerque city & Oest, Grande Synthe
S.E. Glasgow
W. Glasgow
N. Glasgow
E. Glasgow
Roubaix city
Lille city & Lille NE

Summary: Physical environment

- Comparative data on the physical environment in NPdC and WCS is limited to snapshot data on climate and overcrowding.
- In 2005, Glasgow received less daily solar irradiation (sunshine) on average than Lille (largest city of NPdC) for all 12 months of the year.
- NPdC households were more likely to be overcrowded than those in WCS. The district-level picture is more complex, with evidence of higher levels of overcrowding in Glasgow City, but even the most overcrowded Glasgow CHPs compare favourably with the larger French cities.

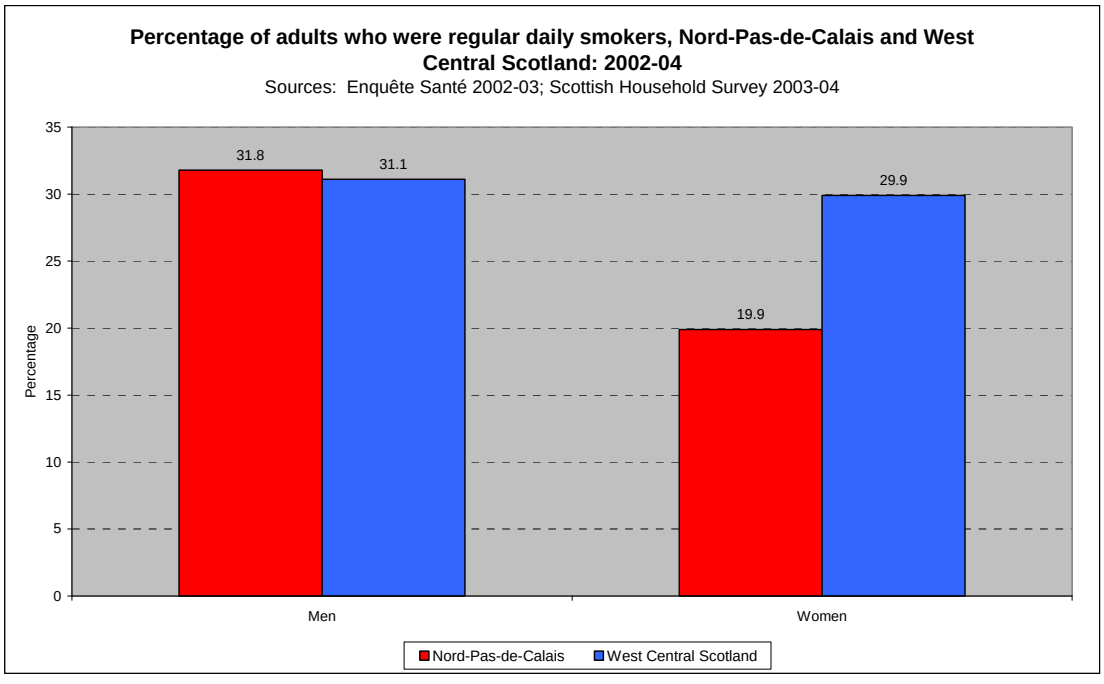
7.0 Health behaviours

Smoking, poor diet, excessive alcohol consumption, lack of physical activity and obesity are all associated with increased risk of cancer[30] and cardiovascular disease[31]. Smoking is also a key risk factor for chronic obstructive pulmonary disease (COPD) and excessive alcohol consumption for liver disease. This section uses data from a range of surveys and administrative data to compare health behaviours in the two regions.

7.1 Smoking

This measure shows the percentage of adults (aged 15-75 and 16-75) who were regular daily smokers in NPdC. For women, there is clear evidence that smoking rates are higher in WCS compared to the French region (29.9% vs. 19.9%). For men, smoking rates are similar in the two regions (Figure 53).

Figure 53



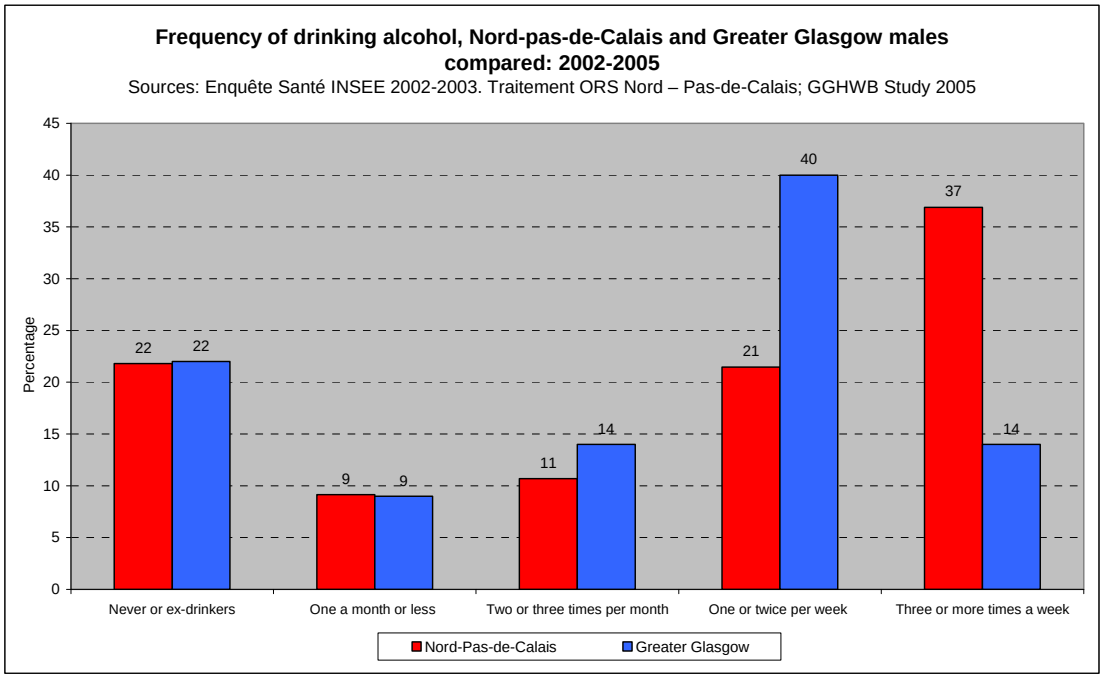
Sample sizes: NPdC=1097 men and 1207 women. WCS=4287 men and 5681 women.

7.2 Alcohol

Unfortunately, direct comparisons total levels of alcohol consumption are unavailable. What we can compare is the *frequency* of drinking alcohol among adults in NPdC and Greater Glasgow. Some response categories were combined to improve comparability.

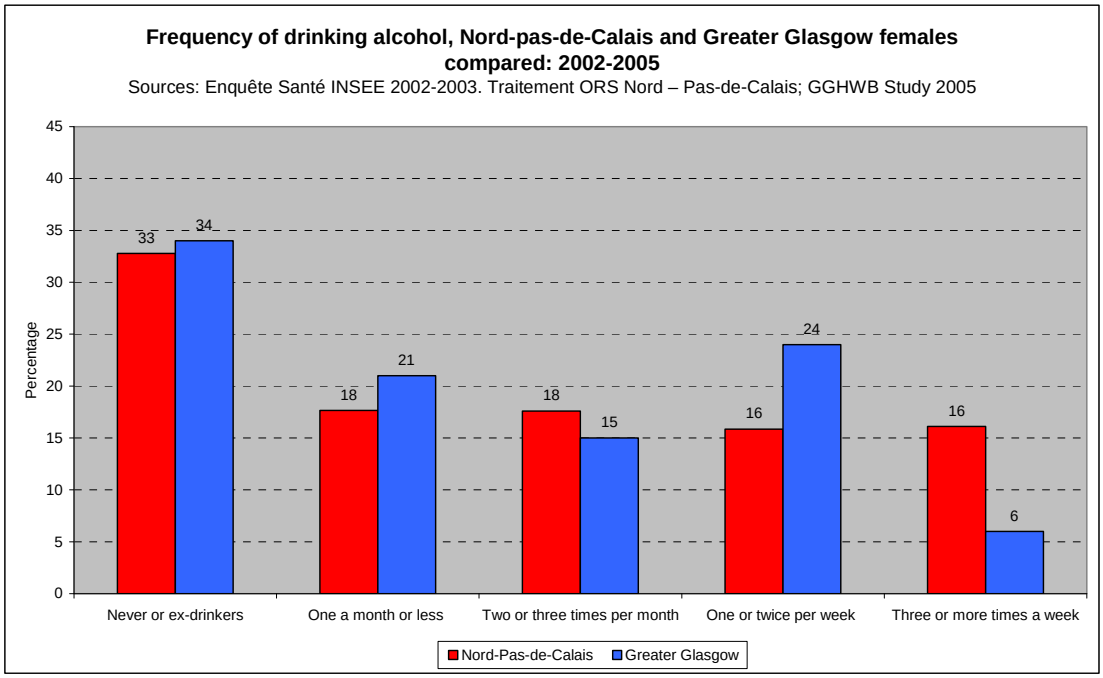
Survey data from 2002-05 show that in both regions, the percentage of adults describing themselves as never/ex-drinkers, those drinking once a month or less and those drinking two or three times a month were very similar (Figures 54 and 55). The key differences were in those reporting they drink *three or more times a week* (considerably higher in NPdC) and those reporting they drink *once or twice a week* (considerably higher in Greater Glasgow).

Figure 54



Sample size: Nord-Pas-de-Calais= 1023, Greater Glasgow=808.

Figure 55



Sample size: Nord-Pas-de-Calais=1115, Greater Glasgow=1125.

One can speculate that this reflects differences in drinking cultures between the two regions. Despite some convergence in drinking patterns, daily moderate wine drinking with dinner continues to be more common in France, while heavy drinking concentrated over one or two days is more prevalent in Scotland.[32]

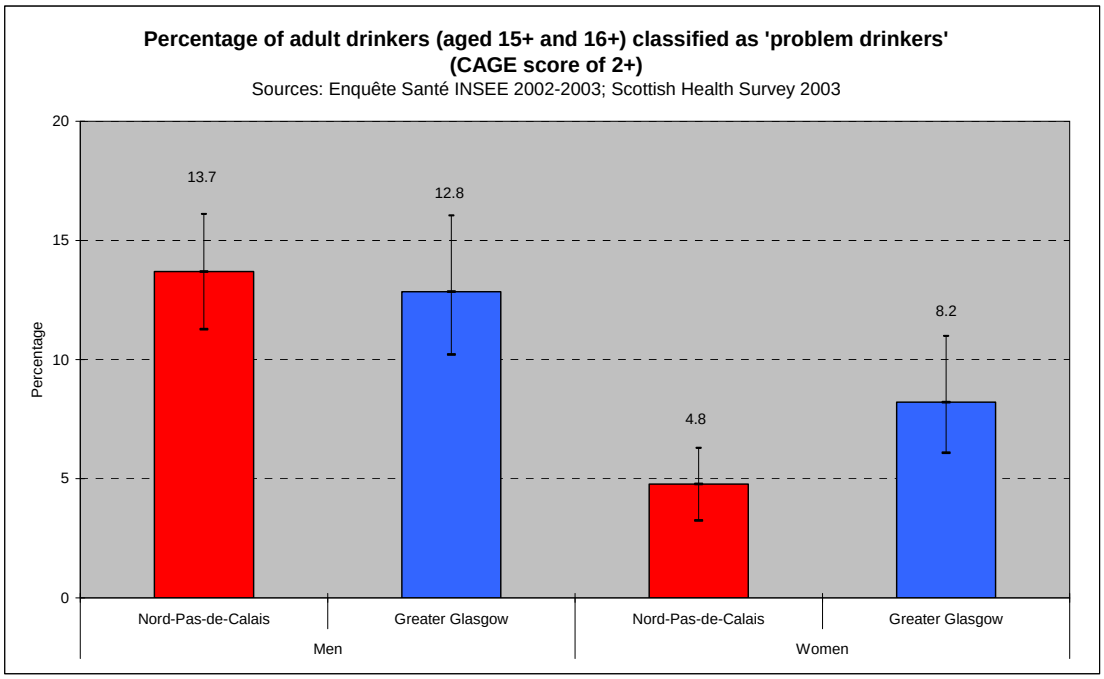
The second measure of alcohol consumption is *the percentage of adults scoring two-plus on the CAGE questionnaire*. CAGE (and its French equivalent, DETA) use the responses to four questions[xxvii] to produce a score between zero and four. A score of two or more indicates a possible alcohol dependency problem.

In both regions, men are more likely than women to score two-plus on CAGE. Alcohol dependency problems do not vary significantly by region for men, but are significantly higher in the Scottish region for women[xxviii] (Figure 56).

[xxvii] The four CAGE questions are: have you ever felt you should **C**ut down on your drinking?; has anyone ever **A**nnoyed you by criticising your drinking?; have you ever felt **G**uilty about your drinking; and have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (**E**ye-opener)?.

[xxviii] Using the Chi-squared test for proportions, the samples were significantly different (p=0.0145).

Figure 56



Sample sizes: NPdC: men=826, women=779, Scottish Health Survey 2003 (Greater Glasgow): men=427, women=474. Note: Non-drinkers and those who did not respond to all four CAGE questions in SHeS were excluded from the base.

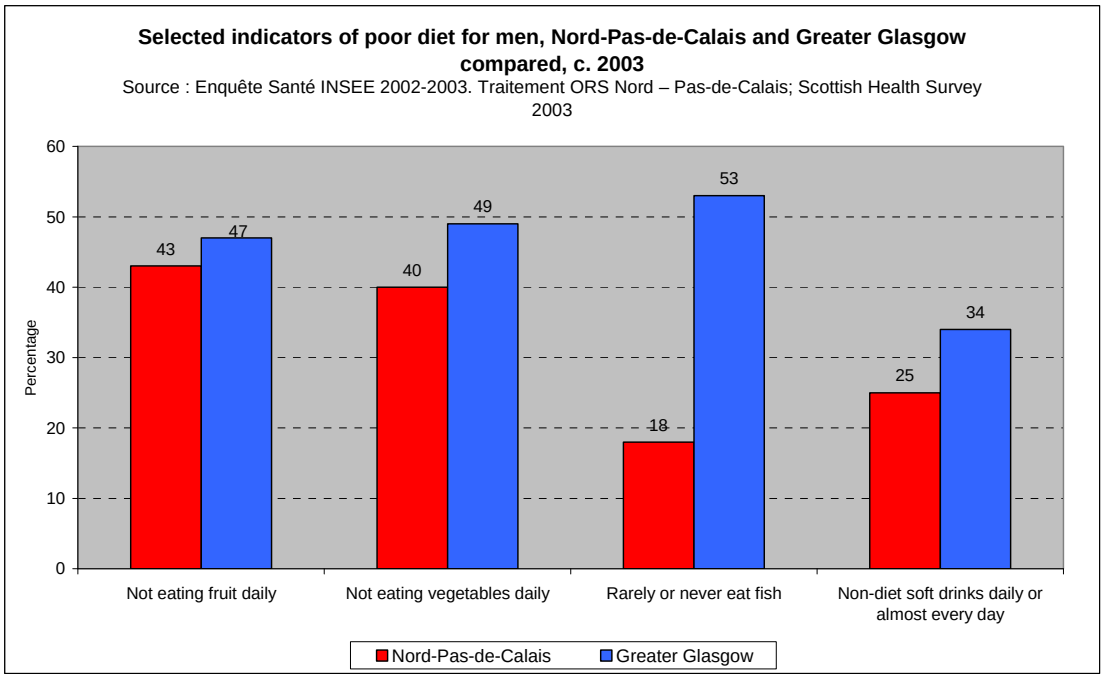
7.3 Diet

Comparisons of diet in the two regions are shown in figures 57 and 58. Greater Glasgow males were as likely as their counterparts in NPdC not to eat fruit on a daily basis (47% v 43%, no significant difference). This was not true for women, where Greater Glasgow residents were significantly more likely not to eat fruit on a daily basis (41% v 29%). Similar comparisons were also made for the *percentage of adults eating vegetables on a daily basis.* Daily consumption of vegetables was lower in the Scottish region for both men and women.

A second, broadly comparable indicator of diet is the *frequency of consumption of fish*. Regular consumption of fish is much more common in NPdC. Half of Greater Glasgow adults reported eating fish *'rarely or never'*, compared to less than a fifth in NPdC. The final comparison is for *frequency of consumption of non-diet soft drinks*, with daily consumption of non-diet soft

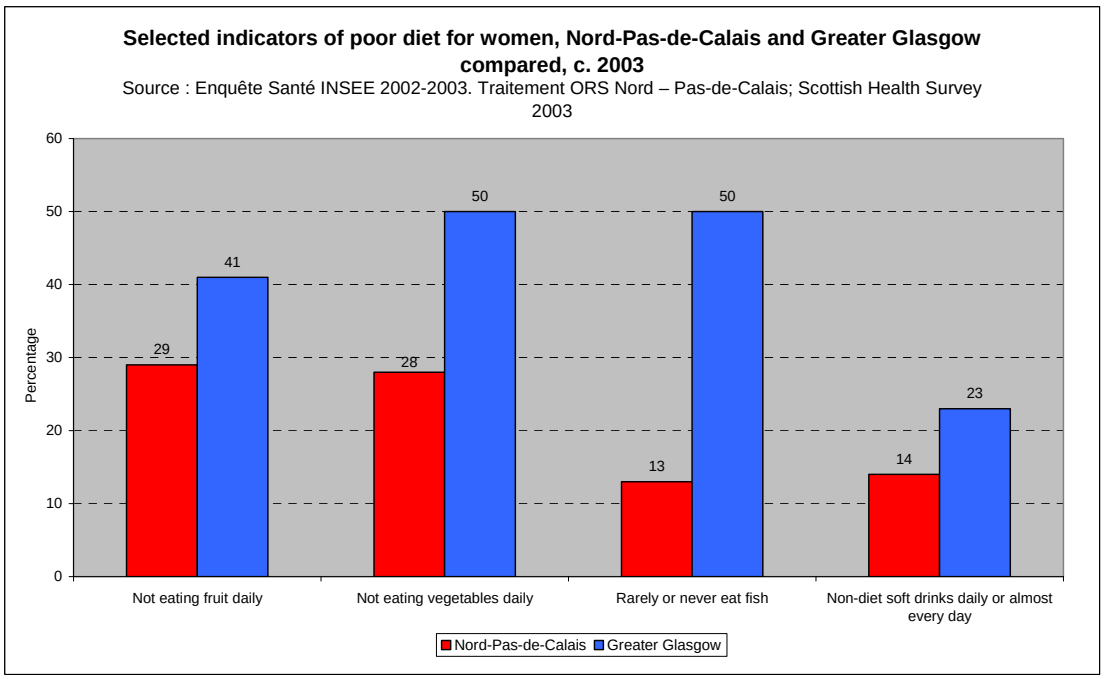
drinks much higher in Greater Glasgow than in NPdC, both for men (34% vs. 25%) and for women (23% vs. 14%).

Figure 57



Sample sizes: NPdC=1224; Greater Glasgow=553.

Figure 58



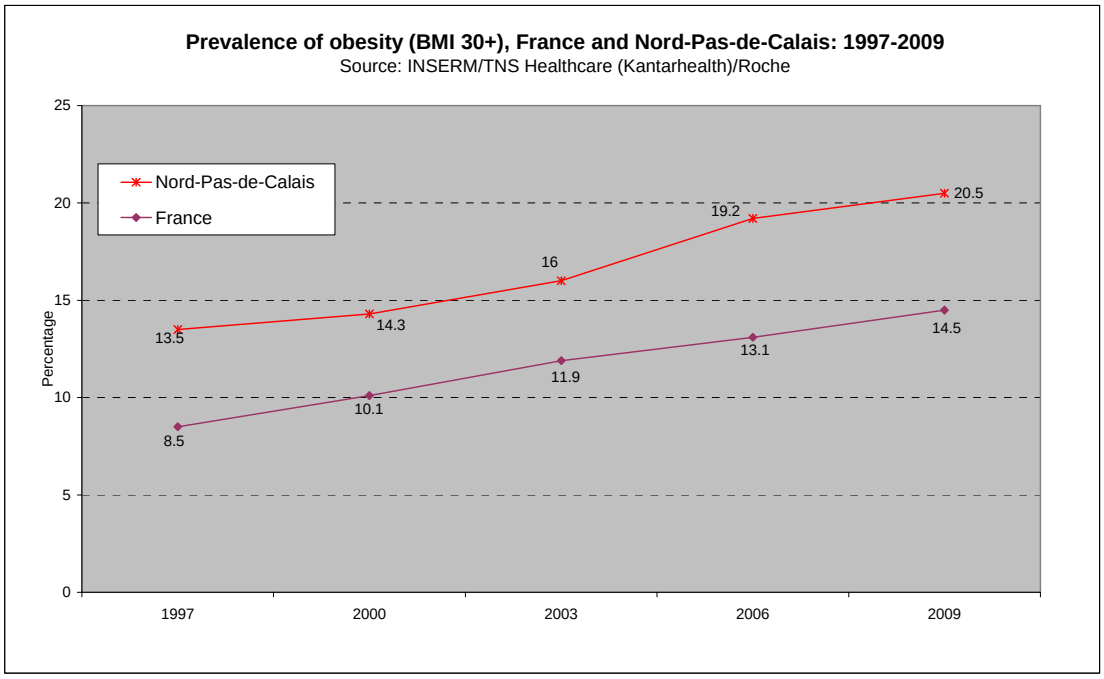
Sample sizes: NPdC=1357; Greater Glasgow=707.

7.4 Obesity

Levels of obesity have been rising in Scotland and other European countries, including France.[33] This is a serious public health concern, given the raised risk of premature mortality and chronic disease associated with obesity.[34]

Adult obesity rates (indicated by a Body Mass Index (BMI) score of 30+) are available for France and its regions for selected years between 1997 and 2009. Levels of obesity in both NPdC and France increased steadily over time. Obesity levels of NPdC remained consistently higher than the national average (Figure 59).

Figure 59



However, since these estimates are calculated from self-reported measures of height and weight, they are likely to understate the true levels of obesity in the region. Self-reported obesity rates are also available for Greater Glasgow, but there are similar problems of underestimation. For example, in 2002-03, measured obesity rates in Greater Glasgow were nine percentage points higher for men and 15 percentage points higher for women than the self-reported data would suggest[xxix]. This means it is very difficult to make meaningful comparisons of obesity between the two regions.

[xxix] See Scottish Health Survey 2003 and the Greater Glasgow Health and Well-being Survey 2002.

Summary: Health behaviours

- Smoking rates are higher for women in WCS compared to NPdC. Smoking rates for men are similar in the two regions.
- Patterns of alcohol consumption differ in the two regions. Greater Glasgow has a greater percentage of adults who report drinking alcohol once or twice a week. NPdC has a greater percentage of adults who report drinking alcohol three or more time a week.
- Diet is poorer in WCS. Adults in the Scottish region are less likely to report daily consumption of vegetables or regular consumption of fish compared to NPdC. Females in Greater Glasgow are less likely to report daily consumption of fruit than their peers in NPdC. Daily consumption of non-diet soft drinks is also higher in Greater Glasgow.
- Self-reported data on obesity is available for both regions, but these are likely to underestimate obesity by an unspecified amount. It is very difficult to make meaningful comparisons of adult obesity at a regional level.

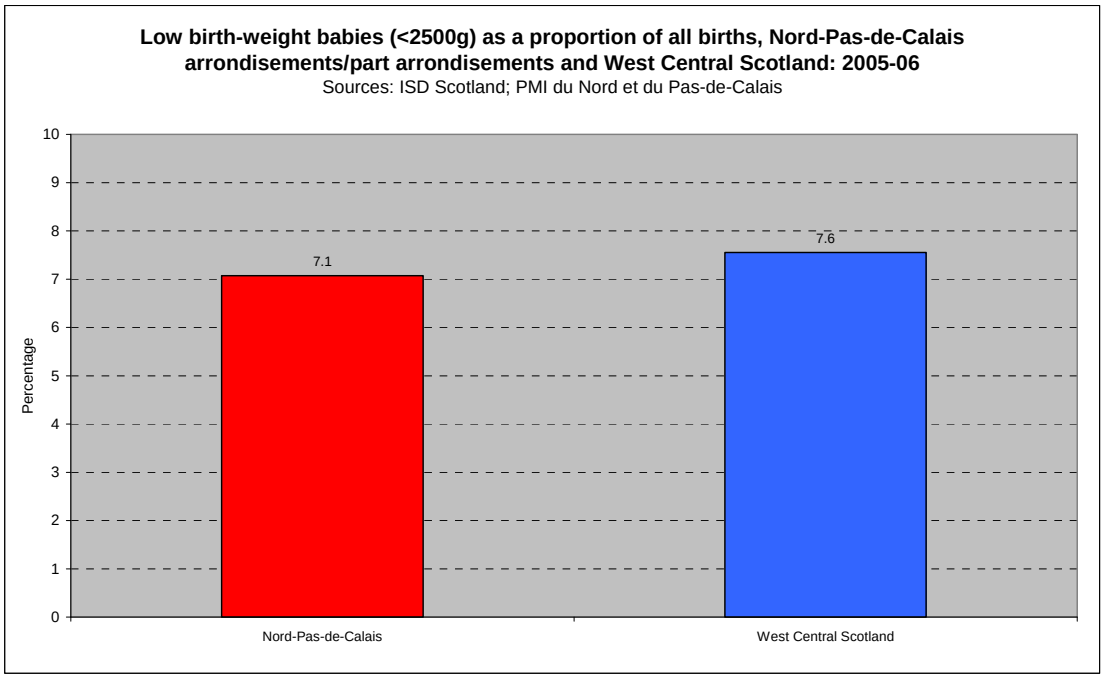
8.0 Child and maternal health

In this section, we briefly consider a limited amount of available data on the state of child and maternal health in the two regions.

8.1 Low birth-weight babies

The indicator used here is: *the percentage of babies born who weighed less than 2500g*. In 2005-06, the percentage of low birth weight babies born in WCS (7.6%) was only marginally higher than NPdC (7.1%).

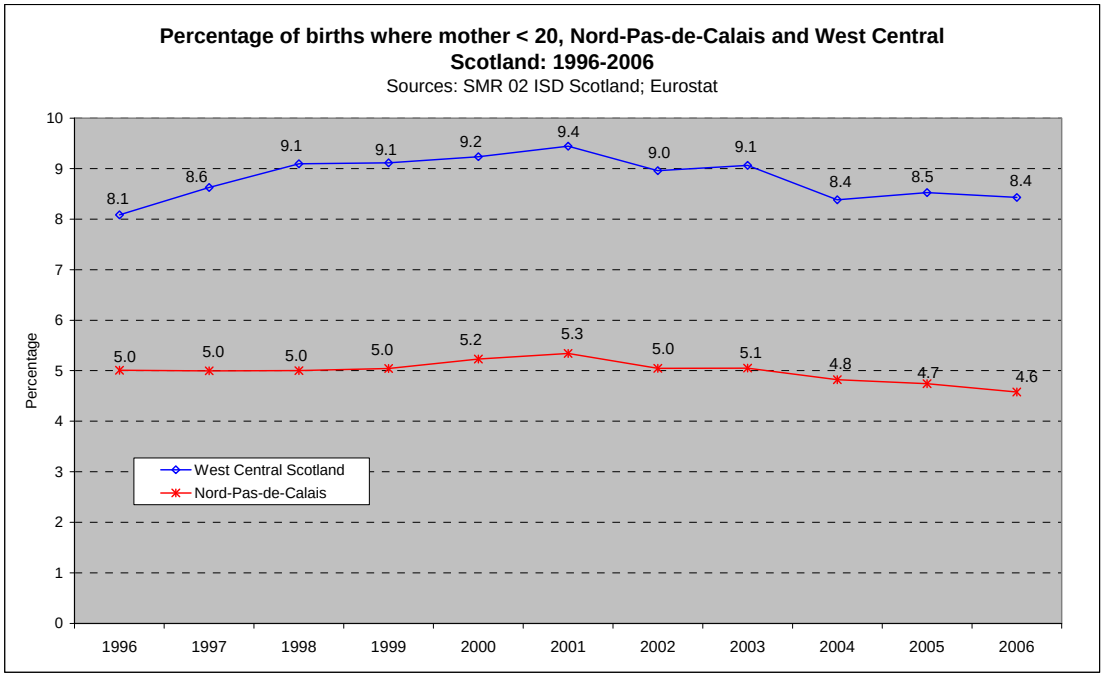
Figure 60



8.2 Teenage mothers

In 2006, the percentage of births to mothers under 20 in WCS (8.4%) was much higher than that recorded for NPdC (4.6%). Although the teenage birth rate in both regions has fallen since 2001, the relative gap between the two regions has remained largely unchanged (Figure 61).

Figure 61

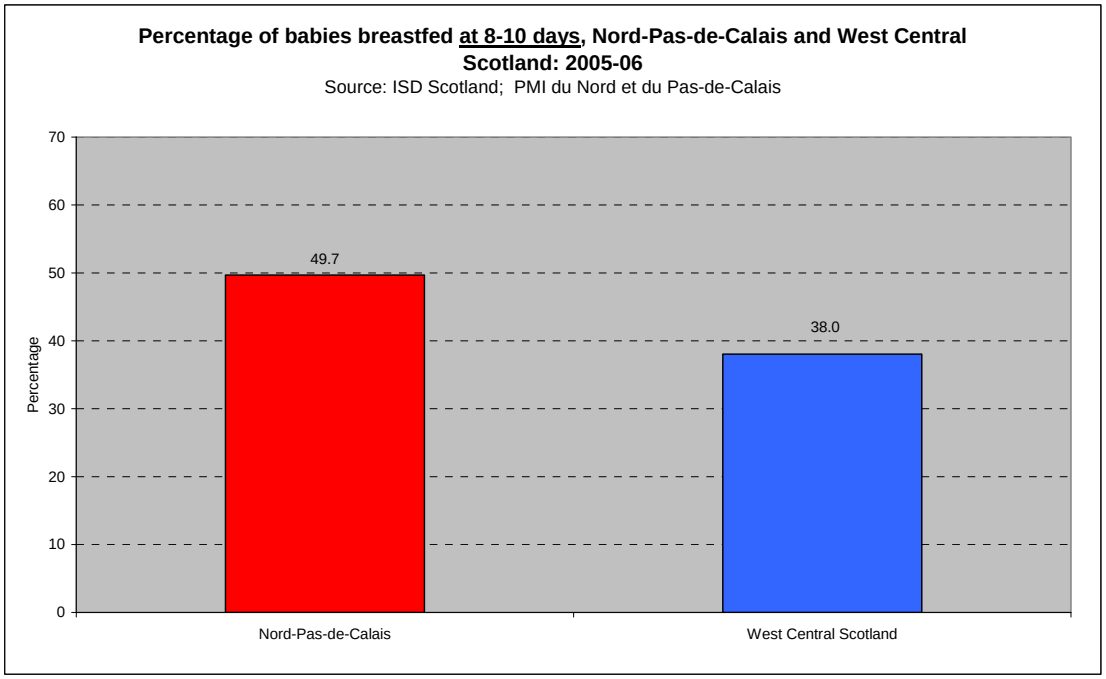


8.3 Breastfeeding

This measure compared *breastfeeding rates* eight days after the birth of the baby in France and typically 10 days after birth in Scotland. The definition of breastfeeding used here includes both exclusive (breast only) and mixed (breast and bottle) infant feeding. Scottish data comes from information reported to health visitors at the first visit while French data comes from the compulsory health examination carried out by GPs eight days after the birth of babies in France (*du certificat de santé du 8^{e} jour*).

On this basis, rates of breastfeeding are lower in WCS than in NPdC. In 2005-06, almost half (49.7%) of newborn babies in the French region were breastfed, compared to 38.0% in WCS (Figure 62).

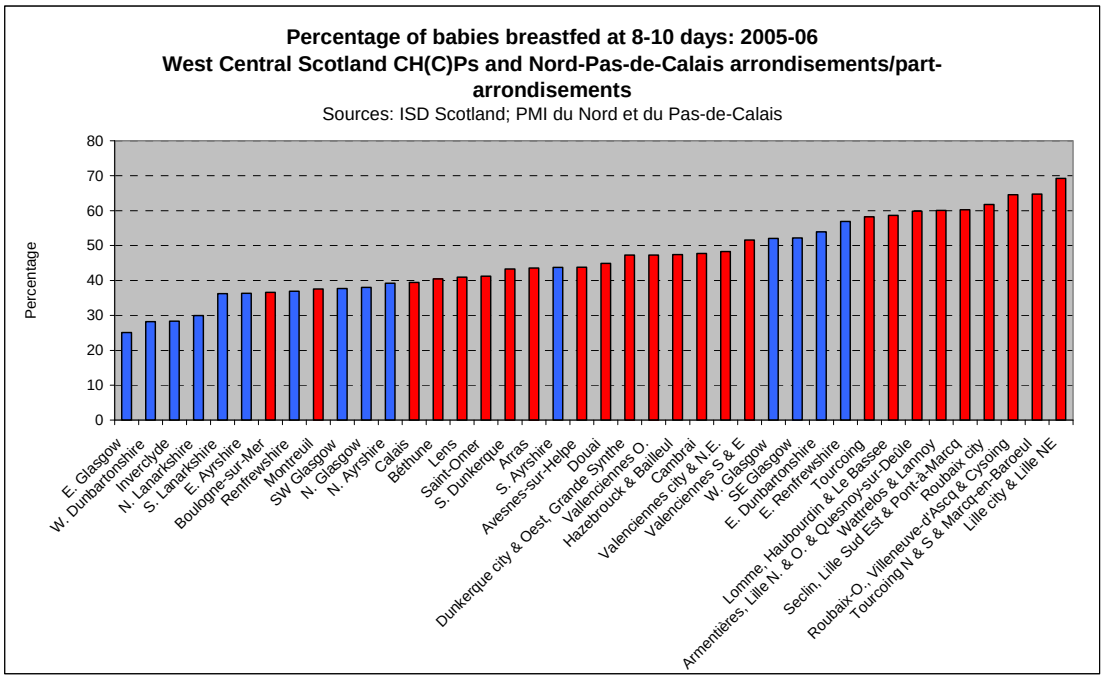
Figure 62



Note: All newborns fed entirely or partly on breast milk were considered breastfed.

Using this same measure, four WCS CHPs (East Renfrewshire, East Dunbartonshire, South East Glasgow, West Glasgow) have breastfeeding rates comparable to the NPdC average. However, most districts have low breastfeeding rates, similar to those seen in Boulogne and the city of Calais (Figure 63).

Figure 63


Percentage of babies breastfed at 8-10 days: 2005-06
West Central Scotland CH(C)Ps and Nord-Pas-de-Calais arrondisements/part-arrondisements
Sources: ISD Scotland; PMI du Nord et du Pas-de-Calais
Percentage
80
70
60
50
40
30
20
10
0
E. Glasgow
W. Dunbartonshire
Inverclyde
N. Lanarkshire
S. Lanarkshire
E. Ayrshire
Boulogne-sur-Mer
Renfrewshire
Montreuil
SW Glasgow
N. Glasgow
N. Ayrshire
Calais
Béthune
Lens
Saint-Omer
S. Dunkerque
Arras
S. Ayrshire
Avesnes-sur-Helpe
Douai
Dunkerque city & Oest, Grande Synthe
Valenciennes O.
Hazebrouck & Bailleul
Cambrai
Valenciennes city & N.E.
Valenciennes S & E
W. Glasgow
SE Glasgow
E. Dunbartonshire
E. Renfrewshire
Tourcoing
Lomme, Haubourdin & Le Bassee
Armentières, Lille N. & O. & Quesnoy-sur-Deûle
Seclin, Lille Sud Est & Pont-à-Marcq
Wattrelos & Lannoy
Roubaix-O., Villeneuve-d'Ascq & Cysoing
Roubaix city
Tourcoing N & S & Marcq-en-Barœul
Lille city & Lille NE

Summary: Child and maternal health

- In 2005-06, the percentage of low birth-weight babies was similar in WCS (7.6%) to NPdC (7.1%).
- The percentage of births to teenage mothers in WCS was substantially higher than NPdC in 2006 (8.4% vs. 4.6%). The relative gap in the teenage birth rate has changed little over time.
- In 2005-06, mixed breastfeeding rates were almost 12 percentage points lower in WCS compared to NPdC.

9.0 Conclusions

This case study has compared a range of indicators of health and its determinants in NPdC and WCS, to provide some insights into the following questions:

1. *Can WCS's relatively poorer health status be explained purely in terms of socio-economic factors (poverty, deprivation etc.)?*

This remains unproven. WCS has lower current levels of unemployment and greater levels of labour market opportunity for older working-age men and working-age women; however, the percentage of young men who are not in employment, education or training (NEET) is slightly higher. There is evidence that labour market opportunities (measured by the unemployment and employment rates) improved relative to NPdC over time. On the other hand, WCS also has lower levels of car ownership, a higher percentage of its employees from manual social classes and a higher percentage of its young men not in employment, education or training. However, with the possible exception of young male 'NEET' rates, these differences may reflect cultural as much as material differences.

Relative measures of socio-economic disadvantage (relative poverty, geographic segregation) also fail to provide clear-cut explanations for WCS's health profile. Relative poverty is similar in both regions, reflecting the more unequal distribution of income in the Scottish region shown in the main report. Using the Index of Dissimilarity, there is no consistent evidence that spatial segregation is much more strongly pronounced in WCS compared to NPdC. Both regions contain a mixture of advantaged and disadvantaged neighbourhoods. For four of the six indicators examined, the degree of spatial segregation was little different or showed the French region to be slightly more spatially polarised. For two indicators – lone parent households and car ownership – neighbourhood-level segregation was greater in WCS.

2. *Do comparisons of other health determinant information identify important differences between WCS and other regions?*

The evidence on self-reported measures of health and well-being is mixed. While WCS compared unfavourably on (some) measures of subjective physical health, it is NPdC that tends to have poorer subjective emotional, mental and social health. For example, while adults in Greater Glasgow compared unfavourably on measures of self-reported general health, limiting health problems and bodily pain, aspects of health status defined by emotional or mental health, including life satisfaction, were either favourable or showed no difference.

Social aspects of health (especially vulnerable households) and child and maternal health are perhaps more helpful in distinguishing between the two regions. The percentage of lone parent households, adults not in full-time education without formal qualifications, single person households and, to a lesser degree, unmarried adults aged 25-64 are all higher in WCS than the French region. 'Vulnerable households' may be more concentrated in WCS. Since these types of households may have more limited networks of friends and family, and therefore less access to material and emotional support, this is likely to impact negatively on health in the Scottish region. A related theme is child and maternal health, which also appears poorer in WCS: compared to NPdC, breastfeeding rates are low and the percentage of teenage mothers high, in the Scottish region.

Some differences were also observed in relation to aspects of the physical environment (climate) and health behaviours. Levels of sunlight reaching the ground are lower in the WCS compared to NPdC. Diet is also poorer in the Scottish region, lower consumption of vegetables, fruit and fish and higher daily consumption of non-diet soft drinks. Alcohol is an important part of the culture in both regions: what is different is the way it is consumed. Among those drinking at least once a week, WCS adults are more likely to report that they drink once or twice a week, whereas those in NPdC are more likely to drink three or more times a week. This may suggest a greater tendency to

‘compress’ alcohol consumption in WCS relative to the French region. Female smoking is also relatively high in the Scottish region. CAGE scores also suggest that there are relatively more female problem drinkers in WCS. Poor diet for both sexes, and greater tobacco and alcohol use among women, run alongside the differences in social health already highlighted.

Finally, the analysis suggests that both gender and geography are important when thinking about improving health in WCS. Many of the economic and social indicators where WCS compares unfavourably relative to NPdC are concentrated especially on Glasgow City (NEET levels, lone parents, single person households). There is also a suggestion – from the child and maternal health indicators, but also from household structures and the health behaviours data – that women in WCS may be more disadvantaged compared to their peers in NPdC. Health improvement measures that provide more practical support to mothers and families in disadvantaged communities might be appropriate here.

Figure 64 presents an at-a-glance summary of key indicators presented within the case study and the main report. It is a (very crude) attempt to summarise the extent to which health and its determinants (or at least data on health and its determinants that are available from routine data sources) differs between these two post-industrial regions: WCS and NPdC.

As with the main report and the other three case studies, these analyses have identified some important differences between the Scottish and French post-industrial regions. However, it is difficult to quantify their impact on health outcomes, or on the rate of improvement in health outcomes. Nonetheless, these results add to the evidence that economic issues alone do not appear to be the principal issue. Further research is required, focussing not on routine administrative data, but based on the collation of new data to test specific hypotheses – and this is now being undertaken as part of a programme of work focussing on the key WCS city, Glasgow, and its most comparable post-industrial cities in the UK, Liverpool and Manchester. The results of that research will be complete in 2012.

Figure 64 Selected indicators for WCS compared to NPdC

Is WCS worse than, similar to, or better than Nord-Pas-de-Calais?							
Domain	**Indicator**	**WCS vs. N-P-d-C**	**WCS**	**N-P-d-C**	**Measure**	**Region**	**Time Period**
Health & Function	Life expectancy - males		73.3	73.9	yrs	WCS	2005-07
	Life expectancy - females		78.8	82.0	yrs	WCS	2005-07
	Self-assessed health - 'excellent', 'very good' or 'good'		71.5	85.7	%	GGC	2002-03
	Fairly' or 'extremely' satisfied with life		83.7	78.4	%	SWS	1990-00
Prosperity & poverty	Male employment rate		72.0	66.0	%	WCS	2005
	Female employment rate		64.0	50.0	%	WCS	2005
	Unemployment rate		5.8	11.4	%	WCS	2008
	Male NEET rates		17.9	14.7	%	WCS	1999-01
	Female NEET rates		18.4	18.1	%	WCS	1999-01
Inequalities	Population living in relative poverty		18.9	21.6	%	SWS	1994-200
	Income inequality		0.30	0.27	Gini	WCS	1999-00
Social Environment	Lone parent households		31.1	23.6	%	WCS	1999-01
	Single person households		33.8	26.6	%	WCS	1999-01
	Adults (25-64) who are married		63.0	66.4	%	WCS	1999-01
	Education: tertiary (level 5/6) qualifications		33.3	23.0	%	SWS	2008
	Education: no/low (<level 3) qualifications		27.3	35.1	%	SWS	2008
	Social capital - voter turnout		58.3	59.0	%	WCS	2005-07
Physical Environment	Climate - average annual irradiance		2460	3019	w	G	2005
	Overcrowding (rooms per head of pop)		2.0	1.6	cr	WCS	2001
Behaviour	Male smoking prevalence		29.9	31.8	%	WCS	2002-04
	Female smoking prevalence		28.4	19.9	%	WCS	2002-04
	Males eating fruit daily		53.0	57.0	%	GG	2002-03
	Females eating fruit daily		59.0	71.0	%	GG	2002-03
	Males with a CAGE score of 2+		12.8	13.7	%	GG	2002-03
	Females with a CAGE score of 2+		8.2	4.8	%	GG	2002-03
Child & Maternal	Births to teenage mothers		8.5	4.7	%	WCS	2005-06
	Low birth-weight babies		7.6	7.1	%	WCS	2005-06
	Breastfeeding rates		38.0	49.7	cr2	WCS	2005-06

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Appendix 1: Definitions and sources of data presented in the case study

Figure/table	Description	Source	Notes
Figure A	Map showing location of NPdC in France.	Map produced using boundaries provided with ESRI ArcGIS 9 software.	
Table 1	Comparisons of selected health determinants in France and Nord-Pas-de-Calais.	Various – see table.	
Figure 1	Bar chart showing ranked population of 15 WCS Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 2006.	General Register Office for Scotland (WCS) and INSEE (NPdC).	'Arrondisements' translates to districts in English. Based on canton boundaries, Lille districts was divided into 9 part-arrondisements, Valenciennes into 3 part-arrondisements and Dunkerque 3 part-arrondisements. A list of the geographies used is shown in Appendix 2.
Figure 2	Line chart showing male life expectancy in NPdC and WCS between 1982-84 and 2005-07.	General Register Office for Scotland (WCS) and INSEE (NPdC).	
Figure 3	Line chart showing female life expectancy in NPdC and WCS between 1982-84 and 2005-07.	General Register Office for Scotland (WCS) and INSEE (NPdC).	

Figure 4	Bar chart showing ranked male European age-standardised mortality rates (EASR) for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 2002-06.	Population data: 2006 GRO (S) mid-year estimate (WCS) and 2006 INSEE Census (NPdC), multiplied by five. Deaths data: 2002-06 GRO (S) (WCS) and Centre d'épidémiologie sur les causes médicales de décès (CepiDc) (NPdC).	
Figure 5	Bar chart showing ranked female European age-standardised mortality rates (EASR) for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 2002-06.	See above.	
Figure 6	Bar chart showing percentage responses for males to individual items within Medical Outcomes Study 12-Item Short Form (SF-12).	Scottish Health Survey 2003 (Greater Glasgow) and Enquête santé 2002-03 (NPdC).	Greater Glasgow health board used as proxy for WCS. Adults aged 15+ for NPdC and adults aged 18+ for Greater Glasgow.
Figure 7	Bar chart showing percentage responses for females to individual items within Medical Outcomes Study 12-Item Short Form (SF-12).	See above.	See above.

Figure 8	Bar chart comparing percentage of men and women aged 15+ who were very/fairly satisfied with their life as a whole nowadays.	Mannheim Eurobarometer Trend File 1970-00.	South Western Scotland used as proxy for WCS. Analysis shown uses pooled data from years 1990-2000.
Figure 9	Line chart comparing unemployment rates as percentage of economically active adults, 1981-82, 1990-91, 1999-01 and 2006.	GRO (S) Census of Population 1981, 1991 and 2001, Annual Population Survey 2006 (WCS). INSEE recensement (Census of Population) 1982, 1990, 1999 and 2006 (NPdC).	Age bands for WCS are 16+ for 1981, 1991 and 2006, 16-74 in 2001. Age bands for NPdC adults aged 15+ for all time points.
Figure 10	Crude male employment rate=All males in employment/all males aged 15-64, except for 1986-91 WCS when rates directly calculated from Labour Force Survey.	**West Central Scotland:** 1981, 1986-1991: directly calculated employment rates for 15-64 year olds (Labour Force Survey) Population data 1981-2005: Mid- year population estimates, GROS. Employment data 1993-2003: total in employment (Labour Force Survey); 2005 (Annual Population Survey) **Nord-Pas-de-Calais:** Population data 1981, 1983-2005: Eurostat INSEE recensement (Census of Population) 1982 Employment data 1982: working (Census of Population) 1981, 1983-2005: total in employment, including self-employed and armed forces (Eurostat)	Central Clydeside Conurbation used as proxy for WCS for 1986-1991. 1993-2005: LGF definition.

Figure 11	Crude female employment rate=All females in employment/all males aged 15-64, except for 1986-1991 WCS when rates directly calculated from Labour Force Survey.	See above.	See above.
Figure 12	Bar chart comparing male employment rates, 25-64, for four age groups (25-34, 35-44, 45-54 and 55-64).	Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC)	Directly calculated rates.
Figure 13	Bar chart comparing female employment rates, 25-64, for four age groups above.	See above.	See above.

Figure 14	Line chart showing percentage of adults classified as manual workers in WCS and NPdC, 1981-82, 1990-91 and 1999-01.	GRO (S) Census of Population 1981, 1991 and 2001 (WCS). INSEE recensement (Census of Population) 1982, 1990 and 1999 (NPdC).	Age bands for WCS are 16+ for 1981 and 1991, 16-74 in 2001. Figures for 2001 are estimates based on allocating NS-SEC categories to equivalent Social Classes. Manual workers=Social classes III (m), IV and V as percentage of all those in social classes I-V, excluding the retired and those with no category identified. Age bands for NPdC adults aged 15+ for all time points. Manual workers= 'Ouvriers' as percentage of population excluding the retired and those with no category identified.
Figure 15	Bar chart showing ranked percentage of workers in manual occupations for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01.	Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	See above.

Figure 16	Bar chart comparing percentage of young men and women (aged 16-24) not in education, employment or training (NEET) in WCS and NPdC, 1999-01.	Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	NEET categories included all those unemployed, retired or other inactive (excluding economically inactive students).
Figure 17	Bar chart comparing percentage of young men and women (aged 16-24) not in education, employment or training (NEET) for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01.	See above.	See above.
Figure 18	Line chart showing percentage of households without access to a car/van in WCS and NPdC, 1990-91, 1999-01 and 2006.	GRO (S) Census of Population 1991 and 2001, Scottish Household Survey for 2006 (WCS). INSEE recensement (Census of Population) 1990, 1999 and 2006 (NPdC).	

Figure 19	Bar chart showing ranked percentage of households without access to a car/van for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01.	GRO (S) Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	
Figure 20	Line chart showing percentage of households not owning their own home in WCS and NPdC, 1990-91, 1999-01 and 2006.	GRO (S) Census of Population 1991 and 2001, Scottish Household Survey for 2006 (WCS). INSEE recensement (Census of Population) 1990, 1999 and 2006 (NPdC).	
Figure 21	Bar chart showing ranked percentage of households not owning their own home for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01.	GRO (S) Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	

Figure 22	Percentage of population living in relative poverty (< 60% of median national income), South Western Scotland and NPdC.	Lemmi et al. Regional Indicators to reflect social exclusion and poverty VT/2003/43. Final Report. Original source is the European Community Household Panel, pooled data from 1994-01 inclusive.	South Western Scotland used as proxy for WCS. NUTS II Relative poverty rates calculated by national figure (Table A.2) by figures in Table A.3 and Table A.5 where appropriate: the relevant variable is HCR_c.
Figure 24	Gini coefficient for household incomes, WCS and NPdC.	Luxemburg Income Study (2005). Scottish Household Survey 2003-04 (WCS).	See main report for detail on how Gini coefficients for household income were calculated.
Figure 24	Bar chart showing ranked percentage of households not owning their own home for 1215 NPdC pseudo-communes, 2006, range of values and Index of Dissimilarity.	INSEE recensement (Census of Population) 2006 (NPdC).	Full list of pseudo-communes and data available on request.
Figure 25	Bar chart showing ranked percentage of households not owning their own home for 501 West Central Scotland Intermediate Geographies, 2001, range of values and Index of Dissimilarity.	GRO (S) Census of Population 2001 (WCS).	Full list of intermediate geographies and data available on request.

Figure 26	Bar chart showing ranked unemployed as percentage of economically active for 1215 NPdC pseudo-communes, 2006, range of values and Index of Dissimilarity.	INSEE recensement (Census of Population) 2006 (NPdC).	
Figure 27	Bar chart showing ranked unemployed as percentage of economically active for 501 West Central Scotland Intermediate Geographies, 2001, range of values and Index of Dissimilarity.	GRO (S) Census of Population 2001 (WCS).	
Figure 28	Bar chart showing ranked percentage of households with no access to a car/van for 1215 NPdC pseudo-communes, 2006, range of values and Index of Dissimilarity.	INSEE recensement (Census of Population) 2006 (NPdC).	
Figure 29	Bar chart showing ranked percentage of households with no access to a car/van for 501 West Central Scotland Intermediate Geographies, 2001, range of values and Index of Dissimilarity.	GRO (S) Census of Population 2001 (WCS).	

Figure 30	Bar chart showing ranked adults not in FTE with no qualifications as percentage of all adults with no qualifications for 1215 NPdC pseudo-communes, 2006, range of values and Index of Dissimilarity.	INSEE recensement (Census of Population) 2006 (NPdC).	
Figure 31	Bar chart showing ranked adults not in FTE with no qualifications as percentage of all adults with no qualifications for 501 West Central Scotland Intermediate Geographies, 2001, range of values and Index of Dissimilarity.	GRO (S) Census of Population 2001 (WCS).	
Figure 32	Bar chart showing ranked percentage of households with dependent children headed by a lone parent for 1215 NPdC pseudo-communes, 2006, range of values and Index of Dissimilarity.	INSEE recensement (Census of Population) 2006 (NPdC).	See notes on Figure 42 for more detail on definition of lone parent households.

Figure 33	Bar chart showing ranked percentage of households with dependent children headed by a lone parent for 501 West Central Scotland Intermediate Geographies, 2001, range of values and Index of Dissimilarity.	GRO (S) Census of Population 2001 (WCS).	See above.
Figure 34	Bar chart showing ranked percentage of adults classified as manual employees for 1215 NPdC pseudo-communes, 2006, range of values and Index of Dissimilarity.	INSEE recensement (Census of Population) 2006 (NPdC).	See notes on Figure 14 for classification of manual workers.
Figure 35	Bar chart showing ranked percentage of adults classified as manual employees for 501 West Central Scotland Intermediate Geographies, 2001, range of values and Index of Dissimilarity.	GRO (S) Census of Population 2001 (WCS).	See above.

Figure 36	Line chart showing gender ratio of males aged 15-44 to females aged 15-44 for WCS and NPdC, 1983-03.	GRO (S) Mid-year population estimates (WCS). INSERM & GCPH estimates (NPdC).	A ratio of 1.0 indicates an equal number of males and females; >1.0 indicates more males than females; < 1.0 indicates more females than males. Data made available for the individual years: 1983, 1987, 1995, 1999 and 2003 – years for which no data was available was imputed.
Figure 37	Line chart showing gender ratio of males aged 45-64 to females aged 45-64 for WCS and NPdC, 1983-03.	See above.	See above.
Figure 38	Line chart showing dependency ratio for WCS and NPdC, 1983-03. Dependency ratio = (65 + and Under 15)/(Population aged 15-64).	See above.	See above.
Figure 39	Line chart showing fertility rate for WCS and NPdC, 1983-07. Rate shown is all births/female population aged 15-44 in each region.	GRO (S) Vital statistics and Mid-year population estimates (WCS). Eurostat birth statistics, INSERM & GCPH calculations for population 1983-03, Eurostat estimates for population 2004-2007 (NPdC).	

Figure 40	Line chart showing percentage of adults not in full-time education (NFTE) with no formal qualifications, 1990, 1999 and 2006.	Labour Force Survey 1990, 1999 and 2006 (Strathclyde region). INSEE recensement (Census of Population) 1990, 1999 and 2006 (NPdC).	Strathclyde region used as proxy for WCS.
Figure 41	Bar chart showing ranked percentage of adults NFTE with no formal qualifications for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01.	GRO (S) Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	
Figure 42	Line chart showing percentage of households with dependent children headed by a lone parent for WCS and NPdC 1990-91 and 1999-01.	GRO (S) Census of Population 1991 and 2001 (WCS). INSEE recensement (Census of Population) 1990 and 1999 (NPdC).	In NPdC, dependent child is a person aged 0 – 15 in a household (whether or not in a family) or aged 16 – 24, in full-time education and living in a family with his or her parent(s). In WCS, a dependent child is a person aged 0 – 15 in a household (whether or not in a family) or aged 16 – 18, in full-time education and living in a family with his or her parent(s).

Figure 43	Bar chart showing ranked percentage of households with dependent children headed by a lone parent for 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01.	GRO (S) Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	See above for definitions of dependent children.
Figure 44	Line chart showing percentage of households containing a single adult in WCS and NPdC, 1981-82, 1990-91 and 1999-01.	GRO (S) Census of Population 1981, 1991 and 2001 (WCS). INSEE recensement (Census of Population) 1982, 1990 and 1999 (NPdC).	
Figure 45	Bar chart showing 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01, ranked by percentage of households containing a single adult.	GRO (S) Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	
Figure 46	Bar chart showing percentage of adults aged 25-64 reporting their marital status as married (including those who were legally separated).	Eurostat – original sources: GRO (S) Census of Population 2001 (WCS). INSEE recensement (Census of Population) 1999 (NPdC).	Categories differ from those published on GRO (S) website (including Scotland's Census Results On-Line (SCROL)).

Figure 47	Bar chart showing 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 1999-01, ranked by percentage of adults aged 25-64 reporting their marital status as married (including legally separated).	See above.	
Figure 48	Line chart showing voter turnout at parliamentary elections in WCS and NPdC, 1992-93, 1997-98, 2001-02 and 2005-07.	UK Electoral Commission (WCS). French Ministere de L'Interiere; lefigaro.fr: http://elections.figaro.net/popup_2004/accueil.html (NPdC).	Parliamentary Election years were: 1992, 1997, 2001 and 2005 for UK 1993, 1998, 2002 and 2007 for France
Figure 49	Bar chart showing electoral turnout at parliamentary elections for 24 West Central Scotland UK Parliamentary Constituencies and 38 NPdC circonscriptions, 2005-07, ranked by electoral turnout rates.	UK Electoral Commission (WCS). French Ministere de L'Interiere (NPdC).	See above for election dates. The geographies covered by circonscriptions is available here:

Figure 50	Bar chart showing monthly mean daily irradiation, Lille city and Glasgow city, by month, January-December 2005.	Solar Radiation Data: http://www.soda-is.com/eng/services/services_radiation_free_eng.php	Irradiation is the power received per area, measured in watt-hours per square metre (Wh/m2).
Figure 51	Bar chart showing percentage of overcrowded households, WCS and NPdC, 2001 and 2006.	GRO (S) Census of Population 2001 (WCS). INSEE recensement (Census of Population) 2006 (NPdC).	Overcrowded households are those where there are fewer than two common rooms (excluding bathrooms) available per household member.
Figure 52	Bar chart showing 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, 2001-06, ranked by percentage of overcrowded households.	See above.	See above.
Figure 53	Bar chart showing percentage of regular daily smokers, by gender, WCS and NPdC, 2002-04.	Scottish Household Survey 2003-04 (WCS). Insee, Conseil régional, Drass, ORS, Cresge - Enquête Santé 2002-2003 (NPdC).	Age bands: 15-75 (NPdC) and 16-75 (WCS). Regular daily smokers=at least one cigarette a day.
Figure 54	Bar chart showing frequency of alcohol consumption, adult males, Greater Glasgow and NPdC, 2002-05.	Greater Glasgow Health and Wellbeing Survey 2005 (WCS). Insee, Conseil régional, Drass, ORS, Cresge - Enquête Santé 2002-2003 (NPdC).	Greater Glasgow used as proxy for WCS: adults aged 15+ for NPdC and adults aged 16+ for Greater Glasgow.

Figure 55	Bar chart showing frequency of alcohol consumption, adult females, Greater Glasgow and NPdC, 2002-05.	See above.	See above.
Figure 56	Bar chart showing percentage of adult drinkers with a CAGE score of 2+, by gender, Greater Glasgow and NPdC, 2002-03.	Scottish Health Survey 2003 (Greater Glasgow). Insee, Conseil régional, Drass, ORS, Cresge - Enquête Santé 2002-2003 (NPdC).	Greater Glasgow used as proxy for WCS: adults aged 15+ for NPdC and adults aged 16+ for Greater Glasgow. Non-drinkers excluded from base.
Figure 57	Bar chart showing selected health behaviours, adult males, Greater Glasgow and NPdC, 2002-05.	Scottish Health Survey 2003 (Greater Glasgow). Insee, Conseil régional, Drass, ORS, Cresge - Enquête Santé 2002-03 (NPdC).	Greater Glasgow used as proxy for WCS. The four indicators used were : Percentage not eating fruit daily Percentage not eating vegetables daily Percentage rarely/never eating oily fish Percentage drinking non-diet soft drinks daily or almost every day Adults aged 15+ for NPdC and adults aged 16+ for Greater Glasgow.
Figure 58	Bar chart showing selected health behaviours, adult females, Greater Glasgow and NPdC, 2002-05.	See above.	See above.

Figure 59	Line chart showing percentage of adults (aged 18+) who were obese – with a BMI of 30+ – in NPdC and France, 1997, 2000, 2003, 2006 and 2009.	INSERM/TNS Healthcare (Kantarhealth)/Roche.	BMI (Body mass index) data calculated by dividing self-reported weight in kg by self-reported height in m2. A BMI of 30 or more indicates obesity.
Figure 60	Bar chart showing percentage of low birth-weight babies, WCS and NPdC, 2005-06.	ISD Scotland (WCS). PMI du Nord et du Pas-de-Calais (NPdC).	Low birth-weight=<2500g. Combined data for 2005 & 2006. NPdC data from 8th day certificate.
Figure 61	Line chart showing percentage of births where mother < 20 years of age, NPdC and WCS, 1996-2006.	SMR02 ISD Scotland (WCS). Eurostat (NPdC).	
Figure 62	Bar chart showing percentage of babies breastfed at 8-10 days, NPdC and WCS.	ISD Scotland, CHSP-PS data, first visit (WCS). PMI du Nord et du Pas-de-Calais (NPdC).	Scottish data from health visitor reviews, combined data for 2005 & 2006. NPdC data combined data from 8th day certificate, combined data for 2005 & 2006.

Figure 63	Bar chart showing 15 West Central Scotland Community Health (and Care) Partnerships and 25 arrondisements/part-arrondisements, ranked by percentage of babies breastfed at 8-10 days, NPdC and WCS, 2005-06 combined data.	See above.	See above.

Appendix 2: Nord-Pas-de-Calais arrondisements/part-arrondisements (districts/sub-districts) used

Name used in report	How geography was defined	Population (2006)
Arras	2006 arrondisement boundaries.	305,927
Avesnes-sur-Helpe	2006 arrondisement boundaries.	234,658
Boulogne-sur-Mer	2006 arrondisement boundaries.	162,602
Béthune	2006 arrondisement boundaries.	283,180
Calais	2006 arrondisement boundaries.	117,800
Cambrai	2006 arrondisement boundaries.	158,578
Douai	2006 arrondisement boundaries.	247,507
Lens	2006 arrondisement boundaries.	321,962
Montreuil	2006 arrondisement boundaries.	104,390
Saint-Omer	2006 arrondisement boundaries.	157,529
Armentières, Lille N. & O. & Quesnoy-sur-Deûle	Armentières, Lille-Nord, Lille-Ouest & Quesnoy-sur-Deûle 2006 canton boundaries.	172,204
Lille city & Lille NE	Lille (canton-ville) & Lille-Nord-Est 2006 canton boundaries.	248,374
Lomme, Haubourdin & Le Bassee	Haubourdin, La Bassée & Lomme 2006 canton boundaries.	90,782
Roubaix city	Roubaix (canton ville) 2006 canton boundaries 2006 canton boundaries.	97,952
Roubaix-O., Villeneuve-d'Ascq & Cysoing	Roubaix-Ouest, Villeneuve-d'Ascq (canton-ville) & Cysoing 2006 canton boundaries.	127,690
Seclin, Lille SE & Pont-à-Marcq	Lille-Sud-Est, Pont-à-Marcq, Seclin (canton-ville), Seclin-Nord & Seclin-Sud 2006 canton boundaries.	149,163
Tourcoing	Tourcoing (canton-ville) 2006 canton boundaries.	92,357
Tourcoing N & S & Marcq-en-Baroeul	Marcq-en-Baroeul, Tourcoing-Nord, Tourcoing-Nord-Est, Tourcoing-Sud 2006 canton boundaries.	117,041
Wattrelos & Lannoy	Wattrelos (canton-ville) & Lannoy 2006 canton boundaries.	105,236

Dunkerque city & Oest, Grande Synthe	Dunkerque (canton-ville), Dunkerque-Ouest & Grande-Synthe 2006 canton boundaries.	124,499
Hazebrouck & Bailleul	Bailleul (canton-ville), Bailleul-Nord-Est, Bailleul-Sud-Ouest, Cassel, Coudekerque-Branche, Hazebrouck (canton-ville), Hazebrouck-Nord, Hazebrouck-Sud, Merville, Steenvoorde & Wormhout 2006 canton boundaries.	92,874
S. Dunkerque	Bergues, Bourbourg, Dunkerque-Est, Gravelines & Hondschoote 2006 canton boundaries.	158,409
Valenciennes O.	Saint-Amand-les-Eaux, Vallenciennes N., Bouchain & Denain 2006 canton boundaries.	140,312
Valenciennes city & NE	Valenciennes (canton-ville), Anzin & Condé-sur-l'Escaut 2006 canton boundaries.	130,532
Valenciennes S & E	Valenciennes-Est & Valenciennes-Sud 2006 canton boundaries.	77,090

Limburg

Merseyside

Nord-Pas-de-Calais

Northern Ireland

North Moravia

Ruhr

Saxony

Saxony-Anhalt

Silesia

Swansea & South Wales Coalfields

Wallonia

West Central Scotland

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