

Population Trends

Contents

In brief	3
Population Trends and Health Statistics Quarterly; Local Authority Boundary Changes from 1 April 2009; Social Trends 39; Ageing – ensuring research and statistics meet the needs of a changing society; Mid-2008 Population Estimates for Scotland; Wales' Population: A Demographic Overview 2009; Wales Population Newsletter; 2011 Census update; Revisions to adjust mid-year population estimates by marital status for marriages abroad; UK National Statistics Migration Homepage and the Migration Statistics Quarterly Report; Seminars on improvements to mid-2008 population estimates; Online online access to older Population Trends articles	
Recent and forthcoming releases	8
Demographic indicators	9
Features	
A comparison of the characteristics of childless women and mothers in the ONS Longitudinal Study	10
<i>Martina Portanti and Simon Whitworth</i>	
Analysis of longitudinal data allows comparisons between mothers and women who remain childless in England and Wales	
Estimating the cohabiting population	21
<i>Ben Wilson</i>	
This article presents an update on the estimation of numbers of people cohabiting and highlights new trends in cohabitation in England and Wales	
Have women born outside the UK driven the rise in UK births since 2001?	28
<i>Nicola Tromans, Julie Jefferies and Eva Natamba</i>	
Investigates whether the rise in births in the UK since 2001 can be attributed to the fertility of an increased proportion of mothers who were born abroad	
Subnational analysis of the ageing population	43
<i>Sarah Blake</i>	
Demonstrates the progression of ageing of the population at the regional and local level	
The 2011 Census taking shape part II: Methodological and technological developments	64
<i>Ian White</i>	
Presents the design of the 2011 Census as outlined in the newly launched Census White Paper	
Tables	
List of tables	73
Tables 1.1-9.3	74
Notes to tables	102
Reports	
Patterns of fatherhood in England and Wales, 1964–2007	103
Decennial life tables (2000-02)	108
2006-based Marital Status & Cohabitation Projections for England & Wales	112
Marriages and divorces during 2006, and adoptions in 2007: England and Wales	121
Contact points	126
Recent and future articles	127

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About us

The Office for National Statistics

The Office for National Statistics (ONS) is the executive office of the UK Statistics Authority, a non-ministerial department which reports directly to Parliament. ONS is the UK government's single largest statistical producer. It compiles information about the UK's society and economy which provides evidence for policy and decision-making and in the allocation of resources.

The Director of ONS is also the National Statistician.

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<i>Population Trends</i>		by 14 Dec	by 31 Mar	by 30 June	by 29 Sept

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in brief

Population Trends and Health Statistics Quarterly

ONS are considering a possible merger of Population Trends and its sister journal Health Statistics Quarterly (HSQ) into one larger and more comprehensive quarterly journal at the start of 2010.

HSQ has been published for more than 10 years, shares similar values to Population Trends, but concentrates on topical health-related issues. For example, the most recent issue (No 42, Summer 2009) explores social inequalities in adult female mortality and updates the measurement of chronic illness.

The new combined title would offer a broader and more complementary cross section of news items, articles and data covering both key demographic/population and health issues. All material on fertility, mortality, migration and other population themes currently found in this volume would be retained.

The proposed title of a new journal is Population and Health Review.

Comments from readers of both journals are welcomed. Further details will be published later in the year.

Email: poulation.trends@ons.gov.uk or hsq@ons.gov.uk

Local Authority Boundary Changes from 1 April 2009

On 1 April 2009 a reorganisation of local government created nine new unitary authorities (UAs) in England. Five of these were created from county councils and their district councils. The remaining four were created by splitting Cheshire and Bedfordshire respectively into two each along district council boundaries. The nine unitary authorities are, therefore, all aggregates of former local authorities. Further details of the reorganisation are:

- Bedford UA was formed from Bedford District Council
- Central Bedfordshire UA was formed from Mid Bedfordshire and South Bedfordshire District Councils.
- Cheshire East UA was formed from Congleton, Crewe & Nantwich and Macclesfield District Councils.
- Cheshire West and Chester UA was formed from Chester, Ellesmere Port & Neston, and Vale Royal District Councils.
- Cornwall UA was formed from Caradon, Carrick, Kerrier, North Cornwall, Penwith and Restormel District Councils (note the Isles of Scilly remains separate).
- Durham UA was formed from Chester-le-Street, Derwentside, Durham, Easington,

Sedgefield, Teesdale and Wear Valley District Councils.

- Northumberland UA was formed from Alnwick, Berwick-upon-Tweed, Blyth Valley, Castle Morpeth, Tynedale and Wansbeck District Councils.
- Shropshire UA was formed from Bridgnorth, North Shropshire, Oswestry, Shrewsbury & Atcham and South Shropshire District Councils.
- Wiltshire UA was formed from Kennet, North Wiltshire, Salisbury and West Wiltshire District Councils.

As a result of these boundary changes, Cornwall UA with a population of around 530,000 is now the fourth largest local authority in terms of population, behind Birmingham, Leeds and Sheffield.

This reorganisation has implications for statistics for the former local authorities, as well as creating the need to support the new administrative bodies. The intention is that for statistical publications and releases, where practically possible, statistics will be available for the new UAs and former district councils until the 2011 Census results are released in 2013.

Social Trends 39

This annual publication draws together statistics from a wide range of government departments and other organisations to paint a broad picture of contemporary UK society, and how it has changed over the years. The underlying theme of *Social Trends 39* is households, families and children.

This year's edition, published on 15 April 2009, shows how demographic patterns in the UK continue to change. In 2007 there were 61.0 million people resident in the UK. Key points in the population chapter include:

Falls in birth rates and decreases in mortality mean that the growing UK population is becoming ever more skewed towards the older age groups. Population projections indicate that by 2031 there will be more than 1.1 million people aged 90 and over in Great Britain.

Population change is not just affected by births and deaths. Migration plays a key role in population growth and in 2007 around 577,000 people arrived to live in the UK for at least 12 months, while around 340,000 left the country with the intention of living abroad for a year or more. Estimates show that around 243,000 people moved to the UK for work-related reasons in 2007, compared with just over 100,000 in 1997. On the other hand, in 2007 more than 170,000 people left the UK to work, or look for work, abroad. The most popular destinations for UK nationals moving abroad in 2007 were Australia and New Zealand, followed by Spain and France.

The chapter also takes a look at key demographic indicators of other countries around the world, including seven countries, other than the UK, that sit on the Greenwich Meridian Line. For this set of countries, the highest rates of infant mortality and fertility and lowest life expectancies are found in countries near the equator.

In its entirety *Social Trends* takes a wide look at society with further chapters covering subjects as diverse as Education, Health, Transport, Lifestyles and more.

The report can be accessed at:
www.statistics.gov.uk/socialtrends39

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www.palgrave.com/ons

Ageing – ensuring research and statistics meet the needs of a changing society

On 27 March 2009 ONS held a seminar on Ageing to facilitate engagement with users and experts in the field. The seminar was attended by policy makers and researchers from other

government departments, as well as academics, representatives from local government, and voluntary organisations concerned with ageing.

The main aims of the day were:

- To share ideas and information on ageing research
- To raise awareness of ONS work on ageing
- To ensure that our research is well targeted and meeting changing needs

A number of presentations were given in the morning by ONS and external speakers and group discussions took place in the afternoon.

ONS speakers presented:

- an overview of population change in the UK, focussing on Ageing and Mortality based on the National Statistician's article published in *Population Trends* nr 134 in December 2008.
- completed, current and regular ageing related research and outputs produced by the ONS. This included work previously published in *Population Trends* (for example, analysis of the 'oldest old' population, and Internal migration trends at older ages); estimates of life expectancy and healthy life expectancy; and the recent analysis of subnational ageing appearing in this edition of *Population Trends*.
- future areas of ONS work on ageing including the development of a sub-national data visualisation tool; the production of a regular Ageing newsletter and reporting on the demographic drivers of ageing.
- a specific example of current ONS ageing research on older workers. Further analysis will be published in *Population Trends* later in the year.

In addition speakers from the Department of Work and Pensions (DWP) presented the government policy response to population ageing. The new strategy for an ageing society is to be released later this year, building on the existing Opportunity Age strategy. Additional information was presented by DWP on extending working lives policies designed to retain and re-skill older workers and encourage people back to work. There were further presentations from the Oxford Institute of Ageing, University College London and Southampton University.

The afternoon was given over to group discussions. The main focus of these was to ask participants to identify priority areas for ageing research, gaps in existing research and outputs, and opportunities for collaborative working.

Research themes

Priority areas for ageing research identified in the group discussions were:

- the effect of population ageing on family and household structures including trends in living arrangements of older people and the factors associated with these, including transitions into communal establishment.
- informal and formal care provision, in particular the implications of trends in family and household structures and living arrangements on informal care provision and the role of grandparents in the care for their grand-children.
- the effects of caring on different aspects of older carers' lives, including employment and retirement decisions, income, social networks, health, well being and quality of life, older workers and retirement, motivation to stay in work, exploring non-monetary benefits to working at older ages and examining barriers to employment at older ages, refining predictors of retirement, affording retirement, and effects of retirement on health, well being and quality of life.

Other important themes

Other themes that emerged from the seminar were the need to:

- ensure ageing research is informed by key policy changes (for example, changes to State Pensionable Age (SPA))
- provide ageing information at local authority level and for different sub-groups of the population, particularly for different ethnic groups
- recognise the importance of longitudinal analysis, in particular sources like the English Longitudinal Study of Ageing (ELSA)
- undertake more qualitative research to further understanding of what older people really think about their lives and old age, and what makes older people happy.

Collaborative working

Collaborative working on ageing by researchers, policy makers and practitioners both across and outside of government was considered to be an important issue.

Suggestions to facilitate and encourage collaborative working included improving access to ageing data sources and research by establishing a dedicated Ageing webpage on the NS website which would link to all ageing related outputs and provide links to non-ONS ageing research on the NS website.

Outputs

There was positive feedback on the different types and levels of ageing related outputs produced by ONS.

Detailed reports of research published in *Population Trends* as well as contributions to other ONS publications such as *Pensions Trends*, *Social Trends* and *Health Statistics Quarterly*, *Focus on Older People* and *nuggets*

of ageing information on the NS website were all considered to be useful for different purposes. The pilot edition of the newsletter *Ageing Times* was well received and seen as a good sign-post to ageing work in the ONS. Suggestions for improvements included publishing a calendar of release dates for ageing outputs and sending email alerts prior to releases.

Next steps

Information and feedback from the seminar, including the research priorities identified, is being used to inform and prioritise the ONS analytical ageing work programme.

ONS will continue to work closely with those working on ageing both across and outside of government. ONS are planning to set up an Ageing user group (to include policy makers, practitioners and academics) to act as a sounding board for ideas and to facilitate wider engagement.

The newsletter *Ageing Times* will be launched later in the year. It will provide a regular update on ageing research within ONS.

Further information can be obtained by contacting ageing@ons.gsi.gov.uk

Mid-2008 Population Estimates for Scotland

On 28 April 2009 the General Register Office for Scotland published its *Mid-2008 Population Estimates Scotland*. The key points of this report are:

- The estimated population of Scotland on 30 June 2008 was 5,168,500, a rise of 24,300 on the previous year and the highest since 1981
- Between mid-2001 and mid-2008, Scotland's population increased by 2.1 per cent (+104,300) from 5.06 million to 5.17 million
- Between mid-1998 and mid-2008, Scotland's population increased by 1.8 per cent (+91,430) from 5.08 million to 5.17 million
- In the twelve months up to 30 June 2008, the number of births exceeded the number of deaths by 3,900, the largest natural increase since 1991–92
- Over the year there was a net migration gain of 20,000 people. This includes net gains of 11,500 people from the rest of the UK, 7,700 people from overseas (including

asylum seekers) and 800 people from the armed forces

- Over the year 38,500 people (including asylum seekers) came to Scotland from overseas and 30,800 left Scotland to go overseas. The net gain of 7,700 is lower than the record gain of 16,800 in 2006–07 because more people left Scotland
- The net gain from the rest of the UK exceeded that from overseas. Over the year 53,300 people came to Scotland from England, Wales and Northern Ireland and 41,800 left Scotland to go in the opposite direction. The net gain of 11,500 is greater than the previous year's 8,800 net gain because more people came to Scotland and fewer left
- Among Council areas, between mid-2007 and mid-2008, East Lothian had the largest percentage population increase at +1.8 per cent followed by Perth & Kinross (+1.4 per cent) and Midlothian (+1.3 per cent). Argyll & Bute had the largest percentage population decrease at -0.9 per cent, followed by Eilean Siar and Inverclyde each with a percentage decrease of -0.4 per cent
- Among NHS Board areas, Lothian (+1.0 per cent), Borders (+0.9 per cent) and Grampian (+0.8 per cent) had the largest percentage population increases. The only NHS Board area to have experienced a decline in population was Western Isles (-0.4 per cent)
- In the year to mid-2008, the **city** Council areas experienced net losses of migrants to the rest of Scotland. However, more migrants came to the city Council areas from both the rest of the UK and from overseas than went in the other direction
- There were 66 people per square kilometre in Scotland, ranging from 9 persons per square kilometre in Eilean Siar and Highland Council areas to 3,329 persons per square kilometre in Glasgow City Council area.
- Further details may be found in the full publication, available at: www.gro-scotland.gov.uk/statistics/publications-and-data/population-estimates/mid-2008-population-estimates-scotland/index.html

Wales' Population: A Demographic Overview 2009

The third comprehensive overview of demographic statistics on Wales was published

by the Statistical Directorate of the Welsh Assembly Government on 26 March 2009.

The publication brings together information on the demography of Wales for the period 1971 to 2007. It looks at population and migration estimates, birth and death patterns, and also focuses on the 2006-based national population projections, and the recently published 2006-based local authority projections. The publication can be found at: <http://wales.gov.uk/topics/statistics/publications/walespop09/?lang=en>

Welsh Population Newsletter

The Statistical Directorate of the Welsh Assembly Government have recently established a population statistics newsletter. This newsletter has been developed in order to inform people of recent and forthcoming developments and publications. The newsletter is aimed at internal and external policy colleagues, researchers and economists that use demographic data and evidence to form policies, to plan services and to monitor and evaluate policies and services. The population statistics newsletter forms part of a series of statistical newsletters published by the Welsh Assembly Government, and will be published every two months. The most recent population newsletter, published in March 2009 is available at: <http://new.wales.gov.uk/topics/statistics/theme/population/?lang=en>

2011 Census update

Census Rehearsal

The Rehearsal for the 2011 Census in England and Wales will comprise approximately 135,000 households in the Isle of Anglesey (Ynys Môn), Lancaster and Newham. Rehearsal day is 11 October 2009 and preparations are well underway. The Rehearsal in Northern Ireland at the same time will include around 5,000 households in the Local Government Districts of Lisburn and Dungannon. The Rehearsal areas have been chosen to simulate actual Census type conditions by covering a cross section of the population and housing types. A Rehearsal in Scotland was carried out earlier this year.

A field address checking exercise has taken place and the findings are currently being incorporated into the address register in preparation for printing of addressed questionnaires at the end of July.

The contract to provide integrated nationwide personnel services for the 2011 Census has

been awarded to Capita Business Services. Capita will provide services to help recruit, train and pay the estimated 35,000 temporary staff needed to deliver both the Rehearsal and the Census itself. Staff will be recruited from local communities across England and Wales to carry out Census field roles. Posts include Area Managers, local team coordinators and Census delivery and collection staff. Recruitment for the Rehearsal started in May. Nationwide recruitment for the 2011 Census will start in June 2010.

ONS continues to work with local authorities in the Rehearsal areas, gathering support for recruitment of field staff and for local publicity. Local information and details of community contacts are being provided by the three Rehearsal authorities.

In order to provide accessible support ONS is producing translation booklets in 30 languages as well as information in Braille, British Sign Language video clips and audio clips. All of these will be made readily available through community and local authority networks in Rehearsal areas (see also below).

Development of all the supporting systems for the Census, particularly for the:

- receipting and scanning returned paper questionnaires
- online questionnaire completion
- web self-help and the Contact Centre, and
- internal management information system to inform the effective deployment of the field force

are also progressing as planned.

Making the Census accessible

ONS is committed to delivering an inclusive 2011 Census and 2009 Rehearsal, providing an accessible online service and additional support formats to allow people to complete their questionnaire independently. In addition, some people may prefer to use an accessible support format in conjunction with their normal method of completion. ONS recognises there is no one method of completing a questionnaire and aims to provide choice.

After consultation with key groups such as the Royal National Institute for the Blind (RNIB) and British Deaf Association (BDA), the following Accessible Formats in English and Welsh are to be piloted in the 2009 Rehearsal:

- Braille Guidance Booklet
- Audio Guidance Cassette Tape
- Audio Guidance CD
- British Sign Language (BSL) Guidance CD
- Audio Clips on website
- BSL Clips on website
- Large print questionnaire

Accessibility information will be on the website and formats available to the public at request through the Contact Centre. This message will be passed to key disability groups through engagement and publicity. In addition, the ONS Community Liaison team will be looking at innovative ways of targeting these formats such as through libraries and disability clubs. Following evaluation of the Rehearsal, decisions will be made on the accessible formats to be produced for the 2011 Census. There will be a tendering exercise for a contract to supply them.

Workshops will be held in Autumn 2009, after the Rehearsal, with a range of stakeholders from accessibility groups in order to discuss initial feedback from the rehearsal and gather further views about plans for 2011.

Accessibility and usability testing of the Rehearsal website is under way. The second round of usability testing has been implemented by Abilitynet and work has begun with the RNIB to gain 'See it Right' accreditation for 2011. On successful completion, the website will meet RNIB and Abilitynet guidelines to maximise accessibility for users.

Population bases for enumeration and outputs

The three UK statistical offices agreed in 2005 that the population base to be used for enumeration in the 2011 Census should be *Usual Residents and Visitors*. This was consistent with the National Statistician and Registrars General's agreement to harmonise the three UK Censuses as closely as possible. This decision was reached after extensive research and consultation, summarised in the paper *Selection of the population base for the 2011 Census enumeration* (see www.statistics.gov.uk/about/consultations/downloads/2011Census_consultation_population_base.pdf)

At that time, the exact definition of a usual resident to be used had not been finalised, as this was planned for agreement after further consultation and extensive questionnaire testing.

At the time of the 2007 Census Test, it was assumed that the enumeration base for the 2011 Census would be broadly consistent with that used in 2001, but with the addition of visitors (the Test questionnaire reflected this), and that the same population base would be used for enumeration and outputs. However, further consultation identified increasing requirements for information on short-term migrants, and it was agreed that the Census (in England, Wales and Northern Ireland) would be expanded to meet this need. To achieve this, it was agreed that a full Census return would be collected from everyone who has been, or intends to be, resident in the UK for a period of three months or more in the 2011 Census.

It would be necessary to be able to distinguish between usual residents and short-term migrants in the Census database when producing outputs and, as a result, ONS have tested a question on *Intended length of stay in the UK* to help achieve this. Respondents who have lived in the UK for less than 12 months would be asked to

indicate whether their overall stay is likely to be less than 6 months, less than 12 months or longer-term.

This enumeration base and these questions have been evaluated through qualitative cognitive testing and quantitative postal tests and ONS are confident that they will collect the required information in the 2011 Census. The 2009 Census Rehearsal in England, Wales and Northern Ireland will use this enumeration base and include the new questions.

As the same strength of requirement for information on migration was not identified in Scotland, the 2011 Census there will not be expanded to collect this information, and only usual residents will be directed to complete a full Census return. However, it has been agreed that the main output base for the 2011 Census should be common across the UK and that this would be usual residents defined as those people who:

- (a) have been, or intend to be, a resident of the UK for a period of 12 months or more; and
- (b) are not at the time of the Census living outside the UK for a period of 12 months or more.

This will make the national level estimates directly comparable with the MYEs for the first time, and also allow closer comparability with population estimates from other countries.

However, some respondents with more than one residence will continue to be included at their family home, as in the 2001 Census, to enable the production of accurate family statistics. This will mean that the sub-national population estimates will not be directly comparable with the MYEs, where everyone is, in theory, counted at the address where they spend the majority of the time. In England and Wales, information will be collected on second residences, which may enable a Census estimate of the *majority of time* population to be produced.

Revisions to adjust mid-year population estimates by marital status for marriages abroad

Revised mid-2002 to mid-2007 marital status population estimates for England and Wales were published on the National Statistics website on 30 April 2009 and are available at: www.statistics.gov.uk/statbase/Product.asp?vlnk=15107

The revisions have been made to adjust the previously published marital status population estimates to account for marriages of residents of England and Wales that take place abroad, and for marriages of overseas residents that take place in England and Wales. These people will be incorrectly counted in the existing marital status estimates which use marriage and divorce registrations in England and Wales to update Census estimates of the resident population by marital status.

Marriage registration data used to compile the marital status population estimates cover only those marriages actually occurring in England and Wales. However, some people who are usually resident in England and Wales travel abroad to marry, so are not included in the marriage registrations, and some people who are overseas residents marry in England and Wales (marriage tourists) and are included in marriage registrations.

The adjustments are made only for England and Wales residents travelling outside the UK to get married; the assumption is made that the number of England and Wales residents marrying in Scotland and Northern Ireland is equal to the number of Scotland and Northern Ireland residents marrying within England and Wales.

The impact of these adjustments is cumulative over the years between mid-2002 and mid-2007. The mid-2007 revised estimates show that the number of England and Wales residents who are married is 21,701,600. This is 313,800 (1.5 per cent) more than those shown in the previously published unadjusted estimates. The revised estimates of the number of people who are single, divorced and widowed are correspondingly lower than the previously published estimates.

Marriages of England and Wales residents abroad occurring prior to mid-2001 will already be included within the published marital status estimates as they will have been recorded in the 2001 Census.

Publication of these revised estimates follows an earlier research project conducted by ONS to estimate the number of marriages to UK residents taking place outside the UK and the number of marriages to overseas residents taking place within the UK. The results of this research were published in Autumn 2008 in Population Trends 133, *Report: Marriages abroad 2002–2007*, available at: www.statistics.gov.uk/downloads/theme_population/PT133_part2.pdf

The revisions also include a correction for a minor processing error in the original mid-2007 marital status estimates.

UK National Statistics Migration Homepage and the Migration Statistics Quarterly Report

In May 2009 a new migration homepage was launched on the UK National Statistics Publication Hub. This was inspired by the Interdepartmental Migration Task Force's recognition that migration statistics needed to be more accessible. The new homepage gives an introduction to the topic and the range of data available. The page is located at: www.statistics.gov.uk/hub/cross-cutting-topics/migration/index.html.

May 2009 also saw the first edition of the Migration Statistics Quarterly Report, a joint bulletin by ONS, DWP and the Home Office. Containing numerous graphs, the Report is intended to offer an interesting and accessible summary of the main messages coming from the regular quarterly releases of migration data. The Report is available via the migration homepage, and people are invited to give their feedback on the Report so it can be developed for future quarters.

Two new ONS products were also launched in May. The provisional International Passenger Survey estimates of long-term international migration offer an early indication of how migration is changing, several quarters before the official long-term estimates are published. The new online viewer for local authority level migration indicators provides a useful way of helping people understand how migration is affecting their area. Both of these products can be accessed via the Migration Statistics Quarterly Report.

Seminars on improvements to mid-2008 population estimates

ONS will be holding a series of seminars in June 2009 to explain the future improvements to, and underlying methodology of, the mid-2008 population estimates. All interested parties are welcome to attend and the changes will be particularly of interest to Local Authorities and Primary Care Organisations.

The seminars will be held in Cardiff, Leeds, Birmingham and London, on respectively 19, 24, 25, and 26 June. For more details, registration form, and agenda see: www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/seminar-english.asp

Alternatively, contact imps@ons.gov.uk or call 01329 444 695 for a registration form.

Quick online access to older Population Trends articles

Readers interested in locating earlier articles published in Population Trends should know that there is a search engine available to find items quickly. This online article search facility covers all ONS journals. To find an article it is possible to do a text search for keywords, journal title, article title, author's name, issue number, and publication year. All articles published in Population Trends since Winter 1997 (issue no 90) are available online. Using this search facility pdf files can be downloaded for each article; this service is free of charge. To use this service go to: www.statistics.gov.uk/cci/articlesearch.asp

Recent and forthcoming ONS releases

Recent releases

12 February

Marriages 2007 in England and Wales

www.statistics.gov.uk/statbase/Product.asp?vlnk=14275

19 February

Congenital anomaly notifications 2007 (MB3 no. 22)

www.statistics.gov.uk/statbase/Product.asp?vlnk=5799

24 February

Population and migration statistics

(co-ordinated release of various data from ONS, Department for Work and Pensions and Home Office)

www.statistics.gov.uk/statbase/prep/14711a.asp

26 February

Cancer Survival in the Spearhead Primary Care Trusts of England, 1998–2005

www.statistics.gov.uk/statbase/Product.asp?vlnk=14821

26 February

Annual conceptions 2007: provisional

www.statistics.gov.uk/statbase/Product.asp?vlnk=15055

26 February

Quarterly conceptions to women aged under 18, 2008 quarter 4

www.statistics.gov.uk/StatBase/ssdataset.asp?vlnk=4877

26 February

UK Electoral Statistics, 2008

www.statistics.gov.uk/statbase/Product.asp?vlnk=319

20 March

Cancer survival in England, patients diagnosed 2001–2006 and followed up to 2007

www.statistics.gov.uk

26 March

Marriages, divorces and adoptions 2006 (FM2 no. 34)

www.statistics.gov.uk/statbase/Product.asp?vlnk=581

28 May

Health Statistics Quarterly No. 42 Summer 2009

www.statistics.gov.uk/statbase/Product.asp?vlnk=6725

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Demographic indicators England and Wales

Figure A Population change (mid-year to mid-year)

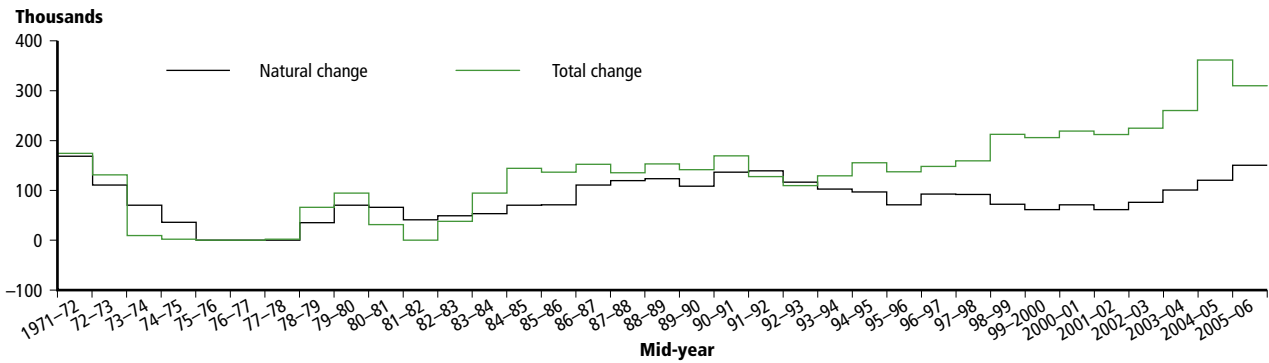


Figure B Total fertility rate

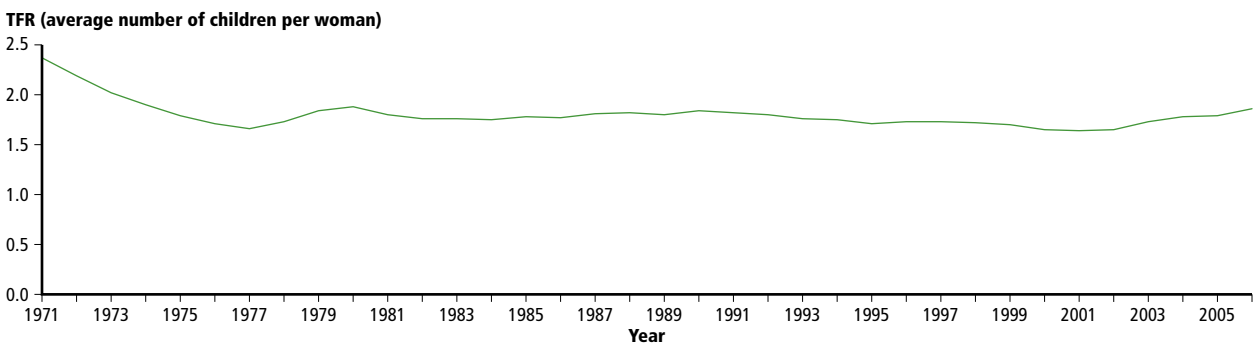


Figure C Live births outside marriage

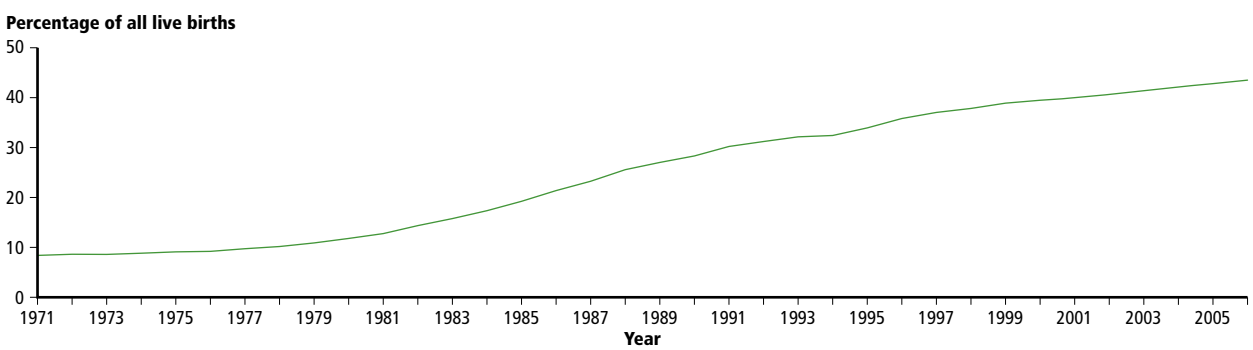
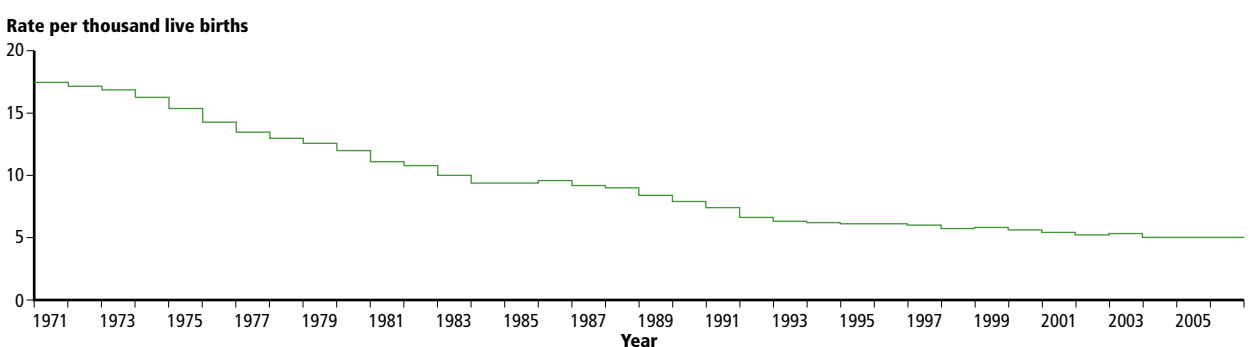


Figure D Infant mortality (under 1 year)



A comparison of the characteristics of childless women and mothers in the ONS Longitudinal Study

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Office for National Statistics

An increase in the number of childless women has been a prominent feature of the post baby boom period of fertility decline. However, childlessness as a stand alone research topic has received less attention within the literature on low fertility.

This research uses for the first time the ONS Longitudinal Study (LS) to explore lifelong childlessness as a research topic in its own right. Using a large scale sample of women from the 1956–60 generation who are continuously resident in England and Wales during their childbearing years, this article investigates the degree to which socio-economic characteristics of women and, where present, their partners are related to female lifelong childlessness.

The study measures the extent to which women who remained childless throughout their life course are distinctive from those who became mothers, and therefore improves our understanding of childlessness among women in England and Wales.

Introduction

Since the post Second World War baby boom there has been a dramatic change in childbearing patterns throughout the developed world (Sobotka, 2004). In general, women in most countries have been delaying starting a family, with births to women aged below 30 declining sharply over this period. Women have been having fewer children on average, and increasing numbers of women have been remaining childless. This has resulted in the fertility rate decline observed in the Western world, where many countries are now experiencing low and very low fertility rates.

The drivers of fertility decline – including childbearing postponement, decreasing family size and childlessness – have been extensively analysed in the demographic and sociological literature (for example, McDonald, 2000; Castles, 2003; Jefferies, 2008).

Childlessness, in particular, is not a new phenomenon. Hakim (2003) reported that in the past 20 per cent of women in the UK remained childless due to poverty, poor nutrition and low marriage rates caused by wars and emigration. However, in the post Second World War period, childlessness reached an all time low in Britain (Coleman, 1996). Since then, the proportion of women childless in England and Wales has been increasing, from an estimated 10 per cent of the 1945 cohort to 19 per cent of women born in 1960 (ONS, *Birth Statistics*, 2008). Importantly, some studies have identified present-day childlessness as being different from childlessness in the past. This is because present-day childlessness is occurring increasingly often among healthy females who are living within marriage or cohabiting and who are sexually active (Coleman, 1996).

Compared to studies of low fertility, childlessness as a stand alone research topic has received less attention within the literature (Hakim,

2005), with most studies of childlessness being based on small-scale samples and relying heavily on qualitative methods. Some of this research in Canada (Veevers, 1980) and the UK (McAllister and Clarke, 1998) reported that childless women are not from a distinct social or economic group relative to women with children. Instead, they suggest that those who are voluntarily childless are more distinct in terms of their attitudes and values, and are characterised by a desire for independence, freedom and spontaneity (Fisher, 1991; Lisle, 1996; McAllister and Clarke, 1998).

Although some studies have looked at childlessness in the British Household Panel Survey (Berrington, 2004) and the General Household Survey (Murphy, 2008), quantitative research on childlessness in the UK has mainly made use of data from the Birth Cohort Studies (Kiernan, 1989; Hakim, 2003; Simpson, 2006; Kneale and Joshi, 2008). For instance, Kiernan (1989) used the 1946 British Cohort Study to analyse childlessness among respondents aged 36 years old. This research found that there was no strong association between childlessness and education, and childlessness and occupation. However women who were childless were said to be distinctive from those with children in that they made a lifestyle choice that valued career and leisure activities over having children. Hakim (2003) used data from Family and Fertility Surveys (FFS) in European countries, the 1958 National Child Development Study (NCDS) and the 1970 British Cohort Study (BCS) in Great Britain to investigate the characteristics of childless people across Europe. This study found that the childless were a distinct group in terms of their attitudes and values rather than their socio-economic characteristics, when compared with those with children.

This article uses for the first time an alternative data source, the ONS Longitudinal Study (LS), to explore lifelong childlessness as a research topic in its own right¹. The LS is a sample of approximately 1 per cent of the population of England and Wales and provides a large, nationally representative data source. Data from the LS have been analysed using univariate and multivariate modelling techniques to assess the social, geographical and household characteristics of women who remain childless throughout their life.

Data source

The LS is a dataset of linked census and vital events records for 1 per cent of the population of England and Wales. It includes linked individual records from the 1971, 1981, 1991 and 2001 censuses, together with routine events registrations such as births, deaths and cancer registrations. As it is a linkage study of administrative records, it is not affected by attrition due to non-response or by respondents' memory bias, which survey data may be.

The sample was initiated at the time of the 1971 Census, when all people born on four selected dates in any calendar year were included in the sample. The four dates were used again to update the sample in 1981, 1991 and 2001 and also to add new members between censuses. New members enter the study through birth and immigration and existing members leave through death and emigration. Over more than thirty years of the study, data on approximately 1 million individuals have been collected. This means that the LS has a far larger sample size than any other longitudinal study in England and Wales, thus allowing for more robust statistical inference.

The LS also includes census information for people who are enumerated in the same household as the LS member. This provides the opportunity to investigate the family contexts in which specific fertility behaviours occur. However, the information on people enumerated at the same private address as the LS member is not linked through time, and as such it can be analysed only cross-sectionally.

The LS shares some of the limitations of the census, one of its data sources. For instance, the census information is collected only once every ten years and it mostly relates to people's circumstances at the time. In addition, the LS does not cover opinions, attitudes and intentions. Although the usefulness of fertility intentions as fertility predictors has been questioned (Berrington, 2004), this does mean that in this study it is not possible to distinguish between voluntary and involuntary childlessness².

Methods

This article uses LS data from the 1971, 1981, 1991 and 2001 censuses to investigate the circumstances of women at different key ages and to see how these are associated with their lifelong fertility outcomes. The analysis investigates the extent to which childless women appear to be distinct from women with children in terms of several social and economic characteristics identified both in the qualitative and quantitative literature.

The relationship between socio-economic circumstances and fertility behaviours may be quite complex. For example, childbearing may lead some women to leave the labour force, thus showing how parenthood may impact on employment patterns. At the same time, however, employment may impact on parenthood. For instance, several empirical studies have found that an increase in women's wages is associated with first birth postponement (De Cooman et al 1987, Joshi 2002).

It is beyond the scope of this analysis to investigate cause-effect relationships between the study variables. We concentrate instead on identifying and measuring the association between women's characteristics and childlessness, without debating the direction of this association.

Also, it should be noted that women's fertility outcomes are considered here only from a lifelong perspective. This means that women belong to only one of the two categories, 'childless' or 'mothers', depending on whether they had experienced a live- or stillbirth during their childbearing years by December 2005, and they do not move from the former to the latter group over time. When comparing the characteristics of the two groups of women, readers should also be aware that at any point in time the 'mothers' group will comprise women who are not yet mothers but who subsequently had a live- or stillbirth during their childbearing years.

This analysis compared the characteristics of women who are lifelong childless with those of mothers in order to identify statistically significant differences between the two groups. Following this univariate analysis, multivariate modelling techniques (logistic regression and log-linear models) were applied to identify the key variables that differentiated childless women from mothers.

The analysis was conducted initially on the entire sample of women. Further analysis was then performed on the subgroup of women for whom childlessness occurs within marriage or cohabitation.

Prevalence of childlessness

The sample consists of 12,578 LS female members born in the years 1956–1960 and continuously resident in England and Wales during their entire childbearing age-span; conventionally considered to be between 15 and 45 years old. As only births registered in England and Wales are linked to LS mothers, continuous residence in either of the two countries is required to ensure that fertility outcomes are correctly assigned to each woman. The sample therefore excludes women who entered the country after the age of 15, those who left it before the age of 45, as well as any other woman temporarily absent from England and Wales between these

Table 1 Childless women in the LS and England & Wales by birth cohort⁴

Cohort	Percentage of childless women	
	LS	England and Wales
1956	16.5	16.0
1957	17.0	17.0
1958	18.0	18.0
1959	17.9	18.0
1960	17.8	18.0

Source: ONS Longitudinal Study, FM1 Births Statistics, authors' analysis

two ages, as indicated by their absence at one of the censuses. Also, all women who died before 45 years of age have been excluded from the sample.

A woman is here defined as being childless if she had not had any live- or stillbirth by December 2005. Childlessness is therefore defined from a biological perspective, although a childless woman may actually have acted as a mother to children that she did not bear herself (for example, foster and adoptive parents and women looking after their partner's children). Similarly, a biological mother may not be acting as such from a social perspective (for example, a mother whose child has been adopted by other parents). However, for simplicity of expression, we will from here on refer to the first group as 'childless' and to the second as 'mothers'.

Table 1 compares the percentages of childless women in the LS with published 2005 Birth Statistics for England and Wales³ (ONS, 2006). Overall, 2,194 LS women from the 1956–1960 cohorts had not given birth by the end of 2005. This is around 17 per cent of the sample and is consistent with national estimates. The LS can therefore be considered to be a reliable and representative sample of childless females in England and Wales as a whole.

Characteristics of childless women and mothers

Information on individuals' characteristics including, among others, marital/partnership status, education, economic activity and social class is available in the LS for each census from 1971. This allows investigation of the extent to which sample women who are lifelong childless differ from the mothers group not only at the end of their childbearing age but also throughout their child- and adulthood.

Marital status and partnerships

The LS contains information about the marital status of its members at each census. **Table 2** shows the marital status of the women in the sample in 2001, when they were between 41 and 45 years old, thus approaching the end of their childbearing years.

Table 2 Childless women and mothers in 2005: percentage distribution by marital status in 2001

Marital status	Childless	Mothers	All
Single (never married)*	40.2	5.3	11.4
Married (first marriage)*	35.3	59.9	55.6
Re-married*	8.9	12.8	12.1
Separated but still legally married*	2.2	4.6	4.2
Divorced*	12.6	16.3	15.6
Widowed	0.7	1.1	1.1
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Unsurprisingly, compared to the mothers group, childless women are more often single, with 40.2 per cent never having been married. The remaining majority (59.8 per cent), however, had experienced marriage during their lives. Indeed, around 44.2 per cent of childless women were recorded as married in the 2001 Census (35.3 per cent in a first marriage and 8.9 per cent in a successive marriage). An additional 15.5 per cent, although not married in 2001, had been married previously and then been separated (2.2 per cent), divorced (12.6 per cent) or widowed (0.7 per cent).

Apart from differences in the levels of legal unions, differences in their timing exist between the two groups of women. Marital status distributions at the 1981, 1991 and 2001 censuses (see **Table 3**), show that while the proportion of childless women in a marriage of any order is at its highest in 2001, at 44.2 per cent, the peak in marriages among the women with children is reached in 1991, when 80.2 per cent of this group of women were recorded as married.

Marital status information provides only a partial picture of partnerships, as it does not capture cohabitations. As the LS includes information on those individuals enumerated in the same household as the LS member, it is possible to identify those women cohabiting with a partner, irrespective of their legal marital status. **Table 3** shows the percentages of childless women and mothers who were married or cohabiting at specified ages. These percentages are also reported in the brackets as proportions of all unions in each group of women. In 2001, 12.5 per cent of childless women were cohabiting, thus raising the percentage in a partnership to 56.7 per cent. Cohabitation is relatively more common among childless women than among mothers. The gap between the two groups of women is widest in their early thirties, when 23 per cent of childless women were cohabiting compared to only 7.9 per cent for women with children.

Finally, information on presence of a partner at each of the 1981, 1991 and 2001 censuses was combined to derive a summary indicator for partnerships over women's entire childbearing periods (**Table 4**).

Table 3 Childless women and mothers in 2005: percentage distribution by type of partnership, 1981–2001

	1981 Age 20–25		1991 Age 30–35		2001 Age 40–45	
	Childless	Mothers	Childless	Mothers	Childless	Mothers
Married (any order)	21.1 (85.8)	54.2 (92.5)	40.8 (77.0)	80.2 (92.1)	44.2 (78.0)	72.7 (89.8)
Cohabiting	3.5 (14.2)	4.4 (7.5)	12.2 (23.0)	6.9 (7.9)	12.5 (22.0)	8.3 (10.2)
All unions	24.6 (100)	58.6 (100)	53.0 (100)	87.1 (100)	56.7 (100)	81.0 (100)

Note: Figures in brackets represent the percentage of childless women/mothers who were married or cohabiting (cell percentage) as a percentage of all childless women/mothers in a union (column total percentage).

Source: ONS Longitudinal Study, authors' analysis

Table 4

Childless women and mothers in 2005: percentage distribution by presence of partner, 1981–2001

	Childless	Mothers	All women
In a partnership at each Census*	15.7	42.5	37.9
In a partnership at least at one Census*	52.0	52.9	52.7
Never in a partnership*	32.3	4.6	9.4
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Table 5

Childless women and mothers in 2005: percentage distribution by educational qualification, 2001

Education level	Childless	Mothers	All women
No academic or professional qualifications*	16.8	21.7	20.9
Below degree level	53.4	55.7	55.3
Level 1	24.0	25.0	24.8
Level 2	21.5	24.1	23.7
Level 3	7.9	6.6	6.8
Degree level and above*	26.8	19.2	20.5
Other qualifications/Level unknown	3.0	3.4	3.3
Total	100	100	100

*Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Around 42.5 per cent of mothers were living with a partner (either being married or cohabiting) at all three censuses compared to less than 16 per cent of childless women. Also, only 4.6 per cent of mothers were never enumerated as living with a partner/husband, compared to 32.3 per cent of childless women. Although these figures confirm that not having a partner is associated with childlessness, they also indicate that the large majority of childless women, at least⁵ 68 per cent, had been living with a partner for some time during their childbearing years⁶.

Education

The majority of the women in the sample had some level of educational qualification in 2001 (Table 5), with 20.5 per cent qualified to degree level or above. Although limited, some differences exist between the educational attainment of the mothers group and childless women. Compared to mothers, childless women were statistically significantly more likely to be qualified to degree level or above (26.8 per cent and 19.2 per cent respectively). Also, only 16.8 per cent of childless women did not have any qualifications, compared to 21.7 per cent of mothers.

Economic activity and social class

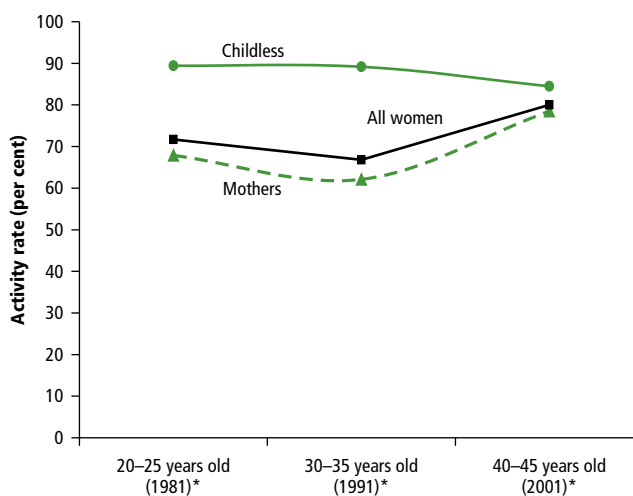
Levels and patterns of labour market participation by gender and age have been extensively researched and are regularly measured⁷. During child-rearing, women's participation in the labour market tends to decrease. In 2003, 68 per cent of women with dependent children were in the labour market compared to 76 per cent of those without children (ONS, Focus on Gender, 2004).

Figure 1 shows levels of economic activity for the sample women at three different census time points. Activity rates are shown for when the cohort is aged 20–25, 30–35 and 40–45.

Levels of economic activity differ between lifelong childless women and mothers. At any age, childless women show a higher participation in the labour market, with economic activity rates as high as 90 per cent. The age patterns of economic activity also differ between the two groups of women. Rates of participation for childless women tend to be quite

Figure 1

Childless women and mothers in 2005: economic activity rates for this cohort 1981–2001



* Difference between childless women and mothers is statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' own analysis

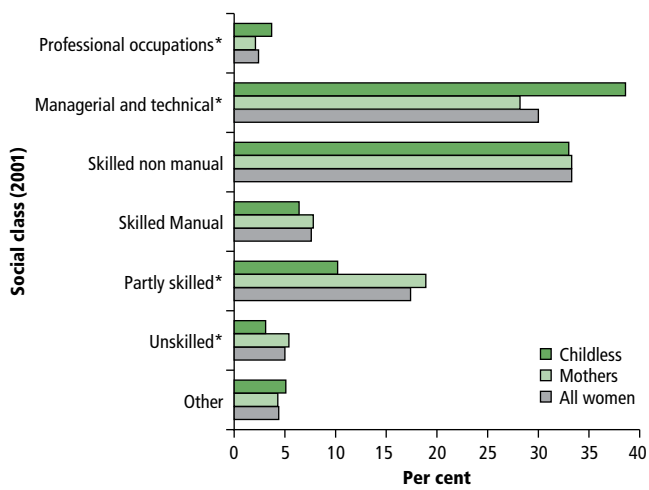
constant over time, with a slight reduction only at the 2001 census, when women were aged between 40 and 45. The lowest level of participation in the labour market is instead reached between ages 30 and 35 for mothers. Economic activity levels then recover over the following 10 years, with almost 80 per cent of women with children being economically active by 2001. At this point in time, the difference between the activity levels of childless women and mothers reduces to 6 percentage points only.

Although levels of economic activity are similar by 2001, Figure 2 indicates that the nature of participation in the labour market is quite different between the two groups.

Compared to mothers, childless women were more often employed in 'Professional' and 'Managerial/technical' occupations. In 2001, when the study cohort was aged between 40 and 45, around 30 per cent of mothers were occupied in 'Professional and 'Managerial/technical' occupations,

Figure 2

Childless women and mothers in 2005: percentage distribution by own social class, Registrar General Social Class classification, 2001



* Difference between childless women and mothers is statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' own analysis

Table 6

Childless women and mothers in 2005: percentage distribution by housing characteristics, 2001

Housing characteristic	Childless	Mothers	All women
Owned outright*	20.6	11.6	13.2
Owned with mortgage*	61.7	68.3	67.2
Social rented*	10.1	14.5	13.4
Rented from Private landlord*	4.8	3.5	3.7
Other	2.2	1.6	2.2
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

compared to around 42 per cent of childless women. At the other end of the scale, around 13 per cent of childless women were in 'Partly skilled' and 'Unskilled' occupations compared to around 24 per cent of mothers.

Our findings suggest that childless women have a slightly higher social and economic status, on average, as compared to the mothers group. This is also reflected in the housing characteristics of the two groups (Table 6). Indeed, in 2001 20.6 per cent of childless women were living in accommodation that was owned outright by the occupier, compared to only 11.6 per cent of mothers. The latter were also more likely to rent their homes from local authorities and housing associations (social rent).

Residence and geographical mobility

Table 7 shows prevalence of childlessness by women's region of residence in 2001.

In 2001, women who were childless at the end of their childbearing years were more likely than mothers to be living in London (12.2 per cent versus 8.1 per cent); mothers were more likely than childless women to be living in Wales and Yorkshire and The Humber. In the other regions, differences between childless women and mothers are not statistically significant.

As the LS contains information on place of residence at each census, it is possible to investigate not only where women were living towards the end of their childbearing age but also where they were living previously. Consequently, we can investigate whether there is any relation between migration patterns and fertility outcomes⁸. Tables 8 and 9 present some figures related to migration patterns in two regions at opposite ends of the childlessness spectrum: London, which had the highest relative presence of childless women; and Wales, with the lowest.

Table 7

Childless women and mothers in 2005: percentage distribution by Government Office Region (GOR) of women's residence in 2001

Region	Childless	Mothers	All women
North East	5.3	5.5	5.4
North West	13.4	13.7	13.7
Yorkshire and Humber*	9.0	10.5	10.2
East Midlands	8.5	8.6	8.6
West Midlands	10.9	10.7	10.8
East of England	9.8	11.3	11.1
London*	12.2	8.1	8.8
South East	16.3	15.9	15.9
South West	9.8	9.8	9.8
Wales*	4.7	5.9	5.7
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Table 8

Childless women and mothers in 2005: percentage distribution by migration patterns, women resident in London in 2001

Previous residence	Childless	Mothers	All
Always resident in the South East Standard region*	70.8	83.8	80.7
Resident outside the South East Standard Region in 1971, 1981 or 1991*	29.2	16.2	19.3
All London residents	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Table 9

Childless women and mothers in 2005: percentage distribution by migration patterns, women resident in Wales in 2001

Previous residence	Childless	Mothers	All women
Always resident in Wales	74.0	80.6	79.7
Resident outside Wales in 1971, 1981 or 1991	26.0	19.4	20.3
All Wales residents	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Geographical analysis using the LS is complicated by changes in the geographical classifications over time. In particular, up to and including the 1991 Census, the Statistical Standard Region (SSR) classification was used while in the 2001 Census the Government Office Region (GOR) classification was introduced. Notably, among other changes, London became a stand-alone GOR region, while previously it was included in the South East SSR.

Almost 30 per cent of childless women resident in London in 2001 had lived outside the SSR either in 1971, 1981 or 1991. In contrast, only 16 per cent of mothers resident in London in 2001 had been previously resident outside the South East. A similar trend, although in this case not statistically significant, can be found for women living in Wales in 2001, where 26 per cent of childless women were in-migrants compared to only 19.4 per cent of mothers. Therefore, this evidence suggests that long distance migration appears to be negatively associated with motherhood.

Ethnicity

Table 10 shows the ethnic groups of childless women and mothers who have been resident in the UK since 1971. The ethnic composition of the childless and the mothers groups are very similar, with the only difference being a significantly higher presence of Asian women among the mothers. However, inferences about the association between childlessness and ethnicity based on this sample should be treated with caution. This is because only 3 per cent of the women in the sample

Table 10

Childless women and mothers in 2005: percentage distribution by ethnic group, 2001

Main ethnic group	Childless	Mothers	All women
White	97.9	97.2	100
Mixed	0.6	0.4	100
Asian*	0.6	1.2	100
Black	0.6	0.9	100
Chinese	0.1	0.1	100
All women	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

belonged to a 'non-white' ethnic group⁹. The small sample size limits the scope of the statistical analysis that can be conducted on the relationship between ethnicity and childbearing outcomes in the sample.

Early life course variables

Variables whose values are typically determined either at birth or during a person's childhood are known as early lifecourse variables. These have been shown to have significant predictive power for identifying which women will be childless in later life (Parr 2005). We have used the LS to investigate the association between motherhood/childlessness and the household and family context in which women lived during their own childhood.

Table 11 indicates that in 1971 when the cohort was aged between 10 and 15, significantly more childless women than mothers had no siblings in their household. This pattern is consistent with that identified by Kiernan (1989) who found that among British women aged 36 years, those who were only children had the highest rate of childlessness.

A relationship also emerges between the socio-economic background of the women in the sample and their later life fertility outcome. Socio-economic background is measured by the social class of the Main Economic Supporter (MES) of the women's family when they were aged between 10 and 15, in 1971. Women whose MES was in a higher social class (for example, Professional, Managerial and Non-manual occupations) tended to be more often childless than women whose MES was in a manual occupation (**Table 12**). However, differences are not statistically significant for all social classes and overall the gradient is not as strong as that associated with the woman's own social class.

Limiting long-term illness

In 2001 and 1991 the census included a question on health, asking all respondents whether they had any long-term illness, health problem or disability which limited their daily activities or the work that they could do. In the absence of more detailed information, this can be used

Table 11

Childless women and mothers in 2005: percentage distribution by presence of sibling in the household in 1971

Presence of sibling (1971)	Childless	Mothers	All women
No sibling present*	14.9	11.4	12.0
Sibling present*	85.1	88.6	88.0
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Table 12

Childless women and mothers in 2005: percentage distribution by social class of LS member's Main Economic Supporter in 1971

Social class of MES	Childless	Mothers	All women
Professional occupations	5.8	4.9	5.1
Managerial and technical*	21.2	17.1	17.8
Skilled non manual	10.9	10.3	10.4
Skilled manual*	37.2	40.0	39.6
Partly skilled*	15.3	17.2	16.9
Unskilled	5.2	6.2	6.0
Other	4.4	4.2	4.3
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Table 13

Childless women and mothers in 2005: percentage distribution by Limiting Long Term Illness in 2001

Health	Childless	Mothers	All women
Has a limiting long term illness*	17.1	11.7	12.7
Does not have a limiting long term illness*	82.9	88.3	87.3
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

as a proxy for the health status of respondents. As shown in **Table 13**, in 2001, a higher proportion of childless women (17.1 per cent) than women with children (11.7 per cent) had a limiting long-term illness. These figures suggest a relationship between women's health and their fertility outcomes, although the data available in the LS does not allow investigation of its direction.

Logistic regression

The univariate analysis presented so far does not allow the identification and measurement of the interrelationship between the different variables associated with childlessness. For example, the observed association between the social class of a woman's family of origin and her being childless may actually be a spurious relationship. In fact, her family's social class may actually be associated only (or mainly) with her own social class and this may be one factor directly related to her fertility outcome. Similarly, the effect of education on fertility outcomes may be mediated by economic activity and social class and so on. In order to identify the net effects of each variable on childlessness it is necessary to use multivariate modelling techniques.

Logistic regression was used to model the probability of lifetime childlessness based on a number of women's individual characteristics.

Those variables analysed at the univariate level were entered in the regression and retained when their contribution to the model was statistically significant at the 0.05 level. A new variable, living arrangement, was created by combining information on legal marital status and presence of a partner in the LS member's household.

The model's coefficients are reported in **Table 14**. A positive value for a beta coefficient, or alternatively a value greater than 1 for the odds ratio, indicates that the variable/category has a positive association with being childless and negative otherwise. Categories in italics are not statistically significant at the 0.05 level.

Regression results confirmed some of the results of the univariate analysis while allowing for a better understanding of some of the relationships between the different variables.

Living arrangements are, as expected, strongly associated with childlessness (rows 1–15, Table 14). Women who are single, in the sense of never married, are consistently more likely to be lifetime childless, even when cohabiting with a partner (rows 2–3, 7–8, 12–13, Table 14). Also women who had experienced the dissolution of a marriage (divorced or widowed) are less likely to become mothers, even if remarried (rows 14–15, Table 14).

Living arrangements at different ages impact differently on lifetime childlessness. Women who were cohabiting with a partner in their early thirties are more likely to be lifetime childless than those who were cohabiting at any other age.

Economic activity coefficients reflect the relationships identified in the previous descriptive analysis, with participation in the labour market

Table 14

Logistic regression model for probability of lifetime childlessness, all women

ID	Variable	Beta coefficient	Standard error	Odds ratio
1	Living arrangements 1981 Baseline: Married			
2	Single	0.88	0.07	2.42
3	Single but living with a partner	0.38	0.16	1.46
4	<i>Re-married</i>	<i>0.44</i>	<i>0.32</i>	<i>1.55</i>
5	<i>Divorced, widowed</i>	<i>0.04</i>	<i>0.23</i>	<i>1.04</i>
6	Living arrangements 1991 Baseline: married			
7	Single	1.25	0.11	3.49
8	Single but living with a partner	0.80	0.12	2.23
9	<i>Re-married</i>	<i>0.17</i>	<i>0.15</i>	<i>1.19</i>
10	<i>Divorced, widowed</i>	<i>0.52</i>	<i>0.11</i>	<i>1.69</i>
11	Living arrangements 2001 Baseline: married			
12	Single	1.61	0.12	5.00
13	Single but living with a partner	0.60	0.14	1.81
14	<i>Re-married</i>	<i>0.26</i>	<i>0.12</i>	<i>1.30</i>
15	<i>Divorced, widowed</i>	<i>0.29</i>	<i>0.09</i>	<i>1.33</i>
16	Economic activity 1991 Baseline: Economic Inactive			
17	Unemployed	1.71	0.16	5.52
18	Self-employed	1.22	0.17	3.37
19	Employed	1.72	0.10	5.58
20	Economic Activity 2001			
21	Unemployed	0.69	0.2	1.99
22	Self-employed	0.40	0.14	1.49
23	Employed	0.55	0.09	1.73
24	Social Class 1991 Baseline – Unskilled			
25	I – Professional	1.38	0.25	3.97
26	II – Intermediate	1.32	0.19	3.75
27	IIIN – Skilled Non Manual	1.15	0.18	3.16
28	IIIM – Skilled Manual	1.18	0.21	3.25
29	IV – Partly Skilled	0.61	0.20	1.84
30	Other	0.76	0.22	2.13
31	Ethnicity 2001 Baseline: White			
32	<i>Mixed</i>	<i>0.06</i>	<i>0.40</i>	<i>1.07</i>
33	<i>Asian</i>	<i>-0.63</i>	<i>0.41</i>	<i>0.53</i>
34	<i>Black</i>	<i>-1.81</i>	<i>0.35</i>	<i>0.16</i>
35	<i>Chinese</i>	<i>0.37</i>	<i>0.95</i>	<i>1.45</i>
36	Has a Limiting Long Term Illness 1991	1.46	0.13	4.31
37	Has a Limiting Long Term Illness 2001	0.55	0.09	1.74
38	Does not have siblings 1971	0.33	0.08	1.40
39	Constant	-5.78	0.22	0

Italic lines indicate non-significant coefficients at the 0.05 level.

Source: ONS Longitudinal Study, Authors' analysis

being associated with childlessness. The higher coefficients observed in 1991 compared with 2001 are a reflection of mothers returning to work after childbearing and child-rearing (see rows 16–23 in Table 14). The 1991 social class gradient is confirmed, too, showing how women from higher social classes are more likely to be childless (see rows 24–30, Table 14). However, the variable social class in 1981 and 2001 was not statistically significant once social class in 1991 was taken into account. This is likely to be explained by the fact that the majority of individuals experience only limited social class mobility over time. This means that the social class variables are highly correlated over time.

The relationship between health and childlessness is also confirmed, with childless women relatively more likely to have a limiting long-term illness (rows 36–37, Table 14). This association is particularly strong for

1991, when the sample group were in their early thirties, the middle of their reproductive timespan.

Once social class is taken into account, many of the ethnic differences in fertility outcomes disappear (rows 31–35, Table 14). Black women are the only group to appear significantly less likely to be childless when compared to the White reference group.

The relationship between family background and childlessness, which was identified earlier, is reduced to some extent after controlling for other variables (row 38, Table 14). Although not having siblings still appears to increase the likelihood of being childless later in life, the association between the family-of-origin's social class and childlessness disappears.

Finally, geographical residence and mobility are excluded from the model as they are not statistically significant. This suggests that most of the differences in fertility outcomes between different regions of England and Wales are related to geographical differentials in economic activity, social class and partnership formation and dissolution.

Characteristics of women's partners

Individual characteristics of women play an important role in whether or not they remain childless. For example, the single highest coefficient in the model described in section 5.8 was the women's economic activity variable in 1991 (row 19 in Table 14). The analysis has also shown that one of the main factors associated with childlessness is the lack of a partner. For instance, the odds of being childless for never married women not living with a partner at the 2001 Census point are five times those of women who were married at that census. However, various studies have pointed out that present-day childlessness is occurring more frequently within marriage and cohabitation (Coleman, 1996; Hakim, 2005). The analysis in section 5.1 also stated that at least 68 per cent of childless women had cohabited with a partner at some time during their childbearing years.

We therefore focused on investigating childlessness among the subgroup of women who were married or cohabiting. In particular, we were interested in measuring the extent to which the partners of childless women were distinctive from the partners of those who had become mothers by 2005. This allowed us to measure the impact of a partner's characteristics on a woman's fertility outcomes.

We analysed women in a partnership in 1991, when they were in their early- to mid- thirties. In the LS, partners are not linked through time so only cross-sectional analysis is possible here¹⁰. The 1991 Census was chosen for several reasons. Firstly, results from the previous logistic regression analysis suggested that women's socio-economic circumstances in 1991 were more strongly linked with their fertility outcomes than their circumstances in 1981. Secondly, log-linear models were used to measure the association between having a partner at each of the three censuses and being childless (see Table A1 in the Appendix) and this analysis showed that not having a partner in 1981 or 1991 had a stronger effect on childlessness than not having a partner in 2001. Finally, more women were enumerated as living with a partner in 1991 (9,786) compared with 1981 (6,154) and 2001 (9,345) and, as such, we were able to analyse a larger sample of partners in 1991. Around 50 per cent of the childless group (1,101 women) and 84 per cent of the mother group (8,685 women) had a partner in 1991.

Marital status

Marital status data for both women and their partners can be used to explore in more detail the characteristics of these unions (Table 15). Couples in a traditional first marriage (for both partners) accounted for around 74 per cent of the mothers group but only 53 per cent of the childless group. Childless women and their partners were also more

Table 15

Childless women and mothers in 2005: percentage distribution by marital status of couples, 1991

Woman	Partner	Childless	Mothers	All women
1 Married*	Married	52.6	73.9	71.5
2 Married*	Re-married	12.8	7.4	8.0
3 Single*	Single	10.9	2.8	3.7
4 Single *	Divorced	5.7	1.2	1.7
5 Re-married	Married	4.5	5.8	5.7
6 Re-married	Re-married	4.9	4.1	4.2
7 Divorced	Single	2.2	1.7	1.7
8 Divorced	Divorced	2.5	1.9	1.9
9 Other		3.9	1.2	1.6
10 All couples		100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

often single (that is, never married) than the mothers and their partners (11 per cent and 3 per cent respectively).

Around 25.9 per cent of childless women were either in a marital (including remarried) or cohabiting relationship with a partner who had experienced a previous relationship-breakdown and was now remarried or still divorced (rows 2, 4, 6, 8, Table 15). For women with children this figure is only 14.6 per cent.

Age

Some qualitative research has suggested that in the childless group, women tend more often to have older partners, sometimes up to ten years older (McAllister and Clarke, 1998). Our analysis confirmed this result, as shown in Table 16. Around 37.3 per cent of mothers, but only 27.8 per cent of childless women, were approximately the same age as their partners; that is, they are up to one year younger or older than their partners. Compared to the mothers group, significantly wider age gaps existed between childless women and their partners. Indeed, around 27.4 per cent of childless women had partners who were more than five years older than them. This was the case for only 16.3 per cent of mothers. Childless women also had younger partners, with 4.8 per cent having a partner who was more than five years younger than them, compared with 2.7 per cent of mothers.

Education and social class

Some authors suggest that childlessness is more common among couples who have very similar educational and occupational levels, and thus there is little or no differentiation of roles, interests and activities within their relationship (for example, Hakim, 2003). We therefore tested the association between childlessness and educational/occupational homogamy in our sample.

Table 16

Childless women and mothers in 2005: percentage distribution by age gap between partners, 1991

Age gap	Childless	Mothers	All women
Woman's partner more than 5 years younger*	4.8	2.7	3.0
Woman's partner between 5 and 2 years younger	13.4	12.3	12.4
Woman's partner between one year younger and 1 year older*	27.8	37.3	36.2
Woman's partner between 2 and 5 years older*	26.6	31.4	30.9
Woman's partner between 6 and 10 years older*	16.6	12.0	12.5
Woman's partner more than 10 years older*	10.8	4.3	5.1
All couples	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Table 17

Childless women and mothers in 2005: percentage distribution by couples' educational attainment, 1991

Woman	Partner	Childless	Mothers	All women
Degree*	Degree	7.2	5.0	5.2
Degree	Sub-degree	1.3	0.8	0.8
Degree*	No qualification	4.7	2.1	2.4
Sub-degree	Sub-degree	1.6	1.2	1.2
Sub-degree	Degree	1.9	2.2	2.1
Sub-degree*	No qualification	6.8	5.2	5.4
No qualification	Degree	4.7	5.1	5.1
No qualification	Sub-degree	5.8	5.1	5.2
No qualification*	No-qualification	65.9	73.3	72.5
Woman more educated than partner		12.8	8.1	8.6
Same educational level		74.7	79.5	79
Same educational level (excluding no qualifications)		8.8	6.2	6.4
Woman less educated than partner		12.4	12.4	12.4
All couples		100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Analysis of educational homogamy was limited by the small amount of detail on educational qualifications collected at the time of the 1991 Census¹¹. The education variable available within the LS makes a distinction between only three levels of education: individuals with a degree (or higher), individuals with some qualification attained after age 18 but lower than a degree, and people without any educational qualification attained after age 18.

Childlessness appears more frequent when women are more highly educated than their partners. Almost 13 per cent of childless women were better educated than their partners, compared to only around 8 per cent of mothers (Table 17). We found limited evidence to support the hypothesis that educational homogamy is associated with childlessness. Childless women actually present lower levels of educational homogamy compared with the mothers (74.7 per cent versus 79.5 per cent). However, this result was largely driven by couples where both partners had not attained any qualification after age 18. The 'No qualification' group is itself extremely heterogeneous, comprising both people who left school with and without educational qualifications. Where both partners have 'No qualifications' after age 18 they may in fact have different educational levels and, as such, it is more appropriate to exclude them from the 'Same educational level' category. By doing so, couples with the same educational level are, indeed, more common among childless women (8.8 per cent) than among mothers (6.2 per cent).

In addition, there is evidence of an association between occupational homogamy and childlessness (Table 18). Statistically significantly more childless women belonged to the same social class as their partner

Table 18

Childless women and mothers in 2005: percentage distribution by couples' social class, 1991

	Childless	Mothers	All women
Same social class*	30.5	25.2	25.8
Partner lower social class*	39.0	34.1	34.7
Partner higher social class	30.6	40.8	39.5
Total	100	100	100

* Difference between childless women and mothers statistically significant at the 0.05 level.
Source: ONS Longitudinal Study, authors' analysis

Table 19

Logistic regression model for probability of lifetime childlessness, women with a partner 1991

ID	Variable	Beta coefficient	Standard error	Odds ratio
1	Age gap between partners Baseline: Woman's partner between one year younger and 1 year older			
2	Woman's partner more than 5 years younger	0.431	0.190	1.54
3	<i>Woman's partner between 5 and 2 years younger</i>	<i>0.097</i>	<i>0.117</i>	<i>1.10</i>
4	<i>Woman's partner between 2 and 5 years older</i>	<i>0.159</i>	<i>0.091</i>	<i>1.17</i>
5	Woman's partner between 6 and 10 years older	0.524	0.116	1.69
6	Woman's partner more than 10 years older	0.856	0.154	2.35
7	Living arrangements 1991 Baseline: LS member and partner in their first marriage			
8	LS member married, partner re-married	0.400	0.123	1.49
9	LS member single, partner single	0.822	0.170	2.28
10	LS member single, partner divorced/widower	1.031	0.203	2.80
11	<i>LS member remarried, partner married</i>	<i>0.232</i>	<i>0.199</i>	<i>1.26</i>
12	<i>LS member remarried, partner remarried</i>	<i>0.376</i>	<i>0.203</i>	<i>1.46</i>
13	LS member divorced/widow, partner single	0.623	0.256	1.86
14	LS member divorced/widow, partner divorced/widower	0.529	0.229	1.70
15	Living arrangements 1981 Baseline: married			
16	Single	0.805	0.083	2.24
17	Single but living with a partner	0.411	0.191	1.51
18	<i>Re-married</i>	<i>0.592</i>	<i>0.329</i>	<i>1.81</i>
19	<i>Divorced, widowed</i>	<i>-0.002</i>	<i>0.297</i>	<i>1.00</i>
20	Living arrangements 2001 Baseline: married			
21	Single	1.016	0.282	2.76
22	Single but living with a partner	0.547	0.211	1.73
23	<i>Re-married</i>	<i>0.048</i>	<i>0.151</i>	<i>1.05</i>
24	<i>Divorced, widowed</i>	<i>0.155</i>	<i>0.101</i>	<i>1.17</i>
25	Economic activity 1991 Baseline: Economic Inactive			
26	Unemployed	1.252	0.244	3.50
27	Self-employed	0.955	0.200	2.60
28	Employed	1.573	0.116	4.82
29	Economic activity 2001 Baseline: Economic Inactive			
30	<i>Unemployed</i>	<i>0.348</i>	<i>0.276</i>	<i>1.42</i>
31	<i>Self-employed</i>	<i>0.185</i>	<i>0.173</i>	<i>1.20</i>
32	Employed	0.310	0.109	1.36
33	Social Class 1991 Baseline – Unskilled			
34	I – Professional	1.625	0.322	5.08
35	II – Intermediate	1.427	0.255	4.17
36	IIIN – Skilled Non Manual	1.272	0.253	3.57
37	IIIM – Skilled Manual	1.221	0.285	3.39
38	IV – Partly Skilled	0.702	0.268	2.02
39	Other	0.828	0.312	2.29
40	Has a LLTI 1991	1.197	0.166	3.31
41	Has a LLTI 2001	0.561	0.115	1.75
42	Does not have siblings 1971	0.199	0.100	1.22
43	Constant	-5.717	0.293	0.00

Italic lines indicate non-significant coefficients at the 0.05 level.
Source: ONS Longitudinal Study, Authors' analysis

compared to the mother group (30.5 per cent versus 25.2 per cent)¹². However, compared with mothers, more childless women are in a higher social class than their partner (39.0 per cent), while more mothers are in a lower social class than their partner (40.8 per cent)¹³.

Logistic regression

Partners' marital status, age, education and social class were included in the logistic model identified in section 5.8 and the analysis was re-run using only those women in a partnership in 1991. The model's coefficients are reported in **Table 19**.

The 1991 living arrangement variable was modified to reflect the exclusion of women without a partner from the analysis. The new living arrangements variable included a more detailed breakdown of the couple's marital status (see Table 19, rows 7–14).

The logistic regression model confirms many of the results of the univariate analysis on partners' characteristics. Women who have a partner more than five years older than themselves are more likely to be childless. Among women with partners over ten years older, the odds of being childless are more than twice that for women who have a partner of the same age. A smaller, although still statistically significant, coefficient is also found when women are more than five years older than their partner (rows 1–6, Table 19).

Looking at marital status, women in marriages that were not first marriages for both partners were more likely to be childless (rows 7–14, Table 19). The odds were particularly high for those couples where at least one partner was single (never married), with the highest likelihood of childlessness recorded for those single women living with a divorced/widowed partner followed by couples where both partners were single.

Once a couple's marital status was included, the partner's social class was excluded from the model as it was not statistically significant. This suggests the presence of social class differentials in partnership formation and dissolution.

Conclusions

This article has investigated the extent to which women's lifelong childlessness is associated with their own socio-economic and other individual characteristics and, where applicable, with the socio-economic characteristics of their partners. The analysis concentrated on a cohort of women born between 1956 and 1961, for which complete fertility histories are now available in the LS.

Quantitative research on childlessness in the UK has previously relied mainly upon the Birth Cohort Studies (BCS). This is the first analysis using the LS to investigate childlessness as a stand-alone topic. Compared to the BCS, the LS does not contain such a wide range of topics, as it is limited to variables collected at census and at registration. However, the BCS covers only selected birth cohorts while the LS is representative of all birth cohorts thus allowing for more detailed analysis of changes in fertility behaviours over time¹⁴. This analysis can therefore be extended to younger cohorts when the data becomes available. Indeed, it may be interesting to investigate whether the observed socio-economic differentials in childlessness remain similar for more recently born cohorts.

Using the LS, we have been able to produce robust statistical results as the LS is a large-scale nationally representative sample of women and their partners resident in England and Wales. Consequently, we have been able to test some of the hypotheses that have been suggested elsewhere in the literature on a larger sample than has previously been possible. As partnership rates are lower in the childless group, other studies had been limited by small sample sizes when analysing women's partners (Hakim, 2005).

The longitudinal nature of the LS has also allowed us to analyse a wide range of both common and underused variables in relation to childlessness, such as women's socio-economic characteristics at different points in time, including early life-course variables. We have

provided insight into some of the drivers behind childlessness, and explored in detail who childless women are and how their profile differs from those of women who bear children.

A summary of the main results from the univariate and multivariate logistic regression models shows that, as has been previously suggested by Berrington (2004), the lack of a partner still appears to be one of the main factors associated with childlessness. Single women are the most likely to be childless while married women are least likely to be childless. However, the majority of women who were childless in this sample still lived with a partner, either being married or cohabiting, at some point in time during the course of the study (68 per cent). We also found that cohabiting women are less likely than married women to be mothers.

Irrespective of their partnership status, women's own socio-economic characteristics, including economic activity and social class, are significantly associated with childlessness. Where applicable, partners' characteristics, including age and marital status, are also linked to women's childlessness.

However, the models and results presented here do not explain all variation in fertility outcomes between women. To have a greater understanding of why some women remain childless, readers should also refer to the wealth of in-depth analysis that takes account of intentions, opinions, attitudes and values; these topics are not covered in the LS data (see, for example, Fisher (1991), Lisle (1996), McAllister and Clarke (1998)).

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Appendix

Parameter	Reference	Estimate	P-value
P01*Cls	No partner 2001, Childless	0.075	<0.0001
P91*Cls	No partner 1991, Childless	0.233	<0.0001
P81*Cls	No partner 1981, Childless	0.370	<0.0001
P01	No partner 2001	-0.389	<0.0001
P91	No partner 1991	-0.379	<0.0001
P81	No partner 1981	0.322	<0.0001
Cls	Childless	-0.772	<0.0001
P01*P91	No partner 2001, No partner 1991	0.513	<0.0001
P01*P81	No partner 2001, No partner 1981	0.076	<0.0001
P91*P81	No partner 1991, No partner 1981	0.261	<0.0001
P81*P91*P01	No partner 1981, No partner 1991, No partner 2001	0.073	0.0001
P81*P91*Cls	No partner 1981, No partner 1991, Childless	0.121	<0.0001
P81*P01*Cls	No partner 1981, No partner 2001, Childless	0.083	<0.0001
P91*P01*Cls	No partner 1991, No partner 2001, Childless	0.016	0.392
P81*P91*P01*Cls	No partner 1981, No partner 1991, No partner 2001, Childless	0.057	0.003

Note: **Bold** font highlights the parameters for main association between partner's absence and childlessness

Source: ONS Longitudinal Study, authors' own analysis

Notes

- As part of a study on the retention of highly qualified women scientists in science-based employment in England and Wales, Blackwell and Glover (2007) used the LS to show that women who stay in science-based employment have higher rates of non-motherhood than other types of graduate.
- Involuntary childlessness mainly refers to those individuals who experience fertility problems. The United Nations World Fertility Survey reported that between 2 and 3 per cent of women aged 25–50 are infertile (Vaessen 1984).
- England and Wales statistics are derived from ONS published figures of average first births per woman estimated using the true birth order process. See FM1 Birth Statistics, table 10.3 and section 2.9.
- Both LS and England and Wales figures refer to births up to December 2005. Women who have not had any live- or stillbirth are classified as childless in the LS, while England and Wales figures take into account only live births. England and Wales figures are rounded whereas figures from the LS are not rounded.
- As the LS only includes information on partnership status of its members at census, this figure underestimates the real number of women living with a partner/husband during the entire 1981–2001 period. Indeed, unions which started and ended between two consecutive censuses are missed.
- LS members' partners are not linked through time. Therefore it is not possible to say whether a woman is living with the same or a different partner at different censuses.
- The Office for National Statistics (ONS) regularly publishes labour market statistics by age and gender, see *Labour Market Trends* (up to 2006) and *Economic and Labour Market Review* (2006 onwards)
- The LS captures only migration from one census to the next, that is, over a ten year period.
- The sample excludes all immigrants in the UK, unless they immigrated during childhood. See section 4
- See note 5
- The 1991 Census only asked respondents to list their qualifications attained after the age of 18. Any qualification attained before that age (that is, GCSE or A-level equivalent) would not be listed.
- These percentages are based on those couple where both partners had a social class value. Only 3 per cent of partners are economically inactive
- Note that women with missing social class have been excluded from this part of the analysis.
- Given that this study focuses on lifelong fertility outcomes, it focuses on a five year birth cohort from the LS.

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Footnote

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Estimating the cohabiting population

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Introduction

Population estimates by legal marital status are produced annually for England and Wales¹. Cohabitation population estimates are produced less frequently (cohabitation here refers to de facto marital status for opposite-sex co-residential cohabiting adults aged 16 and over)², and the last set of cohabitation estimates were produced for mid-2003³. Before that, estimates were produced for mid-1996 and mid-1992⁴.

One of the main uses for cohabitation estimates is to help prepare projections of the population by marital status (in this case, the 2006-based marital status projections). These include projections of the population that will be cohabiting in the future. Estimates of the cohabiting population are required by many users (such as government departments and academics) to understand existing population characteristics and explore how these characteristics change over time.

This article describes the mid-2007 cohabitation estimates, beginning with the methodology, which has been updated since the last cohabitation estimates were prepared. The availability of new APS (Annual Population Survey) household data provides a more robust sample than was previously available to check and adjust the estimates⁵. The second section of this article explores the results, including a comparison with previous estimates. Possible interpretations are discussed, as well as the implications for projections of the cohabiting population.

Variables and data sources

Cohabitation estimates seek to expand the categories available for legal (*de jure*) marital status to include cohabitation. Legal marital status typically includes the following categories:

This article summarises mid-2007 cohabitation estimates produced for England and Wales and compares these with estimates made for previous years. Over the last fifteen years there has been a rise in the number of cohabiting adults in England and Wales. Previous estimates indicate that there were 2.7 million cohabiting adults in 1992 (6 per cent of the population over 16-years-old). In 2007 it is estimated that the number of cohabiting adults had increased to 4.5 million (10 per cent of the population over 16-years-old). Cohabitation trends provide evidence to suggest that cohabitation will continue to rise for never married adults (and therefore overall), particularly at older ages. There is also evidence suggesting an end to historic increases in cohabitation levels for never married adults under 30-years-old.

Box one

Summary of the method

The method used here is based upon that used to create the mid-2003 cohabitation estimates¹. Estimates of the number of people cohabiting are derived from the most robust survey data available. In order to ensure consistency between the cohabitation estimates and other population estimates, there are a number of stages in the method. These are:

- (A) Estimate the total population cohabiting and not cohabiting by sex
- (B) Allocate the total populations to legal marital status categories
- (C) Adjust the estimates to satisfy four constraints:
 1. the number of men cohabiting equals the number of women cohabiting
 2. the number of men and women cohabiting plus those not cohabiting equals the number of men and women in the population
 3. the number of men and women by de facto marital status must be consistent with the legal marital status population estimates by sex
 4. the number of separated (but still legally married) men equals the number of separated (but still legally married) women
- (D) Allocate the estimates to single years of age
- (E) Divide the married population into the categories of: married (and living with spouse), and separated (living apart from spouse, but still legally married).

- single (never married)
- married (and living with spouse)
- separated (living apart from spouse, but still legally married)⁶
- divorced
- widowed

Cohabitation estimates expand these categories to include people’s actual living status (whether or not they are co-residentially cohabiting). In simple terms, a person (in each legal status) can be categorised as either cohabiting or not. For example, some people will be divorced and cohabiting, and some will be divorced and not cohabiting. The same is true for all categories except that, unless he or she is separated, a married person cannot be married and cohabiting.

This research uses three nationally representative surveys: the GHS (General Household Survey), the LFS (Labour Force Survey) and the APS (Annual Population Survey)⁷. In addition, the 2001 Census is used to assist the allocation of estimates to single years of age. All of these sources provide estimates of the cohabiting population under the detailed marital status categories described above. Each source varies according to its coverage and timeliness. However, by combining the best qualities of each data source, it is possible to create cohabitation estimates for 2007 by sex and single year of age (in respect of opposite-sex co-residential cohabiting adults aged 16 and over)⁸. Finally, in order to produce estimates of the population not-cohabiting (and ensure consistency with official estimates of the population by legal marital status), the method uses the recently published revised mid-2007 population estimates by legal marital status. These revised marital status estimates have been adjusted to account for the effects of marriages abroad and non-resident marriages⁹.

Estimating the total cohabiting population

In addition to the surveys used for previous cohabitation estimates (GHS and LFS), there is a new data source available. The APS household dataset has the largest sample size of any nationally representative survey that is suitable for making cohabitation estimates. In addition, whereas LFS household data are only available for two quarters of the year, APS data are available for the annual period January to December. This makes the APS a more appropriate source for mid-year population estimates than the LFS. Previous methods used GHS and LFS data to estimate the total cohabiting population. For the mid-2007 estimates, it was decided to use the APS as well. The 2001 Census was not used for this stage of the analysis because it is not as timely as the other sources.

In previous methods, the first stage was to decide the lowest level of detail where there was good agreement between data sources for the numbers of men and women who were cohabiting. The same investigation was carried out here, looking at the following levels of detail:

- (i) by sex
- (ii) by sex and marital status
- (iii) by sex, marital status and five-year age groups

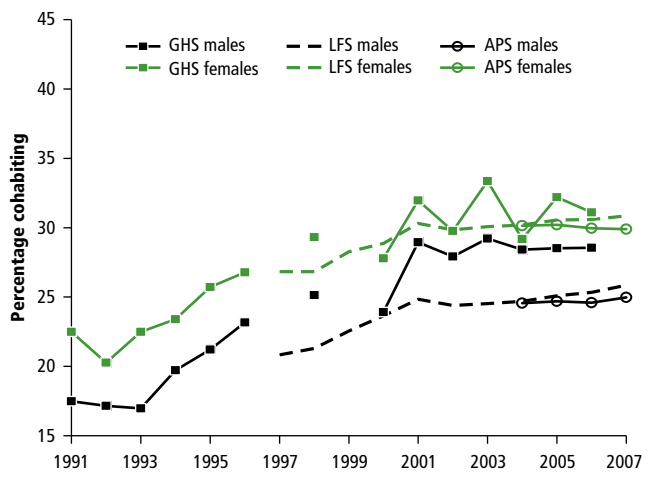
As with previous investigations, it was found that there was only good agreement between sources at the first level (i) by sex. Estimates of the number of cohabiting women are shown in **Table 1**. There is good agreement between sources at the overall level for 2007, with 2.29 million cohabiting couples according to LFS, 2.24 million according to APS, and 2.20 million according to GHS. However, after disaggregating these figures by marital status, the difference between sources becomes larger. This is particularly true for the marital statuses with smaller populations (where the sample size is also smaller). Survey estimates by

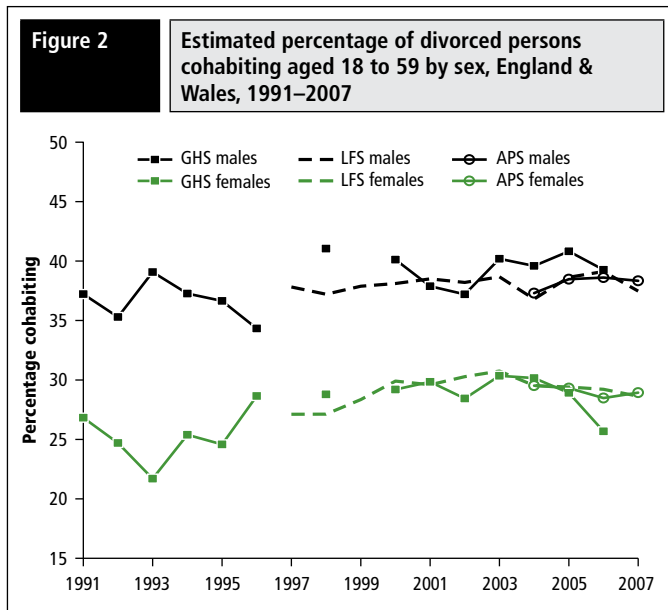
Table 1 Survey estimates of the cohabiting¹ female² population aged 16 and over, England and Wales, thousands

	LFS	APS	GHS
2006	2,212	2,199	2,168
2007	2,288	2,238	2,203

1 Excluding same-sex cohabitation
 2 The estimated male population is the same for all years and sources
 Source: LFS, APS, GHS

Figure 1 Estimated percentage of never married persons cohabiting aged 18 to 59 by sex, England & Wales, 1991–2007





sex, marital status and five-year age groups show even larger differences (between sources).

Figure 1 shows cohabitation estimates from the survey sources for never married adults (aged 18 to 59). Figure 2 shows the equivalent for divorced adults. Not only do these charts show the variation between sources by marital status, but they also indicate that in recent years the proportion of never married adults that are cohabiting has increased, whereas the proportion of divorced adults that are cohabiting exhibits a broadly stable trend (despite fluctuations between years). For the other marital status categories (separated and widowed), trends in the proportion cohabiting are also broadly stable over time (i.e. similar to those shown for the divorced in Figure 2)¹⁰. For this reason, in addition

to the fact that the majority of cohabitants are never married, there was an increased focus on the never married population when exploring the mid-2007 results and comparing with previous years (see the analysis later in this article).

Considering the survey estimates (shown in Table 1), it was decided to use an estimate of 4.5 million for the number of cohabiting adults in England and Wales in 2007 (2.25 million men and 2.25 million women). This figure is close to the average (mean) of all three sources (4.49 million adults). It is rounded to avoid giving the impression that it is based on an exact count, and because survey estimates are subject to a margin of uncertainty.

Allocating the total population to marital status categories

The next stage of the method is to allocate the total cohabiting population into marital status categories. That is, to disaggregate the total number of cohabiting men and women into the four categories of: single, separated, widowed and divorced. The totals are allocated using an average of GHS and APS data (similar to previous methods)¹¹. From this point onwards, it was decided to use the APS instead of the LFS in order to avoid issues relating to any overlap between APS and LFS¹². Taking an average of GHS and APS is seen as appropriate given the difference between sources (although the results were similar enough not to raise any overall concern). The results of the allocation produced initial estimates of the cohabiting population by marital status. These results were then used to create initial estimates of the population not cohabiting by marital status. All initial estimates are shown in Table 2.

Adjusting the estimates to satisfy constraints

Comparing the initial estimates with the published 2007 legal marital status estimates shows a discrepancy between the total population by sex and marital status. The results are therefore adjusted so that this is

Table 2 Initial and constrained 2007 estimates for males and females in England and Wales (thousands)

	Age	Males					Total Males
		Single	Married	Separated	Divorced	Widowed	
Cohabiting							
Initial estimates	16+	1,672	-	68	473	37	2,250
Constrained estimates	16+	1,619	-	68	531	32	2,250
Not cohabiting							
Initial estimates	16+	5,959	11,108	352	953	716	19,088
Constrained estimates	16+	6,430	10,392	391	1,192	683	19,088
Total							
Initial estimates	16+	7,631	11,108	420	1,426	754	21,338
Constrained estimates	16+	8,049	10,392	459	1,723	715	21,338
	Age	Females					Total Females
		Single	Married	Separated	Divorced	Widowed	
Cohabiting							
Initial estimates	16+	1,669	-	60	467	53	2,250
Constrained estimates	16+	1,672	-	45	481	53	2,250
Not cohabiting							
Initial estimates	16+	4,755	11,112	513	1,610	2,280	20,271
Constrained estimates	16+	5,200	10,392	414	1,808	2,457	20,271
Total							
Initial estimates	16+	6,424	11,112	573	2,078	2,334	22,521
Constrained estimates	16+	6,872	10,392	459	2,289	2,510	22,521

no longer the case¹³. A second adjustment is made to ensure that the number of separated (but still legally married) men equals the number of separated (but still legally married) women¹⁴. These adjustments result in constrained estimates of the population cohabiting and not cohabiting by marital status and sex. These estimates are given alongside the initial estimates in Table 2.

Allocating the estimates to single years of age

In order to arrive at cohabitation estimates by single year of age, the final estimates are first allocated to five-year age groups. This is done using APS proportions and checked using GHS¹⁵. There is close agreement between GHS and the allocated final estimates (apart from age groups where the GHS sample size becomes very small). To allocate the estimates from five-year age groups to single years of age, a Beers interpolation method is used along with 2001 Census data (the most accurate data available by single years of age)¹⁶. The method ensures that the five-year age group totals are preserved, and gives final estimates for the cohabiting population by sex, marital status, and single year of age.

These final cohabitation estimates are then used to derive the corresponding number of people not cohabiting. The numbers cohabiting are subtracted from the total marital status population in each age group using the 2007 legal marital status estimates (adjusted for marriages abroad – see *Variables and data sources*)¹⁷.

The separated population

Legal marital status estimates do not distinguish the separated population (which is included in the total married population). To account for this, both the separated cohabiting and non-cohabiting populations for single years of age are calculated using the (Beers interpolation) method mentioned above¹⁸. By subtracting these from the total married population, as given by the legal marital status estimates, an estimate is derived of the number of ‘married and living with spouse’ men and women by single year of age. As such, the legally married population (by sex and age) is allocated to one of three statuses: married and living with spouse, separated and cohabiting, or separated and not-cohabiting.

Results

Having followed the methodology described above, final 2007 estimates of de facto partnership status are available by single year of age and sex.

In order to check their accuracy they are then quality assured, and one of these quality checks includes a comparison with estimates for previous years¹⁹. For reasons mentioned previously, and because they represent the majority of cohabiting adults, quality checks focused largely on the never married. **Figure 3** shows a comparison of the number of single (never married) men and women cohabiting in each year for which estimates exist (by single year of age). **Figure 4** shows a similar comparison for the proportion of never married women that are cohabiting.

It is clear that both the number and proportion of never married adults that are cohabiting has increased between 1992 and 2007. However, when comparing 2003 and 2007, the largest increases in the proportion of never married adults cohabiting have been for those aged over 30. This shows that increases in the number of cohabiting never married adults under 30-years-old are driven by increases in the total never married population (cohabiting and not cohabiting). Compared with previous years, the 2007 results show both plausible and (relatively) smooth results.

Further interpretation of the results for never married adults

Having established that the 2007 results are realistic, it appears that rises in the proportion of never married adults cohabiting are slowing over time for young adults under 30-years-old. It is at older ages that the proportion of never married adults cohabiting continues to increase. There is much debate about recent declines in marriage rates, and whether cohabitation is more often a prelude to or a substitute for marriage. In any case, it seems that never married cohabitation is rising for adults aged over 30 because older generations are ageing and being replaced by generations who are more likely to cohabit. **Figure 5** shows this generation (or cohort) effect, and is based on the same data as Figure 4. However, for each year’s results, the proportion cohabiting is analysed by year of birth rather than age. For example, for those born in 1951, the charts show the proportions cohabiting in 1992 (at age 41), in 1996 (at age 45), in 2003 (at age 52) and in 2007 (at age 56).

From Figure 4, it is clear that the proportion cohabiting rises at younger ages until reaching a peak around age 30. One of the clearest conclusions of Figure 5 is that, from a certain age, the proportion of never-married people cohabiting has remained almost constant as the particular cohort ages. In other words, beyond a certain age, the proportion of never-married people cohabiting aged x in year y is very similar to the

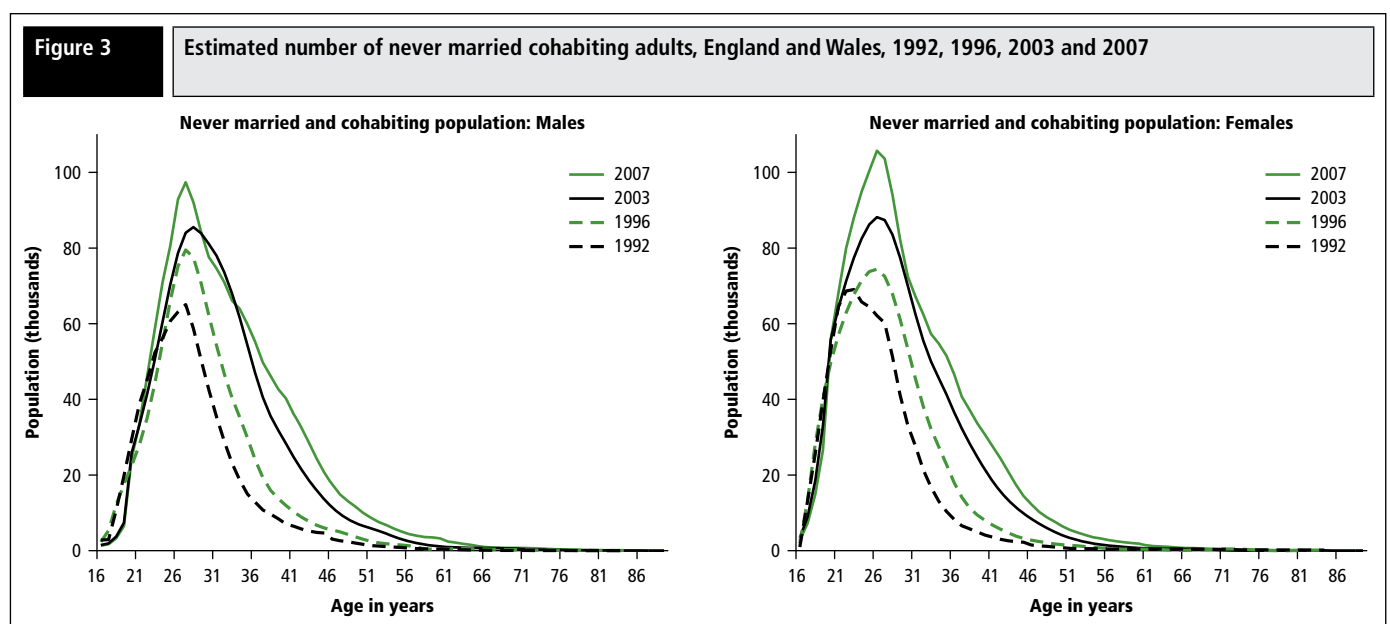


Figure 4 Estimated percentage of never married adults cohabiting by age, in England and Wales, 1992, 1996, 2003 and 2007

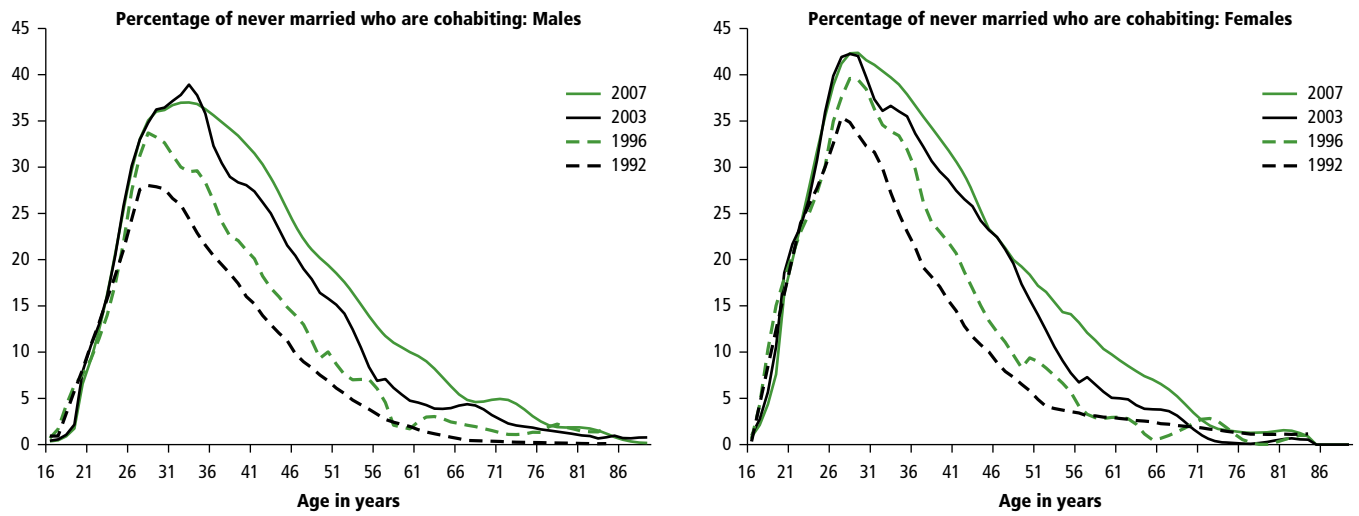
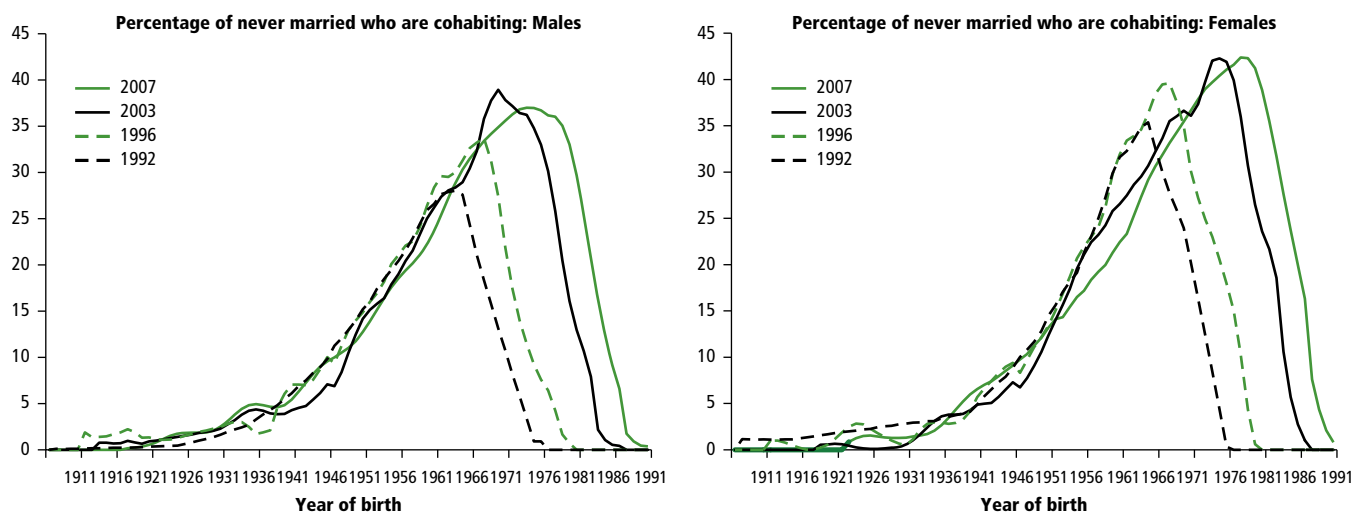


Figure 5 Percentage of never married adults cohabiting by birth cohort in England and Wales, 1992, 1996, 2003, 2007



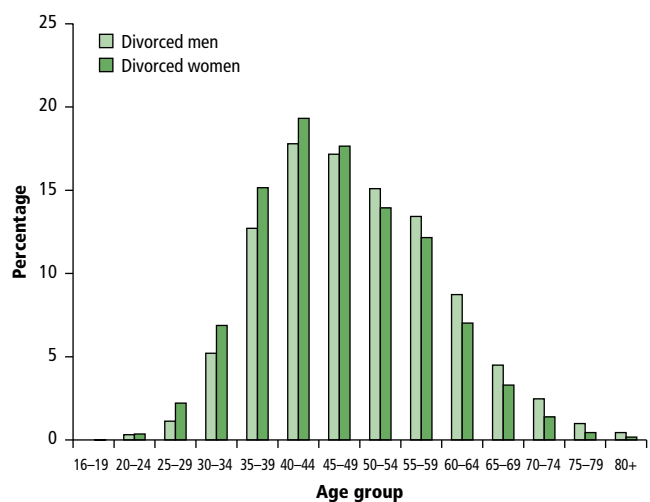
proportion cohabiting aged $x + t$ in year $y + t$. Despite there being 15 years between 1992 and 2007, the proportion of never married adults that are cohabiting has remained stable (across the four sets of estimates) for women born prior to 1950. This *cohort stability* is even more noticeable for men, where it is seen for all those born before 1965.

Other marital statuses

As shown in Table 2, the majority (73 per cent) of cohabiting adults are never married. Most of the remainder (23 per cent) are divorced. **Figure 6** shows the age distribution of the divorced cohabiting population for males and females. For example, 19 per cent of all divorced women who are cohabiting are aged between 40 and 44-years-old. On average, cohabiting divorced men tend to be older than cohabiting divorced women, but, as expected, the largest proportions are at the ages where the divorced population is also largest.

The proportions of adults cohabiting also vary by marital status, and this is in part due to the different age profiles of the population in each marital status (and the fact that cohabitation is more likely at younger ages). Although 24 per cent of never married women are cohabiting, the

Figure 6 Percentage of divorced cohabitants in each age group



equivalent figures for other marital statuses are 10 per cent (separated), 21 per cent (divorced) and 2 per cent (widowed). For men the proportions cohabiting are 20 per cent (never married), 15 per cent (separated), 31 per cent (divorced) and 5 per cent (widowed). It is therefore more likely that divorced men are cohabiting compared with never married men.

Conclusion

In 2007, it is estimated that 4.5 million adults were cohabiting, 10 per cent of the population aged over 16-years-old. The majority of cohabiting adults (73 per cent) have never married, while most of the remainder are divorced (23 per cent). The age profiles of cohabiting adults vary according to marital status. Never married cohabitants tend to be under 30 and divorced cohabitants more likely to be over 35. Separated cohabitants tend (on average) to be younger than divorced cohabitants by a few years, although the profiles are similar, with most separated and divorced cohabitants aged between 30 and 65. The overall age profile of cohabitants (Table 3) shows that cohabiting women tend to be younger than cohabiting men. In 2007, 45 per cent of cohabiting women were aged between 16 and 30, compared with 35 per cent of cohabiting men. Despite the fact that cohabitants tend to be younger than adults not cohabiting, 5 per cent of cohabiting men and 4 per cent of cohabiting women are over 60-years-old.

Overall, the patterns of cohabitation and recent trends are similar for men and women, and this is reinforced by the results in Table 4, which shows the percentage of the total population who were cohabiting in 1992 and 2007 (by age group and sex). There has been an increase in the proportion cohabiting for all age groups²⁰, confirming what was shown previously in Figure 4 and Figure 5 for the never married. Given that the estimates prepared here will feed into the cohabitation element of the 2006-based marital status projections (see the Marital Status Projections report in this issue of Population Trends), it is worth briefly considering whether these proportions are likely to continue increasing in the future.

The analysis of cohorts (generations) shown in Figure 5 suggests that, from a certain age (i.e. for those who are older), the proportion of never-married people cohabiting remains almost constant (for each cohort) as the particular cohort ages. For those who are younger (under

Key findings

- In 2007, it is estimated that 4.5 million adults were cohabiting, 10 per cent of the population over 16-years-old
- The majority of cohabiting adults (73 per cent) have never married. Around 24 per cent of never married women are cohabiting compared with 20 per cent of never married men
- Although there are more never married cohabiting men than divorced cohabiting men, the proportion of divorced men that are cohabiting is larger, 31 per cent (divorced) compared with 20 per cent (never married)
- In 1992, 12 per cent of women aged 16 to 30 were cohabiting compared with 10 per cent of men. By 2007, these figures had risen to 19 per cent for women and 14 per cent for men. In fact, there was a rise in all other age groups (for both men and women)
- Cohabitation trends provide evidence to suggest that cohabitation will continue to rise for never married adults (and therefore overall), particularly at older ages. There is also evidence suggesting an end to historic increases in cohabitation levels for never married adults under 30-years-old.

30-years-old), never-married cohabitation levels have been increasing until very recently. Figure 4 provides evidence to suggest that this increase may not continue (for those under 30-years-old). However, if the younger cohorts maintain their cohabitation propensities (established as young adults) throughout the rest of their lives, in the same way that has been seen for older cohorts, then the proportion cohabiting at older ages (and overall) will continue to rise.

Any questions or comments on this article (or the cohabitation projections) are welcomed. Please contact ben.wilson@ons.gov.uk.

Note

To access the final estimates discussed in this article, please download the 2006-based principal cohabitation projection using the link below. Projections can also be downloaded via this link, including additional information on all aspects of the marital status projections, the cohabitation projections, assumptions and variants. www.statistics.gov.uk/downloads/theme_population/MaritalStatusProjection06.pdf

Acknowledgements

I am grateful to all those who commented on this article, and to those who helped with development of the methodology used to create the estimates, in particular Steve Smallwood and Chris Shaw.

References

- 1 Population estimates by legal marital status for England and Wales are produced by the Office for National Statistics (ONS). Population estimates by legal marital status for Scotland are produced by the General Register Office for Scotland (GROS). Population estimates by legal marital status are not currently produced for Northern Ireland.
- 2 At present, estimates of the cohabiting population do not include people in same-sex cohabiting couples or civil partners. These population sub-groups are currently included in the population 'not cohabiting' and are not separately identified. The main reason for this is that these populations are difficult to estimate accurately, particularly at the level of detail required by the current methodology. Any estimate will also be affected by response errors; for example, surveys such as the Labour Force Survey and Annual Population Survey only collect information spontaneously volunteered by

Table 3 Percentage of all cohabitants by age group and sex, England and Wales

Age	Men		Women	
	1992	2007	1992	2007
16 to 30	50	35	60	45
31 to 45	35	42	29	37
46 to 60	11	17	8	14
Over 60	4	5	3	4
Total	100	100	100	100

Source: ONS Cohabitation estimates, 1992 and 2007

Table 4 Percentage of the total population cohabiting by age group and sex, England and Wales

Age	Men		Women	
	1992	2007	1992	2007
16 to 30	10	14	12	19
31 to 45	8	16	7	14
46 to 60	3	8	3	6
Over 60	1	3	1	1

Source: ONS Cohabitation estimates, 1992 and 2007

- same-sex couples. It is therefore the case that same-sex cohabiting couples and civil partners (although not separately identified) will be included in one of the following population categories: single and not cohabiting, separated and not cohabiting, divorced and not cohabiting, or widowed and not cohabiting. The category will depend upon their legal marital status, without consideration of any legal marital status relating to civil partnership.
- 3 See: Cohabitation population estimates for England and Wales, 2003 www.statistics.gov.uk/downloads/theme_population/PT119v2.pdf and www.statistics.gov.uk/StatBase/Product.asp?vlnk=13607&Pos=&ColRank=1&Rank=272
 - 4 Shaw C and Haskey J (1999) 'New estimates and projections of the population cohabiting in England and Wales', *Population Trends* 95, pp 7–17. www.statistics.gov.uk/cci/article.asp?ID=613
 - 5 The Annual Population Survey (APS) household data set comes from the Labour Force Survey (LFS) and the APS (person) data set. The former is a quarterly survey of households living at private addresses in the UK. The latter is created by combining individuals in waves one and five from four consecutive LFS quarters with the English, Welsh and Scottish Local Labour Force Surveys. The APS household data sets therefore contain results from four different sources. They cover the period January to December for individual years from 2004.
 - 6 Legal marital status estimates do not distinguish the separated population (which is included in the total married population). For more information see the later section of the article titled 'The separated population'
 - 7 Compared with the method used to create the 2003-based cohabitation estimates, the APS is generally used here in place of the LFS (Labour Force Survey). For both the LFS and APS, the household datasets are used.
 - 8 At present, estimates of the cohabiting population do not include people in same-sex cohabiting couples or civil partners. These population sub-groups are currently included in the population 'not cohabiting' and are not separately identified. The main reason for this is that these populations are difficult to estimate accurately, particularly at the level of detail required by the current methodology. Any estimate will also be affected by response errors; for example, surveys such as the Labour Force Survey and Annual Population Survey only collect information spontaneously volunteered by same-sex couples. It is therefore the case that same-sex cohabiting couples and civil partners (although not separately identified) will be included in one of the following population categories: single and not cohabiting, separated and not cohabiting, divorced and not cohabiting, or widowed and not cohabiting. The category will depend upon their legal marital status, without consideration of any legal marital status relating to civil partnership.
 - 9 For more information (and the revised estimates) see www.statistics.gov.uk/statbase/Product.asp?vlnk=15107
 - 10 There are some fluctuations, but these are difficult to interpret due to the small sample size (Combined, the separated and widowed were only 4 per cent of the cohabiting population in 2007).
 - 11 The allocation used a mean of APS and GHS estimates for (a) the population cohabiting, and (b) the population not-cohabiting, for each marital status. These totals were then converted into the proportion (a) cohabiting, and (b) not-cohabiting, for each marital status. The initial estimates were then allocated according to these proportions (Note: Although the APS estimates were for 2007, the GHS estimates used a mean of 2006 and 2007 data. This was in order to boost the sample size and achieve more reliable estimates).
 - 12 The APS is essentially the LFS plus a series of sample boosts. See footnote 5 above.
 - 13 The initial estimates of the cohabiting and the non-cohabiting population by sex and marital status are revised in a two-stage iterative operation. The first stage constrains the estimates to the 2007 (legal) marital status estimates. The second stage ensures that the cohabiting population matches the initial estimated population totals by sex and cohabitation status.
 - 14 Again, the estimates are revised using a two-stage iterative process. The first stage constrains the estimates so that the number of separated (but still legally married) men equals the number of separated (but still legally married) women. The second stage ensures that the cohabiting population matches the initial estimated population totals by sex and cohabitation status.
 - 15 The proportions in each five-year age group were calculated from an average of the last three years APS household data (2005, 2006 and 2007) and then the final estimates were allocated using these proportions. Since the APS has a far larger sample size, this might be seen as an improvement over the last (2003-based) estimates where an average (for multiple years) of LFS and GHS data was used for allocating to five-year age groups. Unlike previous years, no smoothing was undertaken for the age profiles. The allocated (2007) results produced by this method were checked using 2006 GHS data.
 - 16 Previous methods also used Beers coefficients. For more information on these, see: Shryock, HS, Siegel, JS, and Associates (1976) 'The methods and materials of demography' (condensed edition), New York: Academic Press Inc, p 556. To begin with, pseudo rates were created for each age group and marital status using the cohabitation estimates as numerators and the legal marital status estimates as denominators. These pseudo rates were allocated to single years of age using the Beers coefficients and then multiplied by the legal marital status population (the source used for the rate denominator) for each single year of age. Final adjustments were made to ensure that the total population matched the legal marital status population by age group (exactly that used for the rates). A small number of negative estimates (arising from the Beers method, mostly at the youngest ages) were then removed using the 2001 Census proportions cohabiting (by single year of age) to allocate the total cohabiting population for the age group containing the negative estimate.
 - 17 For example, the number of 16 year old single non-cohabiting men is calculated by subtracting the number of 16 year old single cohabiting men from the total number of 16 year old single men as given by the legal marital status estimates. The same calculations are carried out for single women, and for divorced and widowed adults (again separately for men and women).
 - 18 The method was almost identical to the allocation for other legal statuses (see footnote 17), and the only variation for this single year of age allocation was to use the total married population as the denominator for pseudo rates. Given the fact that there are no legal marital status estimates for the separated population, this was felt to be the most appropriate denominator.
 - 19 Quality checks were carried out for all aspects of the methodology. Table 2 shows the extent to which the initial estimates were constrained, to improve the estimates, and indicates the uncertainty surrounding the survey sources. As discussed, the cohabitation estimates by age group compare well with GHS (taking into account sample size – see: *Allocating the estimates to single years of age*). The final estimates by single year of age were then compared to cohabitation estimates for previous years.
 - 20 The increase for women over 60 is not shown because of rounding.

Have women born outside the UK driven the rise in UK births since 2001?

Nicola Tromans, Eva Natamba,
Julie Jefferies
Office for National Statistics

The number of births¹ in the UK has increased each year since 2001. This article examines the demographic drivers underlying this rise, assessing the contribution of UK born and foreign born women. It brings together key information from across the UK to provide a coherent picture of childbearing trends among UK born and foreign born women since 2001. Geographical variations in the proportion of births to foreign born women are also explored at the local authority level.

Introduction

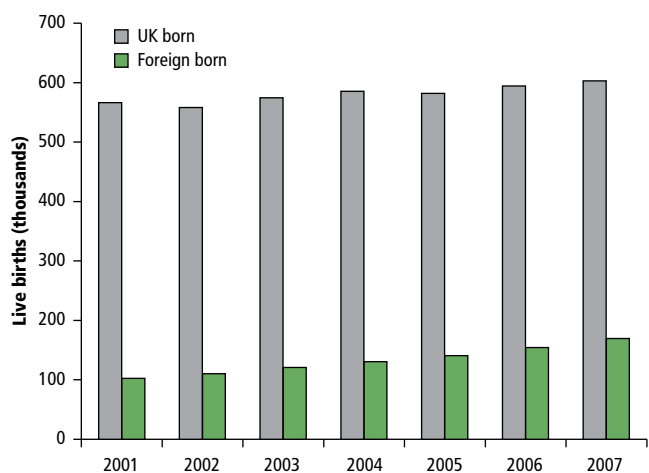
Between 2001 and 2007 the number of births in the UK increased by 15.4 per cent from 669,123 to 772,245. Over the same period the Total Fertility Rate (TFR) (see **Box one**) in the UK increased rapidly, rising from a record low of 1.63 children per woman in 2001, to 1.90 in 2007. It is often assumed that the increasing numbers of births seen in recent years are a direct result of the growing numbers of international migrants living in the UK. This article explores whether this perception is accurate or not, providing a coherent picture of the impact of foreign born women on the number of live births and fertility patterns in the UK. It should be noted that foreign born women and international migrants are not exactly the same – see **Box two** for more detail.

Figure 1 shows the number of births to UK born and foreign born² women each year between 2001 and 2007. The number of births to foreign born women has risen each year since 2001, increasing by 66,731 over the six-year period. In contrast, there were 36,391 more births to UK born women in 2007 than 2001, despite small decreases between some years. A consequence of these changes is that two-thirds of the total increase in births between 2001 and 2007 can be attributed to women born outside the UK. This has resulted in an increase in the proportion of births to foreign born women, from 15.3 per cent in 2001 to 21.9 per cent in 2007.

The number of births depends both on the fertility rates of women living in the UK and on the size and age structure of the female population. This paper explores these factors for UK born and foreign born women in order to better understand their impact on the numbers of births in the UK in recent years. This is the first time that many of these statistics have been compiled for the UK as a whole. The years from 2001 to

Figure 1

Number of births to UK born and foreign born women, United Kingdom, 2001–2007



Source: Birth registrations

2007 have been chosen as they cover a period of rising fertility and an unprecedented rise in the proportion of births to foreign born mothers, as well as taking into account the period before and after the 2004 EU expansion.

Most areas within the UK experienced this increase in the proportion of births to foreign born women in recent years. The increase has not

Box one

Total Fertility Rate (TFR)

The TFR is the average number of children that a group of women would each have if they experienced the Age-specific Fertility Rates for a particular year throughout their childbearing lives. For example, a TFR of 1.90 in 2007 means that a group of women would have an average of 1.90 children each during their lifetimes based solely on 2007's Age-specific Fertility Rates. This measure reflects the current intensity of childbearing and the rate at which the population is replacing itself.

Age-specific Fertility Rate (ASFR)

ASFRs are a measure of fertility specific to the age of the mother and are useful for comparing the reproductive behaviour of women at different ages. They are calculated by dividing the number of live births in a year to mothers in each age group by the number of females in the mid-year population of that age. Rates are expressed per 1,000 women in the age group.

occurred evenly across all local authorities though, and the proportion of live births to foreign born women varies considerably across the UK. Changes in the proportion of births to foreign born women at the local authority level between 2001 and 2007 are therefore explored in more detail.

Box two

How does country of birth compare to nationality, ethnicity and migration status?

Nationality refers to the country shown on a person's passport, which may differ from their country of birth. Nationality can change over time, for example when a foreign national has lived in the UK long enough, they can apply to become a British national. In contrast, country of birth cannot vary – it is therefore the more robust variable when analysing change over time.

A working definition of ethnicity is 'both a way in which individuals define their personal identity and a type of social stratification that emerges when people form groups based on their real or perceived origins'⁴. Ethnicity is more subjective than nationality and is usually self-reported, making it much harder to measure – a person's ethnic affiliation can change over time.

Ethnic group is not collected at birth registration and, until recently, it has only been available from survey data. Any study of childbearing trends by ethnic group has therefore run up against sample size problems. In 2002 a new system was introduced for allocating NHS numbers at birth, providing a new opportunity to analyse births by ethnic group of the baby⁵. Resulting estimates showed that just under two-thirds (64.3 per cent) of all babies born (live births) in 2006 were defined by their mothers as White British, 5.6 per cent as White Other, 7.6 per cent as Asian/Asian British and 4.3 per cent as Black/Black British⁶. ONS is collaborating in ongoing work to investigate the relationship between a baby's ethnicity and its mother's country of birth. Fertility rates by ethnic group have also recently been estimated using the Household Sample of Anonymised records from the 2001 Census in conjunction with the Labour Force Survey⁷. Findings suggest fertility rates for some minority ethnic groups could be converging, but at different speeds, to levels observed among the white ethnic group. Part of a project to build projections of ethnic group populations for local areas is also exploring how differences between ethnic groups' fertility rates can shape current and future trends⁸.

Care is needed in interpreting figures relating to country of birth as it cannot be used as a proxy for these other variables. For example, the category 'UK born women' will include second and third generation migrants (born to earlier in-migrants) who will often not be of White British ethnicity. Similarly, the category 'foreign born women' will include some UK nationals and is likely to include some women of White British ethnicity, for example those born to UK service people stationed abroad.

Although country of birth is the most robust variable for analysing the impact of international migrants on the number of births in the UK since 2001, it does not represent a precise proxy for international migrants. Childbearing trends among foreign born mothers do not just reflect trends among recent in-migrants born outside the UK. Individuals born outside the UK, who have been resident in the UK for a number of years, will also be included in the 'foreign born' group and this may mean that the fertility level for foreign born women lies closer to the national level than the actual fertility levels of recent migrants, if some degree of convergence is assumed. Similarly, childbearing trends among UK born women will be influenced by second or later generation migrants (women whose families migrated to the UK in earlier generations).

Data sources

Birth registration data

High quality data on numbers of births by mother's age and mother's country of birth are available from compulsory birth registration. Father's age and country of birth are also collected at birth registration and published annually³; however, these are not available for births outside marriage that are registered solely by the mother (6.6 per cent of all UK births in 2007). For completeness this article therefore uses the countries of birth of mothers to explore the impact of international migration on fertility.

Other variables that may be used as migration indicators, such as ethnicity, nationality and year of entry to the UK are not collected at birth registration. A key advantage of country of birth is that it does not change over an individual's lifetime, as ethnicity and nationality may. A fuller discussion of these variables can be found in **Box two**.

Population data

In order to determine the numbers of UK born and foreign born women of childbearing age in the population, and to calculate fertility rates for these two groups, population estimates by country of birth and five-year age-sex group are required. These are not readily available, but the Annual Population Survey (APS) can provide robust annual estimates of UK born and foreign born females by five-year age group for this purpose from 2004 onwards (see **Box three**). To provide an indication of

Box three

A brief introduction to the Annual Population Survey (APS)

The APS is a combined survey of households in the UK, comprising the Labour Force Survey (LFS) plus various sample boosts – it has been running since 2004. The boosts increase the size of the sample, meaning that more robust estimates are available from the APS than from the main LFS. The APS data used here have been re-weighted to population estimates published in 2007, ensuring an up-to-date picture.

The APS may underestimate the number of people born overseas because:

- It excludes students in halls of residence who do not have a UK resident parent
- It excludes people in most other types of communal establishment (for example, hotels, boarding houses, hostels, mobile home sites)
- It excludes certain people who have been resident in the UK for less than six months
- It is weighted to population estimates that exclude migrants staying for less than 12 months

Using the APS, estimates of the numbers of UK born and foreign born females by five-year age group have been calculated. Coefficients of variation for these estimates are below 1 per cent for UK born women and range between 3 and 6 per cent for women born outside the UK (only rising above 5 per cent for 15 to 19-year-olds, where the foreign born population is smaller). Estimates with coefficients of variation below 5 per cent are considered precise and those between 5 and 10 per cent reasonably precise.

Further information on the APS can be found in Volume 6 of the Labour Force Survey User Guide on the Office for National Statistics website (www.statistics.gov.uk/statbase/Product.asp?vlnk=1537)

changes in population structure since 2001, the numbers of UK born and foreign born women in 2001 have been estimated from the Labour Force Survey (LFS). Although its sample size is smaller than the APS, the LFS provides the closest match since both surveys relate to the household population.

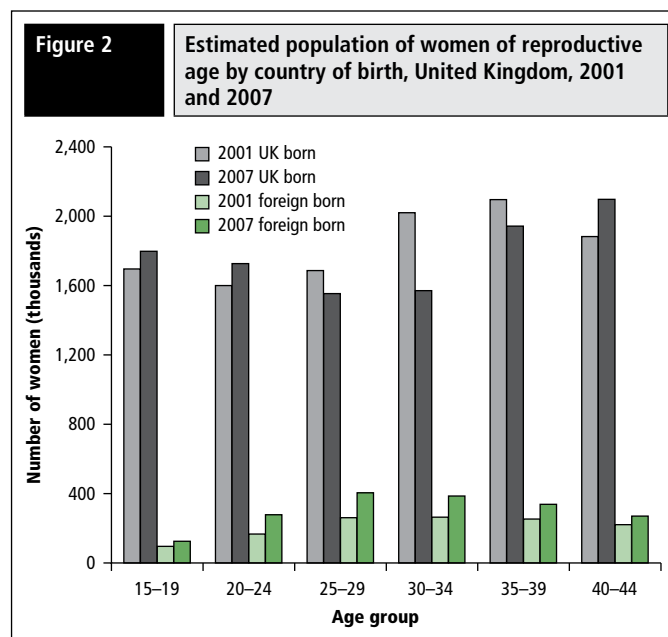
For practical purposes it has been necessary to analyse the fertility of all women born outside the UK as a single group. This is not ideal since variations in fertility levels among women from different countries of birth are masked. However, female population estimates for individual countries of birth and age group obtained from survey data are not sufficiently robust to provide a more detailed analysis.

The changing size and age structure of the female population

Between 2001 and 2007 the total number of females of reproductive age (15–44) in the UK increased by 2 per cent, reaching nearly 12.5 million in 2007. This increase hides a marked difference in trends between the UK born and foreign born populations. In 2007 the number of foreign born women of reproductive age living in the UK was nearly 43 per cent higher than in 2001. Conversely, the number of UK born women of reproductive age was nearly 3 per cent lower in 2007.

An examination of the age structure of these two populations can shed some light on the reasons for this difference. **Figure 2** shows that between 2001 and 2007 the number of UK born women in their peak childbearing years (ages 25–34) fell. This is a direct result of the low numbers of births in the 1970s. The fall is most noticeable at age 30–34 (where fertility rates are currently highest). The rising number of UK born women aged 40–44 is a consequence of the 1960s 'baby boomers' moving into this age group. The number of UK born women in their late teens and early twenties has also increased since 2001. At these ages fertility levels are much lower, hence changes in the number of women generally have much less impact on the number of births.

In contrast, the number of foreign born women increased in all childbearing age groups but at different speeds. Foreign born women aged 20–24 showed the greatest percentage increase (66 per cent), followed by women aged 25–29, with a 55 per cent increase, and those aged 30–34, whose population rose by 46 per cent.



Source: Labour Force Survey 2001, Annual Population Survey 2007

These increases in the foreign born population can be attributed mainly to international migration. In fact, both in-migration and out-migration have had a considerable impact on the size of the female population of reproductive age living in the UK. International migration estimates⁹ show that during the six-year period from 2002 to 2007, 1.3 million women aged 15–44 migrated to live in the UK for at least a year, while 0.7 million emigrated, giving a net increase of 0.6 million women of reproductive age. During the previous 10 years this net increase was only 0.4 million women aged 15–44, showing how the pace of change due to net migration has increased since the turn of the century.

Of course it is not just recent migration that has an impact on the childbearing population – the current size and age structure of the foreign born population is in part determined by levels of earlier in-migration of children and younger women between the 1960s and 1990s. In addition the descendants of past in-migrants are likely to be making up an increasing share of the UK born population.

Focussing on recent migration (taking account of both males and females across all age groups), half of all out-migrants during the period 2002 to 2007 were born in the UK, compared with only 13 per cent of in-migrants. This means there was a net emigration of UK born individuals from the UK. In contrast there was a net in-migration of foreign born people. Around a fifth of all in-migrants between 2002 and 2007 were born in the European Union, nearly one-quarter in New Commonwealth countries (such as Pakistan and India), 12 per cent in Old Commonwealth countries (such as Australia and Canada) and 30 per cent elsewhere abroad. Since EU expansion in 2004, which enabled free movement of people between an increased number of member states (see **Box four**), the proportion of long-term in-migrants born in A8 countries has doubled from 9 per cent in 2004 to 19 per cent in 2007.

The decreasing number of UK born women and growing number of foreign born women have resulted in the proportion of foreign born women of reproductive age in the UK rising from 10.3 per cent in 2001 to 11.8 per cent by 2004. This trend continued to 2007, but at a much faster rate, with foreign born women comprising 14.4 per cent of the UK population of childbearing age by 2007. The greater rate of change since 2004 is partly a consequence of EU expansion in 2004. However, it is not just EU born individuals causing the foreign born population in the UK to grow – APS data show that in 2007 only 9 per cent of the UK's total foreign born population were born in A8 countries. Between 2004 and 2007 there were also increases in the numbers of individuals born in countries such as India, Pakistan, Nigeria and the USA (see Appendix One).

In summary, change in the population of women of childbearing age in the UK since 2001 has occurred for two main reasons:

- An increase in the number of foreign born women as a result of in-migration

Box four

The European Union

The European Union (EU) is an economic and political union of 27 member states located in Europe. A standardised system of laws apply in all member states, which guarantees the freedom of movement of people. In 2004 the EU saw its biggest enlargement to date when Slovenia, Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia and Hungary (known collectively as the A8) joined the Union along with Malta and Cyprus. Romania and Bulgaria became the EU's newest members, joining in 2007.

- A decrease in the number of UK born women in the key childbearing ages, due to the relatively small cohorts of women born in the mid- to late-1970s reaching these ages.

Over the next decade the number of UK born women aged 15–44 is likely to continue falling, as the large cohorts currently aged 40–44 move out of the childbearing population and are replaced by smaller cohorts born since the mid-1990s, who will be reaching childbearing age. However, the number in the peak fertility ages 25–34 will be higher in 2017 than in 2007, which may lessen the impact of the decline on the number of future births. Changes in cohort sizes are expected to remain the key driver of change in the UK born population, unless the level of emigration rises substantially.

The current age structure of the foreign born population also means that its numbers would fall over the next decade if there was no future international migration. However, if in-migration of women aged 15–44 was to continue at a similar level to that seen during the past decade, the foreign born population of childbearing age would be expected to continue rising over the next ten years.

Do UK born and foreign born women have different levels of fertility?

This section compares the Total Fertility Rate and the Age-specific Fertility Rates (Box one) of UK born and foreign born women. A fuller discussion of how these rates should be interpreted can be found in **Box five**.

Total Fertility Rates

In August 2008 separate estimates of the TFR were published for UK born and foreign born women in England and Wales for each year between 2004 and 2007 – these have now been extended to cover the whole of the UK. **Table 1** illustrates how foreign born women in both England and Wales, and the UK, are estimated to have a higher TFR than UK born women.

Since 2004 there has been little change in the TFR for foreign born women. The estimated TFR for foreign born women in 2007 was 2.51 children, up slightly from 2.48 in 2004. In contrast, the TFR for UK born women increased from 1.68 children in 2004 to 1.79 in 2007. Table 1 provides evidence that in both the UK and England and Wales, the recent rapid increases in the TFR are mainly due to increasing fertility among UK born women. It should be remembered, however, that foreign born women, who have higher fertility than their UK born counterparts, are making up an increasing share of the childbearing population. This population change will impact on the overall TFR, causing it to increase, even though fertility among foreign born women is fairly stable. Similar results have also been found in France, where rising fertility rates are mainly due to increasing fertility among women born in France¹².

In 2007 the higher fertility levels among foreign born women resulted in the TFR for all women in the UK (1.91) being 0.12 children higher than the TFR for UK born women alone (1.79). Thus it could be inferred that average UK fertility is currently around one-tenth of a child per woman higher due to the presence of women born outside the UK.

The diverse fertility levels of migrants from different countries of birth is paramount when analysing the impact of migration on fertility in recent years. Fertility rates for individual countries of birth are only available for census years. Rates based on the 2001 Census¹³ in England and Wales show that women born in certain foreign countries tend to have higher fertility than others – for example, in England and Wales in 2001, the TFR for UK born women was 1.6 children, compared with 4.7 children for women born in Pakistan and 3.9 children for those born

Box five

Estimating fertility rates by country of birth

Both the Total Fertility Rate (TFR) and Age-specific Fertility Rates (ASFRs) have been estimated for UK born and foreign born women. These estimates illustrate the impact of in-migration on UK fertility levels. It is not possible to quantify the impact of out-migration on fertility levels.

Birth registrations provide the numerators for the rates, and the denominators are estimated female populations by five-year age group from the Annual Population Survey (APS). Like any survey estimates, these populations by country of birth are subject to sampling error, hence the fertility rates for UK born and foreign born women are described as 'estimated'. To ensure consistency over time among published statistics, fertility rates have only been derived using population denominators from the APS, so are available from 2004 onwards.

Fertility rates estimated using population denominators from household surveys will slightly over-estimate the level of fertility, since they exclude people resident in many types of communal establishment from the denominator. For this reason overall TFRs estimated using this method may differ slightly from actual published TFRs (which use the mid-year population estimate as the denominator).

The TFR provides a snapshot of the level of fertility in a particular year and does not necessarily represent the average number of children that a group of women will have over their lifetime. Estimated TFRs for UK born and foreign born women will be sensitive to changes in the timing of fertility within women's lives. Research has noted that immigrant women typically have low fertility prior to immigration, followed by high fertility immediately after immigration^{10,11}. If this were also the case in the UK, the estimated TFR for foreign born women could be inflated by this timing effect. The age of women when they migrate to the UK will also impact on their fertility in the UK. Some women migrate to the UK during the start of their reproductive years while others migrate during or towards the end of their reproductive years.

The TFR does not take account of any previous children women may have had. In order to obtain a full picture of differences in completed family size between UK born and foreign born women, it will be necessary to wait until they reach age 45 so that any timing differences can be discounted.

Table 1

Estimated Total Fertility Rates for UK born and foreign born women, United Kingdom and England and Wales, 2004–2007

		2004	2005	2006	2007
United Kingdom	UK born	1.68	1.68	1.75	1.79
	Foreign born	2.48	2.45	2.42	2.51
	All	1.78	1.79	1.85	1.91
England and Wales	UK born	1.68	1.69	1.76	1.79
	Foreign born	2.50	2.48	2.43	2.54
	All	1.79	1.80	1.87	1.92

Source: Birth registrations and Annual Population Survey

in Bangladesh. In contrast, women born in some countries have fertility rates closer to those of women born in the UK – these include women born in other EU countries, East Africa, Old Commonwealth countries, China and Hong Kong¹⁴. Research has also revealed that migrant women living in Western, Northern and Southern Europe typically retain substantially higher levels of fertility than the native populations, but this difference generally reduces with duration of stay¹⁵. If this were the case in the UK, the estimated TFR for foreign born women might be expected to decrease in the absence of future in-migration; however, if new in-migrants continue to arrive the effect of any convergence in the existing population may not be apparent.

Age patterns of fertility

Figure 3 shows that in 2004 and 2007 foreign born women living in the UK had higher fertility than UK born women at all ages. Both groups have similar age-patterns of fertility, with the peak age for having children at 30–34 years in both groups, closely followed by ages 25–29.

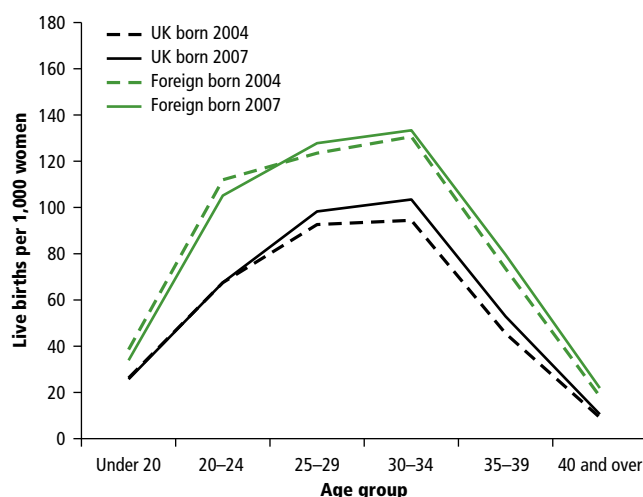
Considering the overall UK TFR, UK born women aged 30–34 and 35–39 have contributed the most to the absolute increase in the TFR between 2004 and 2007, with fertility levels increasing by 9 and 7 births per 1,000 women respectively.

The recent small rise in overall fertility at ages 20–24 appears to have been driven by UK born women – fertility rates among UK born women aged 20–24 have increased very slightly since 2004 whereas fertility rates among foreign born women aged 20–24 have generally fallen since 2004.

In 2007 fertility rates among foreign born women were slightly higher than in 2004 for all women aged 25 and above. The greatest relative increases in fertility among foreign born women occurred at age 40 and over, where there was a clear rise in the fertility rate (a rise of 20 per cent). Women aged 35–39 show the second largest relative increase, with their fertility rates rising by 8 per cent. Conversely, the largest actual increase in fertility among foreign born women occurred at ages 35–39, where there were an extra 6 births per 1,000 women in 2007 compared with

Figure 3

Estimated age-specific fertility rates for UK born and foreign born women, United Kingdom, 2004 and 2007



Source: Birth registrations and Annual Population Survey

2004. Fertility rates for foreign born women aged 25–29 and 30–34 have fluctuated somewhat since 2004 but were highest in 2007.

For UK born women fertility rates increased in all age groups (except for teenagers) – with a continuous increase in fertility being observed between 2004 and 2007 in all age groups over 30. As with foreign born women, the largest relative increases in fertility among UK born women occurred at ages 35–39 and 40–44, with increases of 16 and 15 per cent respectively.

How and why have the numbers of births to UK born and foreign born women changed?

The number of births in the UK depends on both the fertility rates of women living in the UK and the size and age structure of the UK childbearing population. Findings from the previous sections are now used to explain changes in the number of live births to UK born and foreign born women.

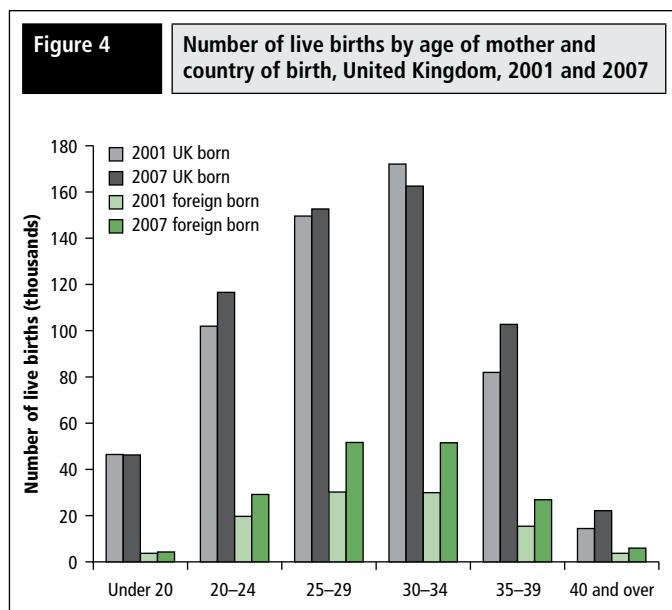
Between 2001 and 2007 the number of births to foreign born women living in the UK increased by 65.0 per cent. Over the same period births to UK born women increased by only 6.4 per cent. However, these increases have occurred for different reasons.

The rise in births to women born in the UK can be attributed to rising fertility rates among UK born women, but the rise is not as high as it might otherwise have been, due to falling numbers of UK born women aged 25–39. In contrast, the rise in the number of births to foreign born women can be attributed to the increase in the population of women born outside the UK, particularly at ages where fertility is highest, and the higher fertility levels displayed by foreign born women in the UK compared with their UK born counterparts.

Age patterns of childbearing among UK born and foreign born women

Overall there were a greater number of births in the UK in each five-year age group in 2007 than in 2001. The largest relative increases in the number of births in the UK have occurred at ages 40 and over (55 per cent increase) and 35–39 (33 per cent increase).

Figure 4 shows how the number of births to UK born and foreign born women has changed between 2001 and 2007 by age of mother.



Source: Birth registrations

Since 2001 births to UK born women have increased each year for women aged 20–24, 35–39 and 40 and above. At ages 25–29 there were a greater number of births to UK born women in 2007 than 2001, although decreases were observed between some years. In comparison, the number of births to foreign born women in each five-year age group have continually increased each year between 2001 and 2007, with the exception of teenagers – for this group there were more births in 2007 than 2001, but annual data reveal a slight fall in births between 2004 and 2005.

Contribution of UK born and foreign born women to the increase in births since 2001 in each age group

Table 2 illustrates marked differences in the contribution of UK born and foreign born women to the increase in births at each age. At ages 20–24, 35–39, and 40 and over, more than 60 per cent of the increase in births can be assigned to UK born women. Fertility among UK born females has increased at all these ages while the numbers of UK born women has also increased except at ages 35–39. For UK born women aged 35–39, the large increases in fertility have counteracted the falling population.

In contrast, the rise in the total number of births to women aged 30–34 can be attributed solely to foreign born females (due to rising fertility and population). This has occurred because there were fewer births to UK born women at this age in 2007 than in 2001 despite rising fertility levels – a result of population decline. Among the under 20 age group, the number of births in the UK has also increased solely as a result of an increased number of births to foreign born women – births to UK born women have fallen at this age due to fertility falling, despite the number of women increasing.

At ages 25–29 fertility levels among UK born women have increased to 2007, while the number of UK born women at these ages has fallen – as a result, 88 per cent of the increase in births in this age group can be attributed to foreign born women.

Quantifying the drivers of the overall increase in births since 2004

This section aims to quantify the impact of factors outlined above in driving the increase in the number of UK births between 2004 and 2007. Six factors can be identified if we consider changes due to population size, age structure and fertility rates, for UK born and foreign born women separately. By isolating each factor and holding it constant at its

Age group	Changes in the number of births between 2001 and 2007		Contribution to overall increase in births	
	UK born women	Foreign born women	UK born women	Foreign born women
Under 20	-192	551	0% (births to UK born women decreased)	100%
20–24	14,598	9,468	61%	39%
25–29	3,042	21,469	12%	88%
30–34	-9,551	21,561	0% (births to UK born women decreased)	100%
35–39	20,773	11,451	64%	36%
40 and over	7,721	2,231	78%	22%
All ages	36,391	66,731	35%	65%

Source: Birth Registrations

2004 level, while keeping other factors at their 2007 level, it is possible to determine how many births would be expected to take place in 2007, had that factor not changed. It can then be inferred that the difference between actual and expected births in 2007 quantifies the impact of that factor on the number of births between 2004 and 2007. (A factor has had a positive impact on births if holding it at the 2004 level results in fewer expected births than were actually recorded in 2007. However if the number of expected births is greater when holding a particular factor constant, then that factor has had a negative impact).

Results show that the increase in fertility rates among UK born women had the greatest positive impact of any single factor on the number of births between 2004 and 2007. The increased number of foreign born women of reproductive age living in the UK had the second greatest positive impact on the number of births. Changes in the fertility levels and age structure of foreign born females had a positive but much smaller effect. In contrast, changes in the size and age structure of UK born females of reproductive age had a negative impact.

The impact of each factor in driving the change in the number of births between 2004 and 2007 is summarised below:

Positive impacts

- Increased fertility rates among UK born women led to around 39,300 more births in 2007
- Increased numbers of foreign born females of reproductive age led to around 32,200 more births in 2007
- Changes in the age structure of foreign born women resulted in 4,700 more births while changes in their fertility levels led to 3,300 more births while in 2007

Negative impacts

- The decreasing number of UK born females of reproductive age resulted in 10,700 fewer births in 2007, while the changing age structure meant 14,000 fewer births

Among UK born women, the positive impact from increasing fertility rates was large enough to outweigh the negative impacts, resulting in slightly more births to UK born women in 2007 than 2004 (3.0 per cent increase). The actual increase in births to UK born women would have been much higher, had there not been the negative impact from the changing size and age structure of the UK born population.

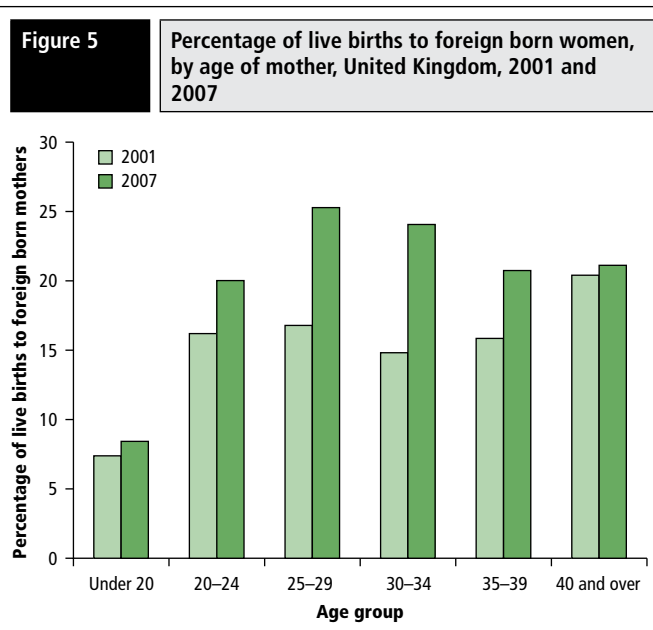
For foreign born women, increasing population size was the key factor driving the 29.6 per cent increase in births to such mothers between 2004 and 2007. Although on its own this factor was only the second largest driver of change in total UK births over this period, the combined impact of changes in population size, age structure and fertility rates among non-UK born women have been greater than the combined impact of these factors for UK born women.

The increasing proportion of births to foreign born women

A consequence of the greater rate of increase in births to foreign born women compared with UK born women is a rise in the proportion of births to foreign born women. Between 2001 and 2007 the proportion of births to foreign born women in the UK increased from 15.3 per cent to 21.9 per cent. However, it is estimated that only 14.4 per cent of the female population of reproductive age in 2007 was born outside the UK.

The proportion of births to foreign born mothers is higher than the proportion of the female population of childbearing age born outside the UK for two reasons:

- Higher fertility among foreign born women



Source: Birth registrations

- The different age structures of the foreign born and UK born female populations of reproductive age

Changes in the proportion of births to foreign born women by age group

Figure 5 shows that between 2001 and 2007 ages 25–29 and 30–34 have experienced the greatest increase in the proportion of births to foreign born women in the UK. Women aged 30–34 experienced a 9.2 percentage point increase in the proportion of births to foreign born mothers, with 24.1 per cent of live births occurring to foreign born women in 2007. In the 25–29 age group the proportion of births to foreign born women increased by 8.5 percentage points between 2001 and 2007, reaching 25.3 per cent in 2007.

Changes in the proportion of births to foreign born women by UK country

Table 3 shows the proportion of births to foreign born women in each constituent country of the UK in 2001 and 2007. England saw the greatest increase during this period (increase of 6.9 percentage points). In Scotland, Northern Ireland, and Wales the percentage of births to foreign born women increased by smaller amounts between 2001 and 2007 – an effect of the lower proportion of births to foreign born women in these countries. The relative increases in the proportion of births to foreign born women were however much larger in Scotland, Wales and

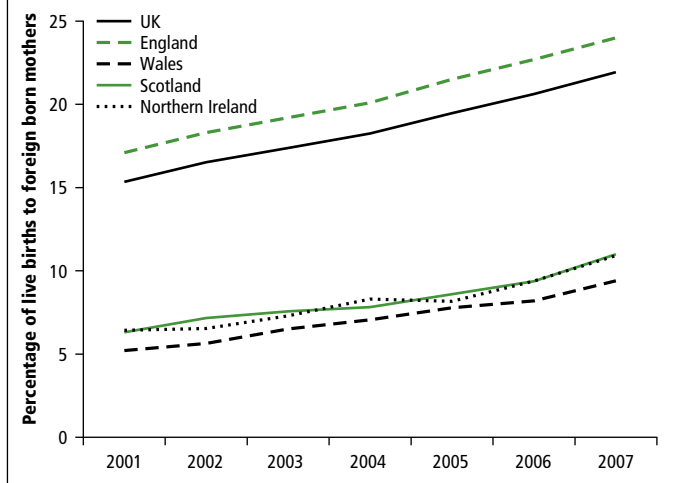
Table 3 Percentage of births to foreign born women, United Kingdom and constituent countries, 2001 and 2007

	Percentage of births to foreign born women		Increase in births to foreign born women 2001-2007 (percentage points)
	2001	2007	
England	17.1	24.0	6.9
UK	15.3	21.9	6.6
Scotland	6.3	11.0	4.7
Northern Ireland	6.4	10.9	4.5
Wales	5.2	9.4	4.2

Source: Birth registrations

Figure 6

Percentage of live births to foreign born mothers, United Kingdom and constituent countries, 2001–2007



Source: Birth registrations

Northern Ireland than in England and the UK. It should be noted that the proportion of births to foreign born mothers in Northern Ireland is greatly affected by the large numbers of births to women born in the Republic of Ireland. In 2007 such births made up 27.1 per cent of all births to foreign born women in Northern Ireland – this compares to 2.0 per cent in England.

Although Figure 6 shows that the proportion of births to foreign born women has increased notably in all constituent countries of the UK since 2001, this is not the case throughout the developed world. In Denmark¹⁶ for example, the proportion of births to foreign born women actually decreased from around 12.5 per cent in 2001 to 12.1 per cent in 2007. In the Netherlands the proportion of births to foreign born women remained relatively stable between 2001 and 2007 with 17.0 per cent and 17.6 per cent of births to foreign born mothers respectively.

The proportion of births to foreign born women in England is not far off the level seen in traditionally high immigration countries such as Canada and Australia. In 2007 the proportion of births to foreign born women in Australia was 25.1 per cent¹⁷. The latest figures available for Canada¹⁸ show that 25.4 per cent of births were to foreign born women in 2006.

What are the most common countries of birth for mothers in the UK?

Table 4 displays the ten most common countries of birth for foreign born mothers in the UK in 2001 and 2007.

Pakistan has been the most common country of birth for foreign born mothers in the UK each year between 2001 and 2007. However, Appendix One shows that the most common country of birth among the UK population as a whole between 2004 and 2007 was India. Such a disparity can occur for two reasons: differences in the composition of the total population versus the female population of reproductive age, or different levels of fertility in the two groups. In the case of India and Pakistan, a large part of this disparity is likely to result from differences in fertility levels between the two groups. In England and Wales, the 2001 census showed that women born in Pakistan were estimated to have a much higher TFR (4.7 children) than women born in India (2.3 children)¹⁹.

In 2007 Somalia and Ghana were in the ten most common countries of birth among foreign born mothers, but not in the UK’s ten most common foreign countries of birth when considering all ages and sexes (Appendix One).

In general, the ten most common countries of birth among foreign born women in 2001 and 2007 are fairly similar, with Pakistan, India, Bangladesh, Nigeria, Somalia, the Republic of Ireland, Germany and South Africa featuring in both years. Between 2001 and 2007 the United States and France dropped out of the top most common countries of birth while Poland and Ghana entered. The fastest recent increase has been in births to mothers born in Poland, which climbed from 24th place (924 births) in 2001 to 2nd place (13,333 births) by 2007.

Poland was one of the ten countries that joined the EU in May 2004, giving Polish citizens the right to live and work in the UK. With the number of Polish born people living in the UK increasing, it follows that the number of births to Polish born women is likely to increase. The increasing number of births to Polish born women does not necessarily imply that they have higher fertility than UK born women; rather that there are more of these women living in the UK than previously. The number of births in the UK to women born in all A8 countries has also increased considerably since EU expansion, reaching 19,570 in 2007. Women born in India, Bangladesh and Pakistan, however, made a far greater contribution to the total number of UK

Table 4

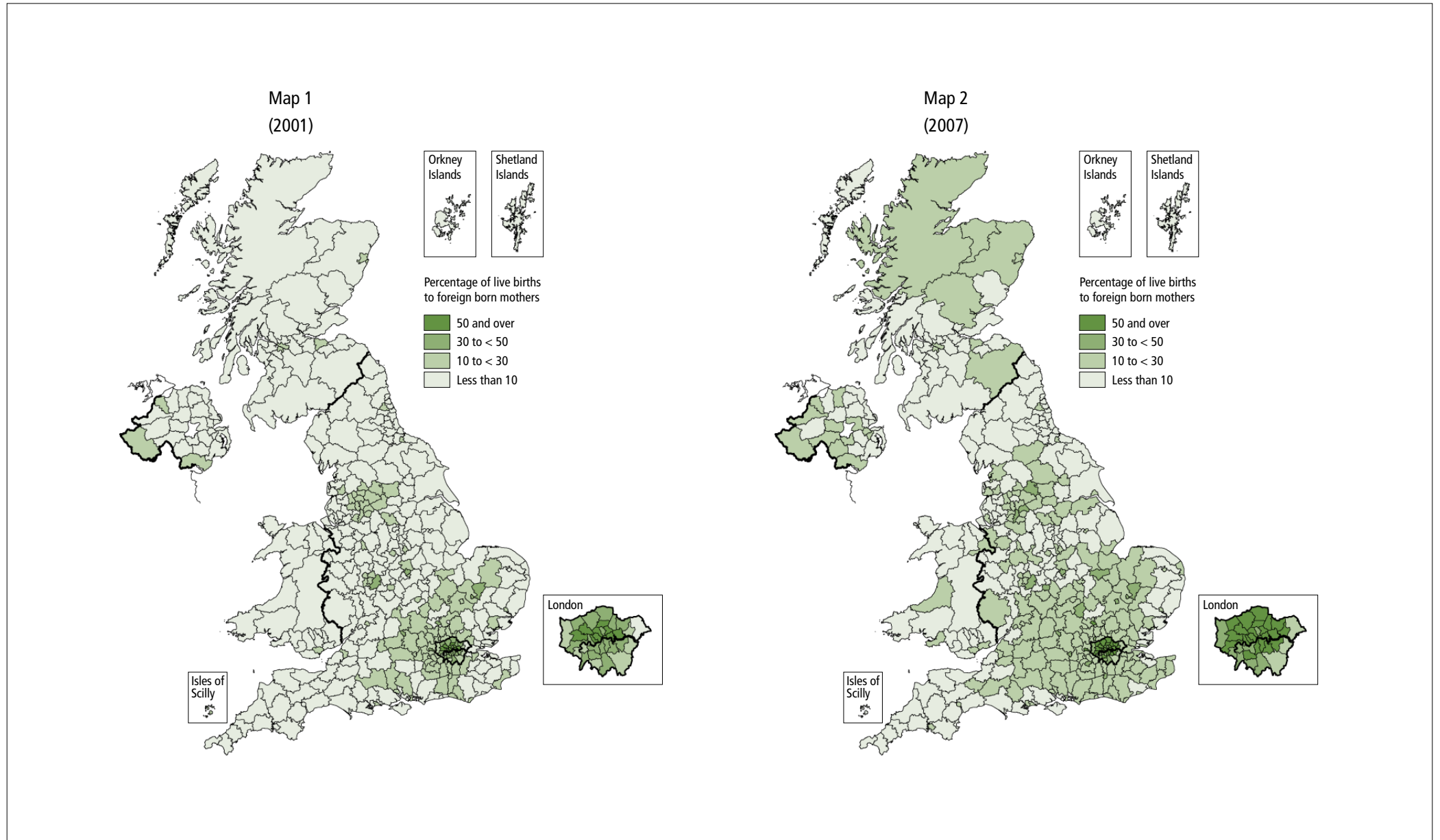
The ten most common countries of birth of mother, foreign born mothers only, United Kingdom, 2001 and 2007 (live births and percentages)

	2001			2007		
	Country of birth of mother	Live births	Percentage of all live births	Country of birth of mother	Live births	Percentage of all live births
1	Pakistan	15,111	2.3	Pakistan	18,311	2.4
2	Bangladesh	8,218	1.2	Poland	13,333	1.7
3	India	6,735	1.0	India	12,478	1.6
4	Germany	4,673	0.7	Bangladesh	8,850	1.1
5	Republic of Ireland	4,589	0.7	Nigeria	6,702	0.9
6	Somalia	3,202	0.5	Somalia	5,952	0.8
7	United States	3,070	0.5	Germany	5,564	0.7
8	Nigeria	2,643	0.4	South Africa	4,708	0.6
9	South Africa	2,322	0.3	Republic of Ireland	4,258	0.6
10	France	2,065	0.3	Ghana	3,784	0.5

Note: Figures by country of birth include a small number of births to mothers whose usual residence is outside the UK.

Source: Birth registrations

Map 1 Percentage of live births to foreign born mothers, local authorities, 2001 / Map 2 Percentage of live births to foreign born mothers, local authorities, 2007



births in 2007 (39,639 births), more than double the number of births to A8 born women.

The ten most common countries of birth for foreign born mothers do vary between the constituent countries of the UK. For example, in Northern Ireland in 2001 and 2007, the most common country of birth for foreign born mothers was the Republic of Ireland while Pakistan and Bangladesh were not among the ten most common countries.

Subnational variations in the proportion of births to foreign born women

Geographical variations in the proportion of births to mothers born outside the UK are to be expected, due to local differences in the proportion of people born outside the UK. Other things being equal, areas where a high proportion of women of reproductive age were born outside the UK are likely to have a higher proportion of births to foreign born women.

In addition, the composition of the foreign born population, in terms of individual countries of birth, will vary considerably between local authorities. This will affect the proportion of births to foreign born women if there are differences in fertility between women born in different countries. As noted earlier, there is some evidence that women born in certain countries have higher fertility than others – in particular, women born in Pakistan and Bangladesh tend to have higher fertility than UK born women and women born in other countries who are living in England and Wales. Therefore areas that are home to large numbers of women born in countries associated with above-average fertility are likely to have an above-average proportion of births to foreign born mothers.

Changing proportions of births to foreign born mothers in UK local authorities

During recent years most UK local authorities²⁰ have experienced increasing proportions of live births to foreign born women. **Table 5** shows the distribution of live births to foreign born women in local authorities in 2001, 2004 and 2007. In 2001 the majority of local authorities (68 per cent) had less than 10 per cent of births recorded to foreign born mothers. Between 2001 and 2007 the number of local authorities with more than 10 per cent of births to foreign born women increased steadily from 140 to 242 areas by 2007, the majority (56 per cent) of local authorities had 10 per cent or more births to foreign born mothers. The number of areas experiencing 50 per cent or more births to foreign born women showed the greatest proportionate increase, with the number of local authorities increasing by two-and-a-half times from 10 to 25. Between 2001 and 2007 most local authorities with 50 per cent or more births to foreign born women were located in London. In 2007 the only UK local authorities outside London that had over 50 per cent of births to foreign born mothers were Slough (56.2 per cent) and Luton (51.0 per cent).

Table 5

Distribution of UK local authorities by proportion of live births to foreign born women, 2001, 2004 and 2007

Percentage of live births to foreign born mothers	2001	2004	2007
Less 10%	294	253	192
10 to 29%	108	143	195
30 to 49%	22	23	22
50% or above	10	15	25
All Local Authorities	434	434	434

Source: Birth registrations

Table 6

Change in proportion of births to foreign born women between 2001 and 2007, local authorities, United Kingdom

Change between 2001 and 2007	Number of Local Authorities	Percentage of all areas
Decrease (1 percentage point or more)	6	1.4
No change (change of less than 1 percentage point)	35	8.1
Small increase (1–5.9 percentage points)	269	62.0
Moderate increase (6–9.9 percentage points)	75	17.3
Large increase (10 percentage points or more)	49	11.3
All Local Authorities	434	100

Source: Birth registrations

Table 6 shows the change in the proportion of births to foreign born women in all local authorities between 2001 and 2007. The majority of local authorities (62 per cent) experienced a small increase in the proportion of births to foreign born women (between 1.0 and 5.9 percentage points). Moderate increases (between 6.0 and 9.9 percentage points) were experienced in 75 local authorities while 49 areas experienced much larger increases (10.0 percentage points or above). Barking and Dagenham experienced the greatest percentage point increase in the proportion of births to foreign born women, rising from 27.5 per cent in 2001 to 53.3 per cent in 2007. Only six areas experienced a decrease of at least one percentage point. The Isles of Scilly and City of London recorded the biggest decreases (–7.6 and –4.3 percentage points respectively), but these areas have very small populations and so are often affected by yearly fluctuations in births.

In England and Wales, the local authorities with the highest proportions of live births to foreign born mothers in 2001 generally continued to have higher proportions in 2007 (**Map 1** and **Map 2**). In both 2001 and 2007, the highest proportions of live births to foreign born mothers occurred in southern and eastern England (and especially around London). In 2001 clusters of areas with over 10 per cent of births to foreign born women were centred around various English cities including London, Manchester, Leicester, Birmingham, Southampton, Brighton and Cambridge. Between 2001 and 2007 these clusters enlarged considerably.

In Wales, Cardiff Unitary Authority (UA) was the only area experiencing more than 10 per cent of births to foreign born mothers in 2001 (14.6 per cent). By 2007, however, births to foreign born mothers exceeded 10 per cent of all births in five Welsh UAs – Cardiff, Wrexham, Ceredigion, Swansea and Newport. Cardiff saw the largest percentage point increase in the proportion of births to foreign born mothers between 2001 and 2007 (8.0 percentage points) and as a consequence continued to have the highest proportion of births to foreign born mothers in Wales in 2007 (22.6 per cent).

In Scotland, the proportion of births to foreign born mothers was below 10 per cent in all council areas in 2001, with the exception of three cities – Edinburgh (12.3 per cent), Glasgow (12.2 per cent) and Aberdeen (12.5 per cent). By 2007, however, six other council areas in Scotland (Aberdeenshire, Dundee, Highland, Moray, Perth and Kinross, and Scottish Borders) had over 10 per cent of births to foreign born women. The Scottish areas with the highest proportion of births to foreign born mothers remained unchanged between 2001 and 2007, with over one-fifth of births occurring to foreign born women in Edinburgh City, Glasgow City and Aberdeen City in 2007. These areas also showed the largest increases in the proportion of births to foreign born women between 2001 and 2007.

Northern Ireland as a whole has experienced a similar level of increase to Scotland in the proportion of births to foreign born women. In 2001 only three local government districts in Northern Ireland had over 10 per cent of live births recorded to foreign born women – Derry (10.3 per cent), Fermanagh (13.3 per cent) and Newry and Mourne (12.3 per cent). By 2007 nearly half of all local authorities in Northern Ireland were experiencing over 10 per cent of births to foreign born women.

The areas with the highest proportions of births to foreign born women in 2007 were Dungannon (21.6 per cent), Fermanagh (15.7 per cent) and Newry and Mourne (15.7 per cent) – all three of these areas border the Republic of Ireland. In Fermanagh the high proportion of births to foreign born women is a result of the large numbers of births to women born in the Republic of Ireland, which are included in the birth count for foreign born women. In Newry and Mourne the births to women born in the Republic of Ireland have been an influencing factor; however, one-third of the births to foreign born women in the area are births to women born in A8 countries. In Dungannon the high proportion of births to foreign born women is driven by the large number of births to women born in A8 countries, which account for over half the total births to foreign born mothers in the area. Dungannon experienced the largest increase (16.7 percentage points) in the proportion of births to foreign born women between 2001 and 2007, while Derry, which had the third highest proportion of births to foreign born mothers in 2001, recorded one of the smallest percentage point increases. Both Ballymoney and Moyle actually experienced falls in the proportion of births to foreign born women between 2001 and 2007 with decreases of –0.4 and –1.5 percentage points respectively.

UK local authorities with the highest proportions of births to foreign born women

Table 7 shows the ten local authorities with the highest proportion of births to foreign born mothers in the UK in 2001 and 2007. All local authorities are London boroughs, located in the northern half of London. Although London has experienced large increases in numbers of births to foreign born mothers in recent years, research by the London Health Observatory has shown that, contrary to popular belief, this is not mainly a result of the EU expansion in 2004²¹.

The greatest proportion of births to foreign born mothers in 2001 was recorded in Tower Hamlets (67.6 per cent) followed by Kensington and Chelsea (66.4 per cent). In 2007 Newham recorded the highest proportion of births to foreign born mothers (74.8 per cent) followed by Brent (72.0 per cent). The local authorities with the ten highest proportions of

Table 7

Ten UK local authorities with the highest percentage of births to foreign born women, 2001 and 2007

2001		2007	
Local authority	Percentage of births to foreign born mothers	Local authority	Percentage of births to foreign born mothers
Tower Hamlets	67.6	Newham	74.8
Kensington and Chelsea	66.4	Brent	72.0
Westminster	64.1	Westminster	71.7
Newham	63.7	Kensington and Chelsea	68.6
Brent	62.6	Tower Hamlets	67.6
Camden	58.9	Ealing	65.2
City of London	58.5	Haringey	63.6
Haringey	55.7	Camden	62.0
Ealing	53.1	Harrow	61.0
Hackney	50.5	Hounslow	60.4

Source: Birth registrations

Table 8

Ten UK local authorities with the lowest percentage of births to foreign born women, 2001 and 2007

2001		2007	
Local authority	Percentage of births to foreign born mothers	Local authority	Percentage of births to foreign born mothers
Orkney Islands	0.6	Alnwick	2.2
Blaenau Gwent	0.8	Ballymoney	2.3
Merthyr Tydfil	1.2	Staffordshire Moorlands	2.5
Knowsley	1.8	Easington	2.7
Caerphilly	1.8	Cannock Chase	3.0
Allerdale	1.9	Moyle	3.1
Rhondda, Cynon and Taff	2.0	Orkney Islands	3.2
Eden	2.1	Torfaen	3.2
Derwentside	2.1	Sefton	3.2
Cannock Chase	2.1	Torridge	3.3

Source: Birth registrations

births to foreign born women are fairly stable, with the majority of areas featuring every single year between 2001 and 2007.

UK local authorities with the lowest proportions of births to foreign born women

The ten local authorities with the lowest proportions of births to foreign born mothers experienced some changes over the six-year period 2001 to 2007 (**Table 8**). In 2001, four of the areas in the lowest ten were Welsh, one was Scottish and the other five were English. By 2007 only one area was Welsh, one was Scottish, two were in Northern Ireland, and the other six were in England.

The local authority with the lowest proportion of births to foreign born mothers in 2001 was Orkney Islands with 0.6 per cent of births to foreign born mothers. By 2007 Alnwick recorded the lowest proportion of births to foreign born women in all local authorities with 2.2 per cent. The ten areas with the lowest proportions of births to foreign born women in 2007 all had greater proportions of births to foreign born women compared with the ten lowest areas in 2001. However, half of the ten lowest areas in 2007 actually experienced a decrease in the proportion of births to foreign born women since 2001 – Alnwick experienced the largest decrease (2.6 percentage points). There was much more variation in the ten areas with the lowest proportion of births to foreign born women between 2001 and 2007 than the ten areas with the highest proportion of births to foreign born women. Cannock Chase remained in the lowest ten for the greatest number of years – six years in total.

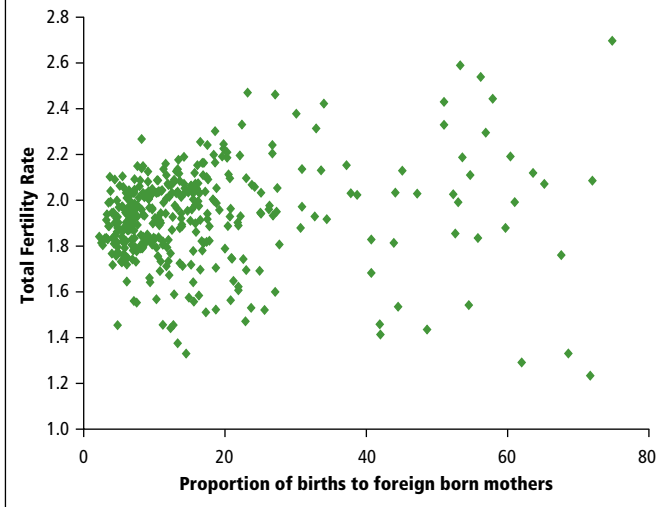
Relationship between the proportion of births to foreign born women and the level of fertility in local authorities

A common misconception is that areas with high proportions of births to foreign born mothers tend to have the highest fertility rates. **Figure 7** shows for local authorities in England and Wales the proportion of births to foreign born mothers and the Total Fertility Rate (TFR) in 2007. There is no clear cut relationship between the proportion of births to foreign born mothers and the level of fertility in an area.

This is a consequence of the diversity in country of birth composition of the foreign born population of different areas, alongside varying fertility levels among women from different countries of birth. The relationship may also be affected by local differences in the fertility of UK born women. It is not currently possible to ascertain whether there are differences in the fertility levels of UK born and foreign born women at

Figure 7

Proportion of live births to foreign born women and the Total Fertility Rate, local authorities, England and Wales, 2007



Source: Birth registration and mid-year population estimates

local authority level since the population denominators required are only available from survey data and would not be sufficiently robust.

Migrants are not the only population subgroup which can impact on the TFR. Taking Cambridge as an example²², in 2007 foreign born mothers contributed 42 per cent of all births but the overall TFR was relatively low (1.43 children per woman). Foreign born mothers originated from a diverse range of countries with no particular group dominating – in 2007, women born in EU countries contributed 14 per cent of births in Cambridge, while 13 per cent of babies had mothers born in Asia. The presence of higher education institutions in Cambridge, attended by large numbers of both UK and international students, is likely to have a large impact on its fertility. Students are likely to have lower fertility while studying than women of the same age who are not in higher education, and graduates tend to enter motherhood later than women without higher qualifications. The low fertility in Cambridge is therefore more likely to be associated with the characteristics of its student and graduate population than the fact that a high proportion of mothers were born abroad.

Similarly, the impact on the TFR of working women delaying childbearing can be illustrated in London boroughs – these areas generally have a high proportion of births to foreign born women, but the TFR can vary widely. In 2007 Westminster, Camden and Kensington and Chelsea experienced a high proportion of births to foreign born women (over 60 per cent); however, the TFRs for these areas were very low (1.33 children per woman or lower). The low TFR in these areas is believed to be partly a consequence of women delaying motherhood for career reasons.

Summary and Discussion – looking to the future

This article has explored the relative contributions of UK born and foreign born women to recent increases in births in the UK. The picture presented is complex, because increases in the two groups vary by age and have different underlying causes.

Two-thirds of the rise in births since 2001 can be attributed to foreign born women. This is mainly a consequence of the increased size of the foreign born population in the UK. Yet since 2004 rising fertility rates among UK born women has been the largest single factor increasing the overall number of births. However, due to decreasing numbers of UK

born women at the peak childbearing ages, births to UK born women have only risen by a small amount.

Drivers behind the increase in births vary by age group. Most of the overall increase in births to women in the peak childbearing ages, 25–29 and 30–34, is due to the rising foreign born population at these ages. At ages 20–24, 35–39 and 40 and over, UK born women have contributed more than foreign born women to the increases in births, as a result of rising UK born fertility. Fertility rates also rose among UK born women aged 25–29 and 30–34 but their impact was outweighed by the changes in size and age structure of the UK born childbearing population which had a negative impact on the number of births.

Looking to the future, the contribution of UK born and foreign born women to numbers of births is not straightforward to assess, since assumptions need to be made about future levels of in-migration, out-migration and fertility in each group.

This article has also shown that the impact of international migration on past and current fertility rates is difficult to quantify precisely due to data and methodological restrictions (such as the use of country of birth to identify migrants, and timing issues in measuring migrant fertility). Any numerical assumptions about the impact of past and future net migration on future fertility would depend on several large unknowns. These include future changes in the composition of in-migrants by origin country, changes in future fertility rates in origin countries and the level of convergence in fertility rates between future in-migrants, existing first and second generation in-migrants and the indigenous UK population. Consideration would also need to be given to future emigration patterns and the impact of such patterns.

Migration aside, making assumptions about the future course of fertility of UK born women is also challenging. Recent rises in fertility are still to be fully explained (although changes in age at childbearing and improvements in financial support have been highlighted as possible factors²³). The recent economic downturn represents a further ‘unknown’.

Theories on the direct impacts of economic recession on fertility point potentially to both upward and downward impacts. For example, some people may choose to delay childbearing or limit family size due to financial uncertainty. Conversely, others may choose to start or expand a family if they are unable to gain satisfactory employment. These impacts may vary by age or other characteristics, so may affect UK born and non-UK born women to different extents.

The current economic recession may also affect levels of in- and out-migration, which in turn could affect the number of births via a number of mechanisms. For example, if in-migration were to fall, slower growth in the non-UK born population could lead to smaller annual increases in the number of births to foreign born women. Some reduction in the upward pressure on fertility rates from foreign born women might also be expected, but this would depend on which countries of origin see reductions in migrant streams. Similarly, any reduction in levels of emigration among UK born women or increased return migration of the foreign born could affect the number of births through changes in fertility rates or population structure.

Assessing the likely future impact of migration on UK births and the likely impact of the current economic downturn on fertility and migration are therefore two of the key challenges facing demographers making population projections or working to improve understanding of UK childbearing trends. There is plenty of scope for further work on this topic, such as using survey data to explore differences in fertility behaviour between migrants and non-migrants in greater depth and investigating the timing of fertility in relation to migration in the UK context.

Key findings

- The number of births in the UK has increased each year since 2001. The relative contributions of UK born and foreign born women to this increase are complex because the increases have different underlying causes.
- The number of births to foreign born mothers in the UK has risen by 65.0 per cent since 2001, while the number of births to UK born mothers has only risen 6.4 per cent.
- Between 2001 and 2007 the proportion of foreign born women in the UK childbearing population increased from 10.3 per cent to 14.4 per cent.
- Women born outside the UK have a higher Total Fertility Rate (TFR) than UK born women. In 2007 the estimated TFR for foreign born women was 2.51 children per woman, compared with 1.79 for UK born women.
- The rise in the overall TFR is mainly due to increasing fertility among UK born women, since fertility among foreign born women has remained relatively stable since 2004. However, foreign born women, who generally have higher fertility, are making up an increasing share of the population, which is also acting to push the overall TFR upwards.
- Increases in the number of births since 2001 have been driven by UK born women at ages 20–24 and 35 and over, but by foreign born women at ages under 20 and 25–34.
- Since 2004 increasing fertility rates among UK born women have made the largest contribution to the overall increase in births – the rise in births is not as high as it might have been, due to falling numbers of UK born women aged 25–39.
- The increasing size of the foreign born population (particularly at ages where fertility is highest), resulted in the second largest contribution to the overall increase in births since 2004.
- In both 2001 and 2007 the ten local authorities exhibiting the highest proportion of births to foreign born mothers were all London boroughs which had over 60 per cent of births to foreign born women by 2007. In Scotland and Northern Ireland, the local authorities with the highest proportion of births to foreign born mothers were Aberdeen City and Dungannon. In 2007 these areas experienced over one-fifth of births to foreign born mothers.

Migration, fertility and the links between them are set to be explored further by the new Economic and Social Research Council (ESRC) Centre for Population Change. The Centre aims to bring together expertise from the University of Southampton and a consortium of Scottish universities in tackling key questions relating to population change. It is being run in partnership with the Office for National Statistics and the General Register Office for Scotland.

Acknowledgements

We are grateful for the assistance of colleagues at the General Register Office for Scotland and the Northern Ireland Statistics and Research Agency for birth registration data to facilitate the compilation of UK-wide statistics.

Appendix One

Estimating the population by individual countries of birth

Female population estimates for the UK by both individual country of birth and five-year age group are not statistically robust since annual estimates are only available from surveys and are subject to sampling error (in non-census years). A detailed picture of the most common

Table A1

Estimated total population resident in the United Kingdom, by foreign country of birth: Ten most common countries of birth, 2004 and 2007

2004		2007	
Country	Estimate (thousands)	Country	Estimate (thousands)
1 India	502	India	613
2 Republic of Ireland	452	Republic of Ireland	420
3 Pakistan	281	Poland	405
4 Germany	275	Pakistan	377
5 Bangladesh	225	Germany	266
6 South Africa	178	Bangladesh	205
7 United States of America	145	South Africa	201
8 Kenya	143	United States of America	188
9 Jamaica	136	Jamaica	166
10 Italy	114	Nigeria	140

Source: Annual Population Survey

countries of birth among the foreign born population can only be obtained by studying the UK population as a whole (all age–sex groups combined). Estimates of total UK population by individual countries of birth for 2004 to 2007 were published by the Office for National Statistics^{24,25} for the first time in August 2008 using the Annual Population Survey. It is not known how closely the detailed country of birth distribution among all individuals matches that for females of reproductive age. For this reason care should be exercised when drawing any conclusions about the childbearing population from these estimates.

Table A1 shows the ten most common countries of birth for the foreign born UK population in 2004 and 2007. Between 2004 and 2007 increases in the number of individuals born in countries such as India, Pakistan, Nigeria, South Africa and the USA have been observed. In contrast decreases have been observed in the number of individuals born in Bangladesh and Germany.

India was the most common foreign country of birth each year between 2004 and 2007 with Indian born residents making up just under 10 per cent of the foreign born population in the UK each year.

The Republic of Ireland has remained the second most common foreign country of birth since 2004, with Pakistan the third most common between 2004 and 2006. In 2007 however, Pakistan moved into fourth place being replaced by Poland which had risen from 12th place in 2004. In four years the Polish born population resident in the UK has more than trebled. A similar increase has been observed among the A8 born population as a whole, as a consequence of EU expansion.

Notes and References

- 1 The term 'births' used throughout refers to live births.
- 2 In this article, births to foreign born women include a very small number of births where the country of birth of the mother was not stated. In 2007, only 25 births in the UK did not have a mother's country of birth stated.
- 3 Live births by country of birth of the father and country of birth of the mother are published annually in Birth Statistics, Series FM1, Table 9.3 available at: www.statistics.gov.uk/downloads/theme_population/FM1_36/FM1-No36.pdf
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- 20 The term 'local authorities' is used here to cover local authorities and unitary authorities in England and Wales, council areas in Scotland, and local government districts in Northern Ireland. The boundaries used are those in existence at the time the birth occurred. Between 2001 and 2007, local authority boundaries in England, Scotland and Northern Ireland have remained unchanged. However, in Wales, some local authorities have experienced boundary changes since 2001. As a result, in some Welsh areas, changes in the proportion of births to foreign born women may be influenced by local authority boundary changes. On 1 April 2009, there was a reorganisation of local government in England which resulted in some boundary changes – these boundaries have not been used since our analysis only covers the period 2001 to 2007.
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Subnational patterns of population ageing

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Office for National Statistics

Introduction

The UK population is growing in size. In 1981 the UK population was 56 million; by 2007 it was almost 61 million. This population growth has not been consistent across all ages. In 1981 the median age in the UK was 34.5 years; by 2007 it had increased by nearly five years to 39.2. In 2007, for the first time, the population over state pensionable age in the UK was higher than the population aged under 16¹. This was the result of below replacement fertility in the UK after 1974 and women born in the post Second World War baby boom beginning to reach retirement age in 2007. The 'oldest old' population, those aged 85 and over, have experienced the most rapid growth. In 1981, 1.1 per cent of the population were aged 85 and over. By 2007 this population had doubled in number, representing 2.1 per cent of the total population. This rapid growth can mainly be explained by falls in mortality rates leading to increased survival to older ages².

There are large variations in the age composition of the UK at the subnational level. In this report, population estimates and projections for Local Authorities (LAs) in England, Wales, Scotland and Northern Ireland are used to identify and investigate changes in population age structure at the subnational level, between 1997 and 2017 (see **Appendix 1** for a summary of the administrative geography of the UK). Different measures of population ageing are then described and used to give a full picture of the changes in age structure occurring at the subnational level. Three LAs have been further explored as case studies.

Definitions and measures of ageing

What do we mean by old age and population ageing? The term 'ageing' refers to both the increase in the average age of the population as well as the increasing number or proportion of older people in the population.

Over the last decade the number of people aged 65 and over in the UK has grown by 6 per cent, from 9.2 million in 1997 to 9.8 million in 2007. Over the next 10 years this older population is projected to grow by a further 23 per cent to 12.1 million by 2017. This is primarily a result of falls in fertility and mortality rates over the past 150 years and changing sizes of past birth cohorts. Population age structures differ by region and local area. In the UK, the majority of local areas are ageing but a small number are becoming less aged. Information on changes in the size and composition of the older population in local areas is of increasing importance to local government as this group is more likely to be in receipt of health and social services. This article explores changes in population age structure at the Local Authority (LA) level for the whole of the UK between 1997 and 2017, focusing on change in the older population.

Box one

Measures of population age structure and population ageing

Median Age

The median measures the average age of the population, the age at which 50 per cent of the population are younger and 50 per cent of the population are older. Growth of the median over time gives an indication of whether the population is becoming more aged over time.

Proportion of older people

The proportion of people aged 65 and over has been used to investigate the change in size of the older population as it broadly represents the age at which most people have just made or are just making their transition into retirement. The percentage of people aged over SPA has not been used as a direct measure of ageing because SPA is due to increase to 65 for women between 2010 and 2020 and to later rise for both sexes to 68 by 2046.

The proportion of people aged 85 and over, referred to as the "oldest old", is also used in this report. Understanding the population trends in this age group is important as they are most likely to be in receipt of health and social services.

Percentage change in the older population

Change in the older population, expressed as a percentage of the population at the beginning of the time period, is probably the simplest indicator of population ageing. Percentage change in the older population has been investigated for the past and future time periods: 1997 to 2007 and 2007 to 2017.

The *Classification Typology of Ageing*, adapted from Walford and Kurek³ classifies areas according to whether growth in the percentage aged 65 and over has been positive, negative, or a combination in the two time periods considered. The categories are as follows:

Category	Direction of change	
	1997–2007	2007–2017
Growth	+	+
Projected Growth	–	+
Projected Decline	+	–
Decline	–	–

Old Age Support Ratio

The old age support ratio (OASR) represents the number of people of working ageⁱ to the number of people of SPAⁱⁱ and over. The OASR is a demographic ratio and does not take into account possible future inactivity owing to early retirement, health problems, disabilities and caring responsibilities that prevent people from working. Similarly, some people of SPA will choose to extend their working lives into later life. Care is therefore needed in its use; it is not an indicator of the economic support ratio, which is the ratio of the number of people aged 16 and over in paid employment to the number of people aged over SPA in retirement plus those aged under 16⁴.

i The working age population is defined as those aged 16 up to State Pension Age.

ii The population of SPA is defined as women aged over 60 and men aged over 65 prior to 2010. From 2010 onwards the definition of SPA takes into account the phased increases due to be introduced by the UK government between 2010 and 2046.

There are many different measures of population ageing and 'old age' may be defined differently depending on the ageing measure used. The most commonly used definition of old age is the age at which a person becomes entitled to receive state pension benefits³. Currently in the UK, state pension age (SPA) is 60 for women and 65 for men. The ageing measures and their properties are discussed in **Box one**.

Data sources

Population Estimates

ONS produces annual mid-year population estimates of the resident population for England and Wales⁵; the General Register Office for Scotland (GROS) and Northern Ireland Statistics and Research Agency (NISRA) produce the corresponding estimates for Scotland and Northern Ireland⁶. ONS combines the estimates made by the three agencies to produce UK population estimates. For this report mid-year population estimates by single year of age and sex for LAs have been used from 1997 to 2007 in England, Wales, Scotland and Northern Ireland⁷.

Population Projections

ONS produces national population projections for the UK and constituent countries every two years. The latest projections are based on the 2006 mid-year population estimates. Population projections are based on assumptions about births, deaths and migration, but do not take into account the effects of future local or central government policies.

Subnational population projections (SNPPs) for countries within the UK are produced by each respective statistical office in England, Wales, Scotland and Northern Ireland⁸. For this report SNPPs by single year of age and sex for LAs have been used from 2007 to 2017 in England, Wales, Scotland and Northern Ireland⁹.

Results

Changes in population age structure at the National and Government Office Region (GOR) level

Tables 1 and 2 show that in 2007, Wales was the most aged country in the UK, with a median age of 40.8 years and 18 per cent of its population aged 65 and over. While Wales has had similar fertility and mortality

Table 1

Median age in years for the population of UK constituent countries and English regions

	1997	2007	2017 (projected)
United Kingdom	36.9	39.2	40.0
England	36.9	39.0	39.7
North East	37.5	40.4	41.4
North West	36.9	39.4	40.1
Yorkshire and the Humber	37.0	38.9	38.8
East Midlands	37.3	39.9	41.0
West Midlands	36.9	39.3	40.0
East of England	37.6	40.1	41.2
London	33.8	34.7	35.1
South East	37.7	40.0	41.2
South West	39.5	41.7	43.4
Wales	38.3	40.8	42.6
Scotland	37.2	40.5	42.7
Northern Ireland	33.0	36.3	38.0

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

Table 2

Percentage population aged 65 and over for the UK constituent countries and English regions

	1997	2007	2017 (projected)
United Kingdom	15.9	16.0	18.4
England	15.9	16.0	18.2
North East	16.1	16.9	19.6
North West	15.9	16.2	18.6
Yorkshire and the Humber	16.0	16.0	18.0
East Midlands	16.0	16.3	19.2
West Midlands	15.7	16.4	19.0
East of England	16.2	16.8	19.6
London	13.1	11.7	11.8
South East	16.4	16.6	19.3
South West	18.7	18.8	21.8
Wales	17.4	17.8	21.2
Scotland	15.5	16.4	19.5
Northern Ireland	13.0	13.8	16.5

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

patterns to England, these have been combined with the out-migration of younger people¹⁰. Wales is also largely rural, and larger proportions of older people tend to live in and retire to rural areas as opposed to urban areas¹¹. Northern Ireland currently has the least aged population with a median age of 36.3 years and 14 per cent of its population aged 65 and over. Over the past few decades, Northern Ireland has had markedly higher fertility rates in comparison the rest of the UK¹² and therefore has the largest proportion of children. **Figure 1** shows the age structure of each UK constituent country for the years 1997, 2007 and 2017.

Between 1997 and 2007, both Scotland and Northern Ireland experienced the largest increase in the median age of the population (3.3 years). Northern Ireland also experienced a 12 per cent increase in the number of people aged 65 and over, the largest increase of UK constituent countries. The population of England experienced the smallest increase in median age (2.1 years); Wales experienced only a 5 per cent increase in the number of people aged 65 and over between 1997 and 2007, the smallest of the UK constituent countries.

By 2017 Scotland is projected to have the highest median age in the UK, rising from 40.5 years in 2007 to 42.7 years in 2017. Wales is projected to maintain the highest proportion of the population aged 65 and over rising to 21 per cent in 2017. Northern Ireland is projected to experience the largest increase in its older population, with the number of people aged 65 and over projected to increase by 27 per cent between 2007 and 2017.

For each year the South West has the highest median age followed by the North East, the East and the South East. The population of London has slowly become older between 1997 and 2007 and is projected to continue to age up to 2017, but still has the lowest median age of all the Regions over the time period. Between 1997 and 2007 the East experienced the largest growth in number of people aged 65 and over, an increase of 11 per cent. The East Midlands is projected to have the greatest increase in the number of people aged 65 and over between 2007 and 2017, at 30 per cent. **Figure 2** shows that the LAs in the South East had the widest distribution of people aged 65 and over in 2007, whereas the LAs in the North East had the narrowest distribution (information on interpreting box plots can be found in **Box two**).

Changes in population age structure at the Local Authority (LA) Level

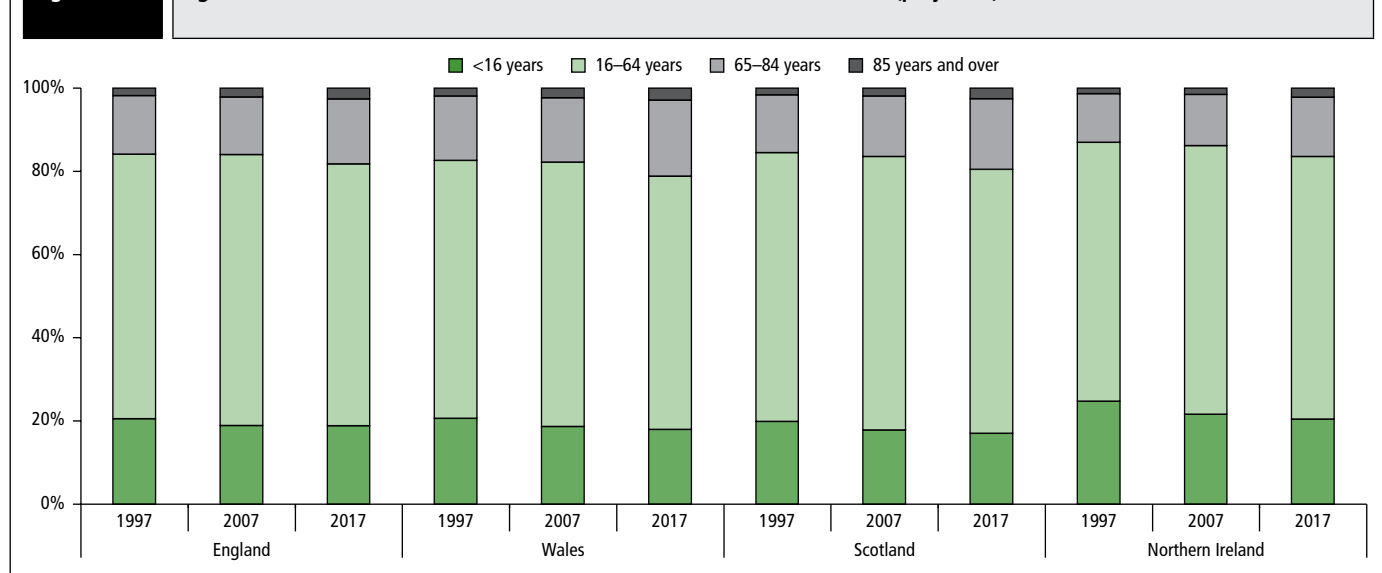
Median Age

In 2007 West Somerset had the highest median age in the UK at 52 years (**Table 3**). **Map 1** shows the median age of the LA populations for 2007. Maps 1 to 6 have been constructed using categories defined by the 5th, 25th, 75th and 95th percentiles of the distribution of the median age variable for 2007. The map shows that LAs with the highest median ages tend to be located on the south and east coasts of England. These include West Somerset, Christchurch, Rother, East Dorset, Tendring, North Norfolk, East Lindsey, Berwick-Upon-Tweed and Alnwick. Although older people have low migration rates, the South West has the highest in-migration of people aged 60 and over of all Regions¹¹. This trend reflects the tendency for older people to choose coastal and rural areas as retirement destinations.

In 2007 Oxford had the lowest median age in the UK at 29 years. The presence of higher education institutions in Oxford increases the population of young adults, reducing the average age. Other areas highly populated by students and many inner London boroughs also have low median ages.

Figure 1

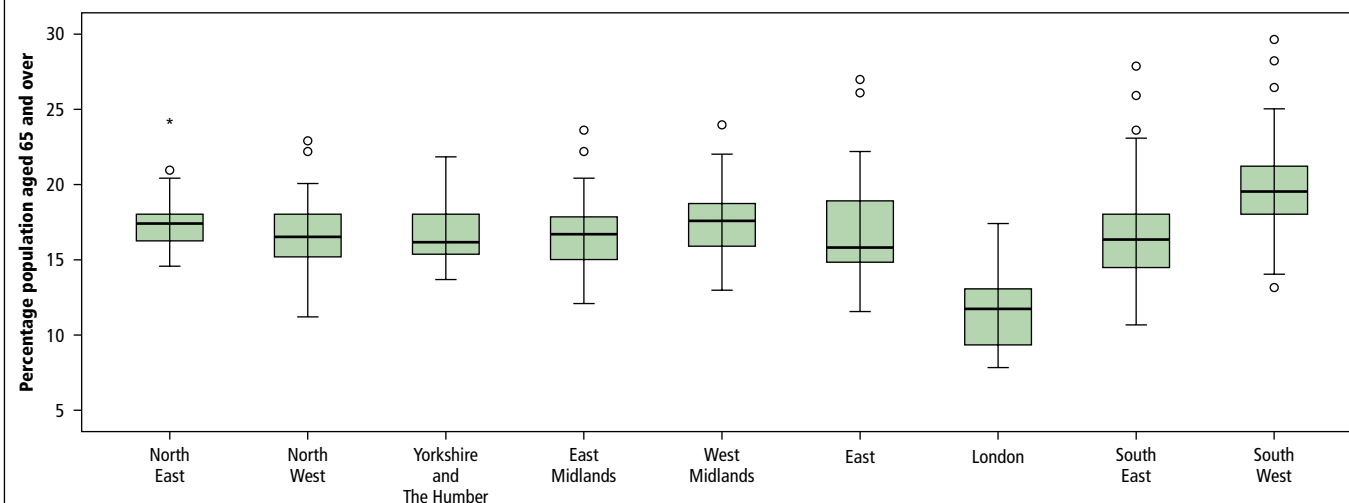
Age structure of the four UK constituent countries in 1997, 2007 and 2017 (projected)



Source: ONS Mid year population estimates and 2006-based UK population projections

Figure 2

Percentage distribution of population aged 65 and over in LAs within English regions in 2007



Source: ONS Mid year population estimates

In 1997 LAs in Northern Ireland had low median age, Derry being the lowest at 29 years. This may have resulted from higher fertility rates in Northern Ireland compared to the rest of the UK, where fertility peaked in the early 1960s but has since been declining. In 1992 the total period fertility rate in Northern Ireland dropped below replacement level (2.1) for the first time¹². As a result the population in Northern Ireland has been ageing significantly since 1997.

Box two

Interpreting box plots¹³

Median

The line in the box represents the median value of the data. If a set of observations is ordered by size, the median is the middle observation.

Boxes

The box itself contains the 'middle' 50 per cent of the data. If a set of observations is ordered by size, with the median being the middle observation, 25 per cent of the observations either side of the median will constitute the middle 50 per cent. The lower edge (hinge) of the box indicates the 25th percentile (lower quartile), and the upper hinge indicates the 75th percentile (upper quartile). The box represents the range of the middle two quartiles and is known as the interquartile range. It illustrates how the middle half of the data are spread.

Whiskers

The ends of the lines extending from the box (whiskers) indicate the minimum and maximum data values. If outliers are present the whiskers extend to the nearest data observation which lies within 1.5 times the interquartile range.

Outliers

The points beyond the whiskers are outliers. Values which lie more than 1.5 times the interquartile range away from the edge of the box are 'mild' outliers and are marked by a circle. Values which lie more than 3 times the interquartile range away from the edge of the box are 'extreme' outliers and are marked by a star.

West Somerset is projected to continue to have the highest median age, rising by 4 years to 56 years in 2017. **Map 2** shows the median age of LAs for 2017. When comparing maps 1 and 2, it is evident that LAs in the UK are projected to age dramatically over the next ten years.

Population age structure at the local authority level

Percentage of people aged 65 and over

In 2007 there were 9.8 million people in the UK aged 65 and over (16 per cent of the total population), an increase of 0.6 million since 1997. By 2017 this figure is projected to have grown by 25 per cent reaching 12.1 million (18 per cent of the total population). **Maps 3, 4 and 5** show the proportions of people aged 65 and over in 1997, 2007 and projected for 2017 respectively. In 2007 Christchurch had the largest proportion of people aged 65 and over at 30 per cent of the population (**Table 4**). The LAs with the highest proportion of people aged 65 and over are consistent with the LAs with the highest median ages. These areas are located on the south and east coast of England, reflecting retirement migration to coastal areas¹⁵. In 2007 Tower Hamlets had the smallest proportion of people aged 65 and over with 8 per cent of the population. The ten least aged local authorities, each with less than 10 per cent of their total population aged 65 and over, are all London boroughs. London has the highest out-migration of people aged 45 and over of all England

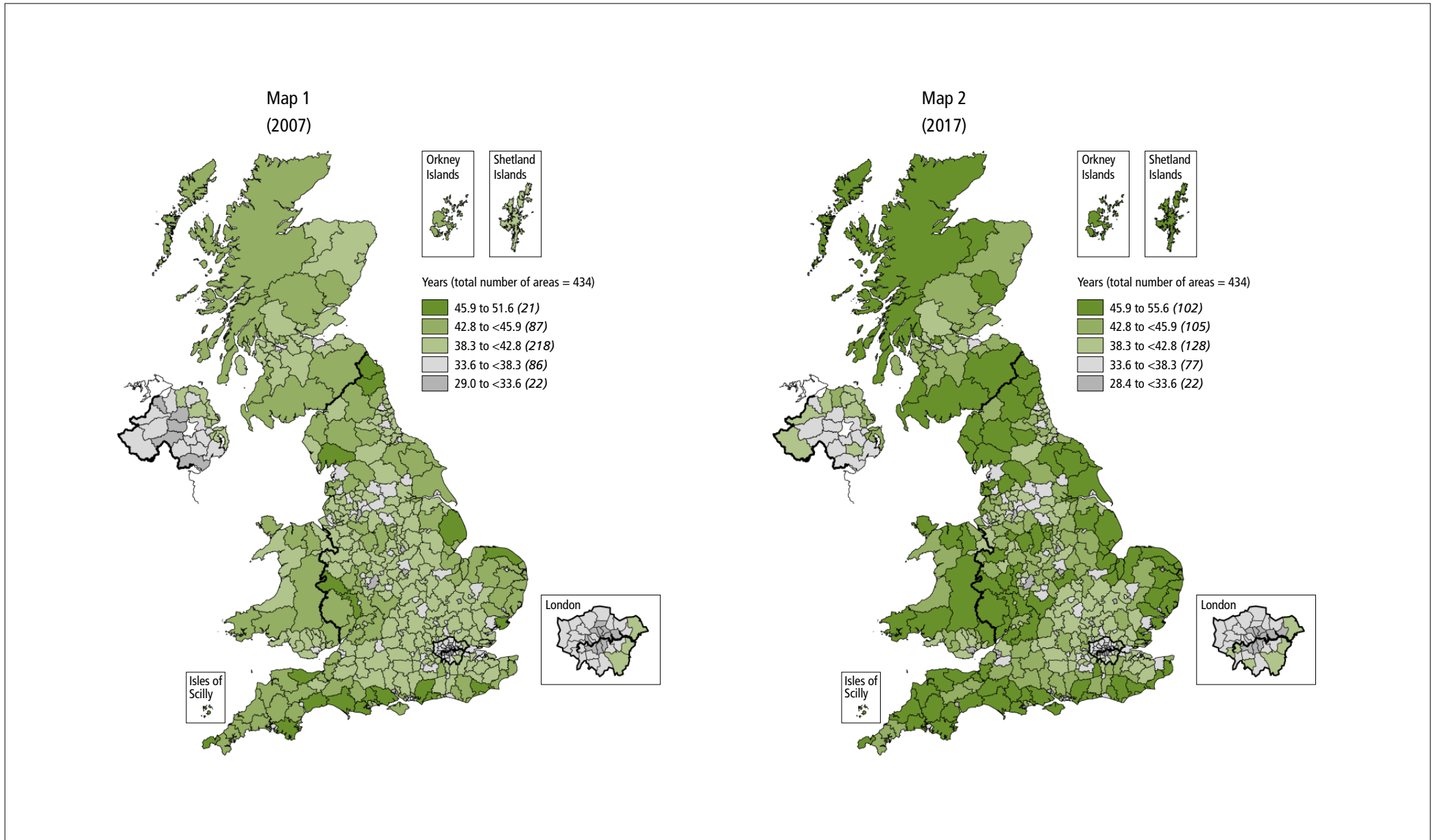
Table 3

The five LAs in the UK with the highest and the lowest median age in years

	1997		2007		2017 (projected)
Lowest median age in years					
Derry City	28.9	Oxford	29.0	Oxford	28.4
Tower Hamlets	29.1	Newham	30.2	Cambridge	29.8
Limavady	29.7	Manchester	30.2	Newham	30.7
Newham	30.1	Cambridge	30.2	Manchester	30.9
Magherafelt	30.4	Tower Hamlets	30.6	Tower Hamlets	31.6
Highest median age in years					
East Dorset	46.2	East Dorset	49.2	Rother	53.0
East Devon	46.7	Rother	49.9	East Dorset	53.2
West Somerset	48.0	Christchurch	50.1	North Norfolk	53.4
Rother	48.1	North Norfolk	50.4	Berwick-upon-Tweed	54.2
Christchurch	48.6	West Somerset	51.6	West Somerset	55.6

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

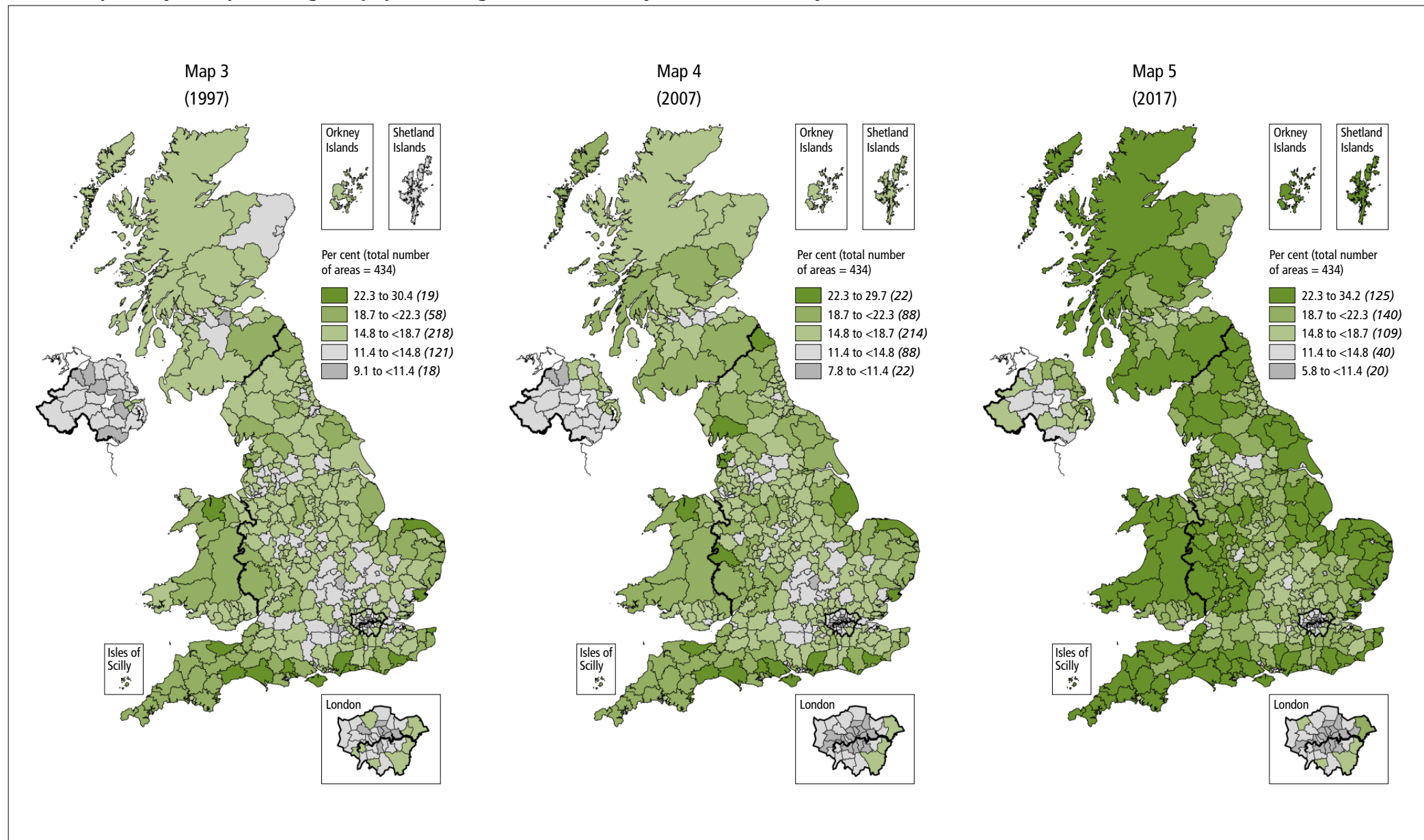
Map 1 Median age for all UK local authority areas in 2007 / Map 2 Projected median age for all UK local authority areas in 2017



1 Because of very low population numbers in certain age categories, data for City of London have been combined with Westminster, and data for the Isles of Scilly with Penwith.

Source: Map 1 – Mid-year population estimates, Office for National Statistics; Map 2 – Subnational population projections, Office for National Statistics, Welsh Assembly Government, General Register Office for Scotland and Northern Ireland Statistics and Research Agency

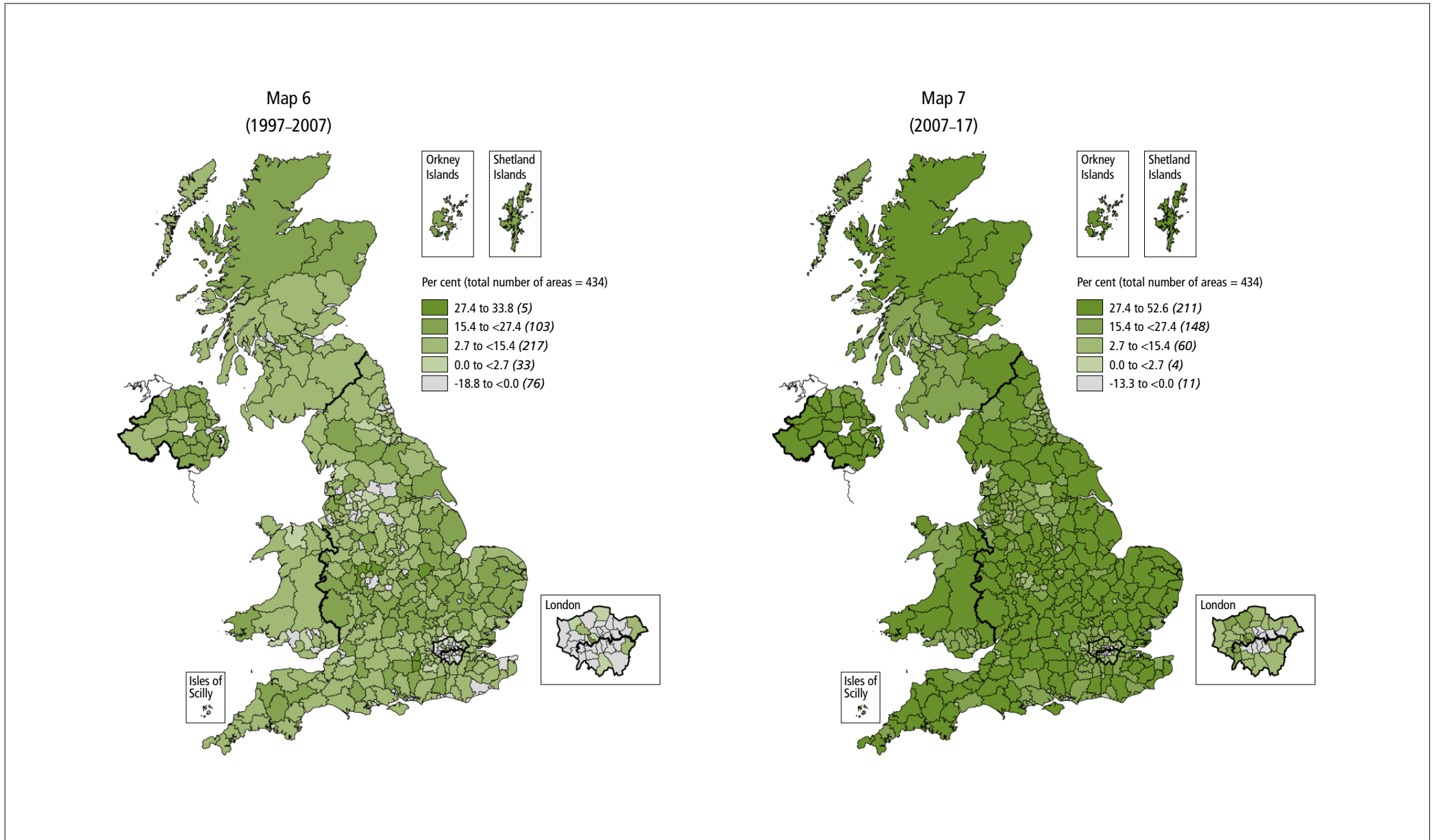
Map 3 Percentage of population aged 65 and over by UK local authority, 1997 / Map 4 Percentage of population aged 65 and over by UK local authority, 2007 / Map 5 Projected percentage of population aged 65 and over by UK local authority, 2017



1 Because of very low population numbers in certain age categories, data for City of London have been combined with Westminster, and data for the Isles of Scilly with Penwith.

Source: Map 3 – Mid-year population estimates, Office for National Statistics; Map 4 – Mid-year population estimates, Office for National Statistics; Map 5 – Subnational population projections, Office for National Statistics, Welsh Assembly Government, General Register Office for Scotland and Northern Ireland Statistics and Research Agency

Map 6 Percentage change in population aged 65 and over by UK local authority, 1997 to 2007 / Map 7 Projected percentage change in population aged 65 and over by UK local authority, 2007 to 2017



1 Because of very low population numbers in certain age categories, data for City of London have been combined with Westminster, and data for the Isles of Scilly with Penwith.

Source: Map 6 – Mid-year population estimates, Office for National Statistics; Map 7 – Mid-year population estimates, Office for National Statistics; Subnational population projections, Office for National Statistics, Welsh Assembly Government, General Register Office for Scotland and Northern Ireland Statistics and Research Agency

Table 4

The five LAs with the highest and the lowest percentage population aged 65 and over

	1997		2007		2017 (projected)
Lowest percentage aged 65 and over					
Derry City	9.2	Tower Hamlets	7.8	Tower Hamlets	5.9
Limavady	9.5	Newham	8.1	Newham	7.7
Newham	9.9	Lambeth	8.5	Lambeth	8.0
Milton Keynes	10.0	Hackney	8.7	Southwark	8.2
Antrim	10.2	Camden	8.9	Camden	8.2
Highest percentage aged 65 and over					
Tendring	26.6	East Devon	26.6	East Dorset	31.9
West Somerset	26.9	North Norfolk	26.9	Rother	32.0
East Devon	27.2	Rother	28.0	North Norfolk	32.5
Rother	28.9	West Somerset	28.2	Christchurch	33.1
Christchurch	30.4	Christchurch	29.6	West Somerset	34.2

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

GORs, but the highest in-migration of people aged 20 to 29¹⁴. Many other urban LAs with large populations of young professionals and students also tend to have low proportions of people aged 65 and over, such as Milton Keynes, Derry, Limavady, Oxford, Manchester and Slough.

Derry had the smallest proportion of people aged 65 and over in 1997 at 9 per cent of the population. In 1997, three of the five areas with the lowest proportion of people aged 65 and over are located in Northern Ireland. Declining fertility rates over the second half of the 20th century have contributed to the rapid ageing of the population in Northern Ireland. High levels of international migration during the 1990s saw a great influx of working age migrants into London. Since 1997 London boroughs have replaced Northern Ireland areas as the least aged areas in the UK.

By 2017 West Somerset is projected to be the LA with the largest proportion of people aged 65 and over. Many of the areas with the lowest proportions of people aged 65 and over in 2007 are projected to become even younger by 2017.

Percentage change of population

The percentage change in the older population is a useful measure to identify the areas which are ageing rapidly. **Table 5** shows that between 1997 and 2007, Rutland had the largest percentage increase in the number of people aged 65 and over at 34 per cent. **Map 6** shows that during this period LAs in middle and eastern England, Scotland and Northern Ireland had the largest percentage increases in numbers of people aged 65 and over. Maps showing percentage change over time have been constructed broadly using categories defined by the 5th, 25th, 75th and 95th percentiles of the distribution in question for the period 1997 to 2007. However, in order to use zero as a category boundary (as is conventional when showing both positive and negative values on a map), some boundaries have been adjusted and the counts do not therefore reflect the percentiles previously chosen.

Seventy-five per cent (24) of London boroughs experienced a decline in the number of people aged 65 and over. These and other urban centres are also the locations of higher education institutions and tend to attract younger single migrants and experience net outward migration of families and older people¹¹.

Between 1997 and 2007 a number of coastal areas experienced a decline in the number of people aged 65 and over, despite being particularly aged areas in 1997 (for example, Brighton and Hove and Bournemouth). There have been decreases in the number of people aged 50 and over migrating to coastal areas from other LAs in the UK. At the same time there have

Table 5

The five local authorities with the highest and lowest actual and projected percentage change in population aged 65 and over

	1997–2007		2007–2017 (projected)
Lowest percentage change			
Barking and Dagenham	–18.8	Tower Hamlets	–13.3
Lewisham	–15.8	Barking and Dagenham	–7.0
Tower Hamlets	–15.8	Newham	–4.9
Brighton and Hove	–15.5	Oxford	–3.8
Wandsworth	–14.9	Lambeth	–2.1
Highest percentage change			
Wokingham	27.4	Huntingdonshire	47.7
Hart	29.8	Daventry	48.5
South Staffordshire	29.9	Milton Keynes	49.6
Lichfield	30.2	South Northamptonshire	50.0
Rutland	33.8	East Northamptonshire	52.6

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

been large increases in the number of people aged 50 and over migrating from these areas to other LAs in the UK. These areas have become very expensive to live in and are increasing in popularity with students, which may partly explain the decline in their appeal to older people. In many areas, it could also be possible that the older cohorts are not being sufficiently replaced by both younger cohorts who age *in situ*, or by new migration into the area.

Between 2007 and 2017 East Northamptonshire is projected to have the largest increase in the number of people aged 65 and over, at 53 per cent. Some areas of very high ageing will reflect the periods during which the areas experienced rapid development and hence large inflows of families. The parents will tend to stay put as they age although their children will tend to leave the family household and probably migrate (perhaps temporarily) to the city areas mentioned earlier. Between 2007 and 2017, 97 per cent of LAs are projected to experience growth in the numbers of people aged 65 and over. **Map 7** shows that these areas are mostly located in Northern Ireland, East Midlands, north east Scotland, the Midlands and East Anglia.

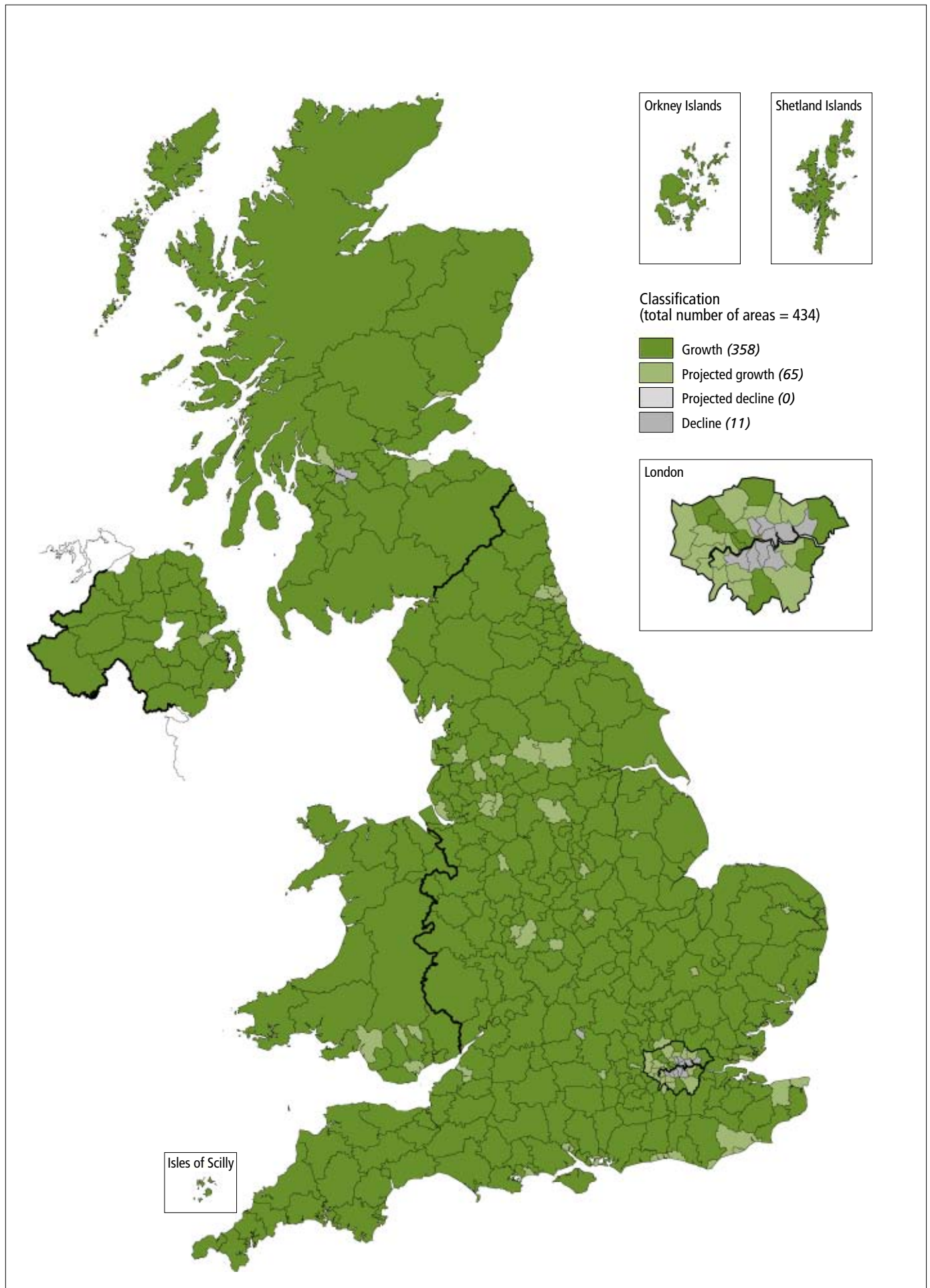
Only 11 LAs are projected to experience a decline in the number of people aged 65 and over, compared to 76 LAs, which experienced decline between 1997 and 2007. This illustrates that the vast majority of UK LAs are ageing and are projected to continue to age. Nine of the 11 areas which are projected to experience a decline in the number of people aged 65 and over are London boroughs. For example, between 2007 and 2017, Tower Hamlets is projected to have the largest decrease in the number of people aged 65 and over at –13 per cent.

Classification Typology of Ageing

The Classification Typology of Ageing⁴ is a method of classifying change in population age structure over two or more time periods. For this analysis each LA is classified according to whether the number of people aged 65 and over has increased or decreased between 1997 and 2007 and is projected to increase or decrease between 2007 and 2017 (see **Box 1**). Eighty-two per cent of UK LAs are in the ‘growth’ category. This indicates that the majority of LAs are ageing between 1997 and 2007, and are also projected to age between 2007 and 2017.

Fifteen per cent of LAs are in the ‘projected growth’ category. This category contains those areas where the number of people aged 65 and over has been declining between 1997 and 2007, but is projected to grow between 2007 and 2017. Many of these areas are located on the south coast of England, the Midlands, Wales and Greater London (see **Map 8**).

Map 8 Classification typology of population ageing projected for all UK local authorities, 1997 to 2017

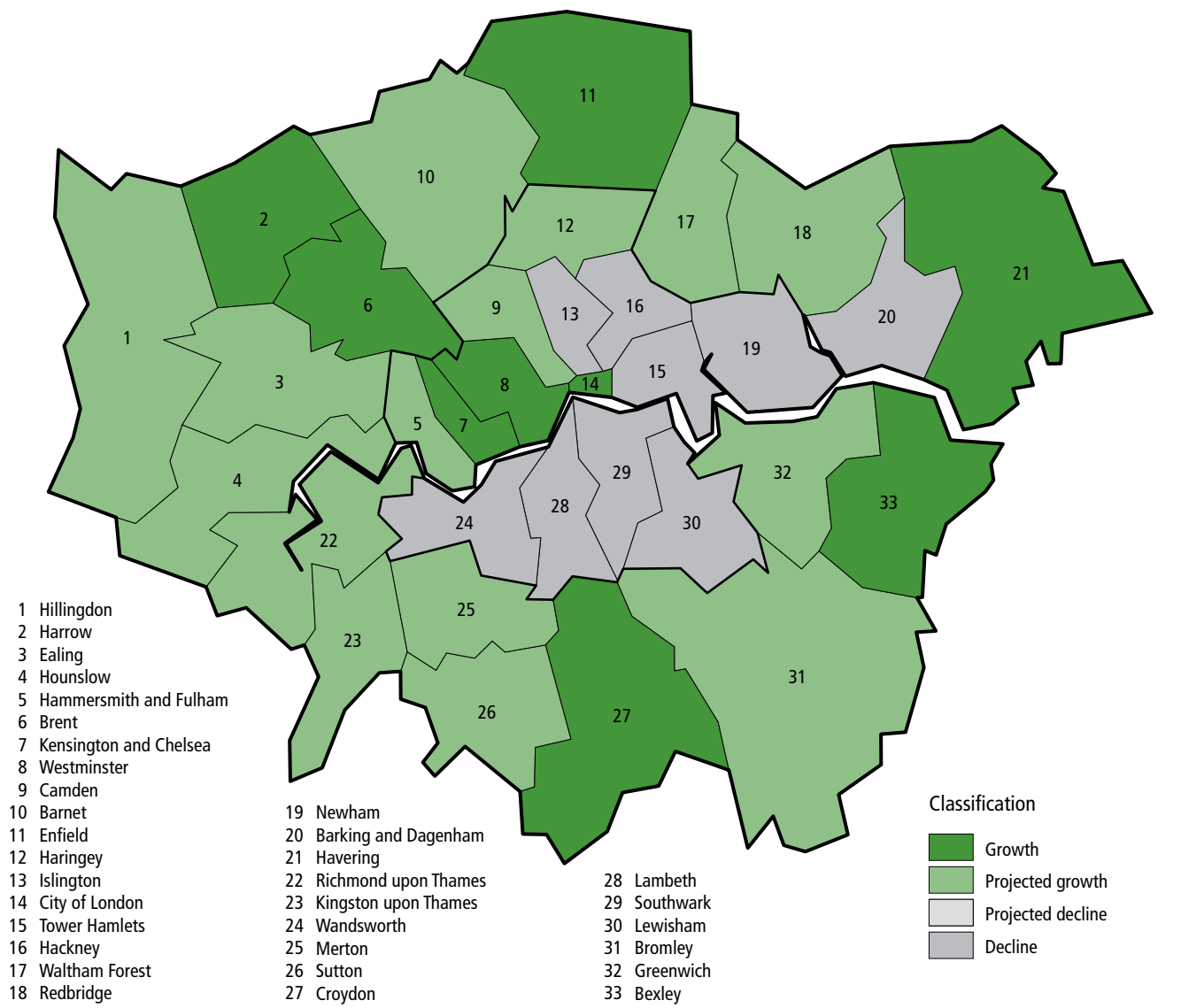


1 Because of very low population numbers in certain age categories, data for City of London have been combined with Westminster, and data for the Isles of Scilly with Penwith.
 Source: *Mid-year population estimates*, Office for National Statistics; *Subnational population projections*, Office for National Statistics, Welsh Assembly Government, General Register Office for Scotland and Northern Ireland Statistics and Research Agency

Map 9

Classification typology of population ageing projected for all London Boroughs, 1997 to 2017

London



1 Because of very low population numbers in certain age categories, data for City of London have been combined with Westminster.
 Source: Mid-year population estimates, Office for National Statistics; Subnational population projections, Office for National Statistics

Areas such as Bournemouth, Worthing, Adur, Eastbourne, Rother and Hastings are in this category. Despite being among the most aged areas of the UK, these areas have experienced declining numbers of people aged 65 and over between 1997 and 2007. Fifteen London boroughs are in the 'projected growth' category. Such areas include Greenwich, Camden, Richmond upon Thames, Hillingdon and Kingston upon Thames.

No areas are in the 'projected decline' category and only 3 per cent of LAs are in the 'decline' category. Of these 11 areas (Map 8 classification shows 11) nine are London boroughs. Map 9 shows that most inner London boroughs have declining numbers of people aged 65 and over, with two exceptions, being Westminster and Kensington and Chelsea. The other areas experiencing decline in the population of people aged 65 and over are Oxford and Glasgow City.

Proportions and change of population aged 85 and over

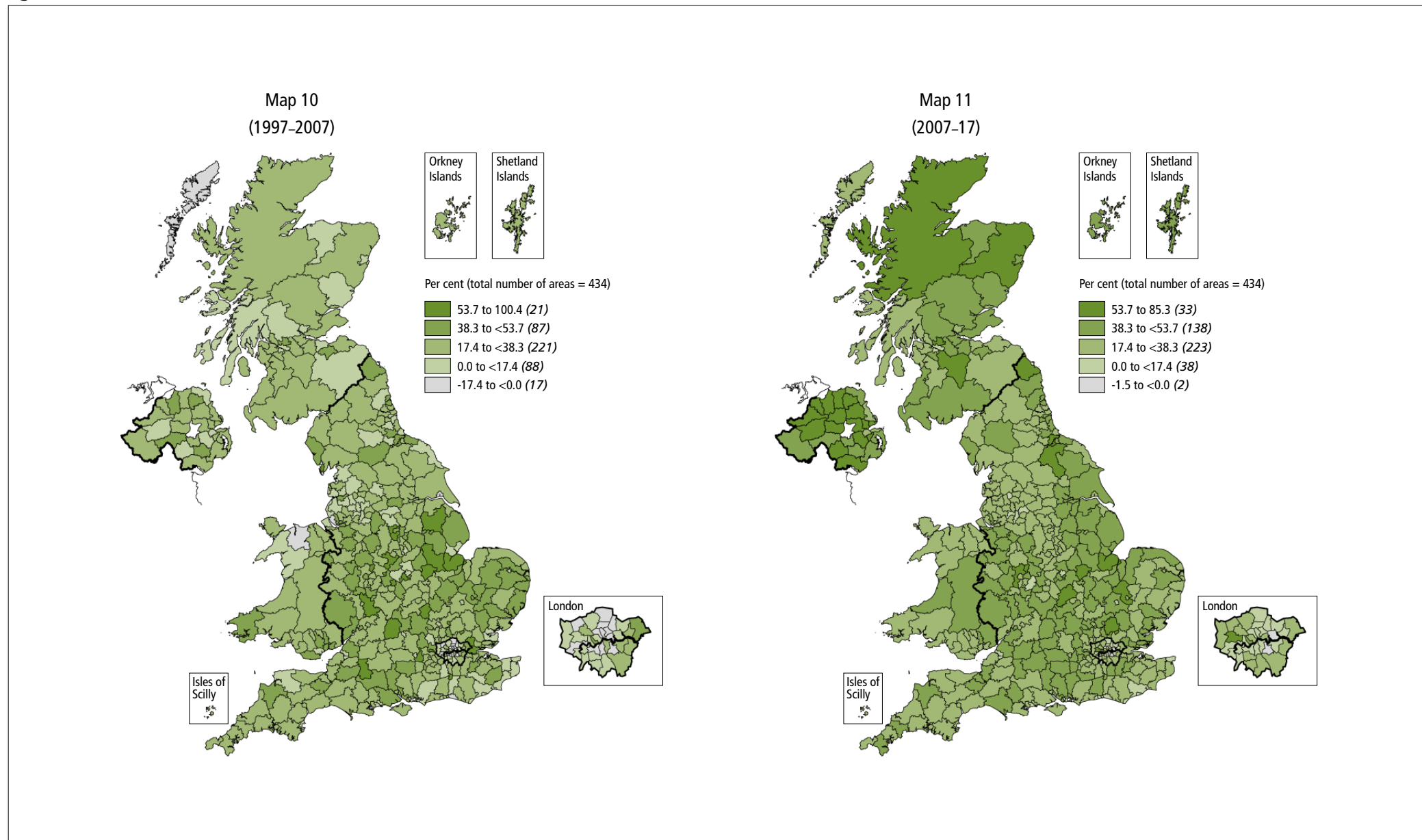
The 'oldest old' or people aged 85 and over are the fastest growing age group in the UK. This population has rapidly increased in recent years due to improvements in health at very old ages. Map 10 shows that

between 1997 and 2007 the LAs with the highest percentage change of people aged 85 and over were mainly found in the East Midlands, West Midlands and East Anglia. Only 17 LAs experienced a decline in the number of people aged 85 and over; 12 of these were London boroughs.

In 2007 Rother had the highest proportion of 'oldest old' in the UK, with nearly 5 per cent of the population aged 85 and over (Table 6). The ten LAs with the highest percentages of people aged 85 and over are all located on the coast, mostly in the South and East of England. People aged 85 and over have the lowest migration rates of all age groups¹¹. Therefore, migration of younger people to these areas who then 'age in place' is an important determinant of age structure.

In 2007 Tower Hamlets had the smallest proportion of the 'oldest old', with only 0.9 per cent of the population aged 85 and over, and is also projected to have the smallest percentage of people aged 85 and over in 2017. In 2007, 22 LAs had populations aged 85 and over that represented less than 1.3 per cent (containing the lowest 5 per cent of the distribution) of the total population for those areas. Of these 22 LAs, with the exception of Luton and West Lothian, ten were London boroughs and ten

Map 10 Percentage change in population aged 85 and over in all UK local authorities, 1997 to 2007 / Map 11 Projected percentage change in population aged 85 and over in all UK local authorities, 2007 to 2017



1 Because of very low population numbers in certain age categories, data for City of London have been combined with Westminster, and data for the Isles of Scilly with Penwith.

Source: Map 10 – Mid-year population estimates, Office for National Statistics; Map 11 – Mid-year population estimates, Office for National Statistics; Subnational population projections, Office for National Statistics, Welsh Assembly Government, General Register Office for Scotland and Northern Ireland Statistics and Research Agency

Table 6

Five local authorities in the UK with the highest and the lowest percentage population aged 85 and over

1997		2007		2017 (projected)	
Lowest percentage aged 85 and over					
Tamworth	0.82	Tower Hamlets	0.85	Tower Hamlets	0.87
Derry City	0.83	Derry City	0.94	Newham	1.04
Limavady	0.86	Islington	1.04	Camden	1.05
Cannock Chase	0.93	Lambeth	1.05	Islington	1.07
Milton Keynes	0.95	Haringey	1.05	Haringey	1.10
Highest percentage aged 85 and over					
East Devon	3.96	Worthing	4.32	North Norfolk	5.05
Christchurch	4.29	Arun	4.40	Rother	5.10
Eastbourne	4.30	West Somerset	4.47	West Dorset	5.44
Worthing	4.37	Christchurch	4.76	Christchurch	5.57
Rother	4.61	Rother	4.78	West Somerset	5.73

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

Table 7

Five local authorities in the UK with the highest and lowest actual and projected percentage change in population aged 85 and over

1997–2007		2007–2017 (projected)	
Lowest percentage change			
Waltham Forest	-17.3	Newham	-1.4
Haringey	-16.7	Lewisham	-0.1
Camden	-14.5	Waltham Forest	0.2
Hounslow	-14.0	Barking and Dagenham	3.4
Islington	-13.2	Richmond upon Thames	3.4
Highest percentage change			
Thurrock	66.6	Cookstown	71.4
Barrow-in-Furness	71.0	Strabane	73.7
Tamworth	71.8	Limavady	74.8
Cannock Chase	76.1	Newry & Bourne	82.1
Crawley	100.4	Carrickfergus	85.3

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

Table 8

The five local authorities in the UK with the highest and lowest old age support ratio (OASR)

1997		2007		2017 (projected)	
Lowest Old Age Support Ratio					
Christchurch	1.52	Christchurch	1.48	West Somerset	1.45
Rother	1.56	Rother	1.58	Christchurch	1.46
West Somerset	1.73	West Somerset	1.61	North Norfolk	1.56
East Devon	1.75	North Norfolk	1.70	Rother	1.56
Tendring	1.78	East Dorset	1.70	East Dorset	1.58
Highest Old Age Support Ratio					
Derry City	5.43	Islington	6.76	Southwark	8.50
Haringey	5.48	Camden	6.80	Camden	8.66
Milton Keynes	5.55	Newham	7.00	Islington	8.72
Limavady	5.56	Lambeth	7.17	Lambeth	8.74
Lambeth	5.60	Tower Hamlets	7.80	Tower Hamlets	11.57

Source: ONS Mid year population estimates and 2006-based UK subnational population projections

lay within Northern Ireland. However as shown in **Map 11** between 2007 and 2017, the rate of growth of people aged 85 and over in Northern Ireland is projected to be the highest in the UK; 14 out of the top 20 areas with the highest projected percentage change in people aged 85 and over are LAs in Northern Ireland. **Table 7** shows that Carrickfergus is projected to have the largest percentage increase in people aged 85 and over.

The Old Age Support Ratio (OASR)

The areas with the lowest OASR are located on the south coast of England. In 2007, Christchurch had the lowest OASR with 1.48 working age people to every person of SPA. By 2017 West Somerset is projected to have the lowest OASR in the UK, with 1.45 working age people to every person of SPA (**Table 8**).

In 2007 Tower Hamlets had the highest OASR with 7.80 working age people to every person of SPA. In 2007, all five of the areas with the highest OASR, were located in London, compared to only two London boroughs in 1997. In 1997, Derry and Limavady had a high proportion of working age people to every person of SPA, as did Milton Keynes, although these areas have since experienced a period of rapid ageing. Between 2007 and 2017 the OASRs in central London are projected to rise even higher. For example, it is projected that in 2017 there will be 11.57 people of working age to every person of SPA in Tower Hamlets. This reflects the increasing number and proportion of working age people living in London.

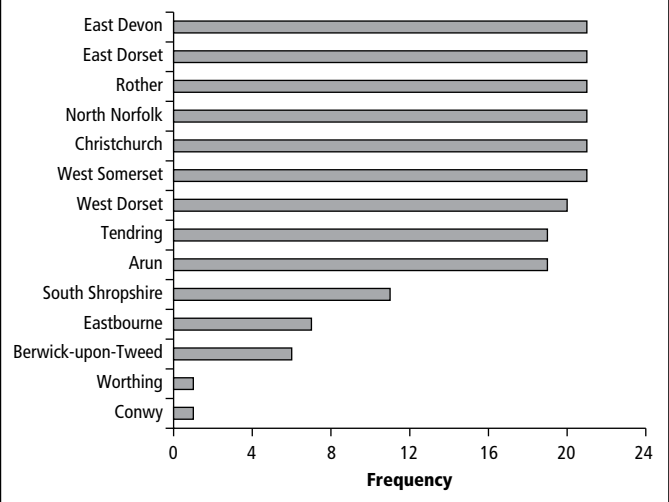
Figure 3 shows that only 14 LAs appear at least once in the bottom ten OASRs measured annually between 1997 and 2017. Some areas (North Norfolk, East Dorset, East Devon, West Somerset, Rother and Christchurch) consistently have low OASRs. **Figure 4** shows equivalently that 17 LAs have been in the highest ten OASR category at least once between 1997 and 2017. Three (Lambeth, Hackney and Newham) are consistently present.

Measures of ageing

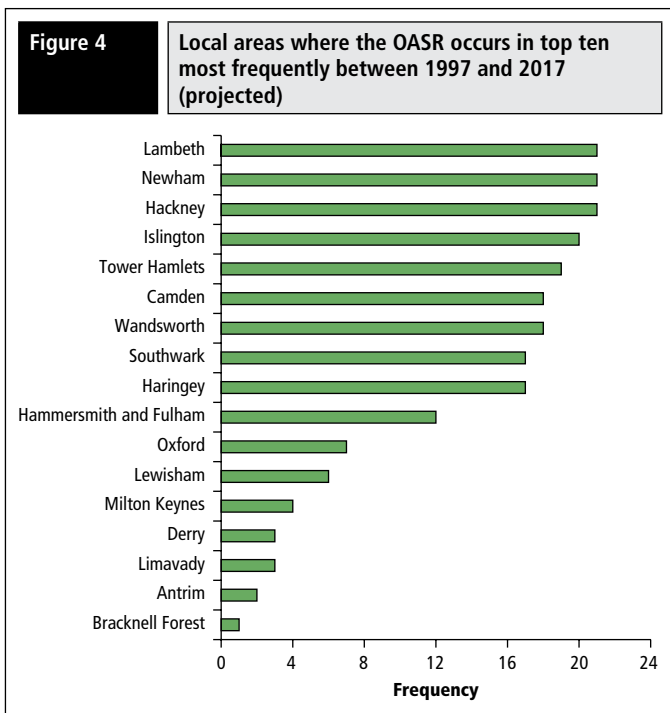
Different measures were used in this report to give a full insight into how population age structure is changing at the subnational level. The measures used included median age, percentage aged 65 and over, and the OASR.

Figure 3

Local areas where the OASR occurs in bottom-ten most frequently between 1997 and 2017 (projected)



Source: ONS Mid year population estimates and 2006-based UK subnational population projections

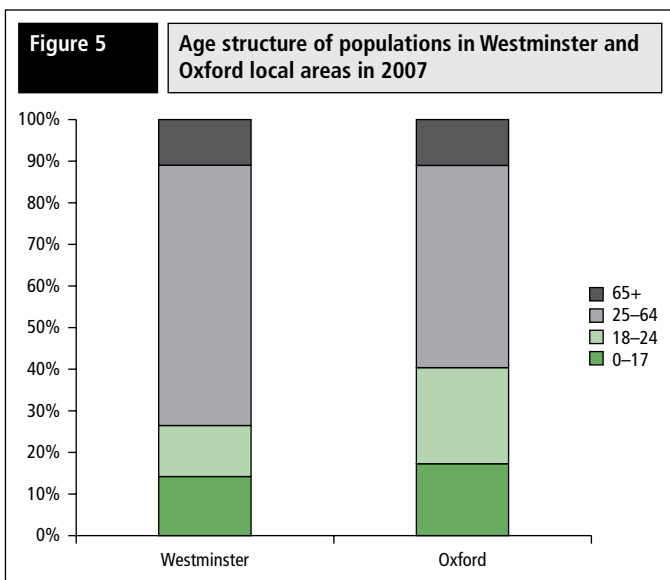


Source: ONS Mid year population estimates and 2006-based UK subnational population projections

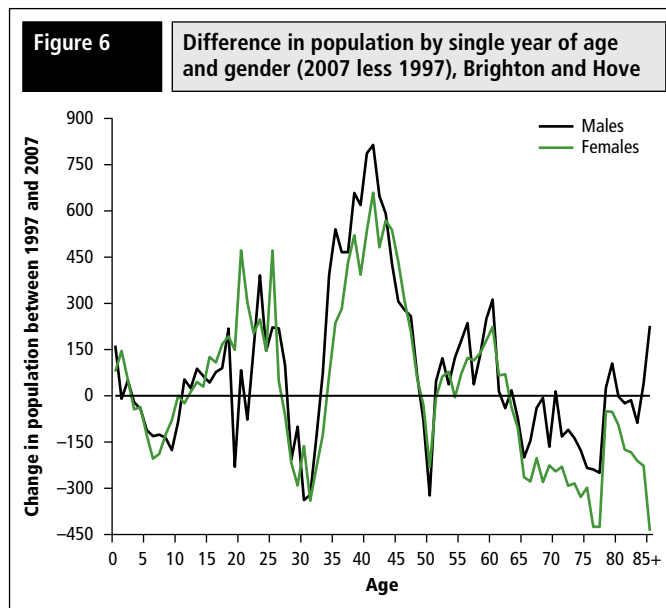
Figure 5 shows the population age structure of Westminster compared to Oxford. In 2007 both areas had the same percentage of people aged 65 and over (11 per cent) and the same OASR (5.6), but had differing median ages (34 and 29 respectively). Central London areas, such as Westminster tend to attract a lot of international and internal migrants aged between 25 and 64. However, areas with popular higher education institutions, such as Oxford tend to have a large percentage of young adults aged between 18 and 24. The relatively high percentage of young adults in Oxford has resulted in the lower median age of the population when compared with Westminster. This example illustrates that more than one measure of ageing is needed to get a full picture of the changes in age structure occurring in an area.

Local Authority Case Studies

The following section explores the changes in age structure in three LAs: Brighton and Hove, Tower Hamlets and Coleraine.



Source: ONS Mid year population estimates



Source: ONS Mid year population estimates

Brighton and Hove

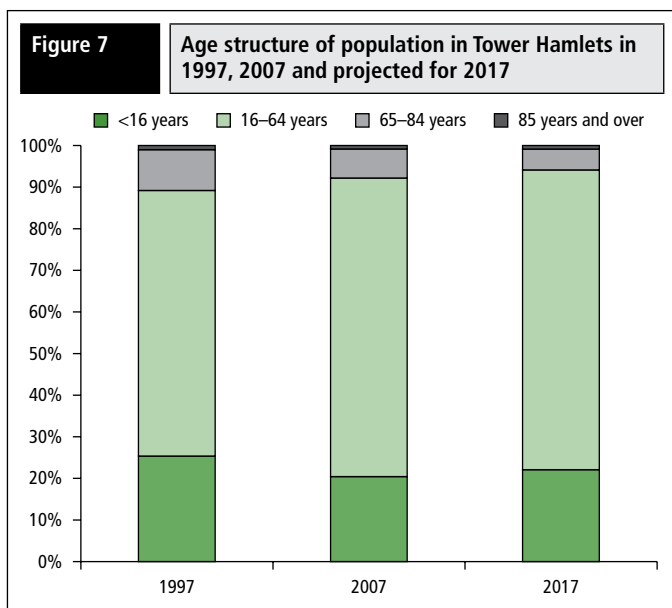
Brighton and Hove is located on the south coast of England. Over recent years, the population age structure in Brighton and Hove has become less aged. Outside London, Brighton and Hove had the largest decrease in the number of people aged 65 and over of 16 per cent. In 1997, 18 per cent of people were aged 65 and over and this declined to 15 per cent in 2007. By 2017, it is projected that only 14 per cent of the population will be aged 65 and over. Brighton and Hove is one of the few LAs on the south coast of England to have such a low proportion of older people.

Since university designation in 1992 the University of Brighton has grown steadily in both size and numbers. Partly as a result, Brighton and Hove had the tenth highest net inflow of people aged 18 to 24 in England and Wales, at just over 1600 people in 2007. In 2007 Brighton and Hove was also ranked the fourth lowest in terms of net migration of people aged 65 and over to other LAs in England and Wales, with a net outflow of 530 people. Figure 6 illustrates the increase in young adults in Brighton and Hove since 1997, especially for females. This has been coupled with a general decrease in people aged 65 and over since 1997. This increase in younger people into the area coupled with rising house prices and the vibrant social scene in Brighton may have made the area less attractive for older people to live, therefore causing a net migration outflow of older people. These net outflows have been larger for females than males at ages 85 and over, every year between 1999 and 2008. This explains why the differences for males and females diverge at ages 85 and over.

Brighton is in the 'projected growth' category for the Classification Typology of Ageing. This means that even though the number of people aged 65 and over has been declining between 1997 and 2007, it is projected that the number of those aged 65 and over will grow between 2007 and 2017, by 2 per cent.

Tower Hamlets

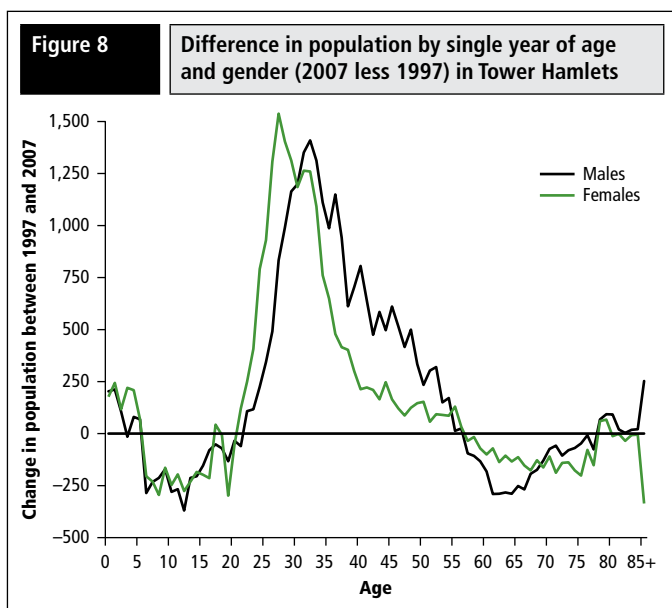
Tower Hamlets is located in East London. It is one of only 11 LAs in the UK which experienced a decline in the number of people aged 65 and over between 1997 and 2007, and is projected to experience further decline between 2007 and 2017. In the years 2007 and 2017 Tower Hamlets had and is expected to have the lowest proportion of people aged 65 and over, and 85 and over. Between 2000 and 2001 areas in and around London had the largest migration outflow of people aged 50 and over to other areas in the UK, which suggests that London is not a desirable destination for retirement¹⁵.



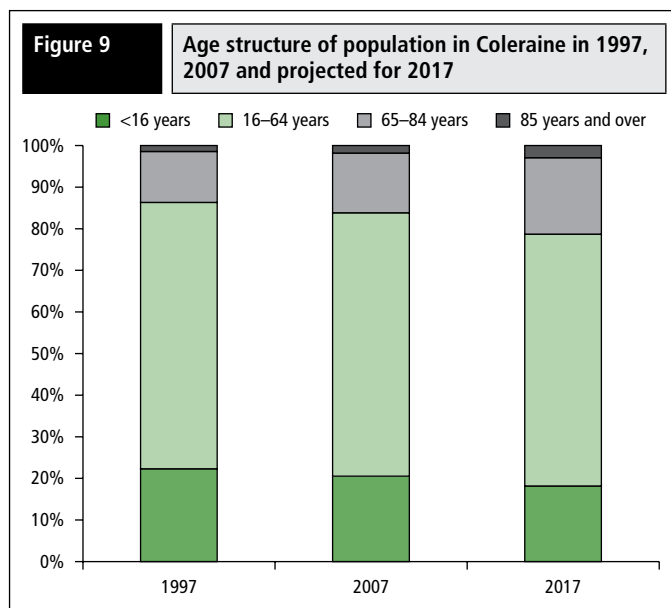
Source: ONS Mid year population estimates and 2006-based UK subnational population projections

In 1997, 11 per cent of the population were aged 65 and over. This decreased to 8 per cent in 2007. By 2017 Tower Hamlets is projected to have only 6 per cent of the population aged 65 and over. **Figure 7** shows a decrease in the proportion of people aged 65 and over, as well as a decrease in the proportion of people aged 0 to 15. Despite this, the median age of the population of Tower Hamlets has been increasing gradually. In 1997 the median age was 29 years and by 2007 the median age had increased to 31 years. By 2017 the median age is projected to increase to 32 years. This indicates that although the population of older people in Tower Hamlets is getting smaller, the age structure is changing in such a way that the working age population is getting older, resulting in an increasing average age of the population.

The OASR increased from 5.0 in 1997 to 7.8 in 2007 and is projected to increase to 11.6 in 2017. This shows that the increase in the working age population and the decrease in the population aged 65 and over has a major effect on the age structure of the population. **Figure 8** shows the decrease in older people, coupled with the increase in people of working age, since 1997.



Source: ONS Mid year population estimates



Source: ONS Mid year population estimates and 2006-based UK subnational population projections

Recent trends in London show a net outflow of people migrating to other areas in England and Wales¹⁴. The 2001 census recorded a net loss of people aged 0 to 15 in London, as well as net losses of all age categories above the age of 30, with the exception of those 75 and over in the year prior to the census¹⁶. London, however, has a high net inflow of people aged 20 to 24¹⁴, probably reflecting the attraction of London to university graduates. This helps explain the decrease in the proportion of people aged 0 to 15 in Tower Hamlets, as well as the gains in the working age population.

Coleraine

Coleraine is located on the north coast of Northern Ireland. It is part of the causeway coast and officially an Area of Outstanding Natural Beauty. The population of Coleraine is ageing rapidly. **Figure 9** shows the changing age structure in Coleraine for the years 1997, 2007 and 2017. In 2007, 9200 people (16 per cent of the population) were aged 65 and over, a 22 per cent increase since 1997. By 2017, 21 per cent of the population are projected to be 65 and over, a further increase in number of 2300 (26 per cent) since 2007. This is the LA with the second highest percentage of people aged 65 and over in Northern Ireland.

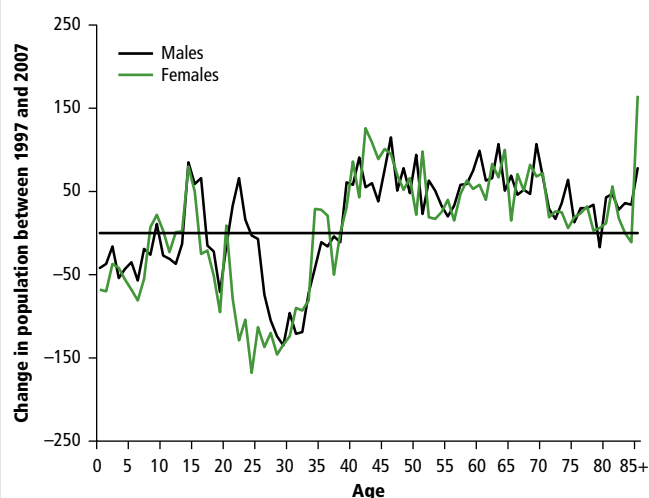
Coleraine has become more and more attractive to older people in recent years as a retirement destination, much like the aged areas on the south coast of England. Despite the main campus of the University of Ulster being situated in Coleraine, the number of young adults aged 18 to 24 have been declining and are projected to continue to decline. **Figure 10** shows there are fewer young people (aged 18 to 35) in 2007 and a greater number of people aged 40 and over in comparison to 1997. It is likely this is a result of a net outflow of young people over the decade and a net inflow of people aged 40 and over¹⁷.

Conclusions

This article has explored differences in population age structure at the subnational level. It has described the changes that have occurred and are projected to occur in the number and relative size of the older population in LAs in the UK. Different measures of ageing have been used to describe changes in the average age of the whole population and the relative size of the older population.

The most aged areas in the UK are located on the south coast of England, whereas the least aged areas tend to be located in urban areas,

Figure 10 Difference in population by single year of age and gender (2007 less 1997) in Coleraine



Source: ONS Mid year population estimates

such as London, and in areas highly populated by students, such as Oxford. Between 1997 and 2007, LAs in middle and eastern England, Scotland and Northern Ireland have experienced the largest increases in the number of people aged 65 and over. Similarly, between 2007 and 2017, LAs in Northern Ireland, East Midlands, north east Scotland, the Midlands and Eastern England are all projected to have large increases in the number of people aged 65 and over.

Key findings

- The most aged LAs tend to be located on the south coast of England. In 2007 West Somerset had the highest median age in the UK at 52 years and Christchurch had the highest percentage of people aged 65 and over at 30 per cent.
- In 2017 West Somerset is projected to have the highest median age at 56 and the highest proportion of people aged 65 and over at 34 per cent.
- Almost 97 per cent of LAs are projected to experience growth in the number of people aged 65 and over between 2007 and 2017. East Northamptonshire is projected to have the largest increase in the number of people aged 65 and over at 53 per cent.
- Between 2007 and 2017 only 11 LAs are projected to experience a decline in the number of people aged 65 and over. Nine of these areas are London Boroughs and include Tower Hamlets, Barking and Dagenham, Newham and Islington.
- In 2007 Rother had the highest percentage of people aged 85 and over at 4.8 per cent. The ten LAs with the highest percentages of people aged 85 and over are all located on the coast, mostly in the South and East of England.
- All LAs with the exception of Newham and Lewisham are projected to experience increases in the number of people aged 85 and over between 2007 and 2017. Carrickfergus in Northern Ireland is projected to experience the largest increase at 85 per cent.
- Bournemouth and Brighton and Hove experienced a decline in the number of people aged 65 and over between 1997 and 2007, despite being within the top 25 per cent most aged areas in 1997. Over the last decade these areas have experienced declining net internal migration of people aged 50 and over.
- The areas with the lowest Old Age Support Ratios are located on the south coast, such as Christchurch, Rother and West Somerset.

A project is currently underway to create an interactive data visualisation tool for users to explore the population data collected and measures calculated for the analysis in this report. This tool will be released in Winter 2009.

Appendix

Geography of the UK at the Subnational Level

Within the UK constituent countries there are different groups of territorial units such as administrative, postal and health geographies, each with a different geographic hierarchy. The estimates in this report are based upon administrative geography. Within each country, the structure of administrative geography differs according to how local government is structured.

England can be broken down into 9 Government Office Regions (GORs), which are further subdivided into 33 London boroughs, 239 non-metropolitan districts, 36 metropolitan districts, and 46 unitary authoritiesⁱ. Wales is currently subdivided into 22 unitary authorities, Scotland is currently subdivided into 32 council areas and Northern Ireland is currently subdivided into 26 local government districts. More information on UK geography can be found on the ONS website. Each of these local areas are considered equivalent to each other and are referred to as Local Authorities (LAs) when used collectively. There are 434 LAs across the UK in total. The analysis in the report, Isle of Scilly and City of London data have been combined with Penwith and Westminster respectively, due to the very small population sizes in certain categories.

In addition, the geographical structures of each country have been subject to a number of changes over time. When comparing data over time and across nations, adjustments are needed. The population estimates and projections we are using are all based upon 2001 Local Area boundaries to ensure that the population figures we are comparing over time are valid.

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The 2011 Census taking shape: methodological and technological developments

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As reported in Population Trends 135¹ the UK Statistics Authority's proposals for the next Census in England and Wales, to be taken in March 2011, were published and presented to Parliament and the National Assembly for Wales in a Government White Paper² on 11 December.

This article – the second of two to report on the significant recent developments in the design of the Census – summarises the key methodological, operational and technological changes that have been introduced since the 2001 Census, with the prime aim of achieving, and reporting on, the most accurate estimate of the resident population.

The decision on the 2011 Census

As reported in Population Trends 135¹ the next Census of Population is scheduled to be taken in England and Wales on Sunday 27 March 2011. Censuses will also be taken on the same day in Scotland and Northern Ireland subject to separate legislative procedures in the Scottish Parliament and the Northern Ireland Assembly. The 2011 Census will be the twenty-first in a series carried out every 10 years in England and Wales since 1801, except in 1941.

Government, local authorities, the health service, the education and academic community, commercial business, professional organisations and the public at large all need reliable information on the number and characteristics of people and households if they are to conduct many of their activities effectively. This need is currently best met by conducting a census every ten years covering the whole of the population, and by updating the population estimates each year benchmarked on the preceding Census.

Taking account of the many comments, evaluations and recommendations arising from the 2001 Census, the design of the 2011 Census is based on a number of key strategic aims:

- to give the highest priority to getting the national and local population counts right
- to maximise overall response and minimise differences in response rates in specific areas and among particular population sub-groups
- to build effective partnerships with other organisations, particularly local authorities, in planning and executing the field operation
- to provide high quality, value-for-money, fit-for-purpose statistics that meet user needs and which are as consistent, comparable and accessible across the UK as is possible; and

- to protect, *and be seen to protect*, confidential personal census information.

Collecting the information: the field operation

The data collection operation is always the public face of the census and covers a wide range of activities in addition to delivering the questionnaires and collecting the completed returns. These include field force recruitment, legal, financial and technological issues, and contractual arrangements with suppliers. For the 2001 Census, more focus was given to the data collection activities, compared with previous censuses, since it had to count a population that was undergoing greater societal change. This strategic approach is again being followed for the 2011 Census.

Experience has shown that it is increasingly difficult to make contact with households, especially (but not exclusively) in inner cities. This has been a major influence in shaping data collection plans for the 2011 Census. These difficulties can be attributed to: an ageing population; growing numbers of one-person households; changing work patterns; increase in access security control systems; numbers of recent migrants, particularly from Eastern Europe; and certain groups and communities within the population feeling increasingly disconnected with society. Ensuring that every household gets a Census questionnaire (the term 'Census form' is used interchangeably in this article) and is motivated to fill it in is, therefore, more than ever a key driver in the strategy and planning for data collection.

The 2011 Census will be conducted in a way that is primarily designed to achieve completeness of coverage with an efficient use of resources while, at the same time, maintaining the public's acceptance and confidence in the importance and security of the Census. Although many aspects of the Census will follow well-established and proven methodologies, ONS has introduced changes to improve the efficiency of the census operation and provide better help to the public.

A number of key objectives of the data collection operation underpin the broad strategic aims of the Census; these are to:

- develop an effective enumeration methodology that targets resources and procedures to maximise response
- track delivery and receipt of the census forms to target non-response
- encourage a high level of online response (which has the potential to reduce costs in other areas)
- overcome the problems associated with the recruitment, retention and payment of a large field force
- manage public participation and co-operation through informative publicity; and
- work with local authorities and others in planning and executing the enumeration, in particular to make best use of their knowledge of local addresses and residence arrangements and ways of contacting hard-to-count groups.

Recruitment, training and payment of field force

The strategy for the recruitment, training and payment of the large, temporary Census field force will be somewhat different for 2011 to that followed in 2001 and previous censuses. The early outsourcing of these services to a contractor with particular expertise in field operations is in response to the concerns set out in the National Audit Office's report to the Public Accounts Committee on *Outsourcing the 2001 Census*³. Such services, to this scale, are clearly a non-core activity for ONS and cannot be provided internally without a significant additional investment.

ONS worked successfully with a contracted supplier to deliver the provision of field staff recruitment, training and payment in the 2007

Census Test, with the result that it decided to outsource these services for the 2011 Census. Though responsibility for field recruitment will rest with the supplier, ONS intends that the staff appointed for the field operation should to some degree reflect the profile of the communities within which they will be working. Not only is this a necessary stance in terms of ensuring equal opportunities but it will also enable field staff to engage more effectively with the local communities they are enumerating, encourage participation, and understand the support required. This includes, for example, ensuring that sufficient numbers of Welsh-speaking field staff are recruited in different parts of Wales to ensure that the Census there is conducted effectively and in compliance with ONS's obligations under the provisions of the Welsh Language Act.

ONS announced in March this year that Capita would be the supplier of these services for the 2011 Census. The statutory obligation for persons employed on the Census to adhere to strict confidentiality undertakings will apply equally to all field staff recruited in this way as they would to any permanent Census staff at ONS.

Posting out census questionnaires and developing an address register

Following the successful trialling of post-out as a delivery mechanism for census questionnaires in the 2007 Census Test⁴, the decision was to adopt this methodology as the prime means of form delivery for the 2011 Census. The rationale for adopting this strategy is that even with hand delivery in the 2001 Census, enumerators failed to make doorstep contact with households at more than a third of addresses and resorted to delivering the form through the letter box. The use of an established postal service provider to perform this activity will enable field resources to be directed to those areas where a more focused approach to follow-up activities is necessary in order to improve response rates. ONS expects to post out Census questionnaires to as many as 95 per cent of households – with the remaining 5 per cent being delivered by field staff in the more traditional manner in areas to be determined by factors associated with:

- confidence in the accuracy of the address list in any given area
- the proportion of known, or suspected, multi-occupied properties in the area
- concentrations of large households; and
- a reduction in the general postal service provision where it is anticipated that there would be significant proportions of households to whom a questionnaire might not be successfully delivered by mail.

For the 2009 Rehearsal the addresses where there will be hand delivery will be selected at the geographic level of Lower Layer Super Output Areas (LSOA) containing around 600 households. However, it may be the case that this will be too large an area to be sufficiently selective in the Census itself and would negate some of benefits of seeking to focus follow-up staff in areas of particularly low response. In which case, the delivery method would be determined at the Enumeration District level.

Following a competitive tender for the post-out service, the Royal Mail has been appointed.

The use of a postal service provider for the delivery (and also the return of forms – see below) will help overcome the difficulties of recruiting large numbers of temporary enumerators to deliver questionnaires to every address, and of accessing accommodation protected by security systems. Together with the option of making a return online (see below), this will free-up field staff to be more flexibly deployed wherever necessary. There will be continuous monitoring of the progress of the enumeration in the field so that extra assistance can be quickly re-directed to wherever necessary.

Clearly the pre-requisite for a successful post-out strategy is the availability of a comprehensive, high quality address register for all areas of England and Wales. In the absence of a single authoritative source of national address information, ONS is developing an address register that meets Census requirements in terms of quality and coverage, and which local authorities can be confident will effectively underpin the Census enumeration and subsequent outputs. Full use will be made of the primary sources of address lists, namely the Royal Mail's Postcode Address File (PAF), and the National Land and Property Gazetteer (NLPG), which is administered by the Information Development Agency (IDeA) through the Local Government Information House (LGIH). Data derived from the Valuation Office records will be used to help improve matching rates.

The resulting register will contain a list of addresses linked to higher level geographic areas for management, reporting and output purposes. This will require associating every address with an accurate positional reference, provided by the Ordnance Survey, both for planning field operations including the printing of forms and production of outputs.

Research is ongoing to refine the technical approach to developing and maintaining the address register, and more detailed plans for this will be announced over the coming months.

Address checking

To ensure the Census address list is as complete and up-to date as possible address checks will be carried out by field staff in those areas where there is the greatest uncertainty about the quality of address lists – currently expected to cover up to 30 per cent of the country subject to the results of further research. The check prior to the 2007 Census Test, for example, revealed that an additional 11,700 or more households (equivalent to around 11 per cent of those residential addresses on the original list) within the sampled areas that were not on the Register at that time. These tended to be at multi-occupied addresses where houses had been converted into flats.

A pilot exercise was conducted in July–September 2008 in 27 local authorities in England and Wales to test key elements of the address register design and the methods for updating it. There were three main stages of activity:

- (a) matching of the PAF and the NLPG
- (b) investigation of unresolved addresses from matching by sending these addresses to the address product suppliers for initial evaluation with the residual addresses being passed to their respective local authorities for investigation; and
- (c) field checking by ONS across parts of 16 of the pilot local authority sites to quality assure the pilot address register and identify missing or new addresses.

The pilot excluded the assessment of communal establishments which has a separate phase of research and development.

Where the matching of addresses was not resolved, this resulted mainly from differences in the naming and numbering and classification of properties within sub-divided buildings and grouped/linked buildings, for example, flats above shops and residential complexes, or where addresses in one address product did not match any addresses in the other, such as unclassified properties and addresses that may be unique to one product.

Feedback from the suppliers early on in the pilot indicated that many of the unresolved addresses were valid. The main contributing factors to these addresses not matching were the differences between the products arising from a lack of synchronisation between the update and the maintenance processes, and/or differences in naming and numbering

conventions between national address products. Plans for the further development of the address register will take account of these issues.

The matching process was applied as separate exercises to May and August 2008 addresses products and achieved equivalent match rates. A further independent match conducted by suppliers within the Bristol City Council area corroborated the level of matching achieved by ONS. Together these results indicate that the ONS matching process is robust and capable of providing repeatable and high quality results.

Unresolved addresses from matching were sent to address product suppliers and local authorities for investigation and resolution. The high rate of address resolution achieved by suppliers demonstrates the effectiveness of adopting an inclusive, collaborative approach, which will help reduce the burden on local authorities.

The local authorities themselves also actively engaged with the pilot in a number of ways. Almost all (25 out of the 27), took part in the pilot seminars and regional workshops organised by ONS to facilitate the address resolution process, and the majority (19) were also able to directly participate in address checking and investigation of unresolved addresses. Engagement with the network of regional chairs of the Local Land and Property Gazetteer (LLPG) meant that ONS was able to involve a total of more than 200 local authorities in the project.

The results of the pilot matching and fieldwork, and a discussion of how these will be used to inform future plans, will be published during the summer 2009.

To ensure that this preparation for the Census achieves a permanent improvement in existing address lists, it is intended that information on updates to the address list – arising, for example, from new housing development and any changes of status of existing addresses – will be shared with those organisations managing the PAF and NLPG, where such information does not disclose any personal census information. To this end, ONS has successfully signed up the main address list providers to an information sharing agreement.

Returning census information online

The option of two principal response routes will be available to enable the public to complete their census questionnaire either on the printed form and posting this back, or by online completion for the first time in the UK. There will, additionally, be special arrangements for the collection of completed returns from communal establishments such as universities and old people's homes.

It is not proposed to have any areas specifically designated for doorstep collection (as will be the case for hand-delivery), though householders unable to make a return by post or online may, instead, request a doorstep collection. Field staff at the follow-up stage will seek to collect Census questionnaires but this will only be at addresses from which a form has not been returned. Special assistance will be available to anyone who has difficulty in completing the Census questionnaire, particularly through language or infirmity. Field staff speaking both English and other languages and/or signers will be employed, where possible.

It is estimated from international census experience that up to 25 per cent of households will respond online, equating to, potentially, over 5 million responses altogether in England and Wales. ONS will therefore offer the option making a census return online; this facility will also be available for the censuses in Scotland and Northern Ireland. However, the actual take up of this channel is uncertain and the capacity planning for the response system must allow for flexibility. Such a facility will afford the possibility of both encouraging response among particular sub-groups of the population who may otherwise be hard to reach, and of

achieving some data processing cost savings if overall response levels are sufficiently high. Furthermore, such an option meets the Government’s aim of seeking to increase the provision of public services online, and will provide ONS with an opportunity to assess the efficacy of collecting information in such a way for any future censuses and other statistical surveys.

The online questionnaire will have the same question set as the paper form, but will allow for up to a maximum of 30 household members and visitors. There will be no unnecessary changes in the content – in order to minimise modal response bias – but a number of changes in the design will be required. These will include: dropdown menus of response categories for particular questions; the automatic filtering of those questions that are not required of every person (such as the employment questions); and the automatic population of certain fields from the responses given in others. In particular, the format of the relationship matrix (showing the inter-relationships of each person in the household – see **Figure 1**) will be affected in this way in an attempt to make the online version easier to complete.

Individual online returns will also be possible for use by households who choose to complete the household questionnaire on paper but may wish to use the Internet to include additional household members who cannot be accommodated on the paper form, or to allow an individual household member to make a return online separately from the rest of the household’s return.

ONS will ensure that the online questionnaire is accessible to everyone, including those who require assistive technologies when using the Internet. All households will, however, receive a paper questionnaire whether or not they choose to make their return online. There will be no facility to enable a householder to pre-register an intention to do so as the risk of failure to make a return is considered to be too high. Instead, a unique Internet access code reference on each paper questionnaire will allow the secure access and completion of an online return. Linking this reference to the household will enable ONS to identify any duplication of paper and online returns. The address may also be checked at the start of the completion process to confirm identification. The form-tracking system will be updated whenever an online questionnaire has been submitted and a completion code given to the respondent.

Special enumeration procedures for students and other hard-to-reach population groups

One of the biggest challenges to overcome in the 2011 Census will be reaching population groups that are traditionally undercounted – the so-called ‘hard to count’. The strategies developed to enumerate households and communal establishments will clearly not be successful for everyone, and it is recognised that additional procedures will have to be adopted for hard-to-count populations. These groups will include, among others, students, people with no settled place of residence, such as Gypsies, and persons sleeping rough. Further analysis and changing social conditions may yet identify new populations beyond the

Figure 1

The 2011 Census question on relationships within the household

H6 How are members of this household related to each other? If members are not related, tick the 'Unrelated' box.

Name of Person 1	Name of Person 2	Name of Person 3
First name []	First name []	First name []
Last name []	Last name []	Last name []
ENTER NAME OF PERSON 1 HERE AS IN QUESTION H3		
	How is Person 2 related to Person: → 1	How is Person 3 related to Persons: → 1 2
	Husband or wife <input type="checkbox"/>	Husband or wife <input type="checkbox"/> <input type="checkbox"/>
	Same-sex civil partner <input type="checkbox"/>	Same-sex civil partner <input type="checkbox"/> <input type="checkbox"/>
	Partner <input type="checkbox"/>	Partner <input type="checkbox"/> <input type="checkbox"/>
	Son or daughter <input type="checkbox"/>	Son or daughter <input type="checkbox"/> <input type="checkbox"/>
	Step-child <input type="checkbox"/>	Step-child <input type="checkbox"/> <input type="checkbox"/>
	Brother or sister <input type="checkbox"/>	Brother or sister <input type="checkbox"/> <input type="checkbox"/>
	Step-brother or step-sister <input type="checkbox"/>	Step-brother or step-sister <input type="checkbox"/> <input type="checkbox"/>
	Mother or father <input type="checkbox"/>	Mother or father <input type="checkbox"/> <input type="checkbox"/>
	Step-mother or step-father <input type="checkbox"/>	Step-mother or step-father <input type="checkbox"/> <input type="checkbox"/>
	Grandchild <input type="checkbox"/>	Grandchild <input type="checkbox"/> <input type="checkbox"/>
	Grandparent <input type="checkbox"/>	Grandparent <input type="checkbox"/> <input type="checkbox"/>
	Relation - other <input type="checkbox"/>	Relation - other <input type="checkbox"/> <input type="checkbox"/>
	Unrelated (including foster child) <input type="checkbox"/>	Unrelated (including foster child) <input type="checkbox"/> <input type="checkbox"/>

traditional groups, such as asylum seekers and refugees for whom special enumeration strategies will be necessary.

In addition there are other identifiable groups, dispersed throughout the population, who will require modified enumeration procedures. These include, but are not limited to:

- those unable to understand the census questionnaire, such as non-English speakers (and those in Wales who are also non-Welsh speakers) and people with reading difficulties
- those likely to have difficulty completing or returning a standard paper questionnaire, including the visually impaired or physically disabled; and
- those able, but unwilling, to complete a questionnaire.

Continued research and consultation with representative organisations through the Local Authority and Community Liaison Programmes (see below) will inform development of the most effective strategies to target and accommodate these groups, with the aim of ensuring that no community or individual is disenfranchised. In response to the recommendations in the Treasury Select Committee's report on the 2001 Census⁵ particular arrangements will be made to enable blind or partially sighted people and non-English speakers/non-Welsh speakers in Wales to make a census return. This includes the provision, on request, of a copy of the Census questions and the accompanying explanatory material in:

- Braille, large print and audio/visual formats; and
- 34 or more foreign language versions (see below).

The facility for Census returns to be made online (see above) will also enable translations of the questionnaire to be accessible to persons whose first language may not be English and/or who may be visually impaired.

Because the 2011 Census falls within the Easter vacation for some universities and other educational establishments, but in term-time for a number of others, special arrangements are being developed to ensure that all students (a notoriously difficult sub-group of the population to enumerate at the best of times) will receive, and be given every opportunity to return, a census questionnaire. These are likely to include the earlier delivery of questionnaires to those universities whose vacation dates are significantly earlier than elsewhere (such as Oxford and Cambridge) and to encourage an online response from whatever address they may happen to be present at on Census night. Particular attention will be given to such establishments in the follow-up phase in order to maximise response.

Local authority and community liaison

Research into the types of people missed in the 2001 Census and changing demographic profiles has helped to inform other initiatives needed to ensure coverage of the hard to count groups. The Local Authority and Community Liaison Programmes are key components of this research. The 2011 Census is building on the valuable experience gained and the lessons learned from the 2001 Census by placing emphasis on more collaboration with local authorities and with the many agencies and community organisations involved.

The best partners in working with ONS to maximise coverage are local authorities, whose need for reliable local information provides a strong incentive to assist in identifying and reaching local hard-to-count populations. By positively engaging local authorities in the development and quality assurance of address lists, for example, and actively encouraging them to promote the benefits of the Census in their areas, ONS is seeking to improve coverage. Such initiatives aim to cover not only the known disadvantaged groups, such as the disabled, ethnic minorities and very elderly, but will allow ONS to target resources at areas known to have the characteristics associated with poor coverage.

ONS wish to benefit from local authority resources and knowledge of their local areas to improve the enumeration process, and local authorities in turn will benefit from better census results. The most efficient way for Census field staff to make use of existing local networks has been explored with local authorities in preparing for both the 2007 Census Test and the Census Rehearsal in 2009. Agreed areas for partnership working include:

- identifying hard-to-count populations through local and community intelligence
- developing and endorsing up-to-date address lists
- assisting in field staff recruitment
- providing logistical support, such as local office accommodation
- promotion and publicity; and
- evaluation.

It is important for ONS to receive local authority buy-in to the 2011 Census enumeration strategy, especially so at the Chief Executive level, so that potential for disagreement and lack of confidence in the quality of final results can be minimised. ONS have persuaded Chief Executives of local authorities of the benefit of appointing Regional Census Champions from among the pool of Chief Executives that serve as Regional Returning Officers for European and General Elections, so that they may encourage and facilitate the appointment of Local Authority liaison managers to work with senior census staff to help shape the local enumeration.

The innovative 2001 Census Community Liaison Programme has been further developed to establish contact with relevant community groups and agencies. In response to the Treasury Select Committee's recommendations⁵ this Programme was initiated much earlier in the planning cycle (in 2006). Specific objectives of the 2011 Programme are to:

- encourage participation in the Census by publicising the Census and underline its use and value
- help provide a potential source of field staff; and
- provide help and guidance to local communities and individual members of the public.

The Census Diversity Advisory Group (one of two new Advisory Groups formed as part of the consultation arrangements for the 2011 Census) has also provided a forum to offer valuable advice and guidance on liaising with local communities and key organisations such as the Equality and Human Rights Commission, Age Concern, the Inter-Faith Network, the Royal National Institute for the Blind, the National Centre for Languages and others. In addition, ONS has established bilateral links with these and other related organisations and umbrella groups representing minority populations and special interest groups.

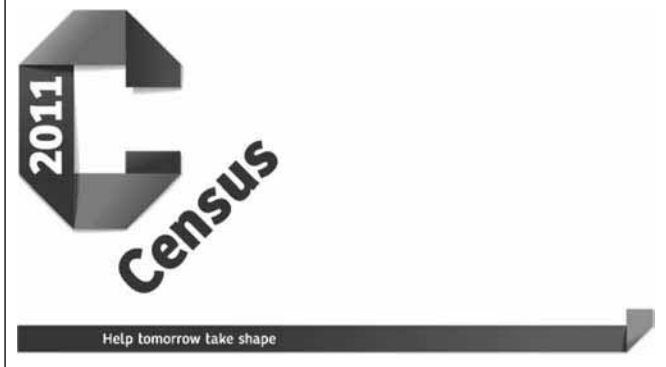
Publicity

While every household and each resident in a communal establishment in England and Wales is obliged by law to make a Census return, it would be impossible to carry out a Census without the co-operation of the public. ONS will, in close co-operation with the Census Offices in Scotland and Northern Ireland, arrange publicity to explain the purpose and value of the Census, to encourage householders to return completed questionnaires and to ensure that they know when and how to do so, to give assurances about confidentiality and data security, and to deal with other particular matters of public concern as and when they may arise. Reminders about the legal requirement to complete the Census will be promoted.

A Census brand with the slogan 'Help tomorrow take shape' (**Figure 2**) was launched in November 2008 to be the identifiable face of the Census to the general public, and will be adopted at every appropriate

Figure 2

Census branding for 2011



opportunity. The brand will be used to promote awareness of the 2009 Census Rehearsal in the selected areas in Lancaster, Newham and Ynys Môn –Isle of Anglesey.

The basis of good public relations will be to make sure that field staff are briefed and trained to be as helpful as possible where they are required to deliver census forms and collect completed returns, and that there is informative liaison with local community groups. The prime objectives of a phased national and local publicity campaign will be to:

- *educate* – by increasing the awareness and understanding about the 2011 Census among the general public, in key geographic areas and in hard-to-count groups
- *enlist* – by publicising and supporting the recruitment of field staff from public and key community groups, and informing the public, particularly in hard-to count areas and among hard-to-count groups that they will be required to participate
- *engage* – by publicising and supporting the delivery, completion and return of Census forms from the general public and hard-to-count groups, and giving clear assurances about confidentiality and security
- *enforce* – by ensuring that as many people as possible, from all population groups, are aware of the legal obligations to complete and return their Census questionnaires; and
- *explain* the results and promote the value of the 2011 Census.

Such publicity will be sought through a paid-for campaign, employing a contracted agency (Brayleino was appointed in March 2009 after an open competition), and through the co-operation of those stakeholders with particular vested interests in seeing a successful Census, such as local authorities.

An explanatory leaflet will be delivered with each census form, and publicity will increase as Census Day approaches. The Contact Centre, providing a telephone help-line with foreign language interpreters, will be available to answer queries from the public prior to and during the Census. In addition a Census Help website will be provided during both the Rehearsal and Census operational periods.

The questionnaire for Wales will be available for completion in either English or Welsh, with translations as well as other help and supporting information available bilingually via the Census Help facility. Translations of the census questions into 34 or more foreign languages in England and Wales will also be available online to assist respondents whose first language is not English or Welsh. Languages in which such translations will be available are likely to include those shown in **Box One**. These are the languages that will be recognised in the 2009 Census Rehearsal (including two additional languages in Northern Ireland) but more will be added for the Census itself.

Box one

Languages into which the 2011 Census questions and supporting material are likely to be translated

Akan Twi-Fante	Irish (N Ireland only)	Russian
Arabic	Italian	Shqip/Albanian
Bengali	Kurdish Sorani	Slovak
Bulgarian	Latvian	Somali
Cantonese	Lithuania	Spanish
Czech	Malayalam	Tagalog/Filipino
Farsi/Persian	Mandarin	Tamil
French	Polish	Tigrinya
German	Portuguese	Turkish
Gujarati	Punjabi Gurmukhi	Ulster Scots (N Ireland only)
Hindi	Punjabi Shahmukhi	Urdu
Hungarian	Romanian	Yoruba

Outsourcing parts of the census operation

ONS is outsourcing some of its 2011 Census activities and processes to external suppliers. This is not a new strategy; the Census has traditionally engaged the services of persons or agents, not part of the permanent staff of ONS, to undertake parts of the census operation. For the 2001 Census, for example, the following areas of work were contracted out for the first time:

- the administration of the field staff payment
- the management of a call centre to run a Census helpline
- the collection of completed census forms via a postal service
- the capture and coding of census data in electronic format; and
- the production of the archival records.

In its report to the Public Accounts Committee⁴, the National Audit Office (NAO) noted that outsourcing helped ONS to introduce some important innovations to deliver the 2001 Census. The value of ONS doing so again is that external suppliers bring with them considerable technical experience and expertise which would otherwise be unavailable to Census takers, and allows ONS to focus on its main task of carrying out the census rather than developing in-house procedures and skills that are not part of its core competencies. Furthermore, the 10-year cycle for the Census, the short processing timetable and extensive data systems required mean that outsourcing provides efficiencies and value for money.

However, the NAO also noted a number of deficiencies in the management of the procurement process and made a number of recommendations on the arrangements for procuring services for future census operations.

As a result, ONS is again contracting out a number of services as a major element in ensuring a value-for-money Census in 2011. Following a lengthy and rigorous tendering and procurement process ONS announced in August 2008 that Lockheed Martin UK had been selected as the winning bidder for the main data capture and coding activities.

Other providers have been appointed after similar procurement exercises to carry out additional and complementary services. In addition to all the services that were outsourced in the 2001 Census, the several procurements cover:

- the recruitment and training of field staff
- the delivery of forms via the postal service

- questionnaire/form-tracking systems
- the translation, printing and distribution of non-questionnaire material
- the provision of online response facilities for form completion and public self-help, and
- the publicity and advertising campaigns.

Coverage and data quality

Ultimately, the success of the Census relies heavily on its accuracy and how well it can estimate the population and its characteristics. The Census will never count every single household and individual, but quality is at the heart of planning the 2011 Census, and many of the innovations that were trialled in the 2007 Census Test⁶ were about improving the quality of census processes and, thus, the data.

A Census, by its nature, is designed to cover the whole population, but errors inevitably arise. A good census design will recognise this and take account of them. For example, the Address Register – no matter how up to date – may fail to record all residential accommodation in an area at the time of the Census; field staff may fail to identify all households within a multi-occupied dwelling; not all members of a recorded household may be included; non-response bias occurs when people do not complete a census form or do not answer all the questions; and there may also be system or processing errors.

The improvements which are being introduced for the 2011 Census have been designed to minimise these errors; for example:

- the creation of an up-to-date Address Register agreed with stakeholders, together with a form-tracking system functioning in real time, will provide a reference to ensure that questionnaires are delivered to, and returns collected from, all residential addresses and that monitoring of return rates can be done in real time
- the re-design of the Census questionnaire and the facility to return it online will make it easier for respondents to complete the form and for ONS to process the data; and
- the focusing of field resources in areas of lower response is aimed at improving the overall coverage.

Non-response or under-enumeration is the most significant error. While the estimated overall undercoverage in the 2001 Census (6 per cent in Great Britain) was small compared with national government surveys, it was greater than in 1991 (4 per cent), reflecting an international pattern of increasing non-response in the Census. But of more significance was its variation across population subgroups and different parts of the country.

The concept of ‘data quality’ can be described as ‘fitness for purpose’ in terms of user needs. The goals for 2011 are to maximise the overall quality of data and to minimise the differences in quality between areas. A necessary process of coverage assessment and adjustment is undertaken to provide accurate national and sub national estimates of the population. In the 2001 Census, this process was called the One Number Census, which adjusted the results of the Census to take account of people who were missed. For 2011, a similar approach will be undertaken but with developments focusing on a number of areas to improve the method.

The strategy is relatively straightforward. A focused post-enumeration survey – the Census Coverage Survey (CCS) – will be employed to measure under-enumeration by undertaking a separate enumeration of a sample of areas over a three to four-week period starting six weeks after the Census itself. The survey will take the form of a short doorstep interview to check on the coverage of households and people within households, and to collect basic demographic characteristics (such as age, sex, marital status, ethnic group and economic activity).

The results of the CCS will then be matched, at the individual level, to the corresponding 2011 Census data, identifying the number and characteristics of those missed in the Census. The combined Census and CCS information, along with statistical models, will be used to produce a consistent set of census-based estimates, which will form the new base for the series of annual mid-year population estimates for local and health authorities.

A fuller description of the strategy to assess undercoverage and to adjust the census results accordingly is given in Population Trends 127⁷. This approach will develop and improve the methodology adopted for the 2001 Census that was widely welcomed by users^{8,9}. In particular, the intention to collect information on visitors and second residences, in order to improve understanding of changing patterns of usual residency, will tend to complicate coverage assessment. For example, through matching visitors to Census and CCS records, additional information may be available to help identify residents who were recorded neither in the Census nor in the CCS. Furthermore, matching information from administrative sources to the Census so as to better inform the assessment of coverage (and quality) is being considered. Matching the Census database to itself, particularly where people give details of second addresses, is also being considered to assess over-count. The practicability of matching and the levels of accuracy achievable by this are still being assessed. These will inform the final design of the Coverage Survey and adjustment process.

Quality assurance processes will be in place to carry out checks and, where necessary, to make corrections designed to improve the quality of Census data and to ensure that the overall totals are plausible. Quality assuring the results of the 2011 Census will be done throughout the process to ensure:

- that changes made within each of the processes are robust and do not introduce systematic error; and
- that the national and sub-national (in particular, local authority) estimates are plausible when compared with data from administrative sources and demographic comparators.

A Quality Report will be produced to accompany and support the release of the main statistical outputs.

After the 2001 Census, work on the mid-year population estimates identified the need for further adjustments to the estimates in a small number of areas. The difficulty was that these issues were not resolved until 2004. For the 2011 Census, ONS recognises that it will be important to build in improvements that will prevent these problems occurring or, if they do, resolve them more speedily, including taking account of other sources and local knowledge as appropriate. This involves working with key stakeholders (in particular, local authorities) in advance of the Census – an engagement that is already well under way.

Protecting confidentiality

The importance of achieving maximum coverage in the Census necessitates that public participation should be mandatory. This in turn puts an obligation on ONS to ensure that the information, sometimes sensitive information, given in confidence in the Census is treated with the strictest confidentiality. The statutory requirement to provide personal census information is prescribed by the provisions of the Census Act 1920 and in the Order and Regulations made under the Act. In return, the Act – now strengthened by the confidentiality provisions of the Statistics and Registration Service Act 2007 – also imposes strict requirements on ONS to protect the confidentiality of any such information collected.

The public must be confident that their personal census records will be held securely. So, as in previous censuses, assurances will be given that

all the information provided will be treated in strictest confidence by the Census Office. There is a well-established reputation of maintaining census confidentiality which ONS intends to uphold.

The information collected in the 2011 Census will be used solely for the production of statistics and statistical research. Usage will comply fully with the Census Act, the Statistics and Registration Service Act and the requirements of data protection and freedom of information legislation. There are legal penalties for the unlawful disclosure of personal information collected in the census.

ONS will ensure that Government-wide standards relating to information risk management and data security are met. The following principles will govern the treatment of the information given in the Census returns:

- (i) Only persons under the management and/or control of the UK Statistics Authority including those agents acting, or providing services, on its behalf for the purpose of the Census, and researchers approved under the provisions of the Statistics and Registration Service Act 2007, will have access to personal census information.
- (ii) In most cases one questionnaire will cover all members of the household and information will be returned by post; but, if they wish, people will be able to give personal information on a separate questionnaire, or via a secure online facility, in a way that will not reveal it to others in their household or establishment, or to the Enumerator.
- (iii) All members of the Census organisation and outside agents providing services to the UK Statistics Authority will be given strict instructions, and will be required to sign undertakings in the form of declarations, to ensure their awareness of their statutory confidentiality obligations. They will be liable to prosecution for any breaches of the law.
- (iv) The physical security of personal Census information held in the Census Office, by field staff or by authorised agents will be strictly enforced. All sites processing Census data will have continuous security arrangements in place including access control, CCTV, security guards, intruder alarms and ONS staff to monitor suppliers, and independent checks, by an accredited UK security organisation, of both physical and electronic security will be carried out.
- (v) All relevant UK Government Security requirements will be adhered to in all areas to ensure the overall security of the IT systems and the associated processes and procedures. Such measures taken will conform entirely to specific mandatory requirements in the procedures for the handling of personal data within Government. The computer systems handling Census data will have strict safeguards to prevent unauthorised access.
- (vi) The security and confidentiality arrangements covering the collection and processing of census forms will be subject to an independent review.

The 2011 Census White Paper² noted in particular that UK Statistics Authority is satisfied that ONS has fully addressed concerns about the security and confidentiality of Census data arising from the involvement of Lockheed Martin UK. In essence this confirms that neither Lockheed Martin UK Ltd nor any Lockheed Martin employee will have access to personal Census data. All Census data is owned by ONS and will be processed in the UK. Lockheed Martin UK will be acting as the prime contractor and will develop the systems to be used to handle and process the Census data, but access to the data itself will be restricted only to a consortium of subcontractors who are based in the UK and either UK or EU owned and will be protected to the standards required by the Data Protection Act 1998.

There will also be systematic modification of the data in the preparation of the results of the Census in order to preserve statistical confidentiality.

In particular precautions will be taken so that published tabulations and abstracts of statistical data are in line with both the Statistics and Registration Service Act 2007 and the National Statistics Code of Practice. Special precautions may apply particularly to statistical outputs for small areas. Measures to ensure disclosure control (that is, to prevent the release of statistical information that identifies characteristics about an individual person or household) will include some, or all, of the following procedures:

- restricting the number of output categories into which a variable may be classified, such as aggregated age groups
- where the number of people or households in an area falls below a minimum threshold, the statistical output – except for basic headcounts – will be amalgamated with that for a sufficiently large enough neighbouring area; and/or
- modifying some of the data before the statistics are released through one or more of a variety of means such as record swapping, over-imputation and some form of cell perturbation.

The National Statistician, together with the Registrars General for Scotland and Northern Ireland, have published a joint agreement to adopt a common statistical disclosure control policy as part of the move towards seeking harmonised statistical outputs from the 2011 Census across the UK¹⁰.

The key strength of the Census is its completeness of coverage and its ability to generate statistics about very small areas and groups of people (as is necessary to ensure that public policies take account of the needs of local communities when formulating policy). Particular care must therefore be taken to balance the need to ensure complete statistical confidentiality against damaging the utility of the data. Taking account of the recommendation of the Treasury Select Committee⁵ to review the mechanism to protect statistical confidentiality the National Statistician and the Registrars General have taken steps to ensure that no statistics will be produced that allow the identification of an individual (or information about an individual) with a high degree of confidence.

In a Census context, where thousands of cross-tabulations are generated from one database, statistical confidentiality can be achieved by introducing uncertainty about the true value of small cells. In order to meet the agreed interpretation of the Code of Practice, the three UK Census Offices have agreed that small counts could be included in publicly disseminated Census data provided that:

- uncertainty as to whether or not the small cell is a true value has been systematically created; and
- creating that uncertainty does not significantly damage the data.

The exact threshold of uncertainty required has not yet been decided. The National Statistician and the Registrars General will make this judgement, in consultation with users and other experts including the Information Commissioner, at a later stage within the context of results from research into the balance of protection afforded, and damage caused, by various disclosure control methodologies. The research into this is expected to be complete around mid-2009 and, following further consultation with users, a UK statistical disclosure control strategy for tabular outputs will be finalised later this summer, and reported in *Population Trends* in due course.

Disseminating the results

In disseminating the results of the Census much emphasis will be put on responsiveness to users' requirements on content, format and means of access, and on high standards in the production of statistics. ONS have started a programme of user consultation to ensure that outputs should be in such a form as to meet the changing requirements of users, but

anticipates that there is likely to be a continued requirement for national, regional and local authority summaries, and for reports on key findings on particular topics. The resulting dissemination strategy will reflect any requirement for outputs to be made available in a range of media to provide for ease of access to the user and the general public alike. ONS will, together with GROS and NISRA, also ensure that the UK's obligations to prepare those outputs required by Eurostat under recent EU census legislation¹¹, are met.

ONS proposes that all standard outputs would be publicly accessible online, and free of charge, from the National Statistics website.

Summary

The design for the 2011 Census in England and Wales includes a number of methodological and operational features and innovations aimed at improving the quality of the information collected, and reported, on the resident population. These include: the delivery of Census forms to the majority of households by post; the facility to return the completed information online; the development of a central address register to facilitate improved form delivery and field management; the outsourcing of the recruitment, training and payment of field staff to specialist service providers; closer liaison with local authorities to help tailor the field operation to meet local conditions; a strategy to improve coverage assessment and adjustment; and making publicly available all standard outputs online and free of charge from the National Statistics website subject to an agreed statistical disclosure control process.

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Tables

Table*		Page
Population		
1.1 (1)	International	74
1.2 (2)	National	77
1.3 (4)	Subnational	78
1.4 (6)	Age and sex	79
1.5 (7)	Age, sex and legal marital status	82
1.6 (5)	Components of population change	84
Vital statistics		
2.1 (8)	Summary	85
2.2 (new)	Key demographic and health indicators	87
Live births		
3.1 (9)	Age of mother	88
3.2 (10)	Outside marriage: age of mother and type of registration	89
3.3 (11)	Within marriage, within marriage to remarried women, age of mother and birth order	90
Conceptions and abortions		
4.1 (12)	Age of women at conception	91
Expectation of life		
5.1 (13)	(In years) at birth and selected age	92
Deaths		
6.1 (14)	Age and sex	93
6.2 (15)	Subnational	94
International migration		
7.1 (18)	Age and sex	95
7.2 (19)	Country of last residence	96
7.3 (20)	Citizenship	97
Internal migration		
8.1 (21)	Movements within the United Kingdom	98
Marriage and divorce		
9.1 (22)	Age and sex	99
9.2 (23)	Remarriages: age, sex and previous marital status	100
9.3 (24)	Divorces: age and sex	101

*Numbers in brackets indicate former table numbers in editions of *Population Trends* prior to spring 1999 (No 95). Former tables 16 and 17 (Deaths by selected causes, and Abortions) now appear in *Health Statistics Quarterly*.

Population Trends tables are also available in XLS or CSV formats via our website www.statistics.gov.uk

Symbols

..	not available	-	nil or less than half the final digit shown
:	not applicable	p	provisional

Table 1.1 Population and vital rates: international

Selected countries													Numbers (thousands)/Rates per thousand	
Year	United Kingdom	Austria	Belgium	Bulgaria	Cyprus ¹	Czech Republic	Denmark	Estonia	Finland	France	Germany ²	Greece ³	Hungary	
Population (thousands)														
1971	55,780	7,501	9,673	8,540	610	9,810	4,963	1,369	4,612	51,251	78,313	8,831	10,370	
1976	56,221	7,566	9,818	8,760	498	10,094	5,073	1,435	4,726	52,909	78,337	9,167	10,590	
1981	56,344	7,569	9,859	8,891	515	10,293	5,121	1,482	4,800	54,182	78,408	9,729	10,712	
1986	56,619	7,588	9,862	8,958	545	10,340	5,120	1,534	4,918	55,547	77,720	9,967	10,631	
1991	57,338	7,813	9,979	8,982	587	10,309	5,154	1,566	5,014	57,055	79,984	10,247	10,346	
1996	58,095	7,959	10,137	8,363	661 ¹²	10,315	5,262	1,416	5,125	58,026	81,896	10,709	10,193	
2001	59,000	8,021	10,263	8,149	698 ¹²	10,267	5,349	1,367	5,181	60,964	82,260	10,931	10,200	
2002	59,218	8,065	10,310	7,891	706 ¹²	10,206	5,368	1,361	5,195	61,399	82,440	10,969	10,175	
2003	59,440	8,102	10,356	7,846	715 ¹²	10,203	5,384	1,356	5,206	61,832	82,537	11,006	10,142	
2004	59,702	8,140	10,396	7,801	730 ¹²	10,211	5,398	1,351	5,212	62,252	82,532	11,041	10,117	
2005	60,042	8,207	10,446	7,761	749 ¹²	10,221	5,411	1,348	5,237	62,638	82,501	11,083	10,098	
2006	60,413	8,266	10,511	7,719	766 ¹²	10,251	5,427	1,345	5,256	62,999	82,438	11,125	10,077	
2007	60,781	8,299	10,585	7,679	779 ¹²	10,287	5,447	1,342	5,277	63,392	82,315	11,171	10,066	
2008	..	8,332	10,667	7,640	789 ¹²	10,381	5,476	1,341	5,300	63,753	82,218	11,214	10,045	
Population changes (per 1,000 per annum)														
1971–76	1.6	1.7	3.0	5.2	-36.7	5.8	4.4	9.6	4.9	6.5	0.1	7.6	4.2	
1976–81	0.4	0.1	0.8	3.0	6.8	3.9	1.9	6.6	3.1	4.8	0.2	12.3	2.3	
1981–86	1.0	0.5	0.1	1.5	11.7	0.9	0.0	7.0	4.9	5.0	-1.8	4.9	-1.5	
1986–91	2.5	5.9	2.4	0.5	15.4	-0.6	1.3	4.2	3.9	5.4	5.8	5.6	-5.4	
1991–96	2.6	3.7	3.6	-13.8	25.2	0.1	4.2	-12.4	3.8	3.4	4.8	9.0	-3.0	
1996–01	3.1	2.1	2.6	-10.8	12.1	-1.8	3.7	-7.3	2.5	4.5	1.1	4.5	-0.1	
2001–02	3.7	5.5	4.6	-31.7	11.5	-5.9	3.6	-4.4	2.7	7.1	2.2	3.5	-2.5	
2002–03	3.7	4.6	4.5	-5.7	12.7	-0.3	3.0	-3.7	2.1	7.1	1.2	3.4	-3.2	
2003–04	4.4	4.7	3.9	-5.7	21.0	0.8	2.6	-3.7	1.2	6.8	-0.1	3.2	-2.5	
2004–05	5.7	8.2	4.8	-5.1	26.0	1.0	2.4	-2.2	4.8	6.2	-0.4	3.8	-1.9	
2005–06	6.2	7.2	6.2	-5.4	22.7	2.9	3.0	-2.2	3.6	5.8	-0.8	3.8	-2.1	
2006–07	6.1	4.0	7.0	-5.2	17.0	3.5	3.7	-2.2	4.0	6.2	-1.5	4.1	-1.1	
2007–08	..	4.0	7.7	-5.1	12.8	9.1	5.3	-0.7	4.4	5.7	-1.2	3.8	-2.1	
Live birth rate (per 1,000 population per annum)														
1971–75	14.1	13.3	13.4	13.2	17.7	17.8	14.6	15.4	13.1	16.0	10.5	15.8	16.1	
1976–80	12.5	11.5	12.5	15.1	19.0	17.1	12.0	15.0	13.6	14.1	10.5	15.6	15.8	
1981–85	12.9	12.0	12.0	13.7	20.2	13.5	10.2	15.6	13.4	14.2	10.7	13.3	12.3	
1986–90	13.7	11.6	12.1	12.7	18.8	12.7	11.5	15.5	12.7	13.8	9.8	10.6	11.8	
1991–95	13.2	11.8	12.0	9.8	16.9	11.1	13.1	10.7	12.9	12.7	10.9	9.9	11.7	
1996–00	12.0	10.2	11.2	8.3	13.2	8.8	12.6	8.9	11.3	12.7	9.6	10.2	9.8	
2001	11.3	9.4	11.1	8.5	11.6	8.9	12.2	9.3	10.8	13.1	8.9	9.3	9.5	
2002	11.3	9.7	10.8	8.5	11.1	9.1	11.9	9.6	10.7	12.8	8.7	9.4	9.5	
2003	11.7	9.5	10.8	8.6	11.2	9.2	12.0	9.6	10.9	12.8	8.6	9.5	9.3	
2004	12.0	9.7	11.1	9.0	11.2	9.6	12.0	10.4	11.0	12.8	8.6	9.6	9.4	
2005	12.0	9.5	11.3	9.2	10.9	10.0	11.9	10.7	11.0	12.9	8.3	9.7	9.7	
2006	12.4	9.4	11.5	9.6	11.3	10.3	12.0	11.1	11.2	13.1	8.2	10.0	9.9	
2007	12.7	9.2	11.4	9.8	10.9	11.1	11.7	11.8	11.1	12.9	8.3	10.0	9.7	
2008	12.9 ^p	9.2 ^s	11.5 ^s	9.4 ^s	10.4 ^s	11.3 ^s	11.8 ^s	12.2 ^s	11.2 ^s	12.9 ^s	8.3 ^s	9.8 ^s	9.9 ^s	
Death rate (per 1,000 population per annum)														
1971–75	11.8	12.6	12.1	9.8	9.9	12.4	10.1	11.1	9.5	10.7	12.3	8.6	11.9	
1976–80	11.9	12.3	11.6	12.9	10.4	12.5	10.5	12.1	9.3	10.2	12.2	8.8	12.9	
1981–85	11.7	12.0	11.4	11.3	10.0	12.8	11.1	12.3	9.3	10.1	12.0	9.0	13.7	
1986–90	11.4	11.1	10.8	11.9	10.2	12.4	11.5	11.9	9.8	9.5	11.6	9.3	13.5	
1991–95	11.1	10.4	10.4	12.9	9.0	11.6	11.9	13.9	9.8	9.1	10.8	9.5	14.3	
1996–00	10.6	9.7	10.3	14.0	7.7	10.8	11.2	13.1	9.6	9.2	10.4	9.7	13.9	
2001	10.2	9.3	10.1	14.2	6.9	10.5	10.9	13.6	9.4	8.9	10.1	9.4	13.0	
2002	10.2	9.4	10.2	14.3	7.3	10.6	10.9	13.5	9.5	9.0	10.2	9.5	13.1	
2003	10.3	9.5	10.4	14.3	7.2	10.9	10.7	13.4	9.4	9.2	10.3	9.6	13.4	
2004	9.7	9.1	9.8	14.2	7.1	10.5	10.3	13.2	9.1	8.4	10.0	9.5	13.1	
2005	9.7	9.1	9.8	14.7	7.2	10.6	10.2	12.9	9.1	8.6	10.1	9.5	13.5	
2006	9.4	8.9	9.6	14.8	6.7	10.2	10.2	12.9	9.1	8.5	9.9	9.5	13.1	
2007	9.4	8.9	..	14.8	6.9	10.1	10.2	13.0	9.3	8.4	10.0	9.8	13.0	
2008	9.4 ^p	8.8	9.5	14.2	6.4	10.1	9.9	12.5	9.2	8.4	10.3	9.3	13.0	

Note: Estimated population (as at 1 January), live birth and death rates up to the latest available data, as given in the *United Nations Monthly Bulletin of Statistics, the United Nations Demographic Yearbook*, and the Eurostat website (May 2009). Birth and death rates for 2008 have been calculated using 2006-based population projections for 2008.

These will be revised later in 2009 when the 2008 mid-year population estimates are available.

- 1 Republic of Cyprus – Data refer to Government controlled areas.
- 2 Including the former GDR throughout.
- 3 Greece – Mid-year population excludes armed forces stationed outside the country but includes alien forces stationed in the area.
- 4 Malta – including work and resident permit holders and foreigners residing in Malta.
- 5 Poland – excluding civilian aliens within the country but including civilian nationals temporarily outside the country.
- 6 Portugal – including the Azores and Madeira Islands.
- 7 Spain – including the Balearic and Canary Islands.
- 8 For 1971 the European Union consisted of the 6 original member countries. This has since been expanded to include: 9 countries (1976-EU15); 10 countries (2004-EU25); 2 countries (2007-EU27). In this table, all totals include the EU27.

9 Including the Indian held part of Jammu and Kashmir, the final status of which has not yet been determined.

10 Japan – excluding diplomatic personnel outside the country and foreign military and civilian personnel and their dependants stationed in the area.

11 USA – excluding armed forces overseas and civilian citizens absent from the country for extended periods.

12 Indicates population estimates of uncertain reliability.

13 Data refers to 15 April.

14 Mid-year estimates have been adjusted for under-enumeration.

15 For statistical purposes the data for China do not include those for the Hong Kong SAR, Macao SAR and Taiwan province of China. Data for the period 1996 to 2000 have been adjusted on the basis of the Population Census of 2000. Data from 2001 to 2006 have been estimated on the basis of the annual national sample surveys of Population Changes.

16 Rate is for 1990–1995.

s Eurostat estimate

p provisional

Table 1.1
continued
Population and vital rates: international

Selected countries													Numbers (thousands)/Rates per thousand		
Year	Irish Republic	Italy	Latvia	Lithuania	Luxembourg	Malta ^a	Netherlands	Poland ^b	Portugal ^c	Romania	Slovakia	Slovenia	Spain ^d	Sweden	
Population (thousands)															
1971	2,992	54,073	2,366	3,160	342	330	13,194	32,800	8,644	20,470	4,540	1,732	34,216	8,098	
1976	3,238	55,718	2,465	3,315	361	330	13,774	34,360	9,356	21,450	4,764	1,809	36,118	8,222	
1981	3,443	56,502	2,515	3,422	365	322	14,247	35,902	9,851	22,353	4,996	1,910	37,741	8,320	
1986	3,543	56,596	2,588	3,560	368	344	14,572	37,456	10,011	22,823	5,179	1,975	38,536	8,370	
1991	3,526	56,751	2,662	3,742	387	358	15,070	38,245	9,871	23,185	5,283	2,002	38,920	8,617	
1996	3,626 ¹³	56,860	2,457	3,602	414	380	15,530	38,618	10,058	22,608	5,374	1,991	39,479	8,841	
2001	3,833 ¹³	56,960	2,364	3,487	439	391	15,987	38,254	10,257	22,430	5,379	1,990	40,477	8,883	
2002	3,900 ¹³	56,994	2,346	3,476	444	395	16,105	38,242	10,329	21,833	5,379	1,994	40,964	8,909	
2003	3,964 ¹³	57,321	2,331	3,463	448	397	16,193	38,219	10,407	21,773	5,379	1,995	41,664	8,941	
2004	4,028 ¹³	57,888	2,319	3,446	455	400	16,258	38,191	10,475	21,711	5,380	1,996	42,345	8,976	
2005	4,109 ¹³	58,462	2,306	3,425	461	403	16,306	38,174	10,529	21,659	5,385	1,998	43,038	9,011	
2006	4,209 ¹³	58,752	2,295	3,403	469	405	16,334	38,157	10,570	21,610	5,389	2,003	43,758	9,048	
2007	4,313 ¹³	59,131	2,281	3,385	476	408	16,358	38,125	10,599	21,565	5,394	2,010	44,475	9,113	
2008	4,401 ¹³	59,619	2,271	3,366	484	410	16,405	38,116	10,618	21,529	5,401	2,026	45,283	9,183	
Population changes (per 1,000 per annum)															
1971-76	16.4	6.1	8.4	9.8	10.7	0.0	8.8	9.5	16.5	9.6	9.9	8.9	11.1	3.1	
1976-81	12.7	2.8	4.1	6.5	2.5	-4.8	6.9	9.0	10.6	8.4	9.7	11.2	9.0	2.4	
1981-86	5.8	0.3	5.8	8.1	1.8	13.7	4.6	8.7	3.2	4.2	7.3	6.8	4.2	1.2	
1986-91	-1.0	0.5	5.7	10.2	10.2	8.1	6.8	4.2	-2.8	3.2	4.0	2.7	2.0	5.9	
1991-96	4.3	0.4	-12.8	-1.7	13.9	8.4	6.1	2.0	3.8	-5.0	3.4	-1.1	2.9	5.1	
1996-01	11.7	0.4	-8.3	-6.7	12.1	6.8	6.6	-1.9	4.7	-1.8	0.2	0.1	6.3	1.2	
2001-02	17.5	0.6	-7.6	-3.2	11.4	10.2	7.4	-0.3	7.0	-26.6	0.0	2.0	12.0	2.9	
2002-03	16.4	5.7	-6.4	-3.7	9.0	5.1	5.5	-0.6	7.6	-2.7	0.0	0.5	17.1	3.6	
2003-04	16.1	9.9	-5.1	-4.9	15.6	7.6	4.0	-0.7	6.5	-2.8	0.2	0.5	16.3	3.9	
2004-05	20.1	9.9	-5.6	-6.1	13.2	7.5	3.0	-0.4	5.2	-2.4	0.9	1.0	16.4	3.9	
2005-06	24.3	5.0	-4.8	-6.4	17.4	5.0	1.7	-0.4	3.9	-2.3	0.7	2.5	16.7	4.1	
2006-07	24.7	6.5	-6.1	-5.3	14.9	7.4	1.5	-0.8	2.7	-2.1	0.9	3.5	16.4	7.2	
2007-2008	20.4	8.3	-4.4	-5.6	16.8	4.9	2.9	-0.2	1.8	-1.7	1.3	8.0	18.2	7.7	
Live birth rate (per 1,000 population per annum)															
1971-75	22.2	16.0	14.4	16.4	11.6	17.5	14.9	17.9	20.3	19.3	19.7	16.4	19.2	13.5	
1976-80	21.3	12.6	13.9	15.4	11.2	17.0	12.6	19.3	17.9	18.9	20.3	16.3	17.1	11.6	
1981-85	19.2	10.6	15.2	16.0	11.6	15.3	12.2	19.0	14.5	15.6	18.0	14.2	12.8	11.3	
1986-90	15.8	9.8	15.3	15.8	12.2	16.0	12.8	15.5	11.9	15.8	15.8	12.3	10.8	13.2	
1991-95	14.0	9.6	10.8	13.1	13.3	14.0	12.8	12.9	11.4	11.1	13.3	10.0	9.8	13.3	
1996-00	14.2	9.2	8.0	10.4	13.1	12.0	12.6	10.4	11.3	10.4	10.7	9.1	9.5	10.2	
2001	15.0	9.4	8.4	9.1	12.4	10.1	12.6	9.6	11.0	10.1	9.5	8.8	10.0	10.3	
2002	15.4	9.4	8.6	8.7	12.0	9.9	12.5	9.3	11.0	9.7	9.5	8.8	10.2	10.7	
2003	15.4	9.4	9.0	8.9	11.7	10.2	12.3	9.2	10.8	9.8	9.6	8.7	10.5	11.1	
2004	15.2	9.7	8.8	8.9	11.9	9.7	11.9	9.3	10.4	10.0	10.0	9.0	10.6	11.2	
2005	14.7	9.5	9.3	9.0	11.5	9.6	11.5	9.5	10.4	10.2	10.1	9.1	10.7	11.2	
2006	15.1	9.5	9.7	9.2	11.7	9.6	11.3	9.8	10.0	10.2	10.0	9.4	10.9	11.7	
2007	16.2	9.5	10.2	9.6	11.4	9.5	11.0	10.2	9.7	10.0	10.1	9.8	11.0	11.7	
2008	18.1 ⁵	9.6 ⁵	10.8 ⁵	10.5 ⁵	11.2 ⁵	9.2 ⁵	11.3 ⁵	10.8 ⁵	9.6 ⁵	10.4 ⁵	10.4 ⁵	10.0 ⁵	11.0 ⁵	11.9 ⁵	
Death rate (per 1,000 population per annum)															
1971-75	11.0	9.8	11.6	9.0	12.2	9.0	8.3	8.4	11.0	9.4	9.4	10.0	8.5	10.5	
1976-80	10.2	9.7	12.6	10.1	11.5	9.0	8.1	9.2	10.1	9.8	9.8	9.8	8.0	10.9	
1981-85	9.4	9.5	12.8	10.6	11.2	8.2	8.3	9.6	9.6	10.3	10.1	10.3	7.7	11.0	
1986-90	9.1	9.4	12.4	10.3	10.5	7.4	8.5	10.0	9.6	10.8	10.1	9.6	8.2	11.1	
1991-95	8.8	9.7	14.8	12.0	9.8	7.6	8.8	10.2	10.4	11.5	9.9	9.7	8.7	10.9	
1996-00	8.5	9.8	13.9	11.5	9.0	7.7	8.8	9.8	10.5	12.0	9.7	9.5	9.1	10.6	
2001	7.9	9.6	14.0	11.6	8.4	7.6	8.7	9.5	10.2	11.6	9.7	9.3	8.9	10.5	
2002	7.5	9.8	13.9	11.8	8.4	7.8	8.8	9.4	10.2	12.4	9.6	9.4	8.9	10.6	
2003	7.2	10.2	13.9	11.9	9.0	7.7	8.7	9.6	10.4	12.3	9.7	9.7	9.2	10.4	
2004	7.0	9.4	13.9	12.0	7.6	7.2	8.4	9.5	9.7	11.9	9.6	9.3	8.7	10.1	
2005	6.6	9.7	14.2	12.8	8.0	7.8	8.4	9.7	10.2	12.1	9.9	9.4	8.9	10.2	
2006	6.5	9.5	14.5	13.2	8.0	..	8.3	9.7	9.7	11.9	9.9	9.1	8.4	10.0	
2007	6.6	9.6	14.5	13.5	8.1	..	8.1	9.9	9.8	11.7	9.9	9.2	8.6	10.0	
2008	6.1	9.8	14.0	13.2	6.9	7.7	8.2	10.0	9.7	11.9	9.8	9.1	8.7	9.9	

See notes on first page of table.

Table 1.1
continued
Population and vital rates: international

Selected countries										
										Numbers (thousands)/Rates per thousand
Year	EU ⁸	Russian Federation	Australia	Canada	New Zealand	China	India ⁹	Japan ¹⁰	USA ¹¹	Year
Population (thousands)										
1971	438,728	130,934	13,067	22,026	2,899	852,290 ¹⁵	551,311	105,145	207,661	1971
1976	450,468	135,027	14,033	23,517	3,163	937,170 ¹⁵	617,248	113,094	218,035	1976
1981	459,807	139,225	14,923	24,900	3,195	1,008,460 ¹⁵	675,185	117,902	229,958	1981
1986	465,336	144,154	16,018	26,204	3,317	1,086,733 ¹⁵	767,199	121,672	240,680	1986
1991	473,094	148,245	17,284	28,031	3,477	1,170,100 ¹⁵	851,897	123,964	252,639	1991
1996	478,084	148,160	18,311 ¹⁴	29,611 ¹⁴	3,732	1,217,550 ¹⁵	942,157 ¹²	125,757	269,394	1996
2001	483,782	145,976	19,413 ¹⁴	31,021 ¹⁴	3,880	1,271,850 ¹⁵	1,035,066 ¹²	127,150	285,108	2001
2002	484,614	145,306	19,650 ¹⁴	31,373 ¹⁴	3,939	1,280,400 ¹⁶	1,051,260 ¹²	127,450	287,985	2002
2003	486,617	144,566	19,990 ¹⁴	31,669 ¹⁴	4,009	1,288,400 ¹⁵	1,068,070 ¹²	127,720	290,850	2003
2004	488,757	143,821	20,140 ¹⁴	31,974 ¹⁴	4,061	1,296,075 ¹⁵	1,085,600 ¹²	127,760	293,623	2004
2005	491,024	143,110	20,409 ¹⁴	32,312 ¹⁴	4,099	1,303,720 ¹⁵	1,101,320 ¹²	127,773	296,410	2005
2006	492,975	142,490	20,700 ¹⁴	32,650 ¹⁴	4,180	1,311,020 ¹⁵	1,117,730 ¹²	127,760	299,400	2006
2007	495,090	142,110	21,020 ¹⁴	32,980 ^{14P}	4,230	1,321,290 ¹⁵	1,134,020 ¹²	127,770	..	2007
2008	497,455	..	..	..	..	..	..	..	..	2008
Population changes (per 1,000 per annum)										
1971-76	5.4	6.3	14.8	13.5	18.2	19.9	23.9	15.1	10.0	1971-76
1976-81	4.1	6.2	12.7	11.8	2.0	15.2	18.8	8.5	10.9	1976-81
1981-86	2.4	7.1	14.7	10.5	7.6	15.5	27.3	6.4	9.3	1981-86
1986-91	3.3	5.7	15.8	13.9	9.6	15.3	22.1	3.8	9.9	1986-91
1991-96	2.1	-1.7	11.9	11.3	14.7	10.3	21.1	2.9	12.1	1991-96
1996-01	2.4	-2.9	12.0	9.5	7.9	8.9	19.7	2.2	11.7	1996-01
2001-02	1.7	-4.6	12.2	11.3	15.2	6.7	15.6	2.4	10.1	2001-02
2002-03	4.1	-5.1	17.3	9.4	17.8	6.2	16.0	2.1	9.9	2002-03
2003-04	4.4	-5.2	7.5	9.6	13.0	6.0	16.4	0.3	9.5	2003-04
2004-05	4.6	-4.9	13.4	10.6	9.4	5.9	14.5	0.1	9.5	2004-05
2005-06	4.0	-4.3	14.3	10.5	19.8	5.6	14.9	-0.1	10.1	2005-06
2006-07	4.3	-2.7	15.5	10.1	12.0	7.8	14.6	0.1	..	2006-07
2007-2008	4.8	..	..	..	..	..	..	..	..	2007-08
Live birth rate (per 1,000 population per annum)										
1971-75	..	..	18.8	15.9	20.4	27.2	35.6	18.6	15.3	1971-75
1976-80	..	..	15.7	15.5	16.8	18.6	33.4	14.9	15.2	1976-80
1981-85	..	..	15.6	15.1	15.8	19.2	..	12.6	15.7	1981-85
1986-90	..	..	15.1	14.8	17.1	..	..	10.6	16.0	1986-90
1991-95	11.4	10.2	14.7	13.6	16.9	18.5 ¹⁶	..	9.7	13.1	1991-95
1996-00	10.6	8.6	13.4	11.4	14.9	..	..	9.5	14.3	1996-00
2001	10.4	9.0	12.7	10.8	14.4	13.4 ¹⁵	25.4	9.2	14.1	2001
2002	10.3	9.6	12.8	10.5	13.7	12.9 ¹⁵	25.0	9.1	14.0	2002
2003	10.3	10.2	12.6	10.6	14.0	12.4 ¹⁵	24.8	8.8	14.1	2003
2004	10.4	10.4	12.7	10.5	14.3	12.3 ¹⁵	24.1	8.7	14.0	2004
2005	10.4	10.2	12.9	10.6	14.1	12.4 ¹⁵	23.8	8.3	14.0	2005
2006	10.6	10.4	12.9	..	14.1	..	..	8.6	14.2	2006
2007	10.6	11.3	13.5	..	15.2	..	..	8.6	..	2007
2008	10.8 ⁵	..	..	..	15.1	..	..	..	..	2008
Death rate (per 1,000 population per annum)										
1971-75	..	..	8.2	7.4	8.4	7.3	15.5	6.4	9.1	1971-75
1976-80	..	..	7.6	7.2	8.2	6.6	13.8	6.1	8.7	1976-80
1981-85	..	..	7.3	7.0	8.1	6.7	..	6.1	8.6	1981-85
1986-90	..	..	7.2	7.3	8.2	..	..	6.4	8.7	1986-90
1991-95	10.4	13.7	7.0	7.8	7.8	..	..	7.0	8.7	1991-95
1996-00	10.2	14.3	6.9	7.2	7.2	..	..	7.4	8.5	1996-00
2001	9.9	15.4	6.6	7.1	7.2	6.4 ¹⁵	8.4	7.6	8.5	2001
2002	9.9	16.1	6.8	7.1	7.1	6.4 ¹⁵	8.1	7.7	8.5	2002
2003	10.1	16.4	6.7	7.1	7.0	6.4 ¹⁵	8.0	7.9	8.4	2003
2004	9.7	16.0	6.6	7.1	7.0	6.4 ¹⁵	7.5	8.1	8.2	2004
2005	9.8	16.1	6.4	7.2	6.6	6.5 ¹⁵	7.6	8.5	8.3	2005
2006	..	15.2	6.5	..	6.7	..	..	8.5	8.1	2006
2007	..	14.7	6.6	..	6.8	..	..	8.8	..	2007
2008	9.7	..	..	..	6.8	..	..	..	..	2008

See notes on first page of table.

Table 1.2 Mid Year Population: national

Constituent countries of the United Kingdom								Numbers (thousands) and percentage age distribution							
Mid-year	United Kingdom	Great Britain	England and Wales	England	Wales	Scotland	Northern Ireland								
Estimates															
1971	55,928	54,388	49,152	46,412	2,740	5,236	1,540								
1976	56,216	54,693	49,459	46,660	2,799	5,233	1,524								
1981	56,357	54,815	49,634	46,821	2,813	5,180	1,543								
1986	56,684	55,110	49,999	47,188	2,811	5,112	1,574								
1991	57,439	55,831	50,748	47,875	2,873	5,083	1,607								
1993	57,714	56,078	50,986	48,102	2,884	5,092	1,636								
1994	57,862	56,218	51,116	48,229	2,887	5,102	1,644								
1995	58,025	56,376	51,272	48,383	2,889	5,104	1,649								
1996	58,164	56,503	51,410	48,519	2,891	5,092	1,662								
1997	58,314	56,643	51,560	48,665	2,895	5,083	1,671								
1998	58,475	56,797	51,720	48,821	2,900	5,077	1,678								
1999	58,684	57,005	51,933	49,033	2,901	5,072	1,679								
2000	58,886	57,203	52,140	49,233	2,907	5,063	1,683								
2001	59,113	57,424	52,360	49,450	2,910	5,064	1,689								
2002	59,323	57,627	52,572	49,652	2,920	5,055	1,697								
2003	59,557	57,855	52,797	49,866	2,931	5,057	1,703								
2004	59,846	58,136	53,057	50,111	2,946	5,078	1,710								
2005	60,238	58,514	53,419	50,466	2,954	5,095	1,724								
2006	60,587	58,846	53,729	50,763	2,966	5,117	1,742								
2007	60,975	59,216	54,072	51,092	2,980	5,144	1,759								
<i>2007 by age group (percentages)</i>															
0-4	5.9	5.9	5.9	5.9	5.5	5.3	6.6								
5-15	13.0	12.9	13.0	13.0	13.2	12.5	15.1								
16-44	40.1	40.1	40.2	40.3	37.4	39.3	41.2								
45-64M/59F	22.0	22.1	21.9	21.9	22.9	23.4	20.7								
65M/60F-74	11.2	11.3	11.2	11.1	12.5	11.9	10.1								
75 and over	7.7	7.8	7.8	7.8	8.5	7.5	6.3								
Projections¹															
2006	60,587	58,846	53,729	50,763	2,966	5,117	1,742								
2011	62,761	60,950	55,744	52,706	3,038	5,206	1,812								
2016	64,975	63,107	57,837	54,724	3,113	5,270	1,868								
2021	67,191	65,269	59,943	56,757	3,186	5,326	1,922								
2026	69,260	67,294	61,931	58,682	3,248	5,363	1,966								
2031	71,100	69,101	63,727	60,432	3,296	5,374	1,999								
<i>2031 by age group (percentages)</i>															
0-4	5.5	5.5	5.6	5.6	5.1	4.7	5.7								
5-15	12.4	12.4	12.5	12.5	12.1	11.2	13.4								
16-44	36.4	36.4	36.6	36.8	33.7	34.3	35.5								
45-64 ²	23.4	23.4	23.3	23.3	23.5	24.4	23.9								
65-74 ²	10.6	10.6	10.5	10.4	12.0	12.4	10.7								
75 and over	11.6	11.6	11.5	11.4	13.7	12.9	10.9								

1 National projections based on mid-2006 population estimates.

2 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes. Between 2024 and 2026, state pension age will increase from 65 years to 66 years for both men and women.

Table 1.3 Population: subnational

Government Office Regions of England		Numbers (thousands) and percentage age distribution							
Mid-year	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West
Estimates									
1971	2,679	7,108	4,902	3,652	5,146	4,454	7,529	6,830	4,112
1976	2,671	7,043	4,924	3,774	5,178	4,672	7,089	7,029	4,280
1981	2,636	6,940	4,918	3,853	5,187	4,854	6,806	7,245	4,381
1986	2,594	6,833	4,884	3,908	5,180	4,999	6,774	7,468	4,548
1991	2,587	6,843	4,936	4,011	5,230	5,121	6,829	7,629	4,688
1993	2,594	6,847	4,954	4,056	5,246	5,154	6,844	7,673	4,734
1994	2,589	6,839	4,960	4,072	5,249	5,178	6,874	7,712	4,757
1995	2,583	6,828	4,961	4,092	5,257	5,206	6,913	7,763	4,782
1996	2,576	6,810	4,961	4,108	5,263	5,233	6,974	7,800	4,793
1997	2,568	6,794	4,958	4,120	5,262	5,267	7,015	7,853	4,827
1998	2,561	6,792	4,958	4,133	5,271	5,302	7,065	7,889	4,849
1999	2,550	6,773	4,956	4,152	5,272	5,339	7,154	7,955	4,881
2000	2,543	6,774	4,959	4,168	5,270	5,375	7,237	7,991	4,917
2001	2,540	6,773	4,977	4,190	5,281	5,400	7,322	8,023	4,943
2002	2,541	6,778	5,002	4,222	5,295	5,433	7,362	8,047	4,973
2003	2,541	6,800	5,028	4,254	5,312	5,475	7,364	8,087	5,005
2004	2,542	6,820	5,064	4,291	5,327	5,511	7,389	8,125	5,042
2005	2,550	6,840	5,108	4,328	5,351	5,563	7,456	8,185	5,087
2006	2,556	6,853	5,142	4,364	5,367	5,607	7,512	8,238	5,124
2007	2,564	6,864	5,177	4,400	5,382	5,661	7,557	8,309	5,178
<i>2007 by age group (percentages)</i>									
0-4	5.5	5.9	5.8	5.6	6.1	5.9	7.0	5.8	5.2
5-15	12.6	13.2	13.0	12.9	13.4	13.2	12.2	13.2	12.5
16-44	38.9	39.4	40.3	39.4	39.1	38.6	48.3	38.9	37.1
45-64M/59F	23.2	22.3	22.0	22.7	22.0	22.4	18.6	22.5	22.9
65M/60F-74	11.9	11.5	11.3	11.6	11.6	11.7	8.1	11.3	12.6
75 and over	8.0	7.7	7.6	7.8	7.9	8.2	5.7	8.3	9.5
Projections¹									
2006	2,556	6,853	5,142	4,364	5,367	5,607	7,512	8,238	5,124
2011	2,594	7,014	5,377	4,591	5,506	5,890	7,817	8,550	5,368
2016	2,638	7,193	5,621	4,825	5,662	6,179	8,114	8,871	5,620
2021	2,685	7,377	5,866	5,060	5,824	6,471	8,390	9,202	5,882
2026	2,730	7,546	6,101	5,286	5,977	6,747	8,633	9,523	6,139
2031	2,769	7,696	6,319	5,491	6,114	6,997	8,858	9,814	6,374
<i>2031 by age group (percentages)</i>									
0-4	5.2	5.5	5.6	5.3	5.9	5.5	6.7	5.5	5.0
5-15	12.1	12.6	12.5	12.3	13.2	12.6	12.6	12.7	11.8
16-44	35.6	36.3	37.7	35.6	35.7	34.9	43.7	35.1	33.9
45-64 ²	23.0	23.2	23.0	23.8	22.8	23.7	22.9	23.6	23.7
65-74 ²	11.7	10.9	10.2	11.0	10.5	10.9	7.4	10.8	11.8
75 and over	12.4	11.5	10.9	12.0	11.9	12.4	6.7	12.4	13.9

1 These projections are based on the 2006 population estimates and are consistent with the 2006-based national projections produced by the Office for National Statistics.

2 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 65 years for both sexes. Between 2024 and 2026, state pension age will increase from 65 years to 66 years for both men and women.

Table 1.5 Population: age, sex and legal marital status¹

England and Wales		Numbers (thousands)									
Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
Aged											
16 and over											
1971	36,818	4,173	12,522	187	682	17,563	3,583	12,566	296	2,810	19,255
1976	37,486	4,369	12,511	376	686	17,941	3,597	12,538	533	2,877	19,545
1981	38,724	5,013	12,238	611	698	18,559	4,114	12,284	828	2,939	20,165
1986	39,837	5,625	11,867	917	695	19,103	4,617	12,000	1,165	2,953	20,734
1991	40,501	5,891	11,636	1,187	727	19,441	4,817	11,833	1,459	2,951	21,060
1996	40,827	6,225	11,310	1,346	733	19,614	5,168	11,433	1,730	2,881	21,212
1999	41,325	6,582	11,143	1,433	732	19,890	5,526	11,235	1,875	2,800	21,435
2000	41,569	6,721	11,113	1,456	731	20,022	5,650	11,199	1,927	2,772	21,547
2001	41,865	6,894	11,090	1,482	733	20,198	5,798	11,150	1,975	2,745	21,667
2002	42,135	7,062	11,043	1,524	730	20,358	5,944	11,094	2,031	2,709	21,777
2003	42,409	7,226	10,995	1,571	726	20,517	6,102	11,033	2,087	2,669	21,892
2004	42,731	7,419	10,941	1,617	722	20,700	6,279	10,980	2,144	2,628	22,031
2005	43,141	7,623	10,923	1,662	719	20,927	6,486	10,943	2,198	2,588	22,214
2006	43,494	7,833	10,881	1,696	716	21,126	6,683	10,893	2,244	2,548	22,367
2007	43,860	8,049	10,851	1,724	715	21,338	6,871	10,851	2,289	2,511	22,521
16–19											
1971	2,666	1,327	34	0	0	1,362	1,163	142	0	0	1,305
1976	2,901	1,454	28	0	0	1,482	1,289	129	0	0	1,419
1981	3,310	1,675	20	0	0	1,694	1,523	93	0	0	1,616
1986	3,131	1,587	10	0	0	1,596	1,484	49	1	0	1,535
1991	2,665	1,358	8	0	0	1,366	1,267	32	0	0	1,300
1996	2,402	1,209	6	0	0	1,216	1,164	21	0	0	1,186
1999	2,543	1,280	6	1	1	1,288	1,234	20	1	1	1,255
2000	2,523	1,276	6	1	1	1,283	1,221	18	1	1	1,240
2001	2,567	1,304	5	1	1	1,312	1,237	16	1	1	1,255
2002	2,630	1,351	5	1	1	1,357	1,258	13	1	1	1,273
2003	2,703	1,392	4	1	1	1,397	1,293	12	0	1	1,306
2004	2,771	1,424	3	0	0	1,428	1,331	11	0	0	1,343
2005	2,801	1,434	2	0	0	1,436	1,355	10	0	0	1,365
2006	2,829	1,457	2	0	0	1,459	1,363	7	0	0	1,370
2007	2,861	1,473	2	0	0	1,475	1,379	7	0	0	1,386
20–24											
1971	3,773	1,211	689	3	0	1,904	745	1,113	9	2	1,869
1976	3,395	1,167	557	4	0	1,728	725	925	16	2	1,667
1981	3,744	1,420	466	10	1	1,896	1,007	811	27	2	1,847
1986	4,171	1,768	317	14	0	2,099	1,383	657	32	1	2,072
1991	3,911	1,717	242	12	0	1,971	1,421	490	29	1	1,941
1996	3,291	1,538	117	3	0	1,658	1,361	260	11	1	1,633
1999	3,047	1,449	78	2	0	1,530	1,320	188	8	1	1,517
2000	3,088	1,470	74	3	0	1,548	1,352	180	8	1	1,540
2001	3,157	1,501	74	3	1	1,579	1,390	178	8	1	1,578
2002	3,212	1,530	73	3	1	1,606	1,427	170	8	1	1,606
2003	3,281	1,568	74	3	1	1,645	1,459	166	8	1	1,636
2004	3,376	1,632	75	3	1	1,712	1,491	163	8	2	1,664
2005	3,477	1,693	73	3	1	1,771	1,539	157	8	2	1,706
2006	3,558	1,741	67	3	1	1,812	1,591	146	7	1	1,746
2007	3,661	1,813	64	3	1	1,881	1,637	136	6	1	1,780
25–29											
1971	3,267	431	1,206	16	1	1,654	215	1,367	29	4	1,614
1976	3,758	533	1,326	39	2	1,900	267	1,522	65	5	1,859
1981	3,372	588	1,057	54	1	1,700	331	1,247	89	4	1,671
1986	3,713	835	949	79	1	1,863	527	1,207	113	4	1,850
1991	4,154	1,132	856	82	1	2,071	800	1,158	123	2	2,083
1996	3,950	1,273	650	46	1	1,970	977	906	93	3	1,980
1999	3,687	1,304	497	34	1	1,836	1,051	725	72	3	1,851
2000	3,605	1,305	459	31	1	1,796	1,065	677	65	3	1,810
2001	3,487	1,293	420	28	1	1,742	1,059	625	58	3	1,745
2002	3,365	1,277	384	26	1	1,688	1,049	574	52	3	1,676
2003	3,284	1,265	356	24	1	1,647	1,051	536	48	2	1,638
2004	3,280	1,278	339	23	1	1,641	1,078	513	46	2	1,639
2005	3,354	1,320	331	23	1	1,675	1,128	504	45	2	1,679
2006	3,434	1,371	324	22	1	1,718	1,178	490	45	2	1,716
2007	3,526	1,422	326	22	1	1,770	1,223	486	44	2	1,756

1 Rates have been revised from 2002 to include the adjustments for marriages to England and Wales residents occurring abroad – see 'In Brief'.

Table 1.5
continued Population: age, sex and legal marital status¹

England and Wales											
											Numbers (thousands)
Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
30-34											
1971	2,897	206	1,244	23	3	1,475	111	1,269	34	8	1,422
1976	3,220	236	1,338	55	3	1,632	118	1,388	75	8	1,588
1981	3,715	318	1,451	97	3	1,869	165	1,544	129	9	1,846
1986	3,338	355	1,197	124	2	1,679	206	1,293	154	6	1,660
1991	3,708	520	1,172	155	2	1,849	335	1,330	189	5	1,859
1996	4,126	776	1,135	138	2	2,050	551	1,316	201	7	2,076
1999	4,113	877	1,043	121	3	2,044	651	1,223	188	7	2,069
2000	4,076	904	1,007	114	2	2,027	679	1,182	181	7	2,049
2001	4,050	934	971	108	2	2,016	711	1,142	174	7	2,033
2002	3,992	951	927	103	2	1,984	739	1,097	166	6	2,009
2003	3,919	964	881	99	2	1,947	760	1,049	158	6	1,972
2004	3,810	967	834	94	2	1,897	768	983	147	5	1,913
2005	3,724	972	793	88	2	1,856	778	948	137	5	1,868
2006	3,606	972	744	81	2	1,799	782	896	124	5	1,808
2007	3,473	962	701	74	1	1,738	777	840	114	4	1,735
35-44											
1971	5,736	317	2,513	48	13	2,891	201	2,529	66	48	2,845
1976	5,608	286	2,442	104	12	2,843	167	2,427	129	42	2,765
1981	5,996	316	2,519	178	12	3,024	170	2,540	222	41	2,972
1986	6,856	396	2,738	293	12	3,438	213	2,815	350	39	3,418
1991	7,022	477	2,632	384	11	3,504	280	2,760	444	34	3,517
1996	7,017	653	2,426	398	12	3,489	427	2,568	497	36	3,528
1999	7,475	832	2,459	408	13	3,711	577	2,617	533	37	3,763
2000	7,661	899	2,481	410	12	3,802	635	2,640	547	37	3,859
2001	7,816	963	2,494	411	12	3,881	692	2,649	558	36	3,935
2002	7,964	1,027	2,499	420	12	3,957	749	2,653	570	35	4,007
2003	8,058	1,080	2,488	427	12	4,007	801	2,638	579	33	4,051
2004	8,133	1,126	2,466	433	11	4,036	853	2,623	588	32	4,097
2005	8,194	1,173	2,452	436	11	4,073	903	2,597	590	31	4,121
2006	8,213	1,219	2,419	431	11	4,080	955	2,564	585	30	4,134
2007	8,209	1,259	2,385	422	10	4,076	1,004	2,525	574	29	4,132
45-64											
1971	11,887	502	4,995	81	173	5,751	569	4,709	125	733	6,136
1976	11,484	496	4,787	141	160	5,583	462	4,568	188	683	5,901
1981	11,040	480	4,560	218	147	5,405	386	4,358	271	620	5,635
1986	10,860	461	4,422	331	141	5,355	327	4,220	388	570	5,505
1991	10,960	456	4,394	456	127	5,433	292	4,211	521	503	5,527
1996	11,820	528	4,587	628	121	5,864	318	4,466	732	440	5,956
1999	12,198	589	4,627	706	121	6,043	355	4,541	844	415	6,155
2000	12,328	615	4,638	727	121	6,101	372	4,564	881	410	6,227
2001	12,447	644	4,647	747	121	6,159	391	4,578	918	401	6,289
2002	12,573	670	4,647	775	119	6,211	413	4,599	959	391	6,362
2003	12,710	700	4,653	807	118	6,278	437	4,616	999	380	6,432
2004	12,852	734	4,657	840	116	6,347	464	4,630	1,041	370	6,505
2005	13,021	771	4,672	873	115	6,431	496	4,650	1,084	361	6,590
2006	13,243	813	4,703	906	115	6,537	534	4,688	1,130	355	6,706
2007	13,439	857	4,716	935	114	6,621	576	4,719	1,175	347	6,818
65 and over											
1971	6,592	179	1,840	17	492	2,527	580	1,437	32	2,016	4,065
1976	7,119	197	2,033	33	510	2,773	569	1,579	60	2,138	4,347
1981	7,548	216	2,167	54	534	2,971	533	1,692	90	2,263	4,578
1986	7,768	223	2,234	76	539	3,072	477	1,759	127	2,333	4,696
1991	8,080	231	2,332	99	586	3,248	422	1,853	152	2,405	4,832
1996	8,221	247	2,390	134	597	3,367	369	1,897	196	2,393	4,854
1999	8,262	251	2,431	161	594	3,437	338	1,922	230	2,336	4,825
2000	8,287	252	2,449	171	593	3,466	327	1,938	243	2,313	4,821
2001	8,342	254	2,478	183	595	3,510	318	1,960	259	2,295	4,832
2002	8,398	255	2,509	196	594	3,554	308	1,987	276	2,272	4,844
2003	8,454	257	2,539	209	592	3,597	301	2,017	295	2,245	4,857
2004	8,510	258	2,568	223	591	3,640	293	2,046	314	2,216	4,870
2005	8,571	259	2,599	238	589	3,685	286	2,078	334	2,187	4,885
2006	8,611	260	2,622	252	587	3,722	279	2,102	353	2,155	4,889
2007	8,690	263	2,658	268	587	3,775	274	2,138	375	2,128	4,915

Table 1.6 Components of population change

Constituent countries of the United Kingdom											Numbers (thousands)
Mid-year to mid-year	Population at start of period	Total annual change	Components of change (mid-year to mid-year or annual averages)							Population at end of period	
			Live births	Deaths	Natural change (Live births – deaths)	Net civilian migration					Other changes
						Total ¹	To/from rest of UK	To/from Irish Republic	To/from rest of the world		
United Kingdom											
1971–76	55,928	+ 58	766	670	+ 96	- 55	-	- 55	-	+ 16	56,216
1976–81	56,216	+ 27	705	662	+ 42	- 33	-	- 33	-	+ 18	56,357
1981–86	56,357	+ 65	733	662	+ 70	- 5	-	..	..	..	56,684
1986–91	56,684	+148	782	647	+135	+ 13	-	..	..	..	57,439
1991–96	57,439	+145	756	639	+117	+ 29	-	..	..	..	58,164
1996–01	58,164	+190	706	623	+83	+107	..	..	..	..	59,113
2001–02	59,113	+210	663	601	+62	+148	..	..	..	..	59,323
2002–03	59,323	+234	682	605	+77	+157	..	..	..	..	59,557
2003–04	59,557	+289	707	603	+104	+185	..	..	..	..	59,846
2004–05	59,846	+393	717	591	+127	+266	..	..	..	..	60,238
2005–06	60,238	+349	734	575	+159	+190	..	..	..	..	60,587
2006–07	60,587	+388	758	571	+187	+201	..	..	..	..	60,975
England and Wales											
1971–76	49,152	+ 61	644	588	+ 76	- 28	+ 10	- 9	- 29	+ 13	49,459
1976–81	49,459	+ 35	612	582	+ 30	- 9	+ 11	- 3	- 17	+ 14	49,634
1981–86	49,634	+ 73	639	582	+ 57	+ 16	..	..	..	..	49,999
1986–91	49,999	+150	689	569	+120	+ 30	..	..	..	..	50,748
1991–96	50,748	+132	668	563	+106	+ 27	..	..	..	..	51,410
1996–01	51,410	+190	626	548	+ 78	+112	..	..	..	..	52,360
2001–02	52,360	+212	591	530	+ 61	+151	..	..	..	..	52,572
2002–03	52,572	+225	608	532	+ 76	+149	..	..	..	..	52,797
2003–04	52,797	+260	631	531	+101	+159	..	..	..	..	53,057
2004–05	53,057	+362	641	520	+121	+241	..	..	..	..	53,419
2005–06	53,419	+310	657	506	+151	+159	..	..	..	..	53,729
2006–07	53,729	+343	677	500	+177	+166	..	..	..	..	54,072
England											
1971–76	46,412	+ 50	627	552	+ 75	- 35	+ 1	- 9	- 27	+ 10	46,660
1976–81	46,660	+ 32	577	546	+ 31	- 11	+ 6	- 3	- 15	+ 12	46,821
1981–86	46,821	+ 73	603	547	+ 56	+ 18	..	..	..	..	47,188
1986–91	47,188	+137	651	535	+116	+ 21	..	..	..	..	47,875
1991–96	47,875	+129	632	528	+104	+ 24	..	..	..	..	48,519
1996–01	48,519	+186	593	514	+ 79	+107	..	..	..	..	49,450
2001–02	49,450	+203	560	497	+ 63	+139	..	..	..	..	49,652
2002–03	49,652	+214	578	498	+ 79	+135	..	..	..	..	49,866
2003–04	49,866	+245	600	498	+102	+143	..	..	..	..	50,111
2004–05	50,111	+355	608	487	+121	+234	..	..	..	..	50,466
2005–06	50,466	+297	623	474	+149	+148	..	..	..	..	50,763
2006–07	50,763	+329	643	469	+174	+155	..	..	..	..	51,092
Wales											
1971–76	2,740	+ 12	37	36	+ 1	+ 7	+10	..	- 2	+ 3	2,799
1976–81	2,799	+ 3	35	36	- 1	+ 2	+ 5	..	- 2	+ 2	2,813
1981–86	2,813	- 1	36	35	+ 1	- 1	..	..	..	..	2,811
1986–91	2,811	+ 12	38	34	+ 4	+ 8	..	..	..	..	2,873
1991–96	2,873	+ 4	36	35	+ 1	+ 2	..	..	..	..	2,891
1996–01	2,891	+ 4	33	34	- 1	+ 5	..	..	..	..	2,910
2001–02	2,910	+ 10	30	33	- 3	+ 12	..	..	..	..	2,920
2002–03	2,920	+ 11	31	33	- 3	+ 14	..	..	..	..	2,931
2003–04	2,931	+ 15	32	33	- 1	+ 17	..	..	..	..	2,946
2004–05	2,946	+ 7	33	33	0	+ 7	..	..	..	..	2,954
2005–06	2,954	+ 12	33	31	+ 2	+ 10	..	..	..	..	2,966
2006–07	2,966	+ 14	34	31	+ 2	+ 12	..	..	..	..	2,980
Scotland											
1971–76	5,236	0	73	64	+ 9	- 14	- 4	- 10	- 10	+ 4	5,233
1976–81	5,233	- 11	66	64	+ 2	- 16	- 7	- 10	- 10	+ 4	5,180
1981–86	5,180	- 14	66	64	+ 2	- 16	- 7	- 7	- 7	+ 1	5,112
1986–91	5,112	- 6	66	62	+ 3	- 9	..	..	..	..	5,083
1991–96	5,083	+ 2	63	61	+ 1	- 0	..	..	..	..	5,092
1996–01	5,092	- 6	56	59	- 3	- 3	..	..	..	..	5,064
2001–02	5,064	- 9	51	57	- 6	- 3	..	..	..	..	5,055
2002–03	5,055	+ 3	52	58	- 7	+ 9	..	..	..	..	5,057
2003–04	5,057	+ 21	54	58	- 4	+ 25	..	..	..	..	5,078
2004–05	5,078	+ 16	54	57	- 2	+ 19	..	..	..	..	5,095
2005–06	5,095	+ 22	55	55	0	+ 22	..	..	..	..	5,117
2006–07	5,117	+ 27	57	56	+ 1	+ 26	..	..	..	..	5,144
Northern Ireland											
1971–76	1,540	- 3	28	17	+ 11	- 14	- 7	- 7	- 7	- 1	1,524
1976–81	1,524	+ 3	27	17	+ 10	- 8	- 4	- 3	- 3	+ 17	1,543
1981–86	1,543	+ 6	28	16	+ 12	- 5	- 3	- 1	- 1	-	1,574
1986–91	1,574	+ 7	27	16	+ 12	- 5	- 3	- 1	- 1	-	1,607
1991–96	1,607	+ 11	25	15	+ 9	+ 2	..	..	..	-	1,662
1996–01	1,662	+ 6	23	15	+ 8	- 3	..	..	..	..	1,689
2001–02	1,689	+ 7	21	14	+ 7	0	..	..	..	..	1,697
2002–03	1,697	+ 6	21	15	+ 7	- 1	..	..	..	..	1,703
2003–04	1,703	+ 8	22	15	+ 7	0	..	..	..	..	1,710
2004–05	1,710	+ 14	22	14	+ 8	+ 6	..	..	..	..	1,724
2005–06	1,724	+ 17	23	14	+ 8	+ 9	..	..	..	..	1,742
2006–07	1,742	+ 18	24	15	+ 9	+ 8	..	..	..	..	1,759

1 For UK, England, Wales and Scotland from 1981 onwards, this column is not an estimate of net civilian migration; it also includes "other" changes. It has been derived by subtraction using revised population estimates and natural change.

Table 3.1 Live births: age of mother

England and Wales

Numbers (thousands), rates, mean age and TFRs

Year and quarter	Age of mother at birth							Mean age ¹ (years)	Age of mother at birth							Mean age ² (years)	TFR ³
	All ages	Under 20	20–24	25–29	30–34	35–39	40 and over		All ages	Under 20	20–24	25–29	30–34	35–39	40 and over		
	Total live births (numbers)								Age-specific fertility rates ⁴								
1961	811.3	59.8	249.8	248.5	152.3	77.5	23.3	27.6	89.2	37.3	172.6	176.9	103.1	48.1	15.0	27.4	2.77
1964(max)	876.0	76.7	276.1	270.7	153.5	75.4	23.6	27.2	92.9	42.5	181.6	187.3	107.7	49.8	13.7	27.3	2.93
1966	849.8	86.7	285.8	253.7	136.4	67.0	20.1	26.8	90.5	47.7	176.0	174.0	97.3	45.3	12.5	27.1	2.75
1971	783.2	82.6	285.7	247.2	109.6	45.2	12.7	26.2	83.5	50.6	152.9	153.2	77.1	32.8	8.7	26.6	2.37
1976	584.3	57.9	182.2	220.7	90.8	26.1	6.5	26.4	60.4	32.2	109.3	118.7	57.2	18.6	4.8	26.5	1.71
1977(min)	569.3	54.5	174.5	207.9	100.8	25.5	6.0	26.5	58.1	29.4	103.7	117.5	58.6	18.2	4.4	26.6	1.66
1981	634.5	56.6	194.5	215.8	126.6	34.2	6.9	26.8	61.3	28.1	105.3	129.1	68.6	21.7	4.9	27.0	1.79
1986	661.0	57.4	192.1	229.0	129.5	45.5	7.6	27.0	60.6	30.1	92.7	123.8	78.0	24.6	4.8	27.4	1.77
1991	699.2	52.4	173.4	248.7	161.3	53.6	9.8	27.7	63.6	33.0	89.3	119.4	86.7	32.1	5.3	27.7	1.82
1992	689.7	47.9	163.3	244.8	166.8	56.7	10.2	27.9	63.6	31.7	86.1	117.6	87.4	33.4	5.8	27.8	1.80
1993	673.5	45.1	152.0	236.0	171.1	58.8	10.5	28.1	62.7	30.9	82.5	114.4	87.4	34.1	6.2	27.9	1.76
1994	664.7	42.0	140.2	229.1	179.6	63.1	10.7	28.4	62.0	28.9	79.0	112.2	89.4	35.8	6.4	28.1	1.75
1995	648.1	41.9	130.7	217.4	181.2	65.5	11.3	28.5	60.5	28.5	76.4	108.4	88.3	36.3	6.8	28.2	1.72
1996	649.5	44.7	125.7	211.1	186.4	69.5	12.1	28.6	60.6	29.7	77.0	106.6	89.8	37.5	7.2	28.2	1.74
1997	643.1	46.4	118.6	202.8	187.5	74.9	12.9	28.8	60.0	30.2	76.0	104.3	89.8	39.4	7.6	28.3	1.73
1998	635.9	48.3	113.5	193.1	188.5	78.9	13.6	28.9	59.2	30.9	74.9	101.5	90.6	40.4	7.9	28.3	1.72
1999	621.9	48.4	110.7	181.9	185.3	81.3	14.3	29.0	57.8	30.9	73.0	98.3	89.6	40.6	8.1	28.4	1.70
2000	604.4	45.8	107.7	170.7	180.1	85.0	15.1	29.1	55.9	29.3	70.0	94.3	87.9	41.4	8.3	28.5	1.65
2001	594.6	44.2	108.8	159.9	178.9	86.5	16.3	29.2	54.7	28.0	69.0	91.7	88.0	41.5	8.8	28.6	1.63
2002	596.1	43.5	110.9	153.4	180.5	90.5	17.3	29.3	54.7	27.1	69.1	91.5	89.9	43.0	9.1	28.7	1.65
2003	621.5	44.2	116.6	156.9	187.2	97.4	19.1	29.4	56.8	26.9	71.3	95.8	94.9	46.4	9.8	28.8	1.73
2004	639.7	45.1	121.1	160.0	190.6	102.2	20.8	29.4	58.2	26.9	72.8	97.6	99.6	48.8	10.4	28.9	1.78
2005	645.8	44.8	122.1	164.3	188.2	104.1	22.2	29.5	58.3	26.3	71.6	97.9	100.7	50.3	10.8	29.1	1.79
2006	669.6	45.5	127.8	172.6	189.4	110.5	23.7	29.5	60.2	26.6	73.2	100.6	104.8	53.8	11.4	29.1	1.86
2007	690.0	44.8	130.8	182.6	191.1	115.4	25.4	29.5	62.0	26.0	73.5	104.0	110.2	56.9	12.0	29.3	1.92
2008	708.7 ^p	44.7 ^p	136.0 ^p	193.0 ^p	192.5 ^p	116.2 ^p	26.4 ^p	29.5 ^p	63.5 ^p	26.2 ^p	74.3 ^p	106.2 ^p	112.3 ^p	58.4 ^p	12.6 ^p	29.3 ^p	1.95 ^p
2003 March	147.4	10.9	27.9	37.5	44.0	22.6	4.6	29.3	54.7	26.8	69.1	92.8	90.5	43.7	9.6	28.8	1.66
June	155.1	10.7	28.5	39.3	47.4	24.5	4.7	29.5	56.9	26.0	70.0	96.4	96.4	46.9	9.6	28.9	1.73
Sept	162.8	11.5	30.5	41.0	49.3	25.6	5.0	29.4	59.1	27.7	74.0	99.4	99.2	48.3	10.1	28.9	1.79
Dec	156.0	11.2	29.7	39.1	46.5	24.6	4.8	29.4	56.6	27.1	72.1	94.6	93.6	46.5	9.8	28.8	1.72
2004 March	155.2	11.0	29.3	38.7	46.6	24.7	4.9	29.4	56.8	26.5	70.8	95.0	97.9	47.4	9.8	28.9	1.74
June	157.4	10.7	29.3	39.4	47.7	25.2	5.0	29.5	57.6	25.7	70.9	96.6	100.4	48.5	10.1	29.0	1.76
Sept	165.4	11.7	31.4	41.6	49.0	26.3	5.4	29.4	59.9	27.7	75.0	101.0	102.0	50.1	10.7	28.9	1.83
Dec	161.7	11.6	31.1	40.3	47.2	26.0	5.5	29.4	58.5	27.6	74.3	97.7	98.2	49.4	10.9	28.9	1.79
2005 March	154.3	10.9	29.3	38.9	45.0	24.7	5.4	29.4	56.5	26.0	69.6	94.0	97.6	48.5	10.7	29.0	1.74
June	159.8	10.7	29.6	40.3	47.5	26.2	5.4	29.5	57.8	25.3	69.7	96.2	101.9	50.8	10.6	29.1	1.78
Sept	170.2	11.9	32.5	43.7	49.4	26.9	5.7	29.4	60.9	27.6	75.7	103.2	104.9	51.6	11.1	29.0	1.88
Dec	161.7	11.3	30.7	41.4	46.3	26.3	5.7	29.4	57.9	26.3	71.3	97.9	98.3	50.4	11.0	29.0	1.78
2006 March	159.5	11.1	30.5	40.7	45.3	26.3	5.6	29.5	58.2	26.3	70.9	96.1	101.6	52.0	11.0	29.1	1.79
June	166.2	11.4	31.2	42.9	47.6	27.1	5.9	29.5	60.0	26.6	71.8	100.4	105.7	53.0	11.3	29.1	1.85
Sept	174.9	12.0	33.5	45.6	49.0	28.9	6.0	29.4	62.4	27.7	76.1	105.4	107.5	55.9	11.4	29.1	1.93
Dec	169.0	11.1	32.6	43.5	47.5	28.1	6.2	29.5	60.3	25.7	74.0	100.5	104.3	54.4	11.8	29.2	1.86
2007 March	164.0	10.9	31.1	42.7	45.7	27.4	6.2	29.5	59.8	25.5	70.9	98.6	106.9	54.8	12.0	29.3	1.85
June	169.5	10.7	31.4	44.6	47.8	28.9	6.2	29.6	61.1	25.0	70.8	101.9	110.5	57.1	11.8	29.4	1.89
Sept	181.4	11.9	34.6	48.6	50.0	29.9	6.4	29.5	64.7	27.3	77.1	109.9	114.4	58.6	12.0	29.2	2.00
Dec	175.0	11.3	33.7	46.6	47.6	29.2	6.6	29.5	62.4	26.1	75.0	105.4	108.9	57.1	12.4	29.3	1.93
2008 March	173.8 ^p	11.1 ^p	33.5 ^p	46.7 ^p	47.2 ^p	28.8 ^p	6.4 ^p	29.5 ^p	62.6 ^p	26.2 ^p	73.8 ^p	103.3 ^p	110.7 ^p	58.2 ^p	12.3 ^p	29.3 ^p	1.92 ^p
June	177.0 ^p	11.0 ^p	33.5 ^p	48.3 ^p	48.4 ^p	29.2 ^p	6.6 ^p	29.5 ^p	63.8 ^p	25.9 ^p	73.6 ^p	107.0 ^p	113.5 ^p	59.0 ^p	12.6 ^p	29.4 ^p	1.96 ^p
Sept	182.4 ^p	11.4 ^p	35.2 ^p	50.3 ^p	49.3 ^p	29.5 ^p	6.7 ^p	29.4 ^p	65.0 ^p	26.7 ^p	76.5 ^p	110.1 ^p	114.4 ^p	59.0 ^p	12.8 ^p	29.3 ^p	2.00 ^p
Dec	175.5 ^p	11.1 ^p	33.8 ^p	47.7 ^p	47.6 ^p	28.7 ^p	6.7 ^p	29.5 ^p	62.6 ^p	26.0 ^p	73.5 ^p	104.3 ^p	110.6 ^p	57.3 ^p	12.6 ^p	29.3 ^p	1.92 ^p

Note: The rates for women of all ages, under 20, and 40 and over are based upon the populations of women aged 15–44, 15–19, and 40–44 respectively.

Rates for 2008 are based on 2006-based population projections for 2008.

1 Unstandardised and therefore takes no account of the age structure of the population.

2 Standardised to take account of the age structure of the population. This measure is more appropriate for use when analysing trends or making comparisons between different geographies.

3 TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPER (total period fertility rate).

4 Births per 1,000 women in the age-group; all quarterly age-specific fertility rates are adjusted for days in the quarter. They are not adjusted for seasonality.

p provisional.

Table 3.2 Live births outside marriage: age of mother and type of registration

England and Wales

Numbers (thousands), mean age and percentages

Year and quarter	Age of mother at birth								Mean age ¹ (years)	Age of mother at birth								Registration ²		
	All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	All ages		Under 20	20–24	25–29	30–34	35–39	40 and over	Joint		Sole		
																Same ³ address	Different ³ address			
Live births outside marriage (numbers)								Percentage of total live births in age group								As a percentage of all births outside marriage				
1971	65.7	21.6	22.0	11.5	6.2	3.2	1.1	23.7	8.4	26.1	7.7	4.7	5.7	7.0	9.0	45.5	54.5	54.5		
1976	53.8	19.8	16.6	9.7	4.7	2.3	0.7	23.3	9.2	34.2	9.1	4.4	5.2	8.6	10.1	51.0	49.0	49.0		
1981	81.0	26.4	28.8	14.3	7.9	1.3	0.9	23.4	12.8	46.7	14.8	6.6	6.2	3.9	12.5	58.2	41.8	41.8		
1986	141.3	39.6	54.1	27.7	13.1	5.7	1.1	23.8	21.4	69.0	28.2	12.1	10.1	12.6	14.7	46.6	19.6	33.8		
1991	211.3	43.4	77.8	52.4	25.7	9.8	2.1	24.8	30.2	82.9	44.9	21.1	16.0	18.3	21.3	54.6	19.8	25.6		
1992	215.2	40.1	77.1	55.9	28.9	10.9	2.3	25.2	31.2	83.7	47.2	22.8	17.3	19.3	22.9	55.4	20.7	23.9		
1993	216.5	38.2	75.0	57.5	31.4	11.9	2.5	25.5	32.2	84.8	49.4	24.4	18.4	20.2	23.5	54.8	22.0	23.2		
1994	215.5	35.9	71.0	58.5	34.0	13.4	2.7	25.8	32.4	85.5	50.6	25.5	18.9	21.2	25.2	57.5	19.8	22.7		
1995	219.9	36.3	69.7	59.6	37.0	14.4	3.0	26.0	33.9	86.6	53.3	27.4	20.4	22.0	26.2	58.1	20.1	21.8		
1996	232.7	39.3	71.1	62.3	40.5	16.2	3.2	26.1	35.8	88.0	56.5	29.5	21.7	23.4	26.7	58.1	19.9	21.9		
1997	238.2	41.1	69.5	63.4	42.2	18.2	3.7	26.2	37.0	88.7	58.6	31.3	22.5	24.3	28.6	59.5	19.3	21.2		
1998	240.6	43.0	67.8	62.4	43.9	19.6	3.9	26.3	37.8	89.1	59.7	32.3	23.3	24.8	29.0	60.9	18.3	20.8		
1999	241.9	43.0	67.5	61.2	45.0	20.8	4.3	26.4	38.9	89.0	61.0	33.6	24.3	25.6	30.2	61.8	18.2	19.9		
2000	238.6	41.1	67.5	59.1	43.9	22.3	4.7	26.5	39.5	89.7	62.6	34.6	24.4	26.2	31.0	62.7	18.2	19.2		
2001	238.1	39.5	68.1	56.8	45.2	23.3	5.1	26.7	40.0	89.5	62.6	35.5	25.3	26.9	31.6	63.2	18.4	18.4		
2002	242.0	38.9	70.2	55.8	46.4	25.1	5.6	26.8	40.6	89.5	63.3	36.4	25.7	27.7	32.2	63.7	18.5	17.8		
2003	257.2	39.9	75.7	58.2	49.2	27.8	6.4	26.9	41.4	90.2	64.9	37.1	26.3	28.5	33.3	63.5	19.0	17.4		
2004	269.7	41.0	79.8	61.4	50.7	29.7	7.1	27.0	42.2	91.0	65.9	38.4	26.6	29.0	34.0	63.6	19.6	16.8		
2005	276.5	41.2	82.1	64.4	50.8	30.3	7.7	27.0	42.8	91.8	67.2	39.2	27.0	29.1	34.8	63.5	20.2	16.3		
2006	291.4	42.3	87.7	69.3	51.4	32.2	8.4	27.0	43.5	93.0	68.6	40.1	27.1	29.2	35.5	63.7	20.8	15.6		
2007	305.6	41.7	91.9	76.0	53.0	34.0	9.0	27.1	44.3	93.1	70.3	41.6	27.7	29.5	35.5	65.0	20.1	15.0		
2008	320.8 ^p	42.0 ^p	97.9 ^p	82.6 ^p	54.4 ^p	34.6 ^p	9.5 ^p	27.1 ^p	45.3 ^p	93.9 ^p	71.9 ^p	42.8 ^p	28.3 ^p	29.8 ^p	35.9 ^p	65.5 ^p	20.3 ^p	14.2 ^p		
2002 March	58.0	9.4	16.7	13.6	10.9	6.0	1.3	26.8	40.5	89.4	63.0	36.4	25.4	27.7	31.5	63.2	18.5	18.3		
2002 June	58.3	9.3	16.6	13.5	11.4	6.1	1.4	26.8	39.6	89.4	62.2	35.6	25.0	27.2	31.7	64.2	18.2	17.7		
2002 Sept	63.4	10.2	18.4	14.6	12.3	6.5	1.5	26.8	40.9	89.3	63.8	36.6	26.1	27.9	32.7	63.9	18.5	17.5		
2002 Dec	62.3	10.0	18.4	14.1	11.9	6.5	1.5	26.8	41.4	89.7	64.1	36.9	26.4	28.0	32.8	63.3	18.9	17.8		
2003 March	61.0	9.8	18.0	13.9	11.6	6.3	1.5	26.8	41.4	90.1	64.5	37.0	26.9	29.1	33.3	63.0	18.9	18.1		
2003 June	62.8	9.6	18.3	14.2	12.2	6.9	1.6	27.0	40.5	90.0	64.0	36.2	25.7	28.3	33.7	64.0	18.5	17.4		
2003 Sept	67.6	10.3	20.0	15.3	13.0	7.3	1.7	26.9	41.5	90.2	65.6	38.3	26.4	28.6	33.3	63.7	19.3	18.0		
2003 Dec	65.8	10.2	19.5	14.9	12.5	7.3	1.6	26.9	42.2	90.4	65.6	38.0	27.7	29.5	32.9	63.3	19.4	17.4		
2004 March	65.2	10.1	19.3	14.8	12.5	7.0	1.7	26.9	42.0	91.2	65.8	38.2	26.8	28.2	34.3	63.1	19.4	17.4		
2004 June	65.2	9.8	19.1	14.9	12.5	7.3	1.7	27.0	41.4	91.0	65.1	37.7	26.2	28.8	34.5	63.9	19.5	16.6		
2004 Sept	70.2	10.7	20.7	16.1	13.0	7.9	1.8	27.0	42.4	91.2	66.1	38.6	26.5	30.0	33.5	63.7	19.7	16.6		
2004 Dec	69.1	10.6	20.7	15.7	12.7	7.5	1.9	26.9	42.7	90.6	66.6	39.0	27.0	29.0	33.9	63.6	19.8	16.6		
2005 March	66.3	10.1	19.6	15.2	12.2	7.3	1.9	27.0	43.0	92.0	67.0	39.0	27.1	29.6	35.2	63.1	20.3	16.6		
2005 June	66.6	9.8	19.7	15.4	12.5	7.4	1.8	27.0	41.7	91.2	66.5	38.2	26.4	28.1	33.5	63.7	19.8	16.5		
2005 Sept	73.7	10.9	22.1	17.3	13.4	7.9	2.1	26.9	43.3	92.0	68.0	39.6	27.2	29.3	35.7	63.7	20.3	16.0		
2005 Dec	69.9	10.4	20.7	16.5	12.6	7.7	2.0	27.0	43.2	92.1	67.4	39.8	27.3	29.5	34.8	63.5	20.3	16.2		
2006 March	68.7	10.3	20.8	16.0	12.0	7.6	1.9	26.9	43.1	93.1	68.1	39.4	26.5	28.9	34.4	63.1	20.9	16.0		
2006 June	71.4	10.5	21.2	16.9	12.8	7.8	2.1	27.0	43.0	92.6	68.0	39.4	26.9	28.8	35.0	63.7	20.6	15.6		
2006 Sept	76.8	11.1	23.1	18.6	13.4	8.4	2.2	27.0	43.9	92.8	69.0	40.7	27.3	29.2	36.9	64.1	20.5	15.4		
2006 Dec	74.5	10.3	22.6	17.8	13.2	8.4	2.2	27.1	44.1	93.3	69.2	40.9	27.8	29.8	35.7	63.6	21.0	15.4		
2007 March	72.5	10.2	21.7	17.6	12.6	8.2	2.2	27.1	44.2	93.5	69.8	41.3	27.5	29.8	35.1	64.0	20.5	15.5		
2007 June	73.5	9.9	21.8	18.3	13.0	8.3	2.2	27.1	43.4	92.6	69.5	41.0	27.2	28.8	35.2	65.1	19.9	14.9		
2007 Sept	80.8	11.1	24.4	20.4	13.9	8.8	2.2	27.0	44.5	93.2	70.5	41.9	27.8	29.6	35.0	65.2	20.1	14.7		
2007 Dec	78.7	10.6	24.0	19.7	13.5	8.7	2.4	27.1	45.0	93.1	71.3	42.2	28.3	29.6	36.5	65.3	19.9	14.8		
2008 March	78.6 ^p	10.5 ^p	23.9 ^p	20.0 ^p	13.3 ^p	8.6 ^p	2.3 ^p	27.1 ^p	45.2 ^p	94.3 ^p	71.1 ^p	42.8 ^p	28.3 ^p	29.9 ^p	35.9 ^p	65.3 ^p	20.0 ^p	14.7 ^p		
2008 June	79.4 ^p	10.3 ^p	23.9 ^p	20.5 ^p	13.7 ^p	8.6 ^p	2.4 ^p	27.1 ^p	44.9 ^p	93.5 ^p	71.5 ^p	42.3 ^p	28.4 ^p	29.5 ^p	35.8 ^p	66.0 ^p	19.8 ^p	14.2 ^p		
2008 Sept	83.1 ^p	10.8 ^p	25.5 ^p	21.6 ^p	13.9 ^p	8.9 ^p	2.4 ^p	27.0 ^p	45.5 ^p	94.0 ^p	72.4 ^p	43.0 ^p	28.2 ^p	30.1 ^p	36.2 ^p	65.8 ^p	20.4 ^p	13.8 ^p		
2008 Dec	79.8 ^p	10.4 ^p	24.5 ^p	20.6 ^p	13.4 ^p	8.5 ^p	2.4 ^p	27.0 ^p	45.5 ^p	93.7 ^p	72.5 ^p	43.2 ^p	28.2 ^p	29.6 ^p	35.8 ^p	64.9 ^p	21.1 ^p	14.0 ^p		

1 Unstandardised and therefore takes no account of the age structure of the population.

2 Births outside marriage can be registered by both the mother and father (joint) or by the mother alone (sole).

3 Usual address(es) of parents.

p provisional

Table 4.1 Conceptions: age of woman at conception

England and Wales (residents)		Numbers (thousands) and rates; and percentage terminated by abortion								
		Age of woman at conception								
Year and quarter		All ages	Under 16	Under 18	Under 20	20–24	25–29	30–34	35–39	40 and over
(a) numbers (thousands)										
1991		853.7	7.5	40.1	101.6	233.3	281.5	167.5	57.6	12.1
1996		816.9	8.9	43.5	94.9	179.8	252.6	200.0	75.5	14.1
1999		774.0	7.9	42.0	98.8	157.6	218.5	197.1	86.0	16.0
2000		767.0	8.1	41.3	97.7	159.0	209.3	195.3	88.7	17.0
2001		763.7	7.9	41.0	96.0	161.6	199.3	196.7	92.2	17.8
2002		787.0	7.9	42.0	97.1	167.8	199.4	204.3	98.9	19.6
2003		806.8	8.0	42.2	98.6	175.3	199.8	209.0	103.1	20.9
2004		826.8	7.6	42.2	101.3	181.3	205.1	209.6	106.8	22.8
2005		841.8	7.9	42.3	102.3	185.5	211.3	209.2	110.0	23.6
2006		870.0	7.8	41.8	103.1	191.2	222.2	212.4	115.4	25.5
2007 ^{1,P}		894.1	8.2	42.9	106.1	198.3	234.2	211.1	117.8	26.5
2005	March	204.6	1.9	10.4	25.1	45.4	50.8	51.0	26.6	5.7
	June	204.7	2.0	10.5	25.1	45.2	51.0	50.7	26.9	5.8
	Sept	210.9	2.0	10.4	25.3	45.6	53.3	53.1	27.5	6.0
	Dec	221.7	2.0	11.0	26.8	49.3	56.2	54.3	29.1	6.0
2006	March	214.0	1.8	10.2	25.4	47.5	54.2	52.4	28.3	6.2
	June	212.6	2.1	10.6	25.7	46.9	53.8	51.4	28.3	6.5
	Sept	215.1	2.0	10.0	24.7	46.3	55.3	53.6	28.9	6.4
	Dec	228.2	2.0	11.0	27.3	50.6	58.9	55.1	29.9	6.5
2007	March ^{1,P}	221.6	2.0	10.8	26.7	49.4	57.0	52.7	29.3	6.5
	June ^{1,P}	221.1	2.2	10.9	26.9	49.3	57.4	52.0	29.0	6.5
	Sept ^{1,P}	222.2	2.0	10.3	25.6	48.5	58.8	52.9	29.7	6.7
	Dec ^{1,P}	229.2	2.0	10.8	26.9	51.0	61.1	53.6	29.8	6.8
2008	March ^{3,P}	224.0	2.0	10.7	26.8	49.7	59.1	52.3	29.1	6.6
(b) rates (conceptions per thousand women in age group)										
1991		77.7	8.9	44.6	64.1	120.2	135.1	90.1	34.4	6.6
1996		76.2	9.5	46.3	63.2	110.1	127.6	96.3	40.7	8.4
1999		71.9	8.3	45.1	63.1	103.9	118.0	95.3	42.9	9.1
2000		70.9	8.3	43.9	62.5	103.2	115.7	95.3	43.2	9.4
2001		70.3	8.0	42.7	60.8	102.5	114.2	96.7	44.3	9.6
2002		72.2	7.9	42.9	60.6	104.4	119.0	101.7	47.0	10.3
2003		73.7	7.9	42.4	60.0	107.2	122.0	106.0	49.1	10.7
2004		75.2	7.5	41.8	60.3	109.0	125.1	109.6	51.0	11.4
2005		76.0	7.8	41.4	60.1	108.7	125.8	112.0	53.2	11.5
2006		78.3	7.8	40.9	60.2	109.5	129.5	117.5	56.3	12.3
2007 ^{1,2,P}		80.3	8.3	41.9	61.5	111.4	133.4	121.7	58.1	12.6
2005	March	75.1	7.6	41.5	60.0	108.9	123.8	109.8	51.8	11.4
	June	74.2	8.0	41.1	59.1	106.7	122.1	108.5	52.0	11.4
	Sept	75.5	7.8	40.5	59.0	105.7	125.6	113.3	52.8	11.7
	Dec	79.3	7.9	42.8	62.4	113.6	131.7	116.7	55.9	11.5
2006	March	78.2	7.1	40.4	60.3	111.2	129.2	116.2	55.7	12.2
	June	76.7	8.2	41.4	60.3	108.1	126.1	113.6	55.3	12.5
	Sept	76.8	7.7	38.7	57.2	104.9	127.5	118.2	56.0	12.1
	Dec	81.4	8.1	42.8	63.0	114.1	135.1	122.7	58.2	12.3
2007	March ^{1,2,P}	80.8	8.1	42.9	62.9	113.4	132.8	121.2	58.4	12.6
	June ^{1,2,P}	79.7	8.7	42.8	62.6	111.3	131.6	119.6	57.2	12.5
	Sept ^{1,2,P}	79.2	8.2	40.1	59.0	107.8	132.2	121.1	58.3	12.6
	Dec ^{1,2,P}	81.6	8.3	42.1	62.1	112.6	136.2	123.1	58.7	12.8
2008	March ^{2,3,P}	80.8	8.1	42.4	62.9	110.4	132.5	122.1	58.4	12.7
(c) percentage terminated by abortion										
1991		19.4	51.1	39.9	34.5	22.2	13.4	13.7	22.0	41.6
1996		20.8	49.2	40.0	36.2	25.7	15.6	14.1	21.2	37.6
1999		22.6	52.6	43.0	38.6	28.5	17.5	14.7	21.2	37.0
2000		22.7	54.0	44.2	39.3	29.2	17.7	14.5	20.5	35.4
2001		23.2	55.8	45.7	40.4	29.7	18.4	14.6	20.4	34.6
2002		22.5	55.6	45.3	39.9	28.8	17.9	13.9	19.5	34.6
2003		22.5	57.4	45.7	40.2	29.0	17.9	13.6	18.9	34.7
2004		22.4	57.2	45.6	40.1	28.9	18.2	13.2	18.3	33.0
2005		22.2	57.1	46.3	40.3	28.6	18.0	13.2	17.7	32.8
2006		22.3	59.8	48.4	41.9	28.7	18.0	13.1	17.1	31.8
2007 ^{1,P}		22.0	61.4	50.0	42.6	28.3	17.5	12.7	16.7	31.1
2005	March	22.5	57.5	47.3	41.1	29.2	18.1	13.1	18.0	32.6
	June	22.7	57.0	45.8	40.3	28.9	18.6	13.9	17.8	33.8
	Sept	21.4	56.2	45.3	39.0	27.5	17.5	12.6	17.2	32.1
	Dec	22.2	57.5	46.9	40.6	28.7	17.8	13.1	17.7	32.7
2006	March	22.5	59.0	47.7	41.6	29.1	18.4	13.0	17.5	31.1
	June	23.1	59.5	49.0	42.5	29.6	18.8	13.9	17.8	31.6
	Sept	21.5	60.4	48.0	41.3	27.7	17.5	12.7	16.3	32.8
	Dec	22.0	60.2	49.1	42.0	28.3	17.4	12.8	16.9	31.7
2007	March ^{1,P}	22.7	62.5	50.7	43.2	29.5	18.3	13.0	16.9	31.1
	June ^{1,P}	22.5	61.9	50.3	43.1	28.6	18.0	12.8	17.0	31.5
	Sept ^{1,P}	21.1	57.9	48.6	41.4	27.0	16.6	12.3	16.1	30.8
	Dec ^{1,P}	21.9	63.3	50.4	42.7	28.1	17.2	12.6	16.8	30.8
2008	March ^{3,P}	22.6	62.1	50.6	43.9	29.0	17.9	13.1	16.8	31.2

Note: Conception figures are estimates derived from birth registrations and abortion notifications.

Rates for women of all ages, under 16, under 18, under 20 and 40 and over are based on the population of women aged 15–44, 13–15, 15–17, 15–19 and 40–44 respectively.

For a quarterly analysis of conceptions to women under 18 for local authority areas see the ONS website, www.ons.gov.uk

1 Figures for conceptions in 2007 exclude maternities relating to births in 2008 where the mother's date of birth was not stated on the registration and could not be supplied from another source. See Explanatory notes in the 2007 Conceptions report in *Health Statistics Quarterly* No. 41.

2 Rates for both quarterly and annual 2007 conceptions and March quarter 2008 are calculated using the 2007 mid-year estimates.

3 Figures for conceptions by age for the March quarter of 2008 exclude maternities where the mother's age was not recorded.

p provisional

Table 6.2 Deaths: subnational

Government Office Regions of England										Rates
Year and quarter	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West	
Total deaths (deaths per 1,000 population of all ages)										
1996	11.7	11.7	11.2	10.7	10.7	10.3	9.4	10.7	11.7	
1997	11.6	11.6	11.1	10.5	10.6	10.2	9.0	10.6	11.7	
1998	11.9	11.7	11.2	10.8	10.6	10.2	8.8	10.4	11.4	
1999	11.6	11.5	10.9	10.7	10.7	10.3	8.7	10.5	11.6	
2000	10.8	10.7	10.3	10.0	10.3	9.9	8.2	9.8	11.3	
2001	11.1	11.0	10.4	10.1	10.2	9.9	7.9	9.9	11.0	
2002	11.2	11.0	10.5	10.2	10.3	10.0	7.8	10.0	11.1	
2003	11.3	11.0	10.5	10.3	10.5	9.9	7.9	9.9	11.2	
2004	11.0	10.5	10.1	9.7	9.9	9.5	7.3	9.4	10.4	
2005	10.8	10.4	9.9	9.7	9.9	9.4	7.1	9.4	10.4	
2006	10.5	10.2	9.6	9.6	9.7	9.2	6.8	9.2	10.1	
2007	10.4	10.3	9.7	9.4	9.7	9.1	6.7	9.1	10.2	
2008 ^p	10.7	10.3	9.8	9.6	9.7	9.3	6.7	9.1	10.3	
2007	March	11.8	11.7	10.9	10.6	11.0	10.2	7.4	10.0	11.5
	June	9.9	9.9	9.5	9.1	9.4	8.8	6.5	8.8	9.8
	Sept	9.4	9.2	8.8	8.5	8.5	8.3	6.1	8.2	9.2
	Dec	10.7	10.4	10.0	9.7	9.8	9.4	6.8	9.5	10.5
2008 ¹	March ^p	11.6	11.1	10.5	10.2	10.6	10.1	7.3	9.8	11.0
	June ^p	10.1	10.0	9.6	9.4	9.4	9.1	6.5	8.9	10.0
	Sept ^p	9.6	9.3	8.6	8.5	8.7	8.2	5.8	8.2	9.4
	Dec ^p	11.4	10.9	10.3	10.3	10.2	9.8	7.0	9.6	10.9
Infant mortality (deaths under 1 year per 1,000 live births)										
1996	6.2	6.3	6.5	6.3	6.8	5.3	6.3	5.3	5.5	
1997	5.8	6.7	6.5	5.7	7.0	4.8	5.8	5.0	5.8	
1998	5.0	6.3	6.9	5.6	6.5	5.0	6.0	4.4	4.8	
1999	5.6	6.5	6.3	6.0	6.9	4.6	6.0	4.8	4.7	
2000	6.5	6.2	7.3	5.4	6.8	4.4	5.4	4.4	4.7	
2001	5.4	5.8	5.5	4.9	6.4	4.5	6.1	4.2	5.4	
2002	4.8	5.4	6.1	5.6	6.6	4.3	5.5	4.5	4.3	
2003	4.9	5.9	5.7	5.9	7.4	4.5	5.4	4.2	4.1	
2004	4.6	5.4	5.8	4.9	6.3	4.2	5.2	4.2	4.5	
2005	4.7	5.6	6.0	4.8	6.6	4.0	5.2	3.9	4.5	
2006	5.4	5.6	5.7	5.4	6.4	4.1	4.9	4.1	4.0	
2007	4.7	5.0	5.7	5.4	6.4	4.3	4.5	4.1	4.2	
2008 ^p	4.2	5.2	5.4	4.9	6.5	4.4	4.3	4.0	4.0	
2007	March	5.1	5.1	4.5	5.3	6.4	4.2	4.5	3.9	4.4
	June	4.5	5.5	7.2	6.5	6.1	3.9	5.1	4.3	3.9
	Sept	4.0	4.3	5.2	5.1	5.5	4.7	4.7	4.1	4.1
	Dec	5.3	5.2	5.7	4.3	5.7	4.4	4.0	3.5	4.2
2008	March ^p	4.1	5.0	5.8	4.7	7.6	4.4	4.0	4.5	4.9
	June ^p	4.5	4.8	4.6	4.8	6.7	4.2	3.9	3.7	3.0
	Sept ^p	3.8	5.6	4.8	5.7	6.4	4.4	4.4	3.6	4.1
	Dec ^p	4.4	5.2	6.4	4.3	5.5	4.5	4.8	4.3	3.9
Neonatal mortality (deaths under 4 weeks per 1,000 live births)										
1996	4.1	4.0	4.2	4.2	4.9	3.5	4.4	3.5	3.8	
1997	3.7	4.3	4.4	3.7	5.0	3.3	3.7	3.4	3.9	
1998	3.1	4.1	4.5	3.7	4.8	3.4	4.1	2.9	3.3	
1999	4.1	4.4	4.1	4.3	4.8	3.0	4.1	3.2	3.2	
2000	4.4	4.3	5.0	4.1	5.0	3.0	3.7	3.1	3.0	
2001	3.5	3.8	3.2	3.4	4.4	2.9	4.1	2.9	3.7	
2002	3.2	3.6	4.0	4.0	4.8	2.9	3.6	2.9	3.1	
2003	3.2	4.1	4.0	4.2	5.1	3.0	3.7	2.8	2.9	
2004	2.8	3.6	3.8	4.2	4.7	2.9	3.6	2.8	3.2	
2005	2.9	3.8	4.0	3.5	4.9	2.6	3.4	2.7	3.2	
2006	3.8	3.8	4.0	4.0	4.6	2.9	3.4	2.8	2.9	
2007	3.0	3.3	4.0	3.6	4.5	3.0	3.1	2.6	2.8	
2008 ^p	3.2	3.5	3.3	3.5	4.6	3.0	2.8	2.8	2.8	
2007	March	4.0	3.8	3.3	3.4	4.8	2.9	3.0	2.6	3.0
	June	1.8	3.7	5.2	4.5	4.6	2.6	3.5	3.0	2.5
	Sept	2.6	2.7	3.5	3.5	4.2	3.1	3.1	2.5	3.1
	Dec	3.7	2.9	3.8	2.8	4.6	3.6	2.7	2.4	2.7
2008	March ^p	3.2	3.3	4.0	3.6	5.8	3.0	2.7	2.9	3.1
	June ^p	2.9	3.4	2.7	3.3	4.3	2.7	2.6	2.7	2.4
	Sept ^p	3.1	3.6	3.1	4.1	4.8	2.9	2.9	2.6	2.8
	Dec ^p	3.6	3.6	3.6	3.0	3.5	3.3	3.1	3.0	2.9
Perinatal mortality (stillbirths and deaths under 1 week per 1,000 total births)										
1996	9.2	8.6	8.3	8.7	10.2	7.5	9.6	7.8	7.5	
1997	8.0	8.9	8.3	7.7	9.6	7.3	9.0	7.3	8.7	
1998	8.2	8.7	9.2	8.0	9.3	7.4	9.0	6.8	7.3	
1999	8.2	8.7	8.3	7.8	9.9	7.0	9.0	6.9	7.8	
2000	8.5	8.6	9.6	7.8	9.6	7.1	9.0	6.6	6.6	
2001	7.8	8.7	7.5	7.9	9.1	7.1	8.9	6.9	7.2	
2002	8.1	8.5	9.0	8.5	10.0	7.5	9.3	6.9	6.8	
2003	7.8	9.0	9.1	9.5	10.2	7.3	9.6	7.0	7.0	
2004	7.9	8.4	9.4	8.1	9.6	7.6	9.3	7.0	7.2	
2005	7.8	8.2	9.4	7.6	9.9	6.4	8.5	6.8	6.8	
2006	8.0	8.3	8.5	8.4	9.2	6.7	8.8	7.0	6.6	
2007 ²	7.2	7.9	8.8	7.3	9.1	7.0	8.4	6.7	6.4	
2008 ^p	8.1	7.7	7.9	7.4	9.3	6.4	7.8	6.7	6.6	
2007	March	7.5	8.5	7.8	6.8	9.5	7.6	8.5	6.8	6.8
	June	6.8	7.4	9.2	9.6	9.8	6.7	9.1	6.8	6.5
	Sept	7.4	7.3	8.9	7.6	7.8	7.0	8.6	6.1	6.4
	Dec	7.2	8.5	9.1	6.7	9.5	6.8	7.6	6.7	6.1
2008	March ^p	6.5	8.2	9.3	7.8	11.5	6.1	7.7	6.7	6.4
	June ^p	7.4	8.0	7.7	7.5	9.4	6.5	7.7	6.6	6.3
	Sept ^p	8.3	8.0	6.8	6.8	8.3	6.3	7.4	5.9	7.3
	Dec ^p	10.0	6.7	7.9	7.7	8.1	6.9	8.6	7.6	6.5

Note: Figures represent the numbers of deaths occurring in each year with the exception of 2006, 2007 and provisional 2008 figures relate to registrations.
 1 Total deaths rates for 2008 have been calculated using the mid-2007 population estimates published on 21 August 2008.
 p provisional.

Table 7.1 International migration: age and sex

United Kingdom		Numbers (thousands)														
		All ages			0-14			15-24			25-44			45 and over		
Year and quarter		Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
Inflow																
1991		329	157	172	53	23	30	107	47	59	139	73	66	30	14	16
1996		318	157	161	33	14	19	115	50	65	142	77	65	28	16	12
1998		391	207	184	37	18	19	135	65	69	194	110	84	25	14	11
1999		454	250	204	42	24	18	158	78	79	224	130	95	30	18	12
2000		479	272	207	35	18	17	158	79	79	245	150	95	40	25	15
2001		479	260	219	46	26	20	158	77	81	239	135	103	37	22	14
2002		513	284	229	38	20	17	185	100	85	255	148	108	35	16	19
2003		508	260	248	41	23	18	207	99	108	218	118	100	43	21	22
2004		586	300	286	37	25	12	227	107	120	277	148	129	45	20	25
2005		563	310	253	26	13	13	229	118	110	271	156	115	38	23	15
2006		591	315	276	46	22	25	222	111	111	283	161	122	39	22	17
2007		577	314	263	37	19	18	216	107	109	277	162	115	46	25	21
2006 Jan-June		231	121	109	16	8	8	77	34	43	113	64	49	24	15	9
2006 July-Dec		360	194	166	30	14	17	145	76	69	170	97	73	15	7	8
2007 Jan-June		239	131	108	19	10	8	82	43	39	119	69	50	18	8	10
2007 July-Dec		338	183	155	18	9	9	134	64	70	158	93	65	28	17	11
Outflow																
1991		285	145	139	44	20	25	76	38	38	131	69	62	33	18	15
1996		264	134	130	38	16	22	63	24	39	139	79	60	24	15	9
1998		251	131	121	24	15	10	70	31	39	130	71	59	27	14	12
1999		291	158	133	27	19	8	87	42	45	143	79	64	34	18	16
2000		321	178	142	26	11	15	84	45	39	175	102	73	36	20	16
2001		306	172	135	25	14	11	84	41	43	153	88	65	45	29	16
2002		358	194	164	25	15	10	92	44	48	185	106	79	56	28	28
2003		361	192	169	35	19	16	84	37	47	188	105	82	55	31	24
2004		342	172	170	28	13	15	79	36	43	172	95	77	63	28	35
2005		359	206	153	28	15	13	81	45	36	190	113	77	60	33	27
2006		400	228	173	30	17	13	87	41	46	215	131	84	68	39	29
2007		340	191	148	32	18	13	73	40	33	180	97	83	55	37	18
2006 Jan-June		165	93	72	12	7	5	35	17	19	86	51	35	32	18	13
2006 July-Dec		235	135	101	18	10	8	51	24	27	129	79	50	37	21	16
2007 Jan-June		153	90	63	15	8	7	30	16	14	77	44	33	31	22	9
2007 July-Dec		187	102	85	16	10	6	43	24	20	103	53	50	24	15	10
Balance																
1991		+ 44	+ 12	+ 32	+ 8	+ 3	+ 5	+ 31	+ 9	+ 22	+ 8	+ 4	+ 4	- 3	- 4	+ 2
1996		+ 55	+ 23	+ 31	- 5	- 2	- 3	+ 52	+ 26	+ 27	+ 3	- 2	+ 5	+ 5	+ 2	+ 3
1998		+140	+ 76	+ 63	+ 13	+ 3	+ 10	+ 65	+ 34	+ 30	+ 64	+ 39	+ 25	- 2	0	- 2
1999		+163	+ 92	+ 71	+ 15	+ 5	+ 10	+ 71	+ 36	+ 34	+ 81	+ 51	+ 30	- 4	- 1	- 3
2000		+158	+ 94	+ 64	+ 9	+ 7	+ 3	+ 75	+ 34	+ 40	+ 70	+ 48	+ 23	+ 4	+ 5	- 1
2001		+173	+ 89	+ 85	+ 21	+ 12	+ 10	+ 74	+ 36	+ 38	+ 86	+ 47	+ 39	- 8	- 6	- 2
2002		+154	+ 90	+ 65	+ 13	+ 5	+ 8	+ 93	+ 56	+ 37	+ 70	+ 42	+ 28	- 21	- 12	- 9
2003		+147	+ 68	+ 79	+ 6	+ 4	+ 2	+122	+ 62	+ 60	+ 30	+ 12	+ 18	- 12	- 10	- 2
2004		+244	+128	+116	+ 9	+ 13	- 4	+148	+ 71	+ 78	+105	+ 52	+ 52	- 18	- 8	- 10
2005		+204	+104	+ 99	- 2	- 2	-	+148	+ 73	+ 75	+ 81	+ 43	+ 37	- 22	- 10	- 12
2006		+191	+ 88	+103	+ 16	+ 4	+ 11	+135	+ 70	+ 66	+ 68	+ 30	+ 38	- 29	- 17	- 12
2007		+237	+123	+114	+ 6	+ 1	+ 4	+143	+ 67	+ 76	+ 97	+ 65	+ 32	- 9	- 11	+ 2
2006 Jan-June		+ 65	+ 28	+ 37	+ 4	+ 1	+ 3	+ 42	+ 18	+ 24	+ 27	+ 13	+ 15	- 7	- 3	- 4
2006 July-Dec		+125	+ 60	+ 66	+ 12	+ 4	+ 9	+ 94	+ 52	+ 42	+ 41	+ 18	+ 23	- 22	- 14	- 8
2007 Jan-June		+ 86	+ 41	+ 45	+ 3	+ 2	+ 1	+ 52	+ 27	+ 26	+ 42	+ 26	+ 17	- 13	- 14	+ 1
2007 July-Dec		+151	+ 82	+ 70	+ 2	- 1	+ 3	+ 91	+ 41	+ 50	+ 55	+ 40	+ 15	+ 3	+ 2	+ 1

Note: These data have been revised following changes to the TIM methodology. Therefore they may not agree with estimates that have been published previously.

Table 7.2 International migration: country of last or next residence

Year and quarter		Numbers (thousands)										
		All countries	European Union	Commonwealth countries					Other foreign countries			
				Australia, New Zealand, Canada	South Africa	India, Bangladesh, Sri Lanka	Pakistan	Caribbean	Other	USA	Middle East	Other
Inflow												
1991		329	95	44	7	17	16	4	42	24	11	69
1996		318	98	37	11	15	11	4	33	32	14	63
1998		391	109	64	20	18	10	6	31	37	13	84
1999		454	96	63	29	26	13	7	37	31	15	138
2000		479	89	63	22	34	16	6	48	24	30	146
2001		479	83	76	23	32	19	4	46	25	31	142
2002		513	87	59	28	36	11	5	50	29	33	176
2003		508	98	64	28	45	13	4	51	30	26	150
2004		586	150	59	37	62	28	6	56	27	29	131
2005		563	182	61	29	62	24	2	41	25	19	118
2006		591	205	60	21	69	32	3	34	23	21	122
2007		577	222	47	17	65	30	3	37	23	23	109
2006 Jan-June		231	72	28	13	26	13	1	14	9	8	46
2006 July-Dec		360	133	32	7	43	19	2	20	14	14	76
2007 Jan-June		239	97	25	7	28	14	1	12	10	9	36
2007 June-Dec		338	125	22	10	37	17	2	25	12	15	72
Outflow												
1991		285	95	61	7	6	4	2	21	35	14	40
1996		264	94	58	5	5	1	1	23	26	8	42
1998		251	85	54	6	5	2	2	14	27	9	48
1999		291	103	73	7	4	1	3	14	33	10	44
2000		321	103	79	7	5	3	3	15	33	15	58
2001		306	92	80	8	8	3	2	13	28	9	63
2002		358	124	84	10	7	4	2	16	37	12	62
2003		361	121	90	14	7	4	1	15	27	7	75
2004		342	123	86	9	5	4	3	19	25	11	57
2005		359	136	86	13	9	7	2	11	24	11	60
2006		400	145	100	14	14	2	2	15	29	16	61
2007		340	130	83	11	14	5	1	13	18	11	53
2006 Jan-June		165	60	44	6	5	1	1	5	11	6	27
2006 July-Dec		235	85	56	8	9	1	1	10	19	10	35
2007 Jan-June		153	69	34	5	5	2	1	5	7	5	21
2007 July-Dec		187	62	49	6	8	3	1	8	12	6	32
Balance												
1991		+44	-	-18	+1	+11	+12	+2	+21	-10	-3	+29
1996		+55	+5	-21	+5	+10	+10	+3	+10	+7	+5	+21
1998		+140	+24	+10	+15	+12	+8	+4	+17	+10	+4	+36
1999		+163	-7	-10	+22	+22	+12	+4	+23	-2	+5	+94
2000		+158	-14	-16	+15	+29	+13	+4	+33	-10	+15	+88
2001		+173	-9	-4	+14	+24	+16	+1	+33	-3	+21	+79
2002		+154	-37	-25	+17	+29	+7	+3	+34	-9	+21	+114
2003		+147	-23	-26	+14	+38	+9	+3	+36	+3	+19	+75
2004		+244	+27	-26	+28	+56	+25	+3	+38	+2	+18	+74
2005		+204	+46	-25	+15	+53	+18	-	+30	+1	+8	+58
2006		+191	+60	-41	+7	+55	+30	+1	+19	-6	+5	+61
2007		+237	+91	-36	+6	+51	+26	+2	+24	+4	+12	+55
2006 Jan-June		+65	+13	-16	+7	+21	+13	+1	+9	-2	+1	+19
2006 July-Dec		+125	+47	-25	-1	+34	+18	-	+10	-4	+4	+42
2007 Jan-June		+86	+28	-9	+2	+23	+12	+1	+7	+4	+4	+15
2007 July-Dec		+151	+63	-27	+4	+29	+14	+1	+17	+1	+8	+41

Note: These data have been revised following changes to the TIM methodology. Therefore they may not agree with estimates that have been published previously.

Table 7.3 International migration: citizenship

United Kingdom										Numbers (thousands)
Year and quarter	Citizenship (numbers)								British citizens as percentage of all citizens	
	All countries	British	Non-British	European Union	Commonwealth			Other foreign		
					All	Old	New			
Inflow										
1991	329	110	219	53	85	26	59	82	33	
1996	318	94	224	72	78	29	49	74	30	
1998	391	104	287	82	105	54	51	101	26	
1999	454	115	338	66	123	55	68	150	25	
2000	479	99	379	63	147	56	91	169	21	
2001	479	110	370	57	149	65	84	164	23	
2002	513	97	416	59	155	63	92	201	19	
2003	508	99	409	64	167	62	105	177	20	
2004	586	88	498	128	215	73	141	155	15	
2005	563	96	466	149	180	62	117	137	17	
2006	591	81	510	167	201	62	139	142	14	
2007	577	75	502	197	174	45	130	131	13	
2006 Jan-June	231	33	197	61	85	31	54	51	15	
July-Dec	360	48	313	106	116	31	85	91	13	
2007 Jan-June	239	30	209	91	71	20	51	48	12	
July-Dec	338	45	293	106	104	25	79	83	13	
Outflow										
1991	285	154	130	53	35	18	17	43	54	
1996	264	156	108	44	32	17	14	32	59	
1998	251	126	126	49	33	20	13	44	50	
1999	291	139	152	59	41	29	12	52	48	
2000	321	161	160	57	47	32	15	55	50	
2001	306	158	149	49	51	32	19	49	52	
2002	358	185	174	52	58	42	16	64	52	
2003	361	191	171	50	59	42	17	62	53	
2004	342	195	147	42	53	33	19	52	57	
2005	359	185	174	54	60	37	23	59	52	
2006	400	207	194	66	67	42	24	61	52	
2007	340	171	169	68	58	31	26	43	50	
2006 Jan-June	165	90	75	28	24	15	9	24	54	
July-Dec	235	117	118	38	43	27	15	37	50	
2007 Jan-June	153	82	72	32	22	12	10	17	53	
July-Dec	187	89	98	36	35	19	16	26	48	
Balance										
1991	+44	-44	+89	-1	+50	+8	+42	+39	:	
1996	+55	-62	+116	+28	+47	+12	+35	+41	:	
1998	+140	-22	+162	+33	+72	+34	+38	+57	:	
1999	+163	-24	+187	+8	+82	+26	+56	+98	:	
2000	+158	-62	+220	+6	+100	+24	+76	+114	:	
2001	+173	-48	+221	+8	+98	+33	+65	+115	:	
2002	+154	-87	+242	+7	+97	+21	+77	+137	:	
2003	+147	-91	+238	+14	+109	+20	+88	+115	:	
2004	+244	-107	+351	+85	+162	+40	+122	+104	:	
2005	+204	-89	+293	+95	+120	+25	+94	+78	:	
2006	+191	-126	+316	+100	+134	+20	+115	+81	:	
2007	+237	-96	+333	+128	+117	+13	+103	+88	:	
2006 Jan-June	+65	-56	+122	+33	+61	+16	+45	+27	:	
July-Dec	+125	-69	+194	+67	+73	+4	+69	+54	:	
2007 Jan-June	+86	-52	+138	+59	+48	+7	+41	+31	:	
July-Dec	+151	-44	+195	+69	+69	+6	+63	+57	:	

Note: These data have been revised following changes to the TIM methodology. Therefore they may not agree with estimates that have been published previously.

Table 9.1 First marriages¹: age and sex

England and Wales

Numbers (thousands), rates, percentages, mean and median age

Year and quarter	All ages		Persons marrying per 1,000 single population at ages						Per cent aged under 20	Mean age ³ (years)	Median age ³ (years)
	Number	Rate ²	16-19	20-24	25-29	30-34	35-44	45 and over			
Males											
1961	308.8	74.9	16.6	159.1	182.8	91.9	39.8	9.3	6.9	25.6	24.0
1966	339.1	78.9	22.1	168.6	185.4	91.1	36.4	8.6	9.9	24.9	23.4
1971	343.6	82.3	26.1	167.7	167.3	84.6	33.8	8.0	10.1	24.6	23.4
1976	274.4	62.8	18.5	123.7	132.5	78.7	32.0	7.1	9.8	25.1	23.7
1981	259.1	51.7	11.1	94.1	120.8	70.3	31.1	5.4	7.2	25.4	24.1
1986	253.0	45.0	6.0	64.4	105.1	73.9	30.9	4.8	3.8	26.3	25.1
1991	222.8	37.8	3.4	43.3	81.0	66.5	29.9	4.8	2.1	27.5	26.5
1994	206.1	34.3	2.2	31.7	73.3	61.1	30.2	5.1	1.3	28.5	27.5
1995	198.2	32.4	2.0	28.3	68.2	59.9	30.2	5.0	1.2	28.9	27.9
1996	193.3	31.1	1.8	25.2	64.5	59.4	30.7	5.2	1.1	29.3	28.3
1997	188.3	29.7	1.8	22.8	61.1	58.0	30.6	5.2	1.2	29.6	28.6
1998	186.3	28.9	1.7	21.0	59.4	57.8	30.2	5.2	1.2	29.8	28.9
1999	184.3	28.0	1.7	18.9	56.9	57.7	30.4	5.3	1.2	30.1	29.2
2000	186.1	27.7	1.7	18.2	54.3	58.2	32.0	5.7	1.2	30.5	29.6
2001	175.7	25.5	1.5	16.2	50.4	54.5	29.6	5.3	1.1	30.6	29.7
2002	179.1	25.4	1.3	16.2	48.7	55.7	31.0	5.9	1.0	30.9	30.1
2003	189.5	26.2	1.3	16.3	50.0	58.6	33.0	6.9	1.0	31.2	30.3
2004	192.0	25.9	1.2	15.7	49.0	58.8	33.7	7.2	1.0	31.4	30.4
2005	173.4	22.7	0.9	12.4	42.8	53.1	30.8	6.7	1.0	31.7	30.7
2006	169.2	21.6	0.8	11.1	40.3	51.2	29.9	6.9	0.6	31.8	30.8
2007 ^p	165.5	20.6	0.7	10.1	38.6	49.2	28.9	6.8	0.6	31.9	30.8
2005 March	20.0	10.6	0.8	7.1	18.5	22.7	14.9	3.7	1.5	31.6	30.6
June	47.1	24.8	0.8	13.0	46.3	58.5	33.9	7.7	0.6	31.8	30.8
Sept	77.3	40.2	1.2	21.3	79.9	95.3	51.6	9.8	0.6	31.4	30.5
Dec	29.1	15.1	0.7	7.9	26.1	35.5	22.5	5.3	0.9	32.2	31.1
2006 March	16.7	8.7	0.5	5.4	14.5	18.9	12.7	3.7	1.1	32.1	30.9
June	46.3	23.7	0.7	11.4	44.6	56.5	33.0	7.9	0.6	32.0	30.8
Sept	78.4	39.7	1.1	20.0	77.5	95.6	52.7	10.6	0.5	31.6	30.6
Dec	27.8	14.1	0.7	7.5	24.2	33.1	20.8	5.3	0.9	32.2	31.1
2007 March ^p	17.6	8.9	0.6	5.2	15.3	19.7	13.1	3.6	1.2	32.2	30.9
June ^p	46.4	23.1	0.7	10.9	43.4	56.4	32.4	7.7	0.6	32.0	30.8
Sept ^p	74.0	36.5	0.9	17.5	71.6	88.1	49.6	10.3	0.4	31.7	30.6
Dec ^p	27.4	13.5	0.6	6.8	23.5	32.1	20.2	5.3	0.8	32.3	31.1
Females											
1961	312.3	83.0	77.0	261.1	162.8	74.6	29.8	4.6	28.7	23.1	21.6
1966	342.7	89.3	82.6	263.7	153.4	74.1	30.2	4.3	32.5	22.5	21.2
1971	347.4	97.0	92.9	246.5	167.0	75.7	30.3	4.8	31.1	22.6	21.4
1976	276.5	76.9	66.7	185.4	140.7	77.6	31.6	4.0	31.1	22.8	21.5
1981	263.4	64.0	41.5	140.8	120.2	67.0	28.7	2.8	24.1	23.1	21.9
1986	256.8	55.6	24.1	102.4	108.7	67.1	28.6	2.7	13.9	24.1	23.1
1991	224.8	46.7	14.0	73.0	90.6	62.7	28.1	2.8	7.9	25.5	24.6
1994	206.3	41.6	9.6	56.4	84.5	58.9	27.7	3.1	5.2	26.5	25.7
1995	198.6	39.3	9.0	50.8	80.5	57.1	27.6	3.1	5.1	26.8	26.0
1996	192.7	37.3	8.0	45.7	77.2	57.2	27.8	3.2	4.9	27.2	26.4
1997	188.5	35.6	7.4	42.5	74.1	56.1	27.2	3.3	4.7	27.5	26.7
1998	187.4	34.7	7.2	39.9	72.6	56.1	26.5	3.4	4.7	27.7	27.0
1999	185.3	33.5	6.7	36.7	70.8	56.0	26.5	3.5	4.4	28.0	27.3
2000	187.7	33.2	6.5	35.2	68.7	57.2	27.5	3.9	4.2	28.2	27.5
2001	177.5	30.6	5.5	31.9	64.3	53.2	25.5	3.7	3.9	28.4	27.7
2002	180.7	30.4	5.4	30.9	63.2	54.5	26.8	4.3	3.7	28.7	27.9
2003	191.2	31.3	5.4	31.4	64.5	57.8	28.5	5.2	3.6	28.9	28.1
2004	194.3	31.0	4.9	30.2	63.6	58.9	29.0	5.6	3.4	29.1	28.3
2005	176.5	27.2	3.2	24.3	57.2	54.4	26.5	5.2	2.5	29.5	28.5
2006	172.8	25.9	2.8	22.0	54.3	52.4	25.5	5.7	2.2	29.7	28.6
2007 ^p	168.3	24.5	2.5	20.3	52.0	50.5	24.1	5.5	2.1	29.8	28.7
2005 March	20.0	12.5	3.0	12.0	22.7	23.9	12.9	3.2	5.1	29.4	28.4
June	48.4	29.9	3.1	26.3	62.7	60.3	29.5	6.3	2.1	29.6	28.6
Sept	78.9	48.3	4.2	44.2	107.7	94.5	42.8	7.1	1.8	29.2	28.3
Dec	29.3	17.9	2.5	14.4	34.9	38.0	20.3	4.2	2.9	30.0	29.1
2006 March	16.9	10.3	2.0	9.5	18.3	19.9	11.6	3.1	4.0	29.9	28.7
June	47.4	28.5	2.6	23.7	59.2	59.3	28.5	6.9	1.9	29.9	28.7
Sept	80.2	47.6	4.2	41.1	106.5	94.4	43.2	8.1	1.8	29.4	28.4
Dec	28.3	16.8	2.4	13.6	32.4	35.5	18.5	4.6	2.9	30.1	29.1
2007 March ^p	18.0	10.6	2.0	9.2	19.8	21.4	11.6	3.0	3.9	29.9	28.8
June ^p	47.3	27.6	2.5	22.2	58.8	58.0	27.0	6.6	1.8	29.9	28.8
Sept ^p	75.5	43.6	3.3	36.9	97.7	88.1	39.8	7.9	1.5	29.5	28.5
Dec ^p	27.6	15.9	2.2	12.5	31.2	34.1	17.6	4.3	2.7	30.2	29.1

Note: Rates have been revised from 2002, to include the adjustments for marriages to England and Wales residents occurring abroad – see 'In Brief'.

1 Figures for all marriages can be found in Table 2.1.

2 Per 1,000 single persons aged 16 and over.

3 The mean/median ages shown in this table are unstandardised and therefore take no account of changes in the structure of the population by age or marital status.

p provisional

Table 9.2 Remarriages¹: age, sex, and previous marital status

England and Wales Numbers (thousands), rates, percentages, mean and median age

Year and quarter	Remarriages of divorced persons										Remarriages of widowed persons		
	All ages		Persons remarrying per 1,000 divorced population at ages					Per cent aged under 35	Mean age ² (years)	Median age ³ (years)	Number	Rate ⁴	
	Number	Rate ²	16–24	25–29	30–34	35–44	45 and over						
Males													
1961	18.8	162.9	478.6	473.6	351.6	198.3	88.6	33.9	40.5	39.2	19.1	28.8	
1966	26.7	192.2	737.8	522.5	403.1	244.4	89.4	40.8	39.3	37.4	18.7	28.3	
1971	42.4	227.3	525.2	509.0	390.7	251.3	124.8	42.8	39.8	37.0	18.7	27.5	
1976	67.2	178.8	656.8	359.7	266.8	187.9	94.0	46.7	38.4	36.0	16.9	24.7	
1981	79.1	129.5	240.7	260.9	205.8	141.9	63.9	46.1	38.1	35.9	13.8	19.7	
1986	83.4	91.0	141.4	158.9	141.3	106.0	49.9	38.5	39.1	37.7	11.6	16.7	
1991	74.9	63.0	81.1	111.3	100.6	72.7	38.4	34.3	40.3	39.0	9.0	12.5	
1994	76.6	60.0	180.6	131.7	110.2	71.5	36.1	31.5	41.1	39.6	8.4	11.5	
1995	77.0	58.6	190.0	132.1	111.4	72.2	34.9	30.3	41.3	39.8	7.8	10.8	
1996	78.0	57.9	166.2	135.2	111.2	73.8	35.0	28.2	41.7	40.2	7.7	10.6	
1997	76.8	55.7	170.9	132.2	110.3	72.9	33.6	27.0	42.0	40.5	7.4	10.3	
1998	74.0	52.7	167.0	124.7	104.1	71.6	32.0	24.8	42.4	40.8	6.9	9.6	
1999	72.6	50.7	125.7	120.7	102.9	70.2	31.2	23.3	42.7	41.2	6.6	9.3	
2000	75.4	51.8	97.9	113.2	103.6	74.4	32.6	20.8	43.2	41.8	6.5	9.1	
2001	67.7	45.7	79.7	96.6	95.8	67.6	28.5	19.7	43.5	42.0	5.8	8.0	
2002	70.5	46.3	69.8	92.4	96.0	68.7	30.0	17.8	44.1	42.6	6.0	8.2	
2003	74.4	47.4	77.7	92.0	94.7	70.6	31.8	16.0	44.6	43.3	6.2	8.6	
2004	75.1	46.5	70.4	89.2	91.0	71.2	31.4	14.5	44.9	43.6	6.0	8.3	
2005	68.7	41.3	34.9	67.5	79.8	63.7	29.0	12.7	45.5	44.2	5.7	8.0	
2006	64.8	38.2	34.8	58.3	71.5	59.6	27.5	11.1	46.0	44.8	5.4	7.6	
2007 ^p	60.7	35.2	45.1	55.8	66.2	55.0	26.0	10.3	46.5	45.4	5.2	7.3	
2005	March	9.5	23.1	40.0	50.1	44.9	33.5	16.7	13.6	45.8	44.6	1.0	5.3
	June	19.4	46.8	43.1	73.8	91.8	70.3	33.4	12.8	45.6	44.5	1.7	9.4
	Sept	26.1	62.3	31.1	93.7	121.6	101.0	41.9	12.5	45.0	43.8	1.9	10.6
	Dec	13.7	32.7	25.4	52.1	60.4	49.1	23.7	12.2	46.0	44.6	1.2	6.5
2006	March	8.4	20.0	27.5	34.6	36.6	28.9	15.2	11.3	46.8	45.5	0.8	4.6
	June	18.3	43.3	31.1	59.9	78.8	66.3	31.9	10.7	46.2	45.1	1.7	9.4
	Sept	25.8	60.4	42.2	88.6	117.3	98.7	41.7	11.3	45.5	44.3	1.9	10.6
	Dec	12.3	28.8	38.4	49.6	52.5	43.9	21.1	11.2	46.3	45.0	1.0	5.7
2007	March ^p	8.3	19.5	25.1	35.6	36.3	29.0	14.9	10.5	47.1	45.8	0.8	4.5
	June ^p	17.1	40.0	48.2	63.6	74.3	60.9	30.1	10.2	46.6	45.6	1.6	9.0
	Sept ^p	23.6	54.4	52.0	79.6	107.3	89.1	38.5	10.5	46.0	44.9	1.8	9.9
	Dec ^p	11.6	26.8	54.9	44.0	46.4	40.4	20.4	9.8	47.0	45.8	1.0	5.7
Females													
1961	18.0	97.1	542.2	409.6	250.2	111.5	35.6	46.8	37.2	35.9	16.5	6.5	
1966	25.1	114.7	567.8	411.2	254.8	135.9	37.8	52.4	36.2	34.3	16.8	6.3	
1971	39.6	134.0	464.4	359.0	232.7	139.8	49.3	57.0	35.7	33.0	17.7	6.3	
1976	65.1	122.2	458.9	272.3	188.0	124.0	40.9	59.8	34.9	32.4	17.0	5.9	
1981	75.1	90.7	257.5	202.1	142.9	95.5	29.0	57.9	35.1	33.4	13.5	4.6	
1986	80.0	68.7	190.9	155.9	111.6	75.6	24.4	51.2	36.0	34.7	11.2	3.8	
1991	73.4	50.3	111.9	118.1	89.7	55.3	20.9	47.4	37.1	35.7	8.6	2.9	
1994	76.9	47.3	167.3	121.0	91.4	54.4	20.6	44.4	37.9	36.3	7.9	2.7	
1995	76.9	45.7	166.5	118.8	91.9	54.8	19.8	42.8	38.1	36.6	7.5	2.6	
1996	78.9	45.6	183.5	120.6	93.6	56.0	20.4	40.8	38.6	37.1	7.3	2.6	
1997	77.1	43.3	188.5	119.4	90.8	54.6	19.6	39.0	38.9	37.4	7.0	2.5	
1998	73.3	40.1	175.0	114.5	87.1	52.2	18.4	37.1	39.3	37.9	6.6	2.4	
1999	72.0	38.4	155.0	107.0	84.8	52.3	17.8	34.7	39.7	38.3	6.2	2.3	
2000	74.1	38.5	137.8	107.5	85.6	54.2	18.4	32.0	40.1	38.9	6.2	2.3	
2001	66.1	33.5	104.6	96.9	79.3	48.5	15.9	30.7	40.4	39.2	5.6	2.0	
2002	69.2	34.1	109.8	100.1	80.8	50.8	16.8	28.2	40.9	39.7	5.7	2.1	
2003	73.1	35.0	118.1	101.7	83.3	52.4	18.3	26.1	41.5	40.3	5.9	2.2	
2004	72.9	34.0	112.7	95.6	82.7	52.6	18.0	24.0	41.9	40.8	5.8	2.2	
2005	65.9	30.0	75.4	76.7	72.2	47.6	16.8	21.2	42.6	41.6	5.4	2.1	
2006	61.0	27.4	68.9	69.2	67.8	44.3	15.8	19.6	43.0	42.1	5.2	2.0	
2007 ^p	58.1	25.4	66.4	67.0	64.4	41.7	15.1	18.4	43.5	42.7	49.9	2.0	
2005	March	9.6	17.6	75.7	58.2	43.3	27.2	9.6	23.6	42.2	41.2	0.8	1.3
	June	18.3	33.4	79.9	78.8	77.8	52.0	19.7	20.2	43.0	42.0	1.5	2.3
	Sept	24.5	44.2	86.1	108.7	109.4	72.2	24.0	21.2	42.4	41.5	1.9	2.9
	Dec	13.5	24.5	59.1	60.6	58.0	38.7	13.9	20.8	42.7	41.6	1.2	1.8
2006	March	8.2	14.8	40.5	43.4	38.8	22.7	8.6	21.3	43.1	41.8	0.8	1.3
	June	17.3	30.9	75.6	73.3	72.7	49.4	18.6	18.5	43.4	42.4	1.5	2.4
	Sept	24.1	42.7	101.6	103.8	106.9	70.7	24.1	19.5	42.8	42.0	1.8	2.8
	Dec	11.8	20.9	57.5	55.7	52.1	33.8	12.0	20.0	43.0	42.0	1.0	1.6
2007	March ^p	8.0	14.2	40.7	41.9	35.7	22.6	8.6	19.0	43.7	42.8	0.8	1.2
	June ^p	16.4	28.8	67.4	70.8	70.5	46.3	17.9	17.6	43.8	43.1	1.5	2.4
	Sept ^p	22.1	38.4	85.9	97.9	98.1	65.1	22.2	18.2	43.2	42.5	1.7	2.8
	Dec ^p	11.5	20.0	71.0	57.1	52.8	32.4	11.8	19.6	43.4	42.5	1.0	1.5

Note: Rates have been revised from 2002, to include the adjustments for marriages to England and Wales residents occurring abroad – see 'In Brief'.

1 Figures for all marriages can be found in Table 2.1.

2 Per 1,000 divorced persons aged 16 and over.

3 The mean/median ages shown in this table are unstandardised and therefore take no account of changes in the structure of the population by age or marital status.

4 Per 1,000 widowed persons aged 16 and over.

p provisional

Notes to tables

Time series

For most tables, years start at 1971 and then continue at five-year intervals until 1991. Individual years are shown thereafter.

United Kingdom

The United Kingdom comprises England, Wales, Scotland and Northern Ireland. The Channel Islands and the Isle of Man are not part of the United Kingdom.

Population

The estimated and projected resident population of an area includes all people who usually live there, whatever their nationality. Members of HM and US Armed Forces in the United Kingdom are included on a residential basis wherever possible. HM Forces stationed outside the United Kingdom are not included. Students are taken to be resident at their term time addresses.

Further information on population estimates is available on the National Statistics website at: www.statistics.gov.uk/popest

Live births

For England and Wales, figures relate to the number of births occurring in a period; for Scotland and Northern Ireland, figures relate to births registered in a period. By law, births must be registered within 42 days in England and Wales, within 21 days in Scotland, and within 42 days in Northern Ireland. In England and Wales, where a birth is registered later than the legal time period, and too late to be included in the count for the year of occurrence, it will be included in the count for the following year.

Age specific fertility rate (ASFR), is the number of births per 1,000 women in the stated age group.

The total fertility rate (TFR), which is the sum of the age-specific fertility rates expressed per woman, is a useful summary measure in that it can be used to examine both changes in fertility over time and between populations by removing the effect of different age distributions.

Care should be taken in interpreting the total fertility rate as indicative of future levels of childbearing. Used in this way it may be interpreted as the number of children that would be born to a woman if the current age-specific patterns of fertility persisted throughout her childbearing life. However, the TFR is a synthetic measure since age-specific fertility rates do not normally remain stable during the childbearing life span of a woman.

Perinatal mortality

In October 1992 the legal definition of a stillbirth was changed, from baby born dead after 28 completed weeks of gestation or more, to one born dead after 24 completed weeks of gestation or more.

Period expectation of life

The life tables on which these expectations are based use death rates for the given period to describe mortality levels for each year. Each individual year shown is based on a three-year period, so that for instance 1986 represents 1985–87. More details can be found at www.statistics.gov.uk/StatBase/Product.asp?vlnk=14459

Deaths

Figures for England and Wales relate to the number of deaths registered in each year up until 1992, and the number of deaths occurring in a year between 1993 and 2005. From 2006 onwards, all figures relate to the number of deaths registered in the year. All figures for Scotland and Northern Ireland relate to the number of deaths registered in each year.

Age-standardised mortality

Directly age-standardised rates make allowances for changes in the age structure of the population. The age-standardised rate for a particular condition is that which would have occurred if the observed age-specific rates for the condition had applied in a given standard population. Table 2.2 uses the European Standard Population. This is a hypothetical population standard which is the same for both males and females allowing standardised rates to be compared for each sex, and between males and females.

International Migration

The UN recommends the following definition of an international long-term migrant:

An *international long-term migrant* is defined as a person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence.

Figures in Tables 7.1–7.3 are compiled from several main sources of migration data:

- The richest source of information on international migrants comes from the International Passenger Survey (IPS), which is a sample survey of passengers arriving at, and departing from, the main United Kingdom air and sea ports and Channel Tunnel. This survey provides migration estimates based on respondents' *intended* length of stay in the UK or abroad and excludes most persons seeking asylum and some dependants of such asylum seekers.
- Two adjustments are made to account for people who do not realise their intended length of stay on arrival. First, visitor data from the IPS are used to estimate 'visitor switchers': those people who initially come to or leave the UK for a short period but subsequently stay for a year or longer. (For years before 2001, estimates of non-European Economic Area (non-EEA) national visitor switcher inflows are made from the Home Office database of after-entry applications to remain in the UK). Second, people who intend to be migrants, but who in reality stay in the UK or abroad for less than a year ('migrant switchers'), are estimated from IPS migrant data.
- Home Office data on asylum seekers and their dependants.
- Estimates of migration between the UK and the Irish Republic estimated using information from the Irish Quarterly National Household Survey and the National Health Service Central Register, agreed between the Irish Central Statistics Office and the ONS.

Estimates for 1999–2005 have been revised to take account of recent improvements in the methodology used to estimate migration. These improvements were first published for 2006 data released in November 2007. More detail is provided in Appendix B of International Migration 2006 – MN Series no. 33.

For years prior to 1991, the figures in Tables 7.1–7.3 are based only on data from the IPS. After taking into account of those groups of migrants known not to be covered by the IPS, it is estimated that the adjustment needed to net migration ranges from about ten thousand in 1981 to just over twenty thousand in 1986. From 1991, the figures in Tables 7.1–7.3 are based on data from all the sources and represent Total International Migration.

Old Commonwealth is defined as Australia, Canada, New Zealand and South Africa;

New Commonwealth is defined as all other Commonwealth countries.

Middle East is defined as Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, the United Arab Emirates, and Yemen.

Internal Migration

Figures in Table 8.1 are based on the movement of NHS doctors' patients between former Health Authorities (HAs) in England and Wales, and Area Health Boards in Scotland and Northern Ireland. Yearly and quarterly figures have been adjusted to take account of differences in recorded cross-border flows between England and Wales, Scotland and Northern Ireland.

Prior to reorganisation of health authority databases from Family Health Service Authorities (FHSAs) to HAs some database boundaries were realigned. This included in a few cases transferring patients between databases to fit the new boundaries. For the most part, this movement was done outside the NHSCR system and therefore had no effect on migration data.

However a small number were transferred within the system. As migration estimates derived from NHSCR are the product of an administrative system (when patients re-register with GPs) this had the effect of generating small numbers of spurious migrants where no actual change of address had taken place. We have been advised of adjustments required to data by the Department of Health and these have been made to migration data.

The NHS Central Register (NHSCR) at Southport was computerised in early 1991, prior to which a three month time lag was assumed between a person moving and their re-registration with an NHS doctor being processed onto the NHSCR. Since computerisation, estimates of internal migration are based on the date of acceptance of the new patient by the HA (not previously available), and a one month time lag assumed.

It has been established that NHSCR data under-report the migration of males aged between 16 and 36. Currently, however, there are no suitable sources of data available to enable adjustments or revisions to be made to the estimates. Further research is planned on this topic and new data sources may become available in the future. However, for the present time, historical estimates will not be revised and future estimates will not be adjusted.

Marriages and divorces

Marriages are tabulated according to date of solemnisation. Divorces are tabulated according to date of decree absolute. In Scotland a small number of late divorces from previous years are added to the current year. The term 'divorces' includes decrees of nullity. The fact that a marriage or divorce has taken place in England, Wales, Scotland or Northern Ireland does not mean either of the parties is resident there.

Civil Partnerships

The Civil Partnership Act 2004 came into force on 5 December 2005 in the UK, the first day couples could give notice of their intention to form a civil partnership. The first day that couples could formally form a partnership was 19 December 2005 in Northern Ireland, 20 December 2005 in Scotland and 21 December 2005 in England and Wales.

Civil partnerships are tabulated according to date of formation and area of occurrence. The fact that a civil partnership has taken place in England, Wales, Scotland or Northern Ireland does not necessarily mean either of the parties is resident there.

EU Enlargement

The coverage of European countries in Table 1.1 has been updated to reflect the enlargement of the EU to 27 member countries (EU27). On 1 May 2004, 10 new member countries were added: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. One 1 January 2007 a further 2 countries were added: Bulgaria and Romania.

Sources

Figures for Scotland and Northern Ireland have been provided by the General Register Office for Scotland and the Northern Ireland Statistics and Research Agency respectively. The International Passenger Survey (Tables 7.1–7.3) is conducted by the Surveys and Administrative Sources Directorate of ONS.

Rounding

All figures are rounded independently; constituent parts may not add to totals. Generally numbers and rates per 1,000 population are rounded to one decimal place (e.g. 123.4); where appropriate, for small figures (below 10.0), two decimal places are given (e.g. 7.62). Figures which are provisional or estimated are given in less detail (e.g. 123 or 7.6 respectively) if their reliability does not justify giving the standard amount of detail. Where figures need to be treated with particular caution, an explanation is given as a footnote.

Latest figures

Figures for the latest quarters and years may be provisional and will be updated in future issues when later information becomes available. Where figures are not yet available, cells are left blank.

Report:

Patterns of fatherhood in England and Wales, 1964–2007

Introduction

This report presents new estimates of fatherhood in England and Wales between 1964¹ and 2007. The measures presented are the standardised² mean age of father at childbirth, male Age-specific Fertility Rates (ASFR) and the male Total Fertility Rate (TFR). Fertility refers here to reproductive behaviour (the number of children born) rather than the actual ability to reproduce. It is intended to publish estimates annually for 2008 onwards.

These estimates have been calculated using information from the birth registration system and mid-year population estimates. They supersede estimates published previously³ because they use revised calculation methods which are consistent across the entire period and incorporate the latest population estimates.

Calculating fertility measures for men is not as straightforward as for women, for two reasons:

- The age of the father is not collected at birth registration for births registered only by the mother
- Men often continue to have children at much older ages than women

The mid-section of this report highlights how these differences have been addressed to ensure that the male fertility measures produced are robust. The report then goes on to describe how the male fertility measures are actually calculated. To start with, however, the new estimates of fatherhood are analysed to reveal how trends in fatherhood have changed since 1964. These trends are also compared with those observed for women.

Patterns of fatherhood in England and Wales, 1964–2007

The standardised mean age of father at childbirth, male Age-specific Fertility Rates (ASFRs) and male Total Fertility Rate (TFR) for each year between 1964 and 2007 are reported in **Table 1**. The following sections address each measure in turn to consider how trends in fatherhood have changed over the last four decades and compare these against patterns seen among women.

Standardised mean age at childbirth

Since the mid 1970s both men and women in England and Wales have increasingly been having their children at older ages. The mean age of father at childbirth has increased steadily since 1974, from 29.4 to 32.4 years in 2007 (see **Figure 1**). Over the same period the mean age of mother has also risen, from 26.4 years in 1974 to 29.3 years in 2007.

In contrast, between 1964 and the mid 1970s the mean age at childbirth for both mothers and fathers declined – this followed the early childbearing during the 1960s which contributed to the 1960s baby boom.

At childbirth, the mean age of father is typically around three years higher than the mean age of mother. This age difference has been evident since 1964 and reflects the fact that at marriage men are on average nearly three years older than women⁴, while for cohabiting couples the age difference is typically greater⁵.

Age patterns of fertility

In England and Wales, marked changes in age patterns of fatherhood have taken place over the last four decades (**Figure 2**). Between 1964 and 1977 male fertility rates generally decreased among all age groups except for those aged under 20. For men in their twenties this fertility decline continued to 2001. Fertility levels of men aged under 20 have fluctuated somewhat between 1964 and 2007 but overall there has been a slight downward trend.

Following these fertility declines over the first part of the period, male fertility rates have increased. For men in their fifties and sixties, this increase was interrupted by a slight decline in fertility during the 1990s. Since 2001 however, male fertility levels have generally increased for all age groups except for men under 20. The greatest increases occurred for men in their late thirties, forties and early fifties, where fertility rates rose by over 25 per cent. In 2007, male fertility levels exceed those observed in 1964 at ages 35–39 and 40–44.

Over the same period, similar age patterns of fertility have been observed among women⁶, with declining fertility followed by increasing fertility at all ages except those aged under 20. As for men, the initial decline in

Table 1

Fatherhood measures, England and Wales, 1964–2007

Year	Standardised mean age of father	Male TFR	Male age-specific fertility rates (live births per 1,000 men in age group)									
			Under 20	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60 and over
1964	30.3	2.92	10.9	112.8	190.9	140.3	75.1	31.6	11.6	3.7	1.1	0.5
1965	30.2	2.86	12.2	112.6	187.4	135.8	73.3	30.3	11.5	3.5	1.1	0.5
1966	30.1	2.77	13.6	112.7	184.0	129.8	69.1	28.9	10.7	3.3	1.0	0.4
1967	30.0	2.68	14.4	108.5	176.6	125.8	66.0	28.2	10.2	3.1	1.0	0.4
1968	29.9	2.61	14.6	106.9	172.7	122.4	63.1	26.9	9.1	2.9	0.9	0.4
1969	29.8	2.51	14.9	105.3	165.6	117.8	59.7	25.3	8.2	2.8	0.9	0.4
1970	29.7	2.44	14.7	105.7	162.1	113.4	56.9	23.8	7.6	2.5	0.9	0.3
1971	29.6	2.39	15.0	105.9	160.5	110.2	54.6	22.8	7.4	2.5	0.8	0.4
1972	29.6	2.18	14.5	97.0	146.2	100.5	49.2	20.3	6.7	2.3	0.7	0.3
1973	29.5	2.01	13.7	88.2	137.4	92.8	43.7	17.9	6.1	2.1	0.7	0.3
1974	29.4	1.88	12.8	82.1	130.6	87.9	40.0	16.2	5.7	1.8	0.6	0.3
1975	29.5	1.77	11.9	75.1	122.3	84.1	37.5	15.2	5.4	1.8	0.7	0.3
1976	29.6	1.70	10.7	70.2	117.9	82.5	36.3	14.5	5.3	1.7	0.6	0.3
1977	29.7	1.65	9.7	65.8	115.1	82.5	35.6	14.3	5.1	1.7	0.6	0.3
1978	29.7	1.72	9.7	67.7	119.9	86.7	38.1	15.2	5.4	1.9	0.6	0.3
1979	29.8	1.83	10.2	70.7	126.1	93.6	41.5	16.3	5.8	2.0	0.7	0.3
1980	29.8	1.88	10.3	72.3	128.7	95.3	42.6	16.7	6.1	2.1	0.7	0.4
1981	30.0	1.81	9.5	67.1	124.6	92.2	41.6	16.3	6.1	2.2	0.7	0.3
1982	30.1	1.79	9.5	65.7	120.8	92.6	42.4	16.6	6.4	2.3	0.7	0.4
1983	30.2	1.79	9.5	63.2	120.3	94.6	42.9	16.9	6.7	2.5	0.8	0.3
1984	30.3	1.79	9.9	61.6	118.3	96.3	43.4	17.3	6.8	2.5	0.9	0.4
1985	30.3	1.82	10.4	62.2	118.5	99.1	44.8	17.6	7.1	2.6	1.0	0.4
1986	30.4	1.82	10.8	61.8	115.3	100.0	45.2	17.6	7.0	2.7	1.0	0.4
1987	30.5	1.85	10.9	62.3	116.0	103.2	48.3	17.9	7.2	2.9	1.1	0.5
1988	30.5	1.87	11.5	63.9	114.7	104.4	50.0	18.3	7.0	2.9	1.1	0.5
1989	30.7	1.84	11.0	61.5	110.7	103.9	51.5	18.5	7.1	2.9	1.1	0.6
1990	30.7	1.87	11.5	61.4	111.1	106.9	53.8	19.1	7.1	3.0	1.1	0.6
1991	30.8	1.85	11.2	60.2	108.2	105.3	54.4	19.2	6.9	2.9	1.2	0.6
1992	30.9	1.82	10.6	58.8	106.2	102.6	54.9	20.5	6.8	2.7	1.1	0.6
1993	31.1	1.77	9.9	54.6	101.1	103.2	56.2	20.5	6.9	2.7	1.1	0.7
1994	31.3	1.75	8.8	51.7	98.3	103.3	57.8	21.2	6.9	2.6	1.1	0.6
1995	31.3	1.71	8.8	49.6	94.1	100.7	57.5	21.6	6.9	2.5	1.1	0.6
1996	31.4	1.72	9.1	49.9	93.0	100.5	58.6	22.4	7.0	2.6	1.1	0.6
1997	31.5	1.71	9.4	49.0	90.7	99.2	60.0	23.2	7.3	2.6	1.0	0.5
1998	31.5	1.70	10.0	48.0	88.6	98.9	60.5	23.6	7.6	2.5	1.0	0.6
1999	31.6	1.67	10.4	46.6	85.2	96.7	60.3	23.9	7.6	2.5	1.0	0.5
2000	31.7	1.62	9.9	44.6	79.9	94.6	60.3	24.1	7.8	2.5	0.9	0.5
2001	31.8	1.60	9.5	43.8	77.0	93.6	59.6	24.6	7.9	2.5	0.9	0.6
2002	31.9	1.61	9.1	44.0	75.8	94.7	60.8	25.3	8.1	2.5	0.9	0.6
2003	32.0	1.68	9.2	45.5	78.0	99.3	64.3	27.4	8.9	2.8	0.9	0.6
2004	32.1	1.74	9.4	46.0	79.8	102.6	67.2	28.6	9.4	2.8	1.0	0.6
2005	32.2	1.75	9.5	44.9	79.4	103.3	68.5	29.4	9.8	3.0	1.0	0.6
2006	32.2	1.81	9.5	45.4	81.9	107.2	72.6	30.4	10.3	3.2	1.0	0.6
2007	32.4	1.87	9.5	45.3	83.7	111.1	76.0	31.7	10.8	3.3	1.0	0.5

fertility was more prolonged for women in their twenties compared with older ages.

In 1964 men aged between 25 and 29 experienced the highest fertility levels. Since 1993, however, fertility has been highest among males aged between 30 and 34 – a consequence of the opposing fertility trends among men aged 25–29 and 30–34 between 1978 and 2001. A similar change occurred among women, but the crossover from highest fertility at ages 25–29 to 30–34 occurred in 2004 – 11 years after the crossover occurred among men.

Total Fertility Rate

Since 1964, the male Total Fertility Rate (TFR) has been very similar to the female TFR (**Figure 3**). During the period 1964 to 1977, both the male and female TFRs decreased rapidly, falling from just over 2.9 children per man/woman to around 1.65. From 1978 the TFRs began to rise, but this was short-lived and during the 1980s the TFRs remained relatively stable, fluctuating between 1.75 and 1.87. Throughout the 1990s fertility fell steadily, reaching a record low in 2001 of 1.60 for males and 1.63 for females. Since 2001 the TFR for both males and

Figure 1 Standardised mean age of father and mother, England and Wales, 1964–2007

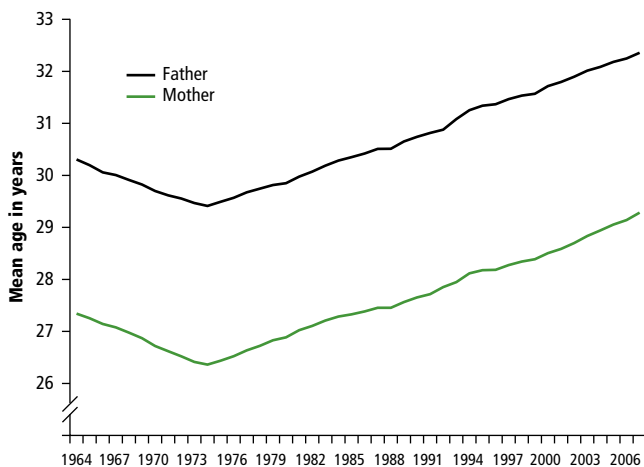
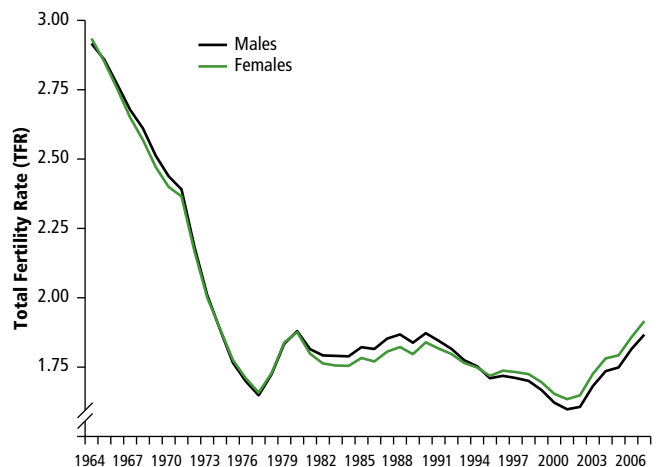
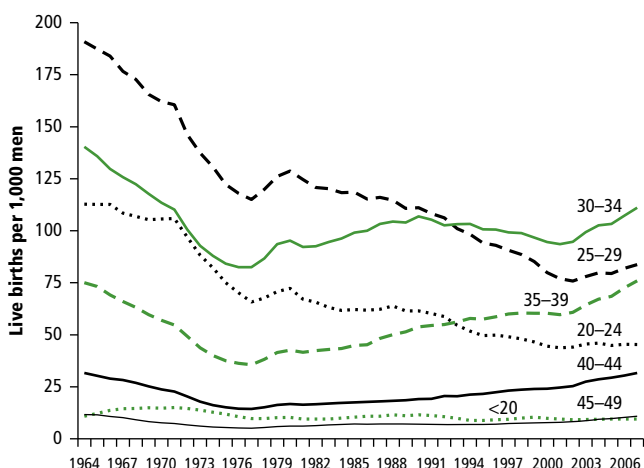


Figure 3 Total Fertility Rate for males and females, England and Wales, 1964–2007



females has risen gradually. In 2007 the male TFR (1.87) was slightly lower than the female TFR (1.92).

Figure 2a Male age-specific fertility rates, England and Wales, 1964–2007



Intuitively, overall male and female fertility might be expected to be the same, but in reality, slight differences between the male and female TFRs do occur. During the periods 1965 to 1973, and 1981 to 1993, the TFR was higher for males, while since 1995 the female TFR has been higher. These differences could result from:

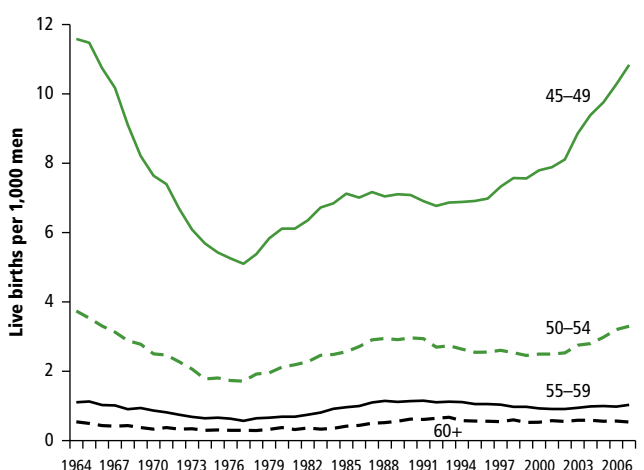
- Differences in the age at childbearing for males and females and changes in this over time. For instance in 2007, the number of births to women exceeded those to men at each single year of age below 32. At ages 32 and above there were a greater number of births to men than women
- Differences in the numbers of males and females in the resident population at reproductive ages. For example, in 2007, women in England and Wales outnumbered men at all single years of age below 34. In contrast, men outnumbered women for all ages 34 and above

Estimating age of father for sole registered births

The age of the father is collected at birth registration for all births within marriage and for births outside marriage which are jointly registered. To derive male fertility measures for all fathers, it has been necessary to estimate the age of the father for births outside marriage which are registered solely by the mother. In England and Wales, 6.6 per cent of births in 2007 were sole registered. The proportion of sole registrations does vary by age with the highest proportion of sole registrations occurring among those aged under 20 (over one-fifth of such births were sole registered in 2007).

To estimate age of father for sole registered births, it has been assumed that for each age of mother, a suitable donor distribution for father's age can be provided by births outside marriage which are jointly registered. A separate 'father's age distribution' is therefore calculated for each age of mother (single years) for all births outside marriage which are jointly registered. These distributions are then applied to the number of sole registered births by each age of mother. Applying a separate 'father's age distribution' for each age of mother takes into account any differences between the ages of mothers for sole and jointly registered births. This method enables age of father for sole registered births to be estimated consistently over time. Previously published estimates⁷ used births outside marriage which were jointly registered by parents

Figure 2b Male age-specific fertility rates for age 45 and above, England and Wales, 1964–2007



living at different addresses as a donor distribution for sole registered births between 1986 and 2004. Prior to 1986, no distinction was possible between joint registrations where parents lived at the same address and joint registrations where parents lived at different addresses. Consequently the father's age for sole registered births prior to 1986 was estimated using all births outside marriage which were jointly registered.

Government proposals to encourage joint birth registration⁸ are due to be implemented in the near future. As a result, father's age is likely to need estimating on an even smaller number of births in the future.

Reproductive age for men

For the purpose of demographic estimates in England and Wales, both men and women are considered to enter their reproductive years when they reach age 15. The number of births to males and females aged below 15 is relatively low. In 2007, there were 928 live births recorded to women aged 15 but only 187 live births at age 14⁹. Similar results are observed among males but at lower levels, with 179 live births at age 15 in 2007, but only 32 live births at age 14¹⁰. When calculating fertility rates by single year of age or five-year age group, the lowest age groups used are actually 'under 16' and 'under 20' respectively and therefore include births to women below age 15. The reproductive age range is however used for the population denominators.

Women are considered to have completed their childbearing years once they reach 45 years of age. Until now, male fertility measures have not been routinely calculated and there is no 'standard' age at which men are considered to have completed their reproductive years. Figures show that men continue to have children at much older ages than women. It would therefore be inappropriate to use the same top age limit for both sexes.

Several top reproductive age limits were considered for men. The most appropriate top age limit was selected after analysing the following for each proposed top age limit:

- The number of births
- The level of the male age-specific fertility rates at that age
- The impact on the mean age of father at childbirth
- The impact on the male TFR

This analysis highlighted age 65 as the most suitable point at which men should be regarded as having completed their reproductive years. The final age at which men are still considered to be in their reproductive years is therefore 'age 64' when using single years of age or 'age 60 and over' when using five year age groups.

Calculating the measures

The fertility measures which have been calculated are described in more detail below.

Age-specific Fertility Rate

Age-specific Fertility Rates (ASFRs) enable a comparison of reproductive behaviour at different ages. They are typically calculated for women but such measures can be calculated for men.

Male ASFRs have been calculated by dividing the number of live births in a year to fathers in each age group by the number of men in the mid-year population of that age. Rates are expressed as the number of live births per 1,000 men in the age group. Male ASFRs will be published annually by five-year age groups in the reproductive age range, from under 20 up to 60 and over.

The Male ASFRs based on five-year age groups are given by:

$$F_a^m = \frac{B_a^m}{P_a^m} \times 1,000$$

where:

F_a^m = age-specific fertility rate for males in age group a ,
 B_a^m = live births to women in age group a ,
 P_a^m = male population in age group a ,
 a = age group: Under 20, 20–24, ..., 55–59, 60 and over

For the groups 'under 20' and '60 and over', the male populations used are men aged 15–19 and men aged 60–64 respectively.

Male ASFRs by single year of age have also been calculated to enable the male TFR for England and Wales to be derived.

Total Fertility Rate

The Total Fertility Rate (TFR) is typically calculated for women. It is however also possible to calculate a male TFR which represents the average number of children that a group of men would each father if they experienced the male ASFRs for a particular year throughout their reproductive years. The TFR provides a measure of the current level of fertility. It can be affected by changes in the timing of childbearing so it may not reflect the average number of children that men will have by the end of their reproductive years. For example if men delay having children to older ages, the TFR may underestimate average family size. In contrast, if men begin to have children at younger ages than previous generations, the TFR will overestimate average family size.

The Male TFR is derived by summing single-year ASFRs over all ages within the childbearing lifespan:

$$TFR^m = \sum_{a = \text{under } 16}^{a = 64 \text{ and over}} F_a^m$$

where:

$$F_a^m = \frac{B_a^m}{P_a^m},$$

and

B_a^m = live births to men in age group a ,
 P_a^m = male population in age group a ,
 a = ages: Under 16, 16, 17, ..., 62, 63, 64 and over

For the groups 'under 16' and '64 and over', the male populations used are men aged 15 and men aged 64 respectively.

Standardised mean age at childbirth

The standardised mean age at childbirth is published annually for mothers¹¹. Standardising eliminates the effect of year-to-year changes in the age structure of the population and enables trends to be analysed. The standardised mean age of father has been calculated by multiplying the single-year ASFRs per 1,000 men by the age of the father in completed years, summing across all reproductive ages and then dividing by the sum of the single-year ASFRs across all reproductive ages. Since the ages used are discrete variables representing completed years and mean age is a continuous variable, it is necessary to add a further 0.5 years to derive the mean age of father. This final adjustment reflects the fact that the actual age for all individuals who have completed x years is actually $x + 0.5$ years.

The standardised mean age of father is given by:

$$\bar{A}^m = \frac{\sum_{a=\text{under } 16}^{a=64 \text{ and over}} aF_a^m}{\sum_{a=\text{under } 16}^{a=64 \text{ and over}} F_a^m} + 0.5$$

where:

$$F_a^m = \frac{B_a^m}{P_a^m} \times 1,000$$

and

B_a^m = live births to men in age group a ,

P_a^m = male population in age group a ,

a = ages: Under 16, 16, 17, ..., 62, 63, 64 and over

Notes and references

1 Birth registration data are not available electronically before 1964.

- 2 Standardised for the age distribution of the population. Standardised measures are more appropriate for use when analysing trends.
- 3 Chamberlain J and Gill B (2005) *Focus on People and Migration*, Chapter 5: Fertility and mortality. Available at: www.statistics.gov.uk/downloads/theme_compendia/fom2005/Migration_Chap01-05.zip
- 4 *Marriage, divorce and adoption statistics*, Series FM2, Tables 3.16 and 3.17. Available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=581
- 5 Hancock R, Stuchbury R and Tomassini C (2003) 'Changes in the distribution of marital age differences in England and Wales, 1963 to 1988'. *Population Trends* 114, 19–25.
- 6 See Figure 2, 'Annual Update: Births in England and Wales, 2007'. *Population Trends* 134, 85–89. Available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=6303
- 7 See reference 4 – Chamberlain J and Gill B (2005).
- 8 <http://publications.dcsf.gov.uk/default.aspx?PageFunction=productdetails&PageMode=publications&ProductId=CM%25207293>
- 9 *Birth Statistics*, Series FM1 Table 3.2. Available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=5768
- 10 *Birth Statistics*, Series FM1 Table 3.4. Available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=5768
- 11 *Birth Statistics*, Series FM1 Table 1.7b. Available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=5768

Report:

Decennial Life Tables (2000–02)

Introduction

Graduated period life tables for males and for females have been constructed based on the mortality experience of the population of England and Wales during the three years 2000, 2001 and 2002. These tables, (known as the English Life Tables and denoted briefly as ELT 16), are the sixteenth in a series known as the English Life Tables which are associated with decennial population censuses, beginning with the census of 1841. These period life tables show the increasing longevity of the population of England and Wales over a long period, and they can be compared with the experience of other countries and other groups of people.

Similar life tables have also been prepared for England, Wales, Scotland and Northern Ireland based on data for 2000–02. Whilst Scottish Life Tables have also been produced since the 1871 census, this is the first time that graduated life tables have been produced for each of the constituent countries of the United Kingdom as well as for England and Wales combined. However, ungraduated life tables – the Interim Life Tables¹ – have been produced and published annually for each country as well as England and Wales, Great Britain and the UK, starting with the period 1980–82. This is described in more detail later in the report.

Data and construction of the tables

The Decennial Life Tables for 2000–02 are based on data centred on the census year, 2001. A three-year period is normally of sufficient length to smooth out most of the effect if the mortality experience of the census year itself happens not to be typical of the general level of mortality at the beginning of the decade.

Apart from the calculation of the rates for mortality during the first year of life and at ages 90 and over, the average population numbers at each age during the three calendar years 2000 to 2002 were taken as the mean of the mid-year estimates published by the Office for National Statistics (ONS), the General Register Office for Scotland (GROS), or the Northern Ireland Statistics and Research Agency (NISRA) for those years, which take into account the results from the 2001 census and later revisions. Single year of age population estimates for ages 90 and over have not been published until recently, partly because of the

problems of age mis-statement of elderly people in censuses. Population estimates for these ages have been made using a methodology drawing on work carried out on mortality at high ages in England and Wales by A R Thatcher, V Kannisto and K Andreev².

Crude rates of mortality for each age (denoted by m_x) were obtained by dividing the total deaths in each of the three calendar years 2000, 2001 and 2002 by an exposed-to-risk derived from the mid-year population estimates for the three years added together. These crude death rates are not always suitable as the basis for a standard life table because they tend to vary erratically from age to age owing to the small numbers of deaths involved, particularly in childhood and at very advanced ages. Errors are also present in the data because no census is perfectly accurate or complete and neither are the mid-year estimates of the population. Errors arising because of the small numbers of deaths, and, to some extent, other types of error, can be reduced by a process of smoothing these crude death rates.

For the Decennial Life Tables, the intention of this smoothing (or ‘graduation’) is to replace the crude rates by a series of graduated rates which, while forming a smooth progression over the whole age range covered, still preserves the general shape of the mortality curve. Various means of carrying out this smoothing have been applied in constructing the English and Scottish Life Tables in the past. For the current graduation, a methodology developed by Dr. Vladimir Kaishev, Professor Steven Haberman and Dimitrina Dimitrova of the Cass Business School, City University, London has been used. This follows a variable-knot spline regression approach and uses a weighted least squares version of the GeD spline regression method proposed by Kaishev *et al*^{3,4}. The method determines the degree of the spline fit and also the number and position of its knots, according to an optimality criterion. Applying this method produces quadratic spline fits of the logs of the crude mortality rates, which are not overly parameterized and can be evaluated, for any arbitrary age, using a calculator. The resulting graduated death rates (m_x) are then converted into initial rates of mortality, q_x , which give the probability of a person aged exactly x dying before reaching age $(x + 1)$.

In order to extrapolate the spline fits beyond the highest ages for which crude mortality rates have been collected and to close the life tables at a limiting age $\omega = 121$, the spline fits were constrained at age 120

so that $m_{120} = 2$. The latter is obtained by setting $q_{120} = 1$ and using the approximation $q_x = m_x / (1 + 0.5m_x)$ which holds for $x = 120$ if a uniform distribution of deaths is assumed over the age interval [120, 121]. Different formulae are used for converting m_x values to q_x values for ages below 100.

Since the observed mortality rate is quite high in the first year of life and drops sharply in the next year, this creates a severe constraint on the fits at the first year of age. In order to avoid this difficulty, data for age 0 is excluded from the spline fitting and the values of q_0 were obtained directly from the records of births and deaths at age 0 in the years 2000 to 2002. A detailed description of the methodology is available on the ONS website⁵.

Life Tables

The following tables provide data for selected ages extracted from the full set of Decennial Life Tables for England and Wales, England, Wales, Scotland and Northern Ireland.

Definitions of the symbols used in the Life Tables and elsewhere and a brief description of their calculation are given in **Box one**.

Data files of the life tables containing a record of the mortality rates at each age, calculated as accurately as possible from death registration data by occurrence and population numbers, and the resulting graduated

Table 1 Data for selected ages from English Life Tables 16, 2000–02, England and Wales

Age	Males			Females		
	l_x	q_x	e_x^o	l_x	q_x	e_x^o
0	100000	0.00598	75.958	100000	0.00484	80.585
10	99242	0.00012	66.528	99383	0.00010	71.077
20	98908	0.00078	56.730	99210	0.00029	61.190
30	98091	0.00095	47.160	98893	0.00042	51.369
40	96936	0.00158	37.657	98273	0.00099	41.657
50	94587	0.00396	28.449	96719	0.00260	32.234
60	88904	0.01052	19.899	92905	0.00633	23.323
70	74905	0.02886	12.556	83777	0.01753	15.239
80	45701	0.07821	7.107	61495	0.05194	8.714
90	12078	0.19051	3.695	23859	0.15264	4.303
100	474	0.38966	1.821	1633	0.33525	2.152

Table 2 Data for selected ages from Scottish Life Tables, 2000–02

Age	Males			Females		
	l_x	q_x	e_x^o	l_x	q_x	e_x^o
0	100000	0.00620	73.330	100000	0.00485	78.790
10	99210	0.00014	63.903	99382	0.00009	69.272
20	98779	0.00127	54.151	99158	0.00039	59.413
30	97428	0.00158	44.830	98730	0.00054	49.649
40	95696	0.00228	35.546	97971	0.00124	39.989
50	92546	0.00526	26.563	95995	0.00329	30.692
60	84812	0.01444	18.459	91192	0.00822	22.009
70	67615	0.03561	11.740	79872	0.02178	14.321
80	37869	0.08901	6.788	55259	0.06103	8.222
90	9286	0.19509	3.634	19332	0.16029	4.220
100	353	0.39381	1.789	1241	0.35206	2.021

Table 3 Data for selected ages from Northern Ireland Life Tables, 2000–02

Age	Males			Females		
	l_x	q_x	e_x^o	l_x	q_x	e_x^o
0	100000	0.00576	75.244	100000	0.00479	80.153
10	99251	0.00016	65.801	99405	0.00009	70.625
20	98754	0.00097	56.099	99252	0.00028	60.725
30	97734	0.00103	46.632	98948	0.00038	50.895
40	96577	0.00162	37.126	98371	0.00100	41.160
50	94159	0.00410	27.932	96686	0.00279	31.776
60	88064	0.01116	19.466	92769	0.00652	22.878
70	73020	0.03109	12.303	83175	0.01873	14.850
80	43601	0.08158	6.963	59905	0.05615	8.424
90	11224	0.19778	3.515	21926	0.15912	4.189
100	333	0.43306	1.585	1324	0.36386	1.943

Table 4 Data for selected ages from Decennial Life Tables for England, 2000–02

Age	Males			Females		
	l_x	q_x	e_x^o	l_x	q_x	e_x^o
0	100000	0.00600	75.990	100000	0.00486	80.621
10	99239	0.00012	66.562	99381	0.00010	71.115
20	98903	0.00079	56.765	99206	0.00028	61.230
30	98094	0.00095	47.192	98893	0.00041	51.407
40	96949	0.00157	37.685	98277	0.00098	41.693
50	94600	0.00395	28.478	96730	0.00260	32.267
60	88927	0.01047	19.926	92925	0.00633	23.355
70	74980	0.02868	12.575	83844	0.01744	15.263
80	45765	0.07852	7.122	61613	0.05193	8.729
90	12140	0.19261	3.689	23904	0.15428	4.319
100	490	0.38491	1.861	1659	0.33988	2.121

Table 5 Data for selected ages from Decennial Life Tables for Wales, 2000–02

Age	Males			Females		
	l_x	q_x	e_x^o	l_x	q_x	e_x^o
0	100000	0.00561	75.431	100000	0.00446	80.125
10	99287	0.00010	65.964	99447	0.00009	70.564
20	98934	0.00086	56.175	99310	0.00027	60.653
30	97946	0.00113	46.689	98965	0.00044	50.845
40	96651	0.00172	37.243	98320	0.00110	41.141
50	94255	0.00393	28.046	96646	0.00259	31.755
60	88439	0.01070	19.510	92739	0.00690	22.849
70	73491	0.03137	12.311	82720	0.01906	14.921
80	43712	0.08121	7.031	59674	0.05537	8.512
90	11327	0.19328	3.710	22132	0.15599	4.292
100	494	0.37257	1.915	1488	0.35115	2.020

set of those rates and life tables, together with an explanation of the methodology used to graduate these rates, are available on the ONS⁵, GROS⁶ and NISRA⁷ websites.

Expectation of Life

One way of illustrating the reductions in death rates is to show the increase in expectation of life at birth, calculating it either from the death

Box one

Definitions

l_x are the number of survivors to age x of 100,000 live births of the same sex for a given country who subsequently experience mortality similar to that of the population of that sex in that country in 2000–02.

d_x are the number dying between age x and $(x + 1)$, described similarly to l_x , that is $l_x - l_{x+1}$.

q_x is the initial mortality rate between age x and $(x + 1)$, that is, d_x/l_x .

μ_x is the force of mortality at age x , that is, $-\frac{1}{l_x} \frac{dl_x}{dx}$

and calculated as

$$\begin{aligned} & (11l_x - 18l_{x+1} + 9l_{x+2} - 2l_{x+3})/6l_x && \text{if } x = 1 \text{ or } 2, \text{ and} \\ & (-l_{x-2} + 8l_{x-1} - 8l_{x+1} + l_{x+2})/12l_x && \text{otherwise.} \end{aligned}$$

e_x^o is the average expectation of life, the average number of years that those aged x will live thereafter, and calculated as

$$e_x^o = \sum_{t=1}^{w-x-1} \frac{l_{x+t}}{l_x} + \frac{1}{2} - \frac{1}{12} \mu_x$$

ω is the earliest age by which all the survivors are assumed to have died, so that $q_{\omega-1}$ is assumed to equal 1. For each country, ω is assumed to equal 121.

rates of particular calendar years, or taking the rates over time applicable to people born in a particular year. The latter can, however, only be done for generations not yet extinct by making assumptions about future death rates.

The data presented in the Decennial Life Tables represents a snapshot of the mortality of the community at a particular point in time; they do

not purport to show the likely experience of any particular generation. However, in spite of this, expectations of life based on such period measures (period expectations of life) form a convenient summary measure of the overall effects of changes in mortality. **Table 6** sets out the period expectations of life for England and Wales at various ages for mortality based on the years 1910–12 and at twenty year intervals thereafter until 1970–72, together with those for 1980–82, 1990–92 and 2000–02. The figures are compiled from the English Life Tables derived from the mortality experience in these periods.

Over the 90 years covered by Table 6 the expectation of life at birth, measured in this way, has increased by almost 24.5 years for a boy and by just over 25 years for a girl. A large part of the improvement since 1911 has been due to reductions in mortality in infancy and childhood but this is not the only cause, as is shown by the fact that the expectation for a man aged 20 has increased by 12.5 years and for a women aged 20 by just over 14 years. At age 60 the increase in expectation is just over 6 years for males and almost 8 years for females. The above expectations of life, and the corresponding life tables, represent a secular cross-section of the experience of those born during a century or so prior to the respective periods.

It is also possible to calculate expectations of life applicable to people born in a particular year (often referred to as cohort expectations of life). **Figure 1** shows the expectations of life at birth calculated on a cohort basis based on estimated historical or projected mortality rates for each year. In order to estimate cohort expectation of life, mortality rates for years beyond 2006 have been taken from the 2006-based projections for England and Wales. The chart shows, for example, that the average number of years that a new-born boy could expect to live rose from 40 in 1851 to about 87.6 in 2001. Males born in 1851 had only a 65 per cent chance of reaching age 20 and those reaching this age on average lived only to age 60. Of the generation born in 1971 only 3 per cent failed to reach age 20. The cohort expectation of life of 87.6 years for a boy born in 2001 is calculated on the assumption that death rates will continue to fall, but at a diminishing rate.

The cohort expectation of life at birth is longer than the period expectation of life for all years of birth since 1851 for both males and females. This is because the cohort calculation takes into account changes

Table 6

Period expectation of life (e^o): England and Wales 1910–12 to 2000–02

Age x	ELT8 1910–12	ELT10 1930–32	ELT11 1950–52	ELT12 1960–62	ELT13 1970–72	ELT14 1980–82	ELT15 1990–92	ELT16 2000–02
Males								
0	51.50	58.74	66.42	68.09	69.00	71.04	73.41	75.96
10	53.08	55.79	59.24	60.21	60.74	62.19	64.20	66.53
20	44.21	46.81	49.64	50.57	51.08	52.50	54.45	56.73
30	35.81	38.21	40.27	41.06	41.51	42.90	44.88	47.16
40	27.74	29.62	30.98	31.62	32.01	33.34	35.35	37.66
50	20.29	21.60	22.23	22.68	23.11	24.26	26.16	28.45
60	13.78	14.43	14.79	15.06	15.41	16.38	17.85	19.90
70	8.53	8.62	9.00	9.29	9.50	10.12	11.19	12.56
Females								
0	55.35	62.88	71.54	74.00	75.25	77.00	78.96	80.59
10	55.91	58.87	63.87	65.77	66.71	67.97	69.61	71.08
20	47.10	49.88	54.17	55.95	56.89	58.12	59.75	61.19
30	38.54	41.22	44.68	46.23	47.13	48.34	49.94	51.37
40	30.30	32.55	35.32	36.69	37.52	38.67	40.24	41.66
50	22.51	24.18	26.34	27.57	28.41	29.39	30.85	32.23
60	15.48	16.50	18.07	19.11	19.98	20.89	22.08	23.32
70	09.58	10.02	10.97	11.78	12.56	13.41	14.49	15.24

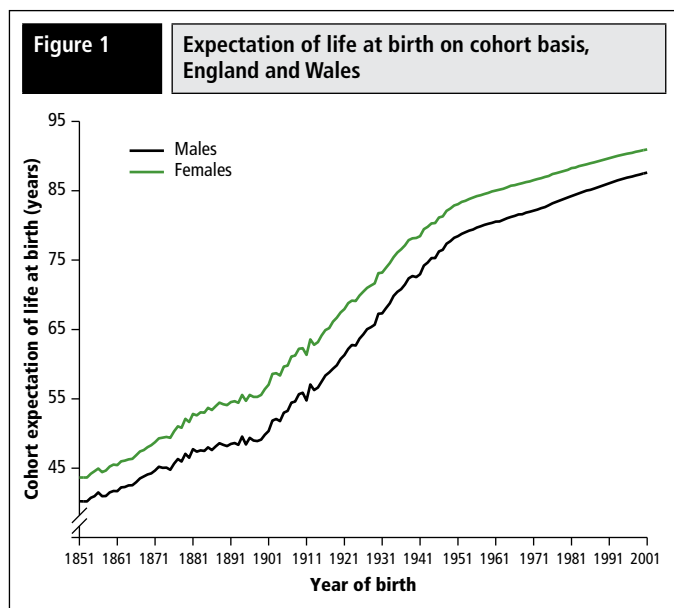


Table 7 Expectation of life (allowing for future improvement in mortality) for selected ages in 2001, England and Wales

Age in 2001	Expectation of life	
	Male	Female
0	87.6	91.0
10	77.0	80.4
20	65.8	69.4
30	55.0	58.5
40	44.4	47.8
50	34.3	37.3
60	24.3	27.2
70	14.7	17.0
80	7.7	9.1

in the actual (or projected) mortality rates in years succeeding the year of birth whereas the period calculation uses mortality rates applicable in the year under consideration. Since, in general, mortality rates have been improving in successive years at most ages and are projected to continue to do so, the cohort expectation of life assumes lower mortality than the period expectation of life.

Table 7 shows the cohort expectations of life in 2001 for various attained ages in 2001 assuming that the future improvements in mortality assumed in the 2006-based population projections for England and Wales actually occur.

Interim Life Tables

The English and Scottish Life Tables provide a valuable time series which can be used to monitor trends in mortality in England and Wales and in Scotland over a long period of time. However, these tables are only calculated once every ten years and the graduation process carried out is usually complex and has changed over time. The Office for National Statistics also produces annual life tables, known as Interim Life Tables, for each constituent country of the United Kingdom, together with life tables for England and Wales combined, Great Britain, and the United Kingdom as a whole. These are based on mortality data for three consecutive calendar years combined (as for the Decennial Life Tables). In order to produce these interim life tables quickly, once the relevant data is available, the mortality rates used in these tables are not graduated. These interim life tables are available on the ONS and the Government Actuary's Department websites⁵.

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Report:

2006-based marital status and cohabitation projections for England & Wales

Introduction

The Office for National Statistics (ONS) published the 2006-based marital status projections for England and Wales on 31 March 2009¹. These cover both legal marital status and cohabitation² and are the first set of marital status projections to adjust for marriages to England and Wales residents taking place abroad³. The results of the projections are available to 2031 and replace the 2003-based projections published by the Government Actuaries Department (GAD)⁴; responsibility for the projections transferred to the ONS in 2006. The new marital status projections are fully consistent with the 2006-based national population projections (by age and sex) for England and Wales published in October 2007⁵. They also incorporate new estimates of the population by legal marital status⁶ and the population cohabiting⁷ as at the middle of 2007. For this reason, all data tables start at mid-2007.

One of the main uses of these projections is as an input to the regular projections of the number, and type, of households in England, produced by Communities and Local Government⁸. Marital status projections are also used by the Department for Work and Pensions to cost various aspects of the future social security programme.

Assumptions

The legal marital status projections are produced using a component methodology⁹ that uses assumptions of the underlying marriage, remarriage and divorce rates based on recent trends. The cohabitation projection uses assumptions about the proportions cohabiting and applies these to the results of the legal marital status projections. A group of experts were consulted on the assumptions used.

Marriage rates for the past five years were extrapolated forward, but trends were assumed to diminish gradually, with projected rates held constant from 2017¹⁰. The past five years was a shorter series than used in previous projections, as estimates for marriages taking place abroad are not available for years before 2002. Similarly divorce rates for the past ten years were extrapolated forward but with trends assumed to diminish gradually, with projected rates held constant from 2017¹¹.

For marriages, the assumptions made are that marriage rates for under 30-year-olds will continue to fall over the next ten years, as seen over the last decade, but at older ages rates will either remain similar to those presently observed or increase slightly. For divorces, it is assumed that rates will not change much for under those aged under 35, but that rates will continue to rise at ages over 40.

Establishing the underlying trend in opposite sex cohabitation is more difficult as there is not a consistent series of estimates of the cohabiting population of England and Wales. However, estimates of proportions cohabiting can be obtained from periodic estimates of the cohabiting population in England and Wales⁷. These show a continued increase in the proportion of the population cohabiting for people aged over 30 that have never been married, but there is no clear evidence of changing levels of cohabitation for other ages or marital states. Thus the proportion of people who cohabit is assumed to rise for single (never married) people aged over 30, but to remain constant for all other marital status and age groups¹².

As noted above, the marital status projections are consistent with the 2006-based national population projections for England and Wales. Therefore, the total number of deaths and the total number of net migrants each year are constrained to agree, for each age and sex, with the national projection. Assumptions about the distribution by marital status have to be made for these deaths and migrants. Mortality rates in England and Wales, as in other countries, are consistently lower for married people than for never married or previously married individuals. These mortality differentials have changed little in recent years, so it has been assumed that current mortality differentials by marital status remain constant throughout the projection period¹³. For net migration, an assumed marital status distribution has been derived from the distributions used by ONS in the preparation of its mid-year population estimates by marital status¹⁴.

Consistency constraints

The marital status projections are subject to a number of constraints¹⁵, both external (for example agreeing with the national population projections) and internal (such as an equal number of divorces to men

Box one

Consistency constraints of the projection model

Typically, a marital status projection will be subject to a number of external and internal constraints¹⁵. Within these constraints, the projections will be determined by assumptions of future marriage and remarriage rates, divorce rates, mortality differentials by marital status and net migration by marital status.

External constraints

The marital status projections were constrained to agree with the 2006-based national (age and sex) projections for England and Wales.

Internal constraints

The 'input rates' for marriage and divorce described in the main text were subject to further adjustment in order to satisfy the following standard two-sex consistency requirements:

- (a) the number of males divorcing must equal the number of females divorcing
- (b) the number of married males dying must equal the number of females becoming widowed, and
- (c) the number of married females dying must equal the number of males becoming widowed

Note, however, that as one partner in a marriage may be temporarily resident abroad, the number of married men and women are never exactly equal in population estimates and have not been constrained to be equal in these projections.

Cohabitation

As noted above, the estimated numbers of married men and women are never exactly equal, and have not been constrained to be equal in the legal marital status projections. A similar argument could apply to the cohabiting population, but the available data does not allow an accurate estimate to be made of any imbalance. Therefore, both the base year population estimates produced by ONS and these projections have been constrained so that the total number of cohabiting males equals the total number of cohabiting females.

and women). More detail of these constraints can be found in **Box One**. As a consequence of including an adjustment for marriages taking place abroad, two changes have been made to the consistency constraints compared to those used for the 2003-based projection. Firstly, it is no longer assumed that the number of married males and females entering the country are equal. Secondly, it is no longer assumed that there are an equal number of marriages of males and females each year.

Legal marital status results

Principal projection

The 2006-based population projections by legal marital status for England and Wales can be seen for 2007 and selected years to 2031 in **Table 1**.

The proportion of the adult¹⁶ population who are married is projected to fall from 51 per cent in 2007 to 42 per cent in 2031 for males, and from 48 per cent to 41 per cent for females. The actual number projected to be

married changes little due to the expected increase in the adult population over the period in question.

The falling marriage rates for those aged under 30 observed in the past, and expected to continue in the short term, have an impact over the course of the projection period. In addition to the immediate effect on the proportions of those under 30 being married it also has an impact at older ages. Thus over the period to 2031 there is expected to be a fall in the married population aged less than 65, and a corresponding increase in the never married population. The proportion of men aged between 45 and 54 who have never been married is projected to more than double between 2007 and 2031 rising from 16 per cent to 35 per cent, and for men aged between 55 and 64 from 9 per cent to 25 per cent. Similarly, for never married women at the same ages, proportions are projected to increase more than threefold.

The proportion of the adult population who are divorced is projected to increase slightly between 2007 and 2031, from 8 to 9 per cent for males and from 10 to 12 per cent for females. However, patterns for each age group are mixed; between 2007 and 2031 the proportion of divorced men aged between 35 and 44 is projected to decrease from 10 per cent to 7 per cent, and for women of the same ages from 14 to 10 per cent. This is partly due to the falling size in the married population at these ages, which therefore reduces the number of people who are at risk of divorce. At ages 45 to 64, the proportion of the population that are divorced will rise to a peak around 2021 and then start to fall. The most significant increase is in the oldest age group of 65 and over, where the number divorced is expected to more than double from 7 per cent in 2007 to 14 per cent in 2031 for males, and from 8 per cent to 17 per cent for females. At younger ages, the proportion of adults who are divorced is projected to fall gradually from 2007.

Results are affected by other demographic factors as well as trends in marriage and divorce. For example, as mortality continues to improve, particularly at older ages, the proportion of both sexes who are widowed reduces. The proportion of women aged 75 and over who are widowed is projected to fall from 61 per cent in 2007 to 40 per cent in 2031. The number of males who are widowed is lower, as might be expected due to higher female life expectancy, but the proportion aged 75 and over projected to be widowed also drops from 26 per cent in 2007 to 19 per cent in 2031.

The projected change in the composition of the population by legal marital status is clearly shown in the pyramids for 2007 and 2031 in **Figure 1** (an animated series of population pyramids is available from the ONS website¹⁷). Comparing these pyramids shows how both the size and average age of the population as a whole is projected to increase. It also shows that the number remaining never married is projected to stay high at younger ages, and to increase considerably at older ages, with a corresponding reduction in the proportion married. The increase in the proportion divorced at older ages can also be clearly seen.

Variant projections

Population projections are, of course, subject to uncertainty. Inevitably, actual trends in marriage and divorce will differ, to a greater or lesser extent, from those assumed in the principal projections. To give an indication of the underlying uncertainty, variant projections have been produced based on alternative assumptions about the future levels of marriage and divorce. In these variants, marriage and divorce rates are applied which gradually diverge from those assumed in the principal projection until, from 2021 onwards, assumed first marriage and divorce rates differ by +/- 15 per cent from the principal projection and assumed remarriage rates differ by +/- 10 per cent.

Summary results of all the variant projections by legal marital status are shown in **Table 2**. In terms of numbers of people, the high marriage

Table 1

Estimated and projected population by legal marital status, age and sex, 1991–2031

England and Wales

2006-based marital status projections

		Number (thousands)					Percentages				
		Total	Never married	Married	Widowed	Divorced	Total	Never married	Married	Widowed	Divorced
Males											
All 16 plus	1991	19,441	5,891	11,636	727	1,187	100	30	60	4	6
	2001	20,198	6,894	11,090	733	1,482	100	34	55	4	7
	2007	21,338	8,049	10,851	715	1,724	100	38	51	3	8
	2011	22,174	8,811	10,799	717	1,848	100	40	49	3	8
	2021	23,894	10,196	10,765	755	2,179	100	43	45	3	9
	2031	25,745	11,682	10,882	817	2,364	100	45	42	3	9
16–24	1991	3,336	3,074	250	0	12	100	92	8	0	0
	2001	2,891	2,806	80	1	4	100	97	3	0	0
	2007	3,357	3,287	66	1	3	100	98	2	0	0
	2011	3,415	3,361	52	0	2	100	98	2	0	0
	2021	3,111	3,071	39	0	1	100	99	1	0	0
	2031	3,520	3,477	42	0	1	100	99	1	0	0
25–34	1991	3,920	1,652	2,028	2	237	100	42	52	0	6
	2001	3,758	2,227	1,391	3	136	100	59	37	0	4
	2007	3,509	2,384	1,027	3	96	100	68	29	0	3
	2011	3,779	2,741	955	3	81	100	73	25	0	2
	2021	4,300	3,304	924	1	71	100	77	21	0	2
	2031	4,004	3,095	846	1	63	100	77	21	0	2
35–44	1991	3,504	477	2,632	11	384	100	14	75	0	11
	2001	3,881	963	2,494	12	411	100	25	64	0	11
	2007	4,076	1,259	2,385	10	422	100	31	59	0	10
	2011	3,853	1,342	2,135	9	367	100	35	55	0	10
	2021	3,870	1,737	1,830	6	297	100	45	47	0	8
	2031	4,388	2,110	1,969	5	305	100	48	45	0	7
45–54	1991	2,919	251	2,347	31	290	100	9	80	1	10
	2001	3,415	419	2,511	37	448	100	12	74	1	13
	2007	3,475	563	2,365	30	519	100	16	68	1	15
	2011	3,801	734	2,459	28	581	100	19	65	1	15
	2021	3,771	1,033	2,150	20	568	100	27	57	1	15
	2031	3,798	1,339	1,953	15	491	100	35	51	0	13
55–64	1991	2,514	205	2,047	96	165	100	8	81	4	7
	2001	2,744	225	2,136	84	299	100	8	78	3	11
	2007	3,146	294	2,351	85	417	100	9	75	3	13
	2011	3,176	344	2,286	79	467	100	11	72	2	15
	2021	3,582	615	2,282	62	623	100	17	64	2	17
	2031	3,565	879	2,048	48	590	100	25	57	1	17
65–74	1991	2,027	150	1,574	229	74	100	7	78	11	4
	2001	2,052	155	1,569	188	139	100	8	76	9	7
	2007	2,127	150	1,620	162	196	100	7	76	8	9
	2011	2,342	168	1,762	160	252	100	7	75	7	11
	2021	2,792	273	1,963	154	402	100	10	70	6	14
	2031	3,202	507	2,036	130	530	100	16	64	4	17
75 plus	1991	1,221	81	759	357	25	100	7	62	29	2
	2001	1,458	99	909	407	44	100	7	62	28	3
	2007	1,649	114	1,038	425	72	100	7	63	26	4
	2011	1,809	121	1,150	438	99	100	7	64	24	5
	2021	2,470	164	1,577	511	217	100	7	64	21	9
	2031	3,268	276	1,989	618	385	100	8	61	19	12

Source: Office for National Statistics

Table 1
continued

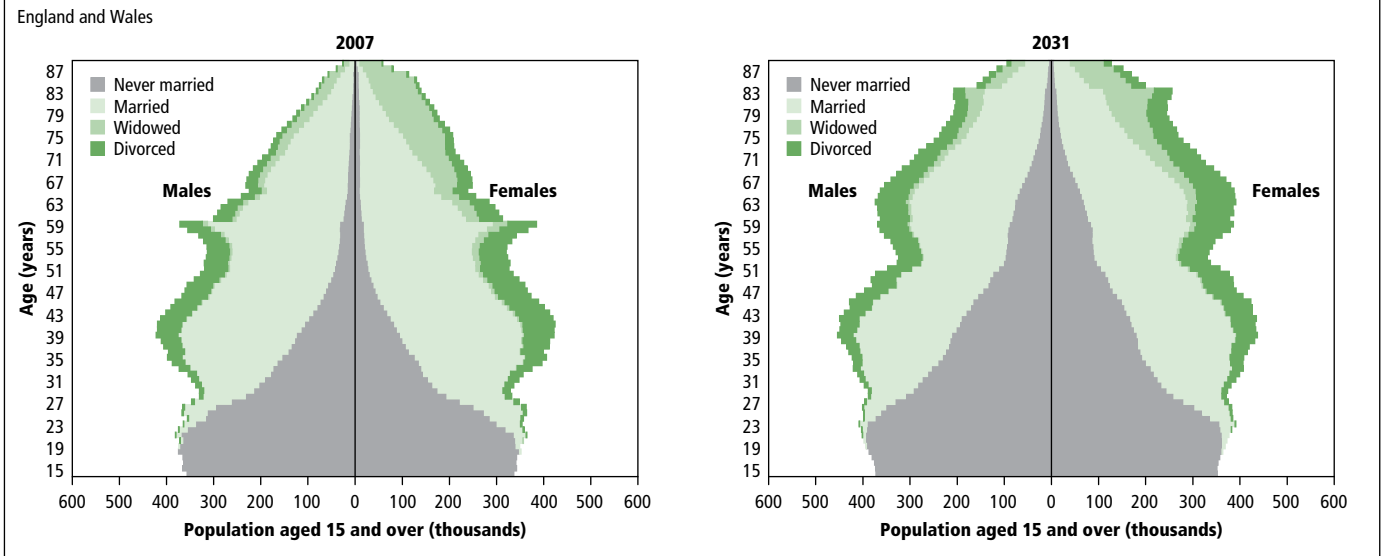
Estimated and projected population by legal marital status, age and sex, 1991–2031

England and Wales

2006-based marital status projections

		Number (thousands)					Percentages				
		Total	Never married	Married	Widowed	Divorced	Total	Never married	Married	Widowed	Divorced
Females											
All 16 plus	1991	21,060	4,817	11,833	2,951	1,459	100	23	56	14	7
	2001	21,667	5,798	11,150	2,745	1,975	100	27	51	13	9
	2007	22,521	6,871	10,851	2,511	2,289	100	31	48	11	10
	2011	23,201	7,604	10,775	2,365	2,457	100	33	46	10	11
	2021	24,660	8,892	10,733	2,149	2,886	100	36	44	9	12
	2031	26,440	10,402	10,745	2,140	3,154	100	39	41	8	12
16–24	1991	3,240	2,688	522	1	30	100	83	16	0	1
	2001	2,833	2,627	194	2	9	100	93	7	0	0
	2007	3,166	3,016	142	1	6	100	95	4	0	0
	2011	3,206	3,089	112	0	4	100	96	3	0	0
	2021	2,919	2,830	85	0	3	100	97	3	0	0
	2031	3,323	3,228	91	0	4	100	97	3	0	0
25–34	1991	3,943	1,135	2,488	8	312	100	29	63	0	8
	2001	3,778	1,770	1,768	10	231	100	47	47	0	6
	2007	3,490	2,000	1,326	7	158	100	57	38	0	5
	2011	3,745	2,338	1,262	6	139	100	62	34	0	4
	2021	4,127	2,801	1,200	3	123	100	68	29	0	3
	2031	3,847	2,637	1,098	3	110	100	69	29	0	3
35–44	1991	3,517	280	2,760	34	444	100	8	78	1	13
	2001	3,935	692	2,649	36	558	100	18	67	1	14
	2007	4,132	1,004	2,525	29	574	100	24	61	1	14
	2011	3,882	1,120	2,242	23	497	100	29	58	1	13
	2021	3,861	1,493	1,945	15	407	100	39	50	0	11
	2031	4,241	1,808	2,015	12	406	100	43	48	0	10
45–54	1991	2,915	144	2,322	118	332	100	5	80	4	11
	2001	3,471	256	2,548	111	557	100	7	73	3	16
	2007	3,551	397	2,413	87	654	100	11	68	2	18
	2011	3,884	566	2,501	79	738	100	15	64	2	19
	2021	3,835	926	2,148	52	710	100	24	56	1	19
	2031	3,821	1,234	1,936	36	615	100	32	51	1	16
55–64	1991	2,613	149	1,889	385	189	100	6	72	15	7
	2001	2,817	135	2,031	291	361	100	5	72	10	13
	2007	3,267	179	2,306	260	522	100	5	71	8	16
	2011	3,307	224	2,266	231	586	100	7	69	7	18
	2021	3,731	501	2,288	166	776	100	13	61	4	21
	2031	3,692	826	2,015	120	731	100	22	55	3	20
65–74	1991	2,479	176	1,317	879	107	100	7	53	35	4
	2001	2,326	130	1,322	697	177	100	6	57	30	8
	2007	2,342	111	1,410	563	257	100	5	60	24	11
	2011	2,549	115	1,580	519	335	100	5	62	20	13
	2021	3,039	195	1,862	444	538	100	6	61	15	18
	2031	3,471	445	1,963	354	709	100	13	57	10	20
75 plus	1991	2,353	246	536	1,526	46	100	10	23	65	2
	2001	2,506	188	639	1,598	81	100	7	25	64	3
	2007	2,573	163	728	1,564	118	100	6	28	61	5
	2011	2,628	151	812	1,507	158	100	6	31	57	6
	2021	3,149	146	1,204	1,470	330	100	5	38	47	10
	2031	4,045	225	1,627	1,616	578	100	6	40	40	14

Figure 1 Population by age, sex and legal marital status, 2007 and 2031



Source: Office for National Statistics

Table 2 Comparison of marriage and divorce variants, 2007 to 2031

England and Wales
2006-based marital status projections

	Population aged 16 and over				
	Total	Never married	Married	Widowed	Divorced
Estimate					
2007	43,860	14,920	21,702	3,226	4,012
Principal					
2011	45,375	16,415	21,574	3,082	4,305
2021	48,554	19,087	21,498	2,904	5,065
2031	52,185	22,084	21,627	2,957	5,517
High marriage					
2011	45,375	16,377	21,619	3,081	4,298
2021	48,554	18,700	21,925	2,901	5,028
2031	52,185	21,220	22,512	2,960	5,493
Low marriage					
2011	45,375	16,453	21,528	3,082	4,312
2021	48,554	19,489	21,056	2,907	5,101
2031	52,185	23,016	20,681	2,955	5,533
High divorce					
2011	45,375	16,415	21,550	3,082	4,329
2021	48,554	19,088	21,291	2,901	5,274
2031	52,185	22,086	21,230	2,945	5,923
Low divorce					
2011	45,375	16,415	21,598	3,082	4,281
2021	48,554	19,087	21,708	2,907	4,852
2031	52,185	22,082	22,036	2,970	5,098

Source: Office for National Statistics

and low divorce variants both show very slight increases in the expected numbers of married people by 2031 compared to 2007. But even the high marriage variant shows that over time the proportion of the adult population that are expected to be married will fall from 49 per cent in 2007 to 43 per cent in 2031, compared to 41 per cent for the principal projection and 40 per cent for the low marriage variant. In all projections the size of the never married population increases significantly.

The size of the divorced population is projected to increase over the period of the projection for all the variants, including the low divorce variant. In 2007 the divorced adult population was estimated to be 4.0 million; the low divorce variant projects this to increase to 5.1 million by 2031, compared to 5.5 million for the principal projection and 5.9 million for the high divorce variant. This is mainly an effect of the ageing of those currently aged 35 to 54 who have been exposed to recent high divorce rates.

There are a number of complex interactions at work within these variants. A higher number of people getting married will, of course, reduce the number of people who remain never married. However, the knock-on effects on the divorced and widowed populations are less straightforward. A higher marriage rate assumption increases the number of married people and therefore increases the number at risk of divorce or widowhood. However, this is offset by an increase in the proportion assumed to remarry.

Cohabitation results

Projections by legal marital status alone are insufficient to give a full picture of the partnership status of the population of England and Wales due to the increasing occurrence of cohabitation, either as a prelude to marriage or as an alternative. ONS therefore has also produced 2006-based cohabitation projections by legal marital status.

Principal projection

The results of the principal cohabitation projection can be seen in **Table 3**. The total number of cohabiting couples is projected to rise considerably, from 2.25 million in 2007 to 3.7 million in 2031. The proportion of the cohabiting population at older ages is expected to become much larger. The number cohabiting at ages 45 to 64 is projected to more than double from nearly 0.5 million in 2007 to more than 1.1 million in 2031 for males, and from nearly 0.4 million to over 1.0 million for females. Large increases are also projected for the over 65 age group, but starting from very low figures in 2007. People currently in this age group would, in the past, have almost always formalised a relationship with marriage.

Thus, whereas in 2007 25 per cent of male and 19 per cent of female cohabitants were aged over 45, by 2031 these proportions are projected to rise to 40 per cent for males and 34 per cent for females.

Table 3

Population cohabiting by legal marital status, age and sex, 2007 to 2031

England and Wales

2006-based marital status projections

thousands

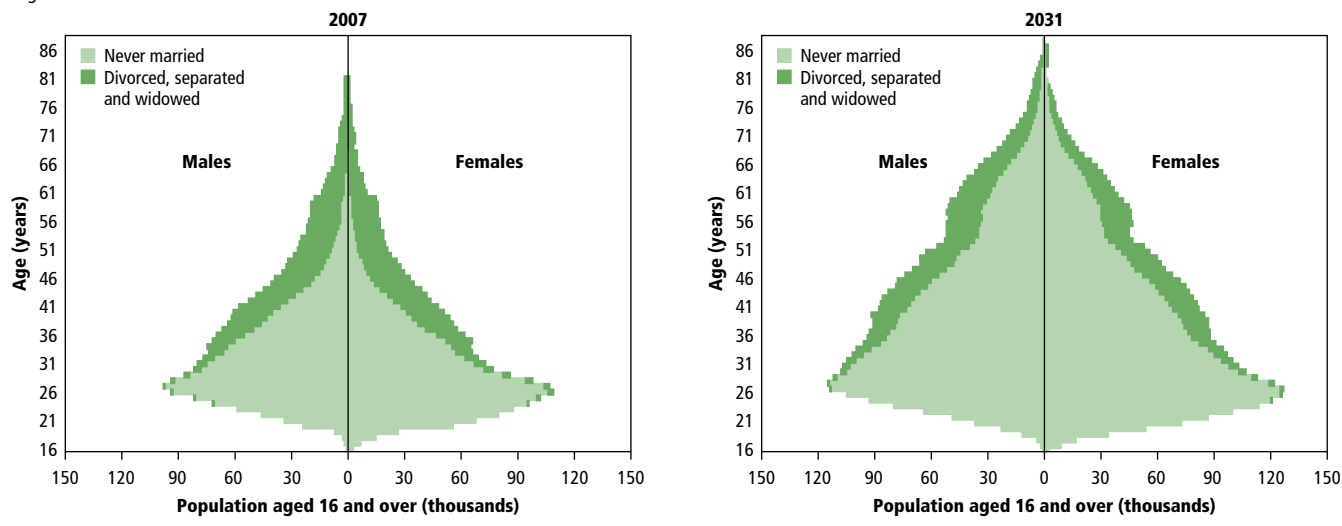
		Males cohabiting					Females cohabiting				
		Total	Never married	Married – separated	Widowed	Divorced	Total	Never married	Married – separated	Widowed	Divorced
16 plus	2007	2,250	1,620	68	32	531	2,250	1,672	45	53	480
	2011	2,558	1,914	65	30	549	2,558	1,981	42	47	488
	2021	3,219	2,542	59	27	590	3,219	2,633	38	36	511
	2031	3,700	3,026	58	24	592	3,700	3,142	37	29	492
16–24	2007	249	247	0	0	2	441	438	1	0	2
	2011	273	271	0	0	1	477	475	1	0	1
	2021	247	246	0	0	1	441	440	1	0	1
	2031	273	272	0	0	1	492	491	1	0	1
25–34	2007	843	800	8	1	34	853	800	8	1	44
	2011	950	913	8	1	28	977	930	8	1	38
	2021	1,136	1,104	7	0	25	1,183	1,141	8	0	35
	2031	1,062	1,033	7	0	22	1,109	1,071	7	0	31
35–44	2007	605	415	25	2	162	518	331	17	5	166
	2011	640	475	23	2	140	556	395	15	4	143
	2021	760	627	19	1	112	710	575	13	3	119
	2031	902	765	21	1	115	846	713	14	2	118
45–54	2007	310	117	19	3	171	252	78	12	10	152
	2011	405	190	20	3	192	334	141	13	9	171
	2021	563	360	17	2	185	498	317	11	6	165
	2031	661	483	15	2	161	609	451	10	4	144
55–64	2007	168	32	10	8	118	132	19	5	16	92
	2011	197	49	10	8	130	151	31	5	14	102
	2021	347	158	10	6	173	279	126	5	10	138
	2031	482	307	9	5	161	413	277	4	7	125
65 plus	2007	76	9	5	17	45	55	6	1	22	25
	2011	95	15	5	17	58	65	10	1	21	33
	2021	166	48	6	17	95	108	35	1	18	54
	2031	320	165	6	16	133	230	139	1	15	74

Source: Office for National Statistics

Figure 2

Population cohabiting by age, sex and legal marital status, 2007 and 2031

England and Wales



Source: Office for National Statistics

Table 4

Comparison of cohabitation variants, 2007 to 2031

England and Wales

2006-based marital status projections

thousands

	Couples		Persons		
	All cohabiting	Never married	Separated	Widowed	Divorced
Principal projection					
2007	2,250	3,291	113	85	1,011
2011	2,558	3,895	107	77	1,037
2021	3,219	5,175	97	63	1,101
2031	3,700	6,168	95	53	1,084
High cohabitation variant					
2007	2,306	3,374	115	87	1,036
2011	2,725	4,174	112	81	1,084
2021	3,766	6,151	107	70	1,206
2031	4,378	7,402	104	57	1,193
Low cohabitation variant					
2007	2,194	3,210	109	82	986
2011	2,391	3,615	102	74	990
2021	2,672	4,201	89	57	996
2031	3,022	4,935	85	47	976

Note: Figures may not add exactly to totals due to rounding.

Source: Office for National Statistics

The projected cohabitation trends are shown by the pyramids for 2007 and 2031 in **Figure 2**, which clearly illustrate both the increasing size and the ageing of the cohabiting population (an animated series of population pyramids illustrating the results of the cohabitation projection is available from the ONS website¹⁸).

Variant projections

As with legal marital status, high and low cohabitation variant projections have also been produced to illustrate the sensitivity of the results to alternative levels of future cohabitation. These variants also allow for some uncertainty in the base estimates of cohabitation by

varying the initial proportions cohabiting in each age/sex/marital status group by +/- 2.5 per cent. These revised initial proportions are then assumed to diverge further from the assumed proportions cohabiting in the principal projection, so that from 2022 onwards they differ by +/- 20 per cent for the never married group and +/- 10 per cent for the previously married groups. The difference reflects the greater stability of recent trends in proportions cohabiting for previously married groups.

Results of these variant projections can be seen in **Table 4**. The difference between these variants is considerable, reflecting uncertainty about future cohabitation rates. While there would be 3.7 million cohabiting couples in 2031 under the principal projection assumptions, the number would be as high as 4.4 million for the high cohabitation variant and only 3.0 million for the low cohabitation variant. However, even this low variant represents a 34 per cent increase over the number of cohabiting couples in 2007.

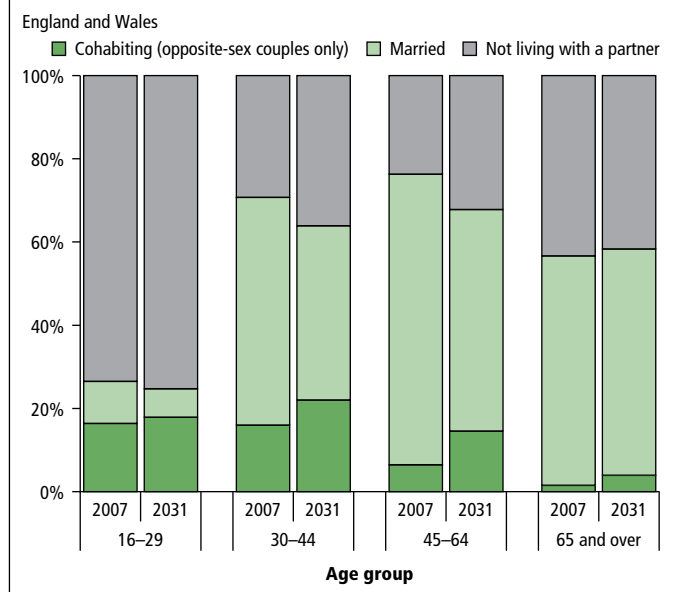
Population by partnership status

For many users, such as those interested in the demand for housing, it is the combination of the legal marital status projections and the cohabitation projections that is of interest. This is illustrated by **Table 5**, which looks at future trends in total partnership. This table shows the effect of a smaller proportion of the population becoming married combined with the greater proportion cohabiting, with both trends gradually spreading to older ages.

The proportion of adults who are in co-residential opposite-sex couples is projected to fall, while the proportion of people not living with a partner

Figure 3

Estimated and projected proportion of population by partnership status and age, 2007 and 2031



Source: Office for National Statistics

Key findings

- The proportion of the married adult population is projected to fall from 51 per cent in 2007 to 42 per cent in 2031 for males, and from 48 per cent to 41 per cent for females, with corresponding increases in the proportion that never marry
- Recent falls in marriage rates at ages under 30 will, in time, have an impact at older ages. It is projected that there will be marked falls in the married population and increases in the never married population at ages 30 to 64 in the period to 2031
- The proportion of adults who are divorced is expected to continue rising at ages over 65. At ages 45 to 64 the proportion that is divorced will rise to a peak around 2021 and is then expected to start to fall. At younger ages, the proportion of divorced adults is projected to fall gradually from 2007
- The proportion of females aged 75 and over who are widowed is projected to fall from 61 per cent in 2007 to 40 per cent in 2031, and from 26 per cent to 19 per cent for males. This is largely due to projected improvements in life expectancy
- The number of cohabiting couples, estimated to be 2.25 million in 2007, is projected to increase by almost two-thirds to 3.7 million by 2031. The proportion of the cohabiting population at older ages is expected to get much larger; in 2007 only 25 per cent of male cohabitants and 19 per cent of female cohabitants were aged over 45, but by 2031 these proportions are projected to rise to 40 per cent for males and 34 per cent for females
- The proportion of adults who are in co-residential opposite-sex couples is projected to fall at most ages, while the proportion of people not living with a partner correspondingly rises. In contrast, the proportion of adults aged over 65 who are married or cohabiting is projected to rise slightly, largely due to projected improvements in life expectancy

Table 5

Projected population by partnership status, age and sex

England and Wales

2006-based marital status projections

		Population (thousands)					Percentages				
		Total	Married ¹	Cohabiting ¹	Unpartnered ² never married	Unpartnered ² widowed or divorced	Total	Married ¹	Cohabiting ¹	Unpartnered ² never married	Unpartnered ² widowed or divorced
Males											
16 plus	2007	21,338	10,783	2,250	6,430	1,875	100	51	11	30	9
	2011	22,174	10,734	2,558	6,897	1,986	100	48	12	31	9
	2021	23,894	10,706	3,219	7,653	2,316	100	45	13	32	10
	2031	25,745	10,824	3,700	8,657	2,565	100	42	14	34	10
16–29	2007	5,127	390	704	4,015	19	100	8	14	78	0
	2011	5,408	356	800	4,237	15	100	7	15	78	0
	2021	5,188	295	814	4,069	11	100	6	16	78	0
	2031	5,502	282	814	4,397	10	100	5	15	80	0
30–44	2007	5,815	3,054	992	1,452	316	100	53	17	25	5
	2011	5,639	2,755	1,062	1,548	274	100	49	19	27	5
	2021	6,093	2,472	1,329	2,065	227	100	41	22	34	4
	2031	6,411	2,547	1,424	2,215	226	100	40	22	35	4
45–64	2007	6,621	4,686	478	709	748	100	71	7	11	11
	2011	6,977	4,715	601	838	822	100	68	9	12	12
	2021	7,352	4,405	910	1,130	907	100	60	12	15	12
	2031	7,362	3,976	1,143	1,427	816	100	54	16	19	11
65 plus	2007	3,775	2,653	76	254	793	100	70	2	7	21
	2011	4,151	2,907	95	274	874	100	70	2	7	21
	2021	5,261	3,534	166	389	1,172	100	67	3	7	22
	2031	6,470	4,019	320	618	1,514	100	62	5	10	23
Females											
16 plus	2007	22,521	10,806	2,250	5,198	4,267	100	48	10	23	19
	2011	23,201	10,733	2,558	5,623	4,287	100	46	11	24	19
	2021	24,660	10,694	3,219	6,258	4,488	100	43	13	25	18
	2031	26,440	10,708	3,700	7,259	4,773	100	40	14	27	18
16–29	2007	4,922	624	941	3,315	41	100	13	19	67	1
	2011	5,156	573	1,060	3,488	35	100	11	21	68	1
	2021	4,904	471	1,080	3,328	25	100	10	22	68	1
	2031	5,219	454	1,101	3,641	24	100	9	21	70	0
30–44	2007	5,867	3,343	871	1,136	517	100	57	15	19	9
	2011	5,677	3,019	950	1,260	449	100	53	17	22	8
	2021	6,002	2,738	1,254	1,641	369	100	46	21	27	6
	2031	6,192	2,729	1,347	1,757	358	100	44	22	28	6
45–64	2007	6,818	4,702	384	479	1,253	100	69	6	7	18
	2011	7,191	4,750	485	618	1,339	100	66	7	9	19
	2021	7,566	4,421	777	983	1,384	100	58	10	13	18
	2031	7,513	3,937	1,022	1,331	1,223	100	52	14	18	16
65 plus	2007	4,915	2,137	55	268	2,455	100	43	1	5	50
	2011	5,177	2,391	65	256	2,465	100	46	1	5	48
	2021	6,188	3,065	108	307	2,709	100	50	2	5	44
	2031	7,516	3,588	230	531	3,168	100	48	3	7	42

Notes:

1. People who are separated and cohabiting are included in the cohabiting category, and excluded from the married category, in this table. The married category will include people who are separated but not cohabiting; projections are not available for this group.
2. Not living with an opposite-sex partner.

Source: Office for National Statistics

correspondingly rises at most ages, as illustrated in **Figure 3**. Only for women aged over 65 is the proportion of the population who are either legally married or cohabiting projected to increase, from 45 per cent in 2007 to 51 per cent in 2031, largely due to projected improvements in life expectancy.

Notes, references and links to downloadable information on this topic

- 1 To access full results of the 2006-based marital status projections see: www.statistics.gov.uk/statbase/Product.asp?vlnk=14491
- 2 Cohabitation estimates and projections are produced for opposite-sex co-residential cohabiting adults only.
- 3 A variant for marriages abroad was produced for the 2003-based set of marital status projections.
- 4 To access results of the 2003-based marital status projections see: www.gad.gov.uk/Demography%20Data/Marital%20status%20projections/
- 5 For information about the 2006-based national population projections see: www.statistics.gov.uk/StatBase/Product.asp?vlnk=8519
- 6 For the latest marital status estimates for England and Wales see: www.statistics.gov.uk/statbase/Product.asp?vlnk=15107
- 7 Wilson B (2009), Estimating the cohabiting population, *Population Trends* 136.
- 8 For information on household projections produced by Communities and Local Government see: www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/householdestimates/
- 9 For methodology documentation see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/method.pdf
- 10 For further information on the marriage assumptions see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/marriage.pdf
- 11 For further information on the divorce assumptions see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/divorce.pdf
- 12 For further information on the cohabitation assumptions see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/cohabitation.pdf
- 13 For further information about mortality see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/mortality.pdf
- 14 For further information about migration see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/migration.pdf
- 15 For details of how constraints are handled within the model see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/consistency.pdf
- 16 An adult is defined as a person aged 16 years or older
- 17 Animated population pyramids, by legal marital status, 2007–2031 see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/legalpyramid.pps
- 18 Animated population pyramids of the cohabiting population, 2007–2031 see: www.statistics.gov.uk/downloads/theme_population/Marr-proj06/cohabpyramid.pps

Report:

Marriages and divorces during 2006 and adoptions in 2007: England and Wales

Introduction

This report summarises the findings from the Office for National Statistics (ONS) annual reference volume *Marriage, divorce and adoption statistics* (Series FM2 no. 34) as published on 26 March 2009. It presents data and analysis on trends on marriages and divorces over the past decade up to 2006, and in adoptions up to 2007 in England and Wales. Particular attention is given to:

- the marital status of the population
- marriages by previous marital status, average age at marriage, type of ceremony and address as an indication of cohabitation
- divorces by previous marital status, average age at divorce, duration of marriage, children involved in divorce, fact proven, and interval between petition and decree absolute
- adoptions by age of child

The annual reference volume contains more detailed information on these and other themes. It is available at: www.statistics.gov.uk/StatBase/Product.asp?vlnk=581

Marital status of the population

The decline in marriage rates and relatively high divorce rates in the last decade has resulted in a decrease in the number of married people in the population of England and Wales.

The population of England and Wales in mid-2006 was 53.7 million people¹. The number of people in 2006 aged 16 and over, and therefore legally able to marry, was 43.5 million, 6.5 per cent more than in 1996. Between 1996 and 2006, the population of single people aged 16 and over increased by 29 per cent, while the number of married people decreased by 5.3 per cent. Single people aged 16 and over made up 27 per cent of the adult population in 2006, compared with 22 per cent in 1996. In 2006, married people made up 50 per cent of the adult population compared with 56 per cent in 1996. The number of divorced people in the population of England and Wales increased by 30 per cent to 4 million in the ten years from 1996 (**Table 1**).

Figure 1 shows the estimated mid-2006 distribution of the population in England and Wales by marital status and age. The majority of people are

Table 1

Mid-year population estimates by marital status, 1996–2006

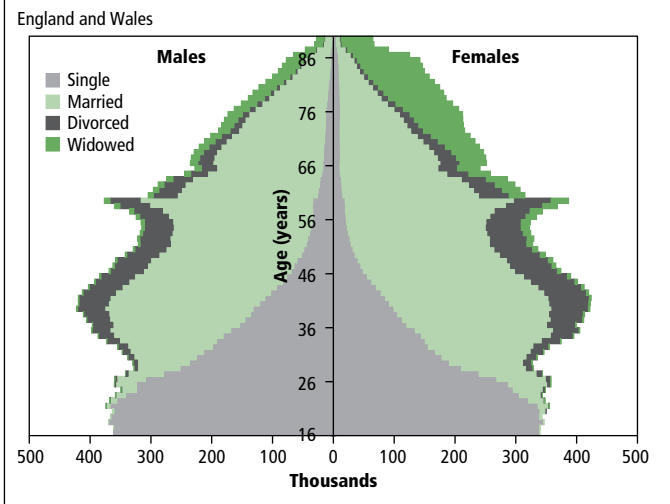
England and Wales

Population aged 16 and over

Year	Thousands					Percentages			
	Total	Single	Married	Divorced	Widowed	Single	Married	Divorced	Widowed
1996	40,826.7	11,392.4	22,742.7	3,076.7	3,614.9	27.9	55.7	7.5	8.9
1997	40,965.9	11,625.0	22,592.7	3,159.5	3,588.7	28.4	55.1	7.7	8.8
1998	41,121.4	11,856.7	22,467.4	3,231.2	3,566.1	28.8	54.6	7.9	8.7
1999	41,325.1	12,107.7	22,377.2	3,308.2	3,532.0	29.3	54.1	8.0	8.5
2000	41,568.7	12,370.2	22,312.1	3,383.0	3,503.4	29.8	53.7	8.1	8.4
2001	41,864.8	12,691.7	22,239.5	3,456.2	3,477.3	30.3	53.1	8.3	8.3
2002	42,135.0	13,043.0	22,082.8	3,569.2	3,440.1	31.0	52.4	8.5	8.2
2003	42,409.0	13,397.9	21,929.5	3,685.1	3,396.6	31.6	51.7	8.7	8.0
2004	42,730.6	13,793.3	21,785.9	3,798.5	3,353.0	32.3	51.0	8.9	7.8
2005	43,140.8	14,236.9	21,683.1	3,910.0	3,310.7	33.0	50.3	9.1	7.7
2006	43,493.7	14,683.6	21,535.6	4,005.2	3,269.3	33.8	49.5	9.2	7.5

Source: <http://www.statistics.gov.uk/popest>

Figure 1 Mid-year population estimates by age, sex and legal marital status, mid 2006



Note: Those aged 90 and above are excluded from this chart
Source: www.statistics.gov.uk/popest

single through to the late 20's age group. The largest change in marital status of the population occurs to those aged between 20 and 45 as it is between these ages men and women are more likely to be married. Among people aged 40 to 44, 62 per cent of men and 64 per cent of women are married, while 13 per cent of men and 16 per cent of women are divorced. Above the age of 60, a much greater proportion of women than men are widowed. This increases with age, and by the age of 80 over half of women are widowed, compared with less than a quarter of men.

The trends in marriage and divorce suggest a continued decline will be observed in the proportion of the population that is married. However, this is in part due to marriage occurring at later ages. The latest projections of the population by marital status² suggest that although the proportion of married people in the population will fall, a substantial proportion of the population will marry eventually.

Marriages

In 2006 the number of marriages registered in England and Wales³ decreased for the second successive year. The number of marriages

fell by 3.5 per cent to 239,454 compared with 247,805 in 2005. With the exception of an increase between 2002 and 2004, this follows the long-term trend of decline observed in England and Wales and is the lowest annual number of marriages registered in England and Wales since 1895 when there were 228,204. Trends in marriage are explored in detail in the article 'Understanding recent trends in marriage' in *Population Trends* 128⁴.

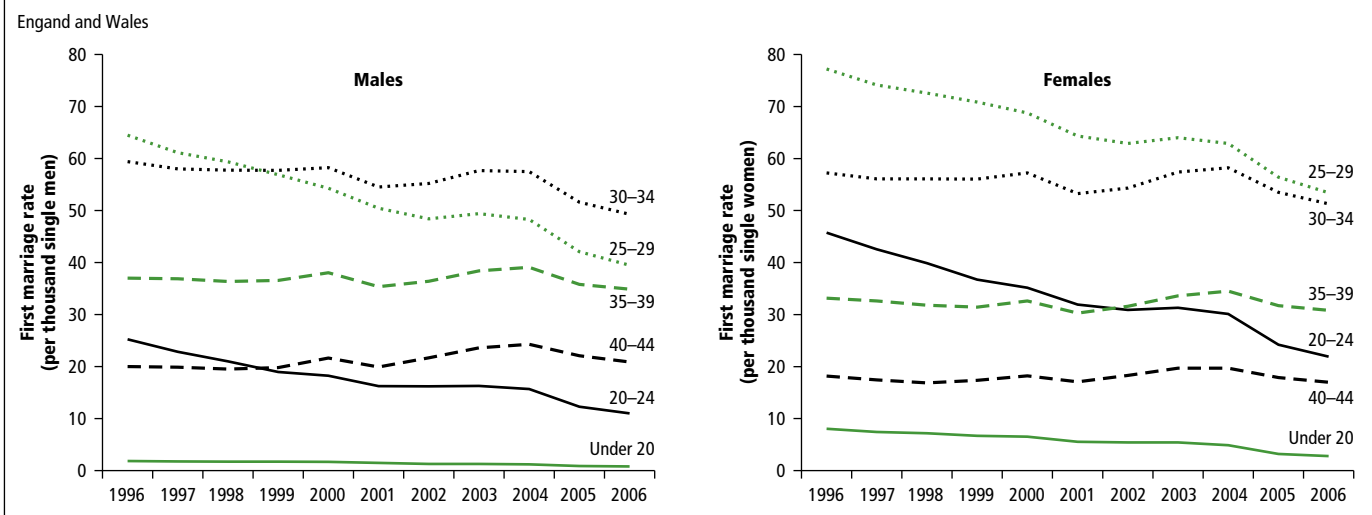
Marriage rates for England and Wales were first calculated in 1862. In England and Wales, marriage rates declined steadily from the beginning of the 1970s until the end of the 1990s. The decline in marriage rates ceased in the year 2000. Between 2000 and 2004 marriage rates increased before continuing to decline in 2005. As shown by the 2006 marital status estimates, the number of people available to marry increased, but the number choosing to marry decreased. Consequently, in 2006 marriage rates decreased to their lowest since they were first calculated. In 2006, 23.0 men married per 1,000 unmarried men aged 16 and over, down from 24.5 in 2005. The marriage rate for women in 2006 was 20.7 women marrying per 1,000 unmarried women aged 16 and over, down from 21.9 in 2005.

Despite fluctuations between 2000 and 2004, the number of first marriages has declined over recent years. In 2006, 196,056 marriages were first marriages for at least one person. This represents a 13 per cent decrease since 1996 and a 32 per cent decrease compared with 1986. As the population has increased, and first marriages have decreased, first marriage rates for both men and women have declined over the past decade. Rates for women were higher than those for men; 25.6 women per 1,000 married women aged 16 and over married for the first time in 2006, compared with 21.3 men. The corresponding rates in 1996 were 37.3 for women and 31.1 for men.

Figure 2 shows first marriage rates by sex and age group over the period 1996 to 2006. First marriage rates have decreased for all ages since 1996 and have more than halved for those aged under 25. Primarily as a result of the decline in marriage at younger ages, the first marriage rate for men aged 45 to 49 was higher than for those aged 20 to 24. The first marriage rate for women aged 35 to 39 was higher than for women aged 20 to 24. First marriage rates were highest for women aged 25 to 29 (53.4) and for men aged 30 to 34 (49.3).

Marriages, which were remarriages for both parties, accounted for 18 per cent of all marriages in 2006. Although the number of remarriages

Figure 2 First marriage rates by age group, 1996–2006



Source: FM2 no. 34 (2006) Table 3.10

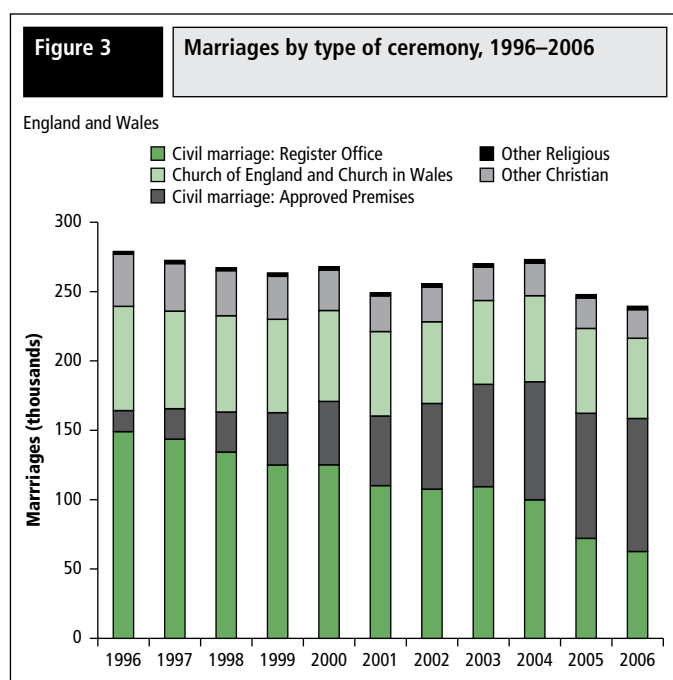
for both parties has decreased by 19 per cent since 1996, the proportion of all marriages which were remarriages has remained fairly constant over the past decade.

The long-term trend over the period 1996 to 2006 was one of decreasing remarriage rates. The rate for men declined by 31 per cent from 41.2 in 1996 and for women the rate decreased 26 per cent from 18.7 in 1996. In contrast to first marriage rates, remarriage rates for men were higher than those for women. In 2006, 13.8 women remarried per 1,000 divorced and widowed women. For men, the equivalent rate was 28.5.

The average (mean) age at marriage continued to increase in 2006. Men were on average 36.4 years at marriage in 2006, a rise of almost three and half years compared with 1996. The mean age at marriage for women increased to 33.7 years from 31.1 in 1996. The increase in average age at marriage is largely a reflection of decreases in the proportion of people under 30 marrying. Less than a third of men who married in 2006 were aged under 30 compared with almost half a decade earlier. Forty-five per cent of women marrying in 2006 were in this age group compared with 58 per cent ten years previously.

Over the last decade there have been some interesting new trends developing in terms of the types of ceremony couples choose to solemnise their marriages. **Figure 3** shows the changes in the type of marriage ceremony over the period 1996 to 2006. There were 158,350 civil marriage ceremonies in 2006, representing 66 per cent of all marriages. The proportion of civil marriage ceremonies first exceeded the proportion of marriage ceremonies in 1992. In 2006, the proportion of civil marriages increased, following a decrease in 2005 (the first for 15 years).

The increase of civil marriage ceremonies from the mid 1990s onwards coincided with the introduction of approved premises⁵. The number of marriage ceremonies which took place in approved premises such as hotels, stately homes and historic buildings continued to increase in 2006. There were 95,763 ceremonies performed in approved premises in 2006, a 6 per cent increase from 2006. Marriages in approved premises accounted for 40 per cent of all marriages in 2006 and two-thirds of all civil marriages. In 2005, 36 per cent of marriages took place in approved premises; in 1997, this proportion was 5 per cent.



Source: FM2 no. 34 (2006) Table 3.28 and 3.33

In 2006 the number of religious ceremonies had decreased by 30 per cent compared with 1996. In 2006, 81,104 marriages were solemnised in religious ceremonies, compared with 114,817 in 1996. For the second successive year, religious ceremonies were lower in number than approved premise ceremonies. The proportion of all marriages solemnised in the Church of England and the Church of Wales decreased from 27 per cent in 1996 to 24 per cent of all marriages in 2006.

August⁶ remained the most popular month for marriage in 2006, with 37,128 marriages taking place, representing 16 per cent of all marriages. Saturday remained the most popular day to get married with almost two-thirds of marriage ceremonies taking place on a Saturday. Friday was the second most popular day to get married in 2006; with 44,002 (18 per cent) ceremonies taking place on a Friday, four out of five of these marriages were civil ceremonies.

The residential address⁷ of the couple immediately before marriage has been shown to be a good indicator of whether partners were cohabiting prior to marriage⁶. In 2006, identical addresses were given by 80 per cent of all couples getting married. This figure varied depending on the marital status of the people marrying and the type of ceremony. The proportion was 89 per cent for couples where both partners had previously been divorced and 77 per cent for marriages that were the first for both parties.

Nearly nine out of ten (88 per cent) couples marrying in a civil ceremony gave identical residential addresses at marriage compared with 64 per cent of couples who married in a religious ceremony. These proportions reflect the larger proportion of divorced people marrying in a civil ceremony; eight out of ten couples were so married, while 56 per cent of marriages that were the first for both parties involved a civil ceremony.

Divorces

There were 132,562 divorces granted in England and Wales in 2006, a 6.5 per cent decrease from the 2005 figure of 141,750. This is the third consecutive year the number of divorces decreased and was the lowest number since 1977 when there were 129,053 divorces. There were over 24,500 fewer divorces in 2006 than in 1996, a decrease of 16 per cent (**Table 2**).

In 2006 the divorce rate decreased to 12.3 divorcing people per 1,000 married population in 2006 from 13.1 in 2005 (**Table 2**). The 2006 divorce rate was the lowest for 22 years.

Figure 4 shows divorce rates by sex and age group over the period 1996 to 2006. Despite the second successive decrease, divorce rates remained highest for those aged 25 to 29 for the fourth consecutive year. In 2006, there were 26.9 divorces per 1,000 married men aged 25 to 29 and 28.0 divorces per 1,000 married women.

Over the decade 1996 to 2006 divorce rates to men aged 40 and older and women aged 35 and over increased. The largest percentage increases were to men aged 60 and over (22 per cent) and to women aged 45 to 49 (26.3 per cent). Over the same period, divorce rates for both men and women aged 20 to 24 decreased by almost a quarter (23 per cent).

The average (mean) age at divorce increased by three and a half years between 1996 and 2006, in part reflecting the increase in the average age at marriage from the 1970s onwards. The average age for men at divorce was 43.4 years in 2006, compared with 39.8 years in 1996. For women the average age at divorce increased to 40.9 years in 2006 from 37.3 in 1996.

Over the past decade the median duration of marriage increased steadily. In 2006, the median duration of marriage remained at 11.6 years,

Table 2 Summary of marriages, divorces and adoptions, 1995–2007

England and Wales

Year	Marriages				Divorces ¹			Adoptions
	Total	First marriage of both parties	Remarriage of both parties	People marrying per 1,000 population of all ages	Total	Number of couples with children ² under 16	People divorcing per 1,000 married population	Adoptions by date of court order
1995	283,012	166,418	52,619	11.0	155,499	85,867	13.6	5,840
1996	278,975	160,680	53,642	10.9	157,107	86,933	13.8	5,741
1997	272,536	156,907	52,718	10.6	146,689	80,670	13.0	5,212
1998	267,303	156,539	50,122	10.3	145,214	80,476	12.9	4,617
1999	263,515	155,027	48,948	10.1	144,556	79,298	12.9	4,987
2000	267,961	156,140	50,271	10.3	141,135	76,776	12.7	5,086
2001	249,227	148,642	44,642	9.5	143,818	79,277	12.9	5,386
2002	255,596	151,014	46,814	9.7	147,735	80,997	13.4	5,486
2003	270,109	160,283	49,752	10.2	153,490	83,809	14.0	5,363
2004	273,069	163,007	49,772	10.3	153,399	82,017	14.1	5,372
2005	247,805	148,405	46,292	9.3	141,750	75,247	13.1	5,276
2006	239,454	145,995	43,398	8.9	132,562	69,895	12.3	4,765
2007 ³	231,446	143,437	41,044	8.6	128,534	66,037	12.0	4,728

1 Includes decrees of nullity.

2 Children aged under 16 at the date of petition for divorce, not at decree absolute. Children are those who have been treated as "children of the family", and may include step children and adopted children.

3 Figures for 2007 are provisional until the publication of the FM2 no. 35.

Source: FM2 no. 34 (2006) Tables 2.1, 2.2, 4.10 and 6.1b

the same as in 2005. The median duration of marriage increased by approximately one and a half years compared with 1996.

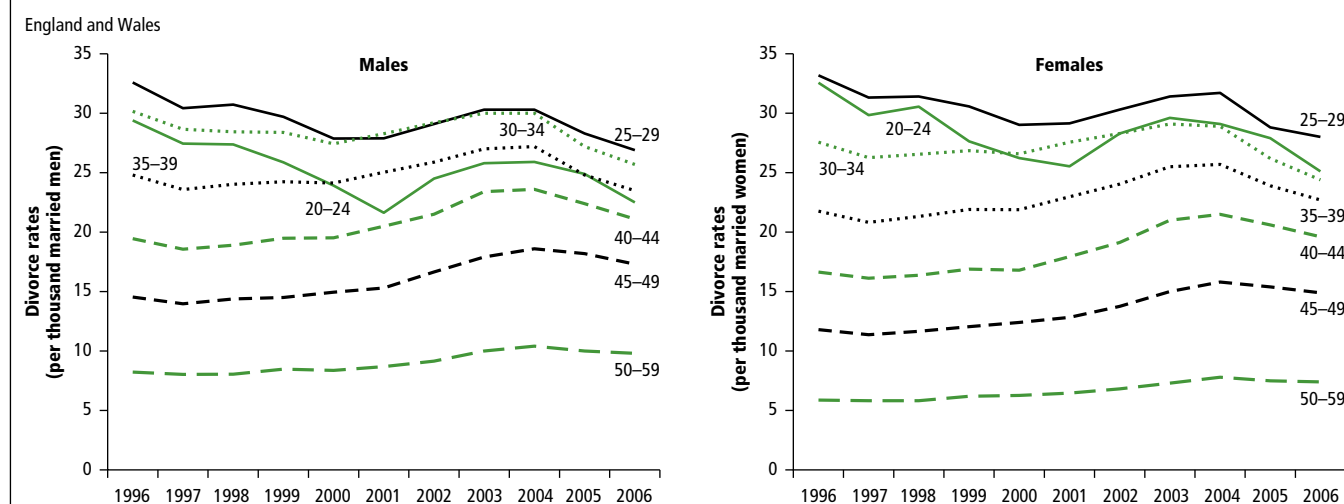
Just over two thirds of all divorces in 2006 were to couples for whom the marriage had been the first for both parties. Twenty per cent of men and women who divorced in 2006 had a previous marriage ending in divorce.

Over half of the couples divorcing in 2006 had at least one child⁸ aged under 16 at the time of petition for divorce. There were 125,030 children aged under 16 to parents who divorced in 2006. This was an average of 1.79 children under 16 per divorcing couple (who had children aged under 16) compared with 1.87 children under 16 in 1996. One fifth of these children were aged under five years old and almost two thirds were aged under 11 years old. A third of all divorcing couples had no children of any age recorded.

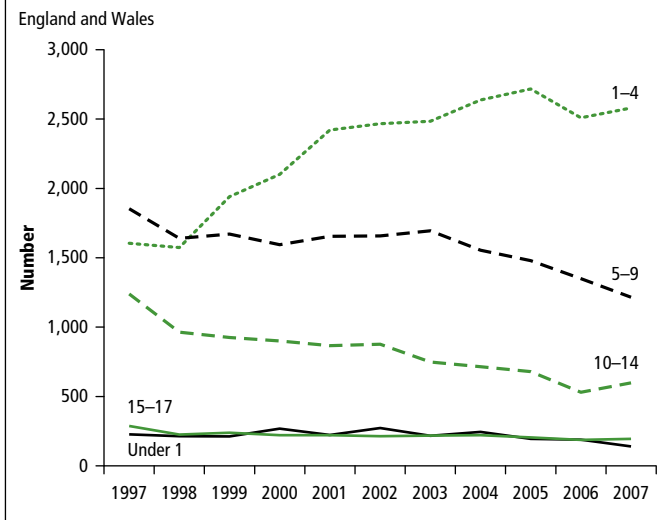
More than two thirds (68 per cent) of all divorces in 2006 were granted to the wife. The most common fact proven at these divorces was the husband's behaviour (53 per cent) followed by two years separation with consent (20 per cent). Of the divorces granted to the husband, the most common facts proven were the wife's behaviour and two years separation with consents (both 32 per cent).

In 39 per cent of all divorces in 2006, the interval between petition and decree absolute was less than six months. Divorces which involved children generally took longer. Of those couples who had children aged under 16, only a third took less than six months from petition to decree absolute compared with 45 per cent of divorces which did not involve children. Only 8 per cent of all divorces took longer than two years from petition to decree absolute. Divorces with two years separation with consent as the fact proven were the most likely to be granted quickly, with over half granted within six months of petition. Divorces with

Figure 4 Divorce rates by age group, 1996–2006



Source: FM2 no. 34 (2006) Table 4.1

Figure 5 Adoptions by age group, 1997–2007

Source: FM2 no. 34 (2006) Table 6.2b

behaviour as the fact proven had the lowest proportion granted within six months (31 per cent).

Adoptions

There were 4,728 adoptions entered into the Adopted Children Register⁹ following court orders made in 2007 (Table 2). This was 37 fewer than in 2006, a decrease of 0.8 per cent. This is the third consecutive year that the number of adoptions has decreased. The number of adoptions in 2007 was the lowest since 1998 (4,617).

Figure 5 shows trends in adoptions by age group over the period 1997 to 2007. The proportion of children aged one to four adopted has steadily increased over the past decade. Fifty-five per cent of children adopted in 2007 were aged one to four compared with 53 per cent in 2006 and 31 per cent in 1997. In 2007 the proportion of children adopted who were aged 10 to 14 increased to 13 per cent compared with 11 per cent in 2006. However, the number and proportion of children aged 10 to 14 adopted in 2007 declined compared with 1997, when 1,239 adopted children were aged 10 to 14, representing almost a quarter of all adopted children (24 per cent).

Just over three-quarters (77 per cent) of children adopted in 2007 were born outside marriage, a similar proportion as in 2006.

References and background notes

- 1 The population estimates by marital status used to calculate rates in this report are the latest available: mid-2006 estimates were published on 19 November 2008. Further information on population estimates can be found on the National Statistics website at: www.statistics.gov.uk/popest
- 2 The 2006-based marital status and cohabitation projections for England and Wales were published on 31 March 2009. Further information on marital status projections can be found on the National Statistics website at: www.statistics.gov.uk/downloads/theme_population/MaritalStatusProjection06.pdf

Key findings

- The number of marriages registered in England and Wales fell for the second successive year.
 - There were 239,454 marriages in 2006, 3.5 per cent fewer than in 2005.
 - In 2006, marriage rates were at their lowest since they were first calculated in 1862.
 - The average (mean) age at marriage has increased by almost three and a half years compared with 1996.
 - Two-thirds of all marriage ceremonies were civil ceremonies and two-thirds of these took place in approved premises.
 - August remained the most popular month for couples to marry.
 - Eight out of every ten couples getting married in 2006 gave identical residential address directly before getting married.
 - Divorces granted in England and Wales fell for the third consecutive year in 2006 and was the lowest number since 1977 when there were 129,053.
 - There were 132,562 divorces granted in England and Wales in 2006, a 6.5 per cent decrease from the 2005 figure of 141,750.
 - The 2006 divorce rate was the lowest for 22 years. The rate decreased to 12.3 divorcing people per 1,000 married population in 2006 from 13.1 in 2005.
 - The average (mean) age at divorce increased by three and a half years between 1996 and 2006, in part reflecting the increase in the average age at marriage from the 1970s onwards.
 - Just over two thirds of all divorces in 2006 were to couples for whom the marriage had been the first for both parties. One fifth were to men and women who had a previous marriage ending in divorce.
 - Over half of the couples divorcing in 2006 had at least one child aged under 16 at the time of petition for divorce.
 - Sixty-eight per cent of all divorces in 2006 were granted to the wife. The most common facts proven were 'behaviour' for divorces granted to the wife and 'behaviour' and 'two years separation with consent' for those granted to the husband.
 - The number of adoptions decreased for the third consecutive year. There were 4,728 adoptions in 2007; 37 fewer than in 2006.
- 3 Marriage figures relate only to marriages taking place in England and Wales. Marriages of England and Wales residents that take place outside England and Wales are not included in the figures.
 - 4 Wilson B and Smallwood S (2007) 'Understanding recent trends in marriage'. *Population Trends* 128, pp 24–32
 - 5 Approved premises are buildings such as hotels and stately homes licensed by local authorities under the Marriage Act 1994 for the solemnisation of marriages. In addition, some local authorities have made accommodation available for civil marriage as approved premises in place of register offices. The provision for marriages in approved premises came into effect on 1 April 1995.
 - 6 Marriages by month are unadjusted and may be affected by how many Fridays and Saturdays a particular month contains.
 - 7 Haskey J (1997). 'Spouses with identical residential addresses before marriage: an indicator of pre-marital cohabitation'. *Population Trends* 89, pp 13–23.
 - 8 In this context, 'children' are children of the family, and include both step-children and adopted children treated as children of the family. Their ages are as at date of petition for divorce.
 - 9 The adoption figures in this update are based on the date of court order, and do not include foreign adoptions.

Contact points

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Death registrations

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Divorces

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Population estimates (local authorities to national)

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Population estimates by ethnic group

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Population projections: national

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Population projections: subnational

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Quarterly population estimates

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Small area population estimates

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No. 132 Summer 2008

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Garnett Compton

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Marriages in England and Wales, 2006

Annual Update:

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No. 133 Autumn 2008

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Subnational population projections for local authorities in Wales

Internal migration estimates for local and unitary authorities in England and Wales, year to mid-2007

Live births in England and Wales, 2007: area of residence

Death registrations in England and Wales, 2007: area of residence

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Population Trends No. 137 Autumn 2009 Publication September 2009

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- Unravelling sex ratio patterns in Censuses, population estimates and administrative sources
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- 2011 Census: methodology of the One Number Census
- Older workers in the population

Reports:

- Internal migration estimates for local and unitary authorities in England and Wales, year to mid-2008
- Civil Partnerships in England and Wales, 2008
- 2008 Births in England and Wales, area of residence
- 2008 Deaths in England and Wales, area of residence

No. 134 Winter 2008

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No. 135 Spring 2009

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No. 39 Autumn 2008

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No. 40 Winter 2008

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Veronique Siegler, Ann Langford and Brian Johnson

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Paul Norman, Ian Gregory, Danny Dorling and Allan Baker

Standardised Mortality ratios – the effect of smoothing ward-level results

Allan Baker, Martin Ralphs and Clare Griffiths

Reports:

Infant and perinatal mortality in England and Wales by social and biological factors, 2007

Excess winter mortality in England and Wales, 2007/08 (provisional) and 2006/07 (final)

Health expectancies in the United Kingdom 2004–06

Life expectancy at birth and at age 65 by local areas in the United Kingdom, 2005–07

Cancer incidence and mortality in the United Kingdom and constituent countries, 2003–05

Future articles

List is provisional and subject to change

Health Statistics Quarterly No. 43 Autumn 2009 Publication August 2009

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Evidence from the Scottish and England and Wales Longitudinal Study

Reports:

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Deaths involving *Clostridium difficile*: England and Wales, 2004–08

Deaths related to drug poisoning in England and Wales, 2004–08

Unexplained deaths in infancy, 2007

Death registrations in England and Wales: 2008, causes

No. 41 Spring 2009

Features:

Trends in cancer survival in Spearhead Primary Care Trusts in England, 1998–2004

Libby Ellis, Bernard Rachet, Anjali Shah, Sarah Walters, Michel P Coleman, Nicola Cooper and Susan Westlake

Death certification following MRSA bacteraemia, England, 2004–05

Levin Wheller, Cleone Rooney and Clare Griffiths

Estimating conception statistics using gestational age information from NHS Numbers for Babies data

Yuan Huang Chow and Nirupa Dattani

An investigation into the impact of question change on estimates of General Health Status and Healthy Life Expectancy

Michael Smith and Chris White

Reports:

Conceptions in England and Wales, 2007

Congenital anomalies notifications 2007, England and Wales

No. 42 Summer 2009

Features:

Social inequalities in adult female mortality by the National Statistics Socio-economic Classification, England and Wales, 2001–03

Ann Langford and Brian Johnson

Multivariate analysis of infant death in England and Wales in 2005–06, with focus on socio-economic status and deprivation

Laura Oakley, Noreen Maconochie, Pat Doyle, Nirupa Dattani and Kath Moser

An update to measuring chronic illness, impairment and disability in national data sources

Chris White

Reports:

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