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Scotland's fertility: past, present and future

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Scotland's Fertility

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Introduction

- In 2007, the Scottish Government's economic strategy set a target for the growth of Scotland's population
- To match average European (EU-15) growth over the period 2007 to 2017
- Sees population increase as a key contributor to a more vibrant society and a more dynamic economy
- Now a new optimism about the future growth of the Scottish population

A new optimism?

"The population of Scotland is projected to rise from 5.17 million in 2008 to 5.54 million in 2033 and continue to rise until it peaks at 5.57 million in the mid 2040s"

(GROS website, February 2010)

Fertility and population growth

- Only a few years ago, projections were less optimistic
 - Scotland's population was projected to rise until the late 2020s then start to decline
- According to the 2004-based principal projection:

| | |
|------|--------------|
| 2004 | 5.08 million |
| 2019 | 5.13 million |
| 2031 | 5.07 million |
| 2044 | 4.86 million |
- Worries about population ageing in next 25 years
 - 15% decline in number of children under 16 years
 - 75% increase in number of people aged 75 and over

- Population projections are only as good as the assumptions on which they are based
 - Future mortality
 - Future net migration
 - Future fertility
- What has changed?
 - Recent increases in both net in-migration and fertility

Generational replacement

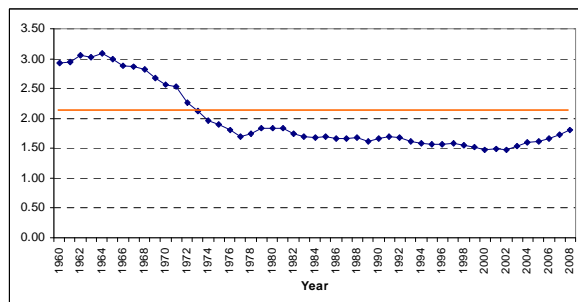
- To sustain population growth, recent rises in fertility and/or net in-migration will have to be maintained
- If fertility is low, a population does not replace itself without compensating net in-migration
 - Generational replacement requires a TFR of around 2.1 children per woman
 - Scotland's TFR in 2008 was 1.8 per woman, the highest for 30 years but still short of replacement
- Fertility is a key driver of generational replacement and population change

Are recent rises in fertility likely to continue?

The past: lessons from the last half century

- Secular decline in fertility began in the last quarter of the 19th century
- Short-term fluctuations in the 20th century, perhaps pro-cyclical with economic trends
 - Low fertility during the 1930s
 - The post Second World War baby boom in the 1950s and 1960s
- Debate about the extent to which the state of the economy influences decisions about childbearing

Total fertility rate, Scotland, 1960-2008



Data: GROS

Factors associated with the baby boom

- Demographic
 - Younger ages of women at first birth
- Economic
 - Post-war economic recovery
- Social
 - Re-establishment of the breadwinner model of the family
 - Fertility control: the pill
 - Liberalisation of attitudes to sex

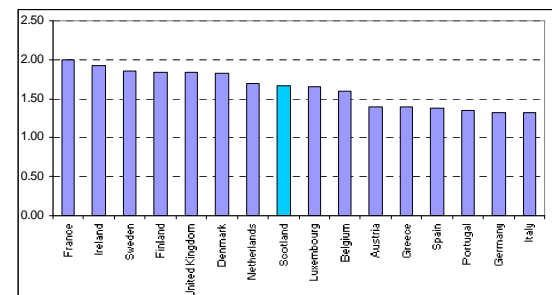
Temporal context matters!

The present: the last two decades

- Fertility (TFR) dropped below generational replacement level after 1973
- Continued decline to a low of 1.48 children per woman in the early years of the new millennium
 - Well below replacement level but not as low as some other EU countries
- From 2003, gradual but sustained rise to 1.80 children per woman in 2008
- Scotland's fertility currently in the middle range compared to other EU-15 countries but is the lowest fertility of the constituent countries of the UK
 - TFR for England reached 1.97 in 2008

Scotland in Europe

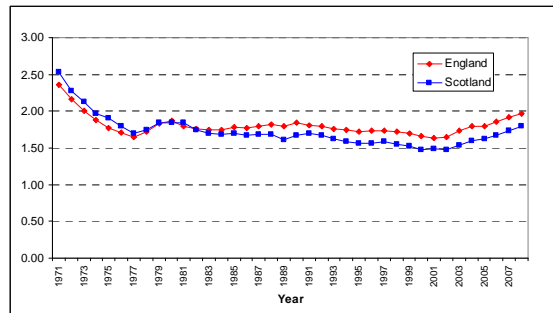
Total fertility rate, Scotland and EU-15, 2006



Data: GROS

Scotland & England

Total fertility rate in Scotland and England, 1971-2008



Data: GROS

Why is fertility in Scotland lower than in England?

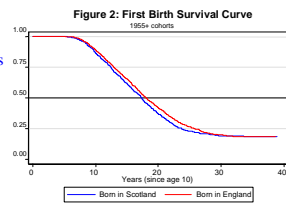
- Used the British Household Panel Survey to investigate the factors associated with fertility behaviour in the UK and, in particular, the differences between Scotland and England
- Information on birth histories allowed us to derive parity for each birth to women in the panel
- Focused on 5,460 women born in 1955 & later, who were at risk of a birth during the period when fertility in Scotland is consistently lower than in England

Demographic accounting using survival analysis (proportional hazard modelling)

Main research findings:

- Scottish women had a *shorter* time to first birth compared to English women

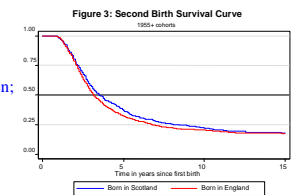
50% of Scottish women had a first birth by age 27.42 years compared to 28.08 years for English women, and the difference is statistically significant



- The impact of other factors, associated with higher parity births, must therefore be quite strong to produce overall lower fertility in Scotland

- Scottish women had a *longer* time to second birth compared to English women

50% of English women had a second birth by 3.2 years after their first birth compared to 3.5 years for Scottish women; the difference is statistically significant



- Scottish women had a *longer* time to third birth compared to English women

25% of English women had a third birth by 3.3 years after their second birth compared to 4.1 years for Scottish women, and the difference is statistically significant

- It appears that greater delays to higher parity births are characteristic of Scotland's relatively lower fertility

- Research question:

Which factors are associated with fertility outcomes for women at risk of a second, and of a third, birth during the first 13 waves of the BHPS panel (1991-2003)?

Factors associated with fertility outcomes

Individual factors:

- Age at previous birth
- Ethnicity
- *Socio-economic class (last job)
- *Partnership status
- *Household income (after housing costs)
- *Housing costs
- *Employment status
- *Financial security (past year)
- *Highest educational qualification
- *Anticipated financial security (next year)
- Country of birth

Contextual factors:

- *Mean household income in GOR of residence
- *Female unemployment in GOR of residence

Cox Proportional Hazard Models

*variables lagged by one wave to approximate circumstances around the time of (possible) conception

Second birth summary

- Higher hazard of second birth
 - Younger age at first birth
 - *Married
 - *Living in higher cost housing
 - *Not employed
 - *Living in GOR with higher female unemployment
 - *High educational qualifications
 - *Expect to be worse off, or the same, financially a year from now

- No significant difference between Scottish and English women once these factors had been taken into account

Third birth summary

- Higher hazard of third birth
 - Younger age at second birth
 - *Married (but not compared to cohabiting)
 - *Not employed
 - *Living in GOR with higher female unemployment
 - *Better off financially than a year ago (compared to the same)
 - *Expect to be worse off financially a year from now (compared to better off)

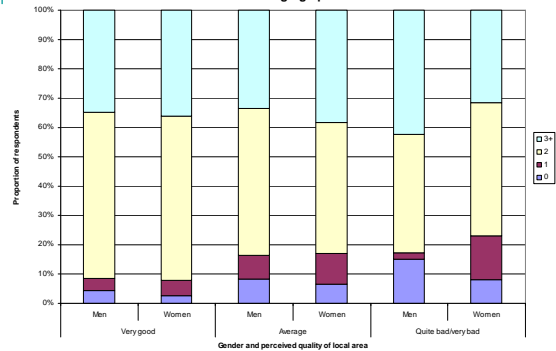
- No significant difference between Scottish and English women once these factors had been taken into account

Fertility variations within Scotland

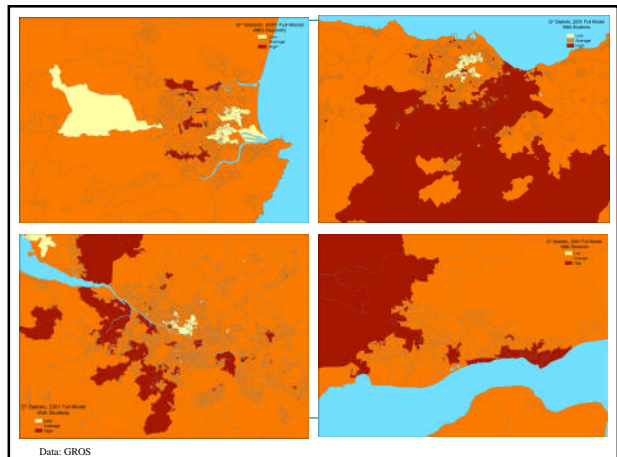
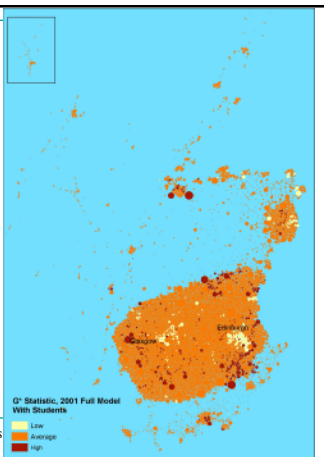
- Ideas about the *ideal* (and the expected) number of children vary geographically across Scotland (Scottish Social Attitudes Survey 2005)

- Birth rates also vary geographically, reflecting the different age structures and socio-economic characteristics of local populations (Census of Scotland, 2001)

Distribution of ideal family size by gender and perceived quality of local area for bringing up children



- After we took age structure and socio-economic factors into account, we found clusters of low fertility in the major cities and clusters of higher fertility in the surrounding commuter belts



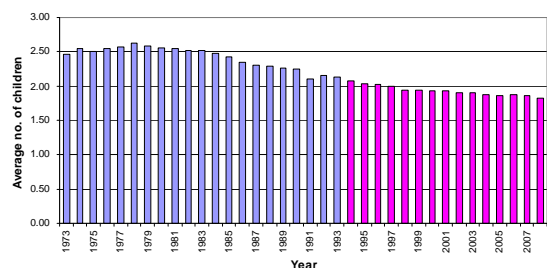
The future: the next two decades

- Unless generations are replaced, Scotland's population will decline and population ageing will continue
- Replacement could be achieved in several ways:
 - further increases in fertility
 - sustaining fertility at its current level and increasing migration
 - further increases in migration

Predicting future fertility

- Fertility is dynamic and period measures of fertility can vary according to both the number of children couples are having (quantum) and when they choose to have them (tempo)
- We do not know for sure whether cohorts are replacing themselves until they have completed childbearing
- On the measure of completed family size, Scotland's population has not been replacing itself since 1993
 - measures the past fertility of those born before the early 1960s

Completed Family Size: Scotland 1973-2008



Data: GROS

Fertility and the economic recession

- Multiple pathways through which the current economic downturn is likely to impact differently on fertility
 - Gender-specific effects
 - Parity-specific effects
 - Effects associated with education and age
 - Geographical context - local cultures of fertility?
- Temporal context matters:
 - Women now have a prominent role in the labour force
 - Global scope of current economic recession

Future fertility in Scotland

- Overall, the recession is likely to have a depressing effect on fertility
- This may be temporary (c. 5 years?) but will produce smaller birth cohorts, which will result in a lower overall number of births in the 2030s
- Scope for policy intervention to mitigate the effects
 - e.g. a home-care child allowance?

Population growth or population decline?

- The number of births depends not only on the fertility rate but on the number of women in child-bearing age groups
 - Demographic momentum ensures that smaller birth cohorts will have fewer babies even if the fertility rate remains unchanged
 - Thus the smaller birth cohorts around the turn of the millennium will impact negatively on the number of babies born in the 2020s and 2030s
- Policies are needed to maintain current fertility levels in the face of economic uncertainty
- Future stability or growth in the size of the Scotland's population is likely to depend on attracting young migrants to Scotland and persuading them to stay