Childbearing Among UK Born and Non-UK Born Women Living in the UK

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Abstract

This report gives an overview of childbearing among UK born and non-UK born women living in the UK during the period 2007-2011. It investigates changes in births over time and variation between areas of the UK, as well as the differences between the fertility patterns of UK born and non-UK born women. The report focuses on the period 2007-2011 and the factors that have caused an increase in the number of births. This includes investigating the increasing proportion of women of childbearing age who were born outside the UK, the higher fertility rates of non-UK born women, and changes in the fertility rates of UK born women. London is examined separately from the rest of England due to its large contribution to the number of births to non-UK born women within the UK. The report presents analysis of births to women born in specific countries, using general fertility rates (GFRs), and discusses the limitations of this method.

Acknowledgements

1. We are grateful for the assistance of colleagues at National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA) for birth registration data to facilitate the compilation of UK-wide statistics. We would also like to thank colleagues in the ONS for their help with reviews and improvements to this report.

Key findings

The key findings from this report are:

- There were 808,000 births in the UK in 2011, composed of 612,000 births to UK born women and 196,000 births to non-UK born women.
- 24 per cent of births in 2011 were to non-UK born women, an increase of two percentage points since 2007. This increase is caused by a 24 per cent rise in the number of women of childbearing age who were born outside the UK and a fall of 5 per cent in the number of UK born women of childbearing age since 2007.
- Fertility rates for non-UK born women are higher than for UK born women, with the non-UK born Total Fertility Rate (TFR) (2.28 children per woman) being 0.4 births per woman higher than the UK born TFR (1.89 children per woman) in 2011, but the differences are narrowing over time.
The convergence is caused by an increase in the UK born TFR and a decrease in the non-UK born TFR since 2007.

- Poland is the most common non-UK maternal country of birth in the UK, with around 23,000 births in 2011. It is the most common in each of the four UK countries and in London, reflecting the wide geographical distribution of women born in Poland.
- The report looks at the top five non-UK born mothers’ countries by number of births (Poland, Pakistan, India, Bangladesh and Nigeria). GFRs for the UK show that women born in Pakistan have the highest fertility rates of the five individual maternal countries of birth examined, with around 180 births per thousand women in 2011, compared with around 60 births per thousand for UK born women.
- The impact of non-UK born women on fertility is largest in London. This is due to a high proportion of the childbearing age population in London being non-UK born, and lower UK born fertility in London than the UK average.

Conclusions of the report examine the potential for future work using 2011 Census data.

Introduction

In 2011, there were 808,000 babies born in the UK. One quarter of these had a mother born abroad but living in the UK. The proportion of UK births with a mother born outside the UK has steadily risen over the last decade, from 15 per cent in 2001 to 24 per cent in 2011 (Figure 1).

Figure 1: Percentage of live births in the UK to non-UK born mothers, 2001 to 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Non-UK born mothers include those whose country of birth is not stated.
2. This chart uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

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The increase in the proportion of births to non-UK born mothers living in the UK illustrates how the demographic make-up of the UK is changing. A good understanding of trends in childbearing among different groups is important for informing projections of future population size. These in turn are essential for planning services such as maternity provision and schools.

The three statistical offices in the UK publish annual information on births by mothers’ country of birth [1]. In addition ONS publishes estimated fertility rates for UK born and non-UK born women living in England and Wales [2].

This report collates the latest information on births to UK born and non-UK born mothers for the UK as a whole for 2007 to 2011, providing estimated fertility rates for the two groups. It updates some of the UK analysis published by ONS in a 2009 Population Trends article [3], which focused on the period 2001 to 2007. That report found that the increase in UK births over the period was driven both by increasing fertility of UK born women and the rising non-UK born population. In addition this latest report investigates whether there are significant differences in fertility among UK born and non-UK born women living in different parts of the UK.

Women living in the UK who were born abroad originate from a wide variety of countries, and this report shows which ones most mothers giving birth come from. Using the top five non-UK countries of birth, it also explores whether it is possible to estimate current differences in fertility between women born in different countries (and living in different parts of the UK) using readily available data.

Information on births from the registration system is of high quality. The estimated fertility rates in this report combine births data with survey estimates [4] of the population by country of birth. In using the survey data to the maximum extent feasible, for example in terms of survey sample sizes for specific groups of women, the limitations of this approach are illustrated.

The annual measures of fertility used in this report give an up-to-date measure of the current levels of childbearing among UK born and non-UK born women but are imperfect for assessing the fertility of immigrants versus the native population [5]. In particular they do not give a good indication of the number of children different groups of women are likely to have over their lifetime, as fertility rates among recent immigrants may differ from those of earlier immigrants to the UK [6]. Readers should therefore be aware of the caveats in section 2 of this report (Notes and Definitions). Similarly it is important to understand the difference between mothers’ country of birth used in this report and their ethnicity or nationality when drawing conclusions about migrant fertility [7] (again, see Notes and Definitions).

Finally, some babies born to UK born women will have a non-UK born father, and vice versa, but analysis of paternal country of birth falls outside the scope of this report. Information on fathers’
characteristics for births in England and Wales, Scotland and Northern Ireland are published annually.

Notes


4. Data from the Annual Population Survey (APS) are used to estimate the population by country of birth. The APS data used in this report is weighted to population estimates published in 2011 and does not reflect recent rebasing of population estimates following results from the 2011 Census. See Notes and definitions for further information on the APS. Source: Office for National Statistics (ONS).


   National Records of Scotland (NRS), (2012).


Data sources

Birth Registrations

High quality data on numbers of births by mother’s age and mother’s country of birth are available from compulsory birth registration in the UK. Figures for the UK are produced by ONS compiling data for England and Wales, Scotland and Northern Ireland. All births information in this report refers solely to live births.
The registration of births occurring in England and Wales is carried out by the Local Registration Service in partnership with the General Register Office (GRO). Information collected at birth registration is recorded on a Registration Online (RON) system by Registrars. Most of the information is normally supplied by the parent(s). There is a legal requirement to register a birth within 42 days within England and Wales.

Any birth which occurs in Scotland must be registered within 21 days by the Registrar of Births, Deaths and Marriages. Babies born in Northern Ireland must be registered within 42 days of the birth. All 2011 births data for Northern Ireland are provisional until final figures are published in the 2011 Annual Report of the Registrar General.

ONS publishes detailed analysis on parents’ country of birth, as these data are collected at birth registration. A person’s country of birth does not change over time, while their nationality or ethnicity may change.

For England and Wales, birth statistics are based on the number of births occurring in the year, while Scotland and Northern Ireland statistics relate to the number of births registered in the year. In England and Wales where a birth is registered too late to be included in the count for the year of occurrence, it will be included in the count for the following year. The differences between reporting occurrences and registrations are relatively minor and figures are broadly comparable (in 2010 and 2011 differences between registrations and occurrences of live births in England and Wales were around 0.2 per cent).

The geographical breakdown of births figures presented in this report is based on area of mother’s usual residence. However a small number of births in the UK occur to women not usually resident in the UK (for example holidaymakers or visitors). These births are included in the UK figure, and when broken down to smaller areas, in the England excluding London figure.

Births to women aged over 44 are included in the counts of births for the 40-44 and 15-44 age groups.

Population of childbearing age

The population of women of childbearing age as defined in this article is the number of 15-44 year old women who could give birth in any given year. It takes no account of the actual fecundity (ability to conceive) of the women, and assumes all women in this age group are eligible. Some births may occur at ages outside this range, but they make up a small proportion of the total (less than 0.3%).

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 reweighted to population estimates published in 2011, ensuring an up-to-date picture. However, they have not yet been reweighted to take into account the 2011 Census results published in 2012 by ONS and NISRA.

The APS may underestimate the total number of people born overseas living in the UK 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 country of birth have been calculated. 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.

Fertility rates calculated from survey estimates

Birth registrations provide the numerators for the rates in this report, 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’.

Fertility rates estimated using population denominators from household surveys may 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).

In addition, the APS has not yet been reweighted to take into account the 2011 Census results, and so fertility rates released in this report may not exactly match those published in October 2012.

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

Mother’s country of birth is collected at birth registration and forms the basis of the analysis in this report. Although country of birth is the most robust variable for analysing the impact of international migrants on the number of births in the UK 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 ‘non-UK 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).

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’. 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.

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 ‘non-UK 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.

Notes


Fertility rates

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.

General Fertility Rate (GFR)

The GFR is the number of children per 1,000 women born to a population or sub-population. For example, a GFR of 56 in 2007 for the UK means that for every 1,000 women of childbearing age in the UK, 56 babies were born. This measure reflects the current volume of childbearing.

Fertility rates by country of birth and timing issues

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. International research has noted that immigrant women typically have low fertility prior to immigration, followed by high fertility immediately after immigration.
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 is necessary to wait until they reach age 45 so that any timing differences can be discounted.

**Why are both the TFR and the GFR used in this report?**

The TFR is recognised as superior to the GFR for comparing across populations and across time, however using APS data it is not possible to create sufficiently robust enough population estimates for individual countries of birth by five year age group. The TFR allows us to make statements about the fertility of hypothetical groups of individuals, if they lived their whole reproductive lives at current age specific rates. This is the standard method of comparing fertility across populations, as it controls for the age structure of different populations. The general fertility rate does not standardise for age, but can be calculated in the absence of the detailed age specific data that the TFR requires.

If two populations were taken which had the same age specific fertility rates, but different age structures, the TFRs of the two populations would be the same, while the GFRs would be different. Therefore caution must be exercised when interpreting the GFR as opposed to TFR, as two populations could have very different GFRs based purely on their age structure, rather than any other characteristic. However, even bearing this in mind, the GFR is a useful tool to enable us to compare populations where we would be unable to calculate a reliable TFR.

**Warning about age structure and its impact on the GFR**

For the most common maternal countries of birth we are able to make robust estimates of the size of the childbearing population, but the data quality for non-UK born mothers is not sufficiently robust to make worthwhile estimates of the childbearing population broken down by age. Thus differences in GFRs between populations could be due to different age structures of the populations, rather than different fertility behaviour.

This does not affect the conclusions drawn about the differentials in numbers of births per thousand women between populations, but it may have an impact on why these differentials exist (could be either or both of different age structure and different fertility behaviour). For this report we focus on looking at what differences there are, and compare populations as they are, but this will encompass both the fertility behaviours of the populations and their age structures, and we are unable to definitively state which is causative of different fertility patterns.

**Fertility of UK born and non-UK born women in the UK**

Total fertility rates (TFRs) for foreign born women [1] resident in England and Wales have been consistently higher than for native born women for at least the last 30 years [2].
This section extends the currently available analysis of fertility to the UK as a whole, and for the calendar years 2007 to 2011. It starts by investigating changes in the number of births to native and foreign born women and the impact of changes in population on birth trends, before presenting the latest fertility rates.

Notes

1. The terms “foreign born”, “born abroad”, “born outside the UK” and “non-UK born” are used interchangeably in this document. In contrast “UK born” and “native born” are used to refer to women born within the UK.

What are the trends in live births to UK and non-UK born mothers, 2007 to 2011?

In 2011 there were 808,000 births in the UK, a slight rise of 0.1 per cent on the number in 2010 and the highest number of births recorded in a calendar year in the UK since 1972.

Between 2007 and 2011 the overall number of births in the UK increased year on year, except in 2009 (Table 1). In 2009, there was a 0.5 per cent dip in birth numbers compared with the previous year, but this dip only occurred among UK born mothers. Births to non-UK born mothers continued to rise between 2008 and 2009, albeit at a slower rate than the years before and after.

Table 1: Number of live births to women living in the UK, for UK born and non-UK born mothers, 2007 to 2011

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK born mothers</td>
<td>603</td>
<td>613</td>
<td>605</td>
<td>614</td>
<td>612</td>
</tr>
<tr>
<td>Non-UK born mothers</td>
<td>169</td>
<td>182</td>
<td>185</td>
<td>193</td>
<td>196</td>
</tr>
<tr>
<td>All mothers</td>
<td>772</td>
<td>794</td>
<td>790</td>
<td>807</td>
<td>808</td>
</tr>
</tbody>
</table>

Table notes:
1. Non-UK born mothers include those whose country of birth is not stated.
2. Numbers may not sum exactly to totals due to rounding.
3. Sources: Birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

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In 2011, 24 per cent of babies were born to mothers who had been born outside the UK, compared with 22 per cent in 2007 (Table 2). The 25 to 34 age group had the largest percentage of births
occurring to non-UK born women in both 2007 and 2011. Over the four-year period the proportion of births to non-UK born mothers increased for women aged 25 and over, but decreased for those under 25. This was mainly due to changes in the age distribution of foreign born mothers giving birth rather than any change among native born mothers, with proportionally fewer births to foreign born mothers aged under 25 in 2011.

Table 2: Proportion of live births to women living in the UK, who were born abroad, by five year age groups, 2007 and 2011

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2007</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>20-24</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>25-29</td>
<td>25</td>
<td>27</td>
</tr>
<tr>
<td>30-34</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>35-39</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>40-44</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>15-44</td>
<td>22</td>
<td>24</td>
</tr>
</tbody>
</table>

Table notes:
1. Women born abroad include those whose country of birth is not stated.
2. Births to women older than 44 are included in the 40-44 and the 15-44 age groups.
3. Sources: Birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

Figures 2 and 3 illustrate the proportion of births to mothers of each age for UK born and non-UK born women in 2011. In comparison with births to UK born women, those to non-UK born women are more concentrated in the 25 to 34 age group, with a smaller proportion of births occurring to under 25 year olds. In contrast, the percentages of births to women aged 35 and over are similar in both groups.
Figure 2: Percentage of live births in the UK by five year age group for UK born women, 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Births to women older than 44 are included in the 40-44 and 15 to 44 age groups.
2. This chart uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Research and Statistics Agency (NISRA).

Download chart

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(19.5 Kb)

Figure 3: Percentage of live births in the UK by five year age group for non-UK born women, 2011
Figures 4 and 5 illustrate the changes over time in the number of births to UK born and non-UK born women of different ages. Between 2007 and 2011, there were steady increases in the numbers of births to UK born women in the 20 to 29 age group and those 40 and over (Figure 4).

At the same time a steady decrease was seen in other age groups; the number of births to 15 to 19 year olds decreased by 18 per cent and to 35 to 39 year olds by 8 per cent. Numbers for 30 to 34 year olds dropped from 2007 to 2009 then began to climb again from 2010 onwards. Overall, these changes resulted in a fluctuating trend in the total number of births to UK born women over the period, ending with a 1.5 per cent rise in numbers for 2011 compared with 2007.
In contrast, for non-UK born mothers (Figure 5), the 16 percent increase in births between 2007 and 2011 can be attributed entirely to an increase in the number of births to women aged 25 and over. For example, births in the peak age group of 30 to 34 increased by more than a fifth from 52,000 to 64,000 births during this time. The largest relative increase (42 per cent) was to women aged 40
years and older. For foreign born women aged under 25, the opposite has occurred, with an overall drop of 14 per cent from a peak in 2008.

The two charts show similar trends in births for the youngest and oldest mothers. Compared with 2007, there were fewer births to mothers aged under 20 and more to mothers aged 40 and over in 2011, regardless of whether the mother was born in or outside the UK.

How are the populations of UK and non-UK born women in the UK changing?

One major factor affecting the number of babies born annually is the size and age structure of the female population of childbearing age in that year. This is reflected in fertility rates, as the numbers in different age groups are used as denominators to produce age-specific fertility rates (ASFRs) and the total fertility rate (TFR) (see section 2 Notes and Definitions).

Between 2007 and 2011 the number of UK born women aged 15 to 44 living in the UK dropped by 5 per cent from 10.7 million to 10.2 million. At the same time the number of foreign born women in this age group increased by 24 per cent from 1.8 million to 2.2 million (Table 3).

Table 3: Estimated population of UK born and non-UK born women of childbearing age (15-44 years) living in the UK, 2007 to 2011

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK born</td>
<td>10.68</td>
<td>10.53</td>
<td>10.41</td>
<td>10.33</td>
<td>10.17</td>
</tr>
<tr>
<td>Non-UK born</td>
<td>1.81</td>
<td>1.94</td>
<td>2.01</td>
<td>2.09</td>
<td>2.23</td>
</tr>
<tr>
<td>All women</td>
<td>12.48</td>
<td>12.46</td>
<td>12.42</td>
<td>12.41</td>
<td>12.40</td>
</tr>
</tbody>
</table>

Table notes:
1. Non-UK born women include those whose country of birth is not stated.

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[XLS format](26 Kb)
Figure 6: Population pyramid of the female population living in the UK, for UK born women and non-UK born women, 2007 and 2011

The age structures of the female UK and non-UK born populations are shown in Figure 6, with the childbearing ages of 15 to 44 shown in pale blue.

The overall shape of each population is quite different, as are the causes of change to their shapes over time. The shape of the left hand side of Figure 6 (UK born) mainly reflects the peaks and troughs in the number of births in past years, such as the lower birth rates in the late 1970s resulting in fewer women in their early thirties in 2011. By definition, the right hand side of Figure 6 (non-UK born) cannot be influenced by births within the UK, but only by deaths and most importantly by international migration.

Among the UK born, there has been an overall reduction in the size of the childbearing age population from 2007 to 2011, as a result of more women reaching their 45th birthday between 2007

Source: Annual Population Survey (APS) - Office for National Statistics

Notes:
1. Non-UK born women include those whose country of birth is not stated.

Download chart
[XLS](XLS format) (35.5 Kb)
and 2011 than reaching their 15th. Although net international migration of the UK born has had a small impact, with an average yearly net loss of 17,000 UK born women of childbearing age (2007 to 2010) [1], the major reason for a smaller childbearing population of UK born women in 2011 is simply the ‘ageing on’ of the population.

Both UK and non-UK born women saw a rise in the size of their female populations aged 20 to 24 and 25 to 29. However, foreign born women saw increases in all other childbearing age groups. The largest increase occurred in the 30 to 34 age group, which was a third larger in 2011 than in 2007. Although the non-UK born category includes women who have been resident in the UK for many years, the biggest driver of this population increase was recent immigration. It is estimated that net in migration of non-UK born women aged 15 to 44 was on average 101,000 [2] for each year from 2007 to 2010.

In 2011, 18 per cent of women in the UK aged 15 to 44 had been born outside the UK, compared with 14 per cent in 2007. This proportion would have risen even without an increase in the size of the non-UK born population of childbearing age, because of the reduction in the number of UK born women aged 15 to 44.

Notes

1. Figure calculated using Long-Term International Migration estimates from the Office for National Statistics (ONS).

2. Figure calculated using Long-Term International Migration estimates from the Office for National Statistics (ONS).

How do fertility rates for UK and non-UK born women differ in 2011 and how have they changed since 2007?

From 2007 to 2011 there was an overall rise in the estimated total fertility rate (TFR) for all women resident in the UK (Table 4), peaking at 1.99 children per woman in 2010 and dropping slightly to 1.97 in 2011 [1].

Table 4: The total fertility rate (TFR) for the United Kingdom, for UK born and non-UK born women, 2007 to 2011

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK born</td>
<td>1.80</td>
<td>1.85</td>
<td>1.85</td>
<td>1.87</td>
<td>1.89</td>
</tr>
<tr>
<td>Non-UK born</td>
<td>2.51</td>
<td>2.50</td>
<td>2.44</td>
<td>2.43</td>
<td>2.28</td>
</tr>
<tr>
<td>All women</td>
<td>1.91</td>
<td>1.97</td>
<td>1.96</td>
<td>1.98</td>
<td>1.97</td>
</tr>
</tbody>
</table>

Table notes:
1. Non-UK born women include those whose country of birth is not stated.
2. These fertility rates use Annual Population Survey (APS) data in their calculations, therefore the rates for ‘All women’ may differ slightly from published national figures based on mid-year population estimates as denominators.

3. Sources: Total fertility rates (TFRs) calculated by the Office for National Statistics (ONS) using birth registration data from ONS, National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

Download table

The TFR for UK born women has shown a statistically significant rise, from 1.80 children per woman in 2007 to 1.89 in 2011, though not all changes in the intervening years were significant (Table 4 and Figure 7). In contrast the non-UK born fertility rate is not rising but falling. From 2007 onwards, there was a year on year drop in the fertility rate of non-UK born women.

Until 2010 these changes occurred within the 95 per cent confidence intervals around the TFRs and were therefore not statistically significant. However, between 2010 and 2011 the TFR showed a significant decrease from 2.43 to 2.28, a drop of 0.15 children per woman. This was because the estimated foreign born population of childbearing age increased by 7.0 per cent while the number of births only increased by 1.5 per cent.

Figure 7: Total fertility rates (TFRs) in the UK, for UK born and non-UK born women, 2007 to 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Non-UK born women include those whose country of birth is not stated.
2. These fertility rates use Annual Population Survey (APS) data in their calculations, therefore the rates for ‘All women’ may differ slightly from published national figures based on mid-year population estimates as denominators. For more details on the calculation of fertility rates see section on Notes and Definitions.

3. Black bars denote 95 per cent confidence intervals. For more details see Appendix 2.

4. These total fertility rates (TFRs) have been calculated by the Office for National Statistics (ONS) using birth registration data from ONS, National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download chart

The impact of the fertility of non-UK born mothers on overall UK fertility stayed the same between 2007 and 2010. Throughout this time period it can be inferred that average UK fertility was 0.11 of a child per woman higher [2] because of the presence of women born outside the UK (Table 4). Following the decrease in the TFR for non-UK born women in 2011, the impact is now slightly less, at 0.08 children per woman. Therefore the contribution of non-UK born women to overall fertility is relatively small, despite their higher TFR, a finding consistent with that seen in other European countries [3].

In 2011, fertility rates for non-UK born women were above those of UK born women in all age groups apart from the under 20s (Figure 8). Age-specific fertility rates (ASFRs) in the two groups were very similar for 15 to 19 year olds and most different for 25 to 29 year olds.

Figure 8: Age-specific fertility rates (ASFRs) in the UK for UK born and non-UK born women, 2011

![Age-specific fertility rates (ASFRs) in the UK for UK born and non-UK born women, 2011](image)

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency
Tables 5 and 6 show age-specific fertility rates (ASFRs) for UK and non-UK born women respectively, as well as the number of births and female population in each age group. From 2007 to 2011, the ASFRs for UK born women rose in every age group apart from the under twenties, but for different reasons (Table 5). For example, 25 to 29 year olds had a proportionally larger rise in the number of births than in the rise in population size, leading to a slightly higher fertility rate in 2011.

Conversely the rise in the fertility rate in the 30 to 34 age group was mainly due to a drop in the size of the population, plus a small rise in the number of births. Meanwhile, the number of births to the 35 to 39 age group dropped, but relatively larger decreases in population resulted in a slight rise in the ASFR.

Table 5: UK born women - live births, population size and age-specific fertility rates (ASFRs) by five year age group, UK, 2007 and 2011

<table>
<thead>
<tr>
<th>Age group</th>
<th>2007</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Births (Thousands)</td>
<td>Population (Thousands)</td>
</tr>
<tr>
<td>15-19</td>
<td>46</td>
<td>1,803</td>
</tr>
<tr>
<td>20-24</td>
<td>117</td>
<td>1,716</td>
</tr>
<tr>
<td>25-29</td>
<td>153</td>
<td>1,557</td>
</tr>
<tr>
<td>30-34</td>
<td>163</td>
<td>1,558</td>
</tr>
<tr>
<td>35-39</td>
<td>103</td>
<td>1,941</td>
</tr>
<tr>
<td>40-44</td>
<td>22</td>
<td>2,103</td>
</tr>
<tr>
<td>15-44</td>
<td>603</td>
<td>10,678</td>
</tr>
</tbody>
</table>

Table notes:
1. Total fertility rates (TFRs) are in bold.
2. Age-specific fertility rates (ASFRs) and total fertility rates (TFRs) calculated by ONS. For more details on the calculation of fertility rates see section on Notes and Definitions.
3. Births to women aged over 44 are included in the 40-44 and 15-44 age groups. The age-specific fertility rates (ASFR) for the 40-44 age group uses population estimates for women aged 40-44 from the Annual Population Survey (APS).

4. Sources: Birth registrations from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

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Table 6 shows that the ASFR for non-UK born women dropped between 2007 and 2011 for all age groups under 35, as the size of the population in each age group has increased. Falling numbers of births to under 25s have compounded the impact of the population increase on the fertility rate. Population increases in 35 year olds and over have been relatively smaller than the increases in the number of births, resulting in small rises in the ASFRs, but these were not large enough to stop an overall fall in the TFR for non-UK born women.

Table 6: Non-UK born women - live births, population size and age-specific fertility rates (ASFRs) by five year age group, UK, 2007 and 2011

<table>
<thead>
<tr>
<th>Age group</th>
<th>2007</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Births (Thousands)</td>
<td>Population (Thousands)</td>
</tr>
<tr>
<td>15-19</td>
<td>4</td>
<td>126</td>
</tr>
<tr>
<td>20-24</td>
<td>29</td>
<td>277</td>
</tr>
<tr>
<td>25-29</td>
<td>52</td>
<td>407</td>
</tr>
<tr>
<td>30-34</td>
<td>51</td>
<td>383</td>
</tr>
<tr>
<td>35-39</td>
<td>27</td>
<td>338</td>
</tr>
<tr>
<td>40-44³</td>
<td>6</td>
<td>273</td>
</tr>
<tr>
<td>15-44³</td>
<td>169</td>
<td>1,805</td>
</tr>
</tbody>
</table>

Table notes:
1. Non-UK born women include those whose country of birth is not stated.
2. Total fertility rates (TFRs) are in bold.
3. Age-specific fertility rates (ASFRs) and total fertility rates (TFRs) calculated by ONS. For more details on the calculation of fertility rates see section on Notes and Definitions.
4. Births to women aged over 44 are included in the 40-44 and 15-44 age groups. The age-specific fertility rates (ASFR) for the 40-44 age group uses population estimates for women aged 40-44 from the Annual Population Survey (APS).
5. Sources: Birth registrations from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download table

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(27.5 Kb)

Notes

1. The UK trend is similar to the total fertility rate (TFR) trend observed for England in the Fertility Summary published by the Office for National Statistics (ONS) in October 2011.

2. This is calculated by subtracting the unrounded total fertility rate (TFR) for UK born mothers away from the unrounded TFR for all mothers.


Summary

In summary, births to UK born mothers living in the UK have risen since 2007. Accompanied by a drop in the number of UK born women aged 15-44, this has resulted in a statistically significant rise in the total fertility rate (TFR) for UK born women.

Births to women born outside the UK have continued to increase between 2007 and 2011, due simply to the increasing numbers of non-UK born women living in the UK. The TFR for foreign born mothers was higher than for UK born women, but did not change significantly from 2007 to 2010. It then decreased in 2011 following a rise in births but a slightly larger relative rise in population size.

In spite of the increasing foreign born population and thus a larger share of births to this group, the majority of births in the UK still occur to UK born women. Recent increases in the UK TFR continue to be mainly due to increasing fertility among UK-born women, as evident in the parallel rise in the fertility rate for UK born and the overall fertility rate for the UK.

The TFRs presented here provide a useful snapshot for comparing the fertility of UK born and non-UK born women living in the UK in specific years. However it is important to bear in mind that for both groups, the TFR can be affected by changes in the timing of fertility over women’s lives (for example postponing childbearing to later ages, or having children more quickly following migration). Therefore this measure does not necessarily give a reliable indication of any differences in completed family size between UK born and non-UK born women.
Fertility of non-UK born women born in specific countries

Over 200 different maternal countries of birth were recorded on birth registrations in the UK in 2011 [1]. This section examines the range of countries that non-UK born mothers were born in, and whether this has changed substantially since 2007 [2].

Notes

1. Birth registration allows recording of both current and former countries, as well as specific territories, such as Hong Kong, or the Falkland Islands.


Which are the most common countries of birth for non-UK born mothers living in the UK?

Table 7 shows the number of births to women born in the top 10 countries of birth among non-UK born women living in the UK in 2011. These 10 countries account for half of all births to non-UK born mothers, with more than a quarter of the births occurring to mothers born in Poland, Pakistan or India. Germany is in seventh position, although many of those born in Germany will be British nationals whose parents were serving in the armed forces in Germany at the time of their birth [1].

For every 100 births to women born abroad, 12 mothers would have been born in Poland, 10 in Pakistan and 8 in India. The rest of the top 10 would account for another 20 mothers, with the other 50 from other recorded countries.
### Table 7: Top ten countries of birth for non-UK born mothers of live births in the UK, 2011

<table>
<thead>
<tr>
<th>Position</th>
<th>Country of maternal birth</th>
<th>Thousands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poland</td>
<td>23.0</td>
</tr>
<tr>
<td>2</td>
<td>Pakistan</td>
<td>19.2</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>15.5</td>
</tr>
<tr>
<td>4</td>
<td>Bangladesh</td>
<td>8.5</td>
</tr>
<tr>
<td>5</td>
<td>Nigeria</td>
<td>7.9</td>
</tr>
<tr>
<td>6</td>
<td>Somalia</td>
<td>5.7</td>
</tr>
<tr>
<td>7</td>
<td>Germany</td>
<td>5.6</td>
</tr>
<tr>
<td>8</td>
<td>South Africa</td>
<td>4.8</td>
</tr>
<tr>
<td>9</td>
<td>Lithuania</td>
<td>4.2</td>
</tr>
<tr>
<td>10</td>
<td>China</td>
<td>4.1</td>
</tr>
</tbody>
</table>

**Table notes:**
1. Sources: Birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

**Download table**

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Figure 9 shows how the top five maternal countries of birth have only seen a slight reordering since 2007. Pakistan was the most common maternal country of birth in 2007, with 18,300 births, followed by Poland with 13,300 births. Over time this difference has narrowed, until in 2009 Poland moved up into first position. In 2010 women born in Poland increased their lead, and by 2011 had 3,800 more births than women born in Pakistan. Other countries in the top five did not change position, despite a rise in the number of births to women born in India and Nigeria and a decline in the number of births to women born in Bangladesh.

The rest of section 4 concentrates on the 2011 top five maternal non-UK countries of birth identified in Table 7. Even within this group, there were large differences in the number of births in 2011, with more births to women born in Poland (first place) than to women born in Bangladesh or Nigeria combined (fourth and fifth place).
How does fertility vary between women born in different countries?

To investigate whether women from different countries of birth are having babies at faster or slower rates than each other, the sizes of their respective populations in the UK need to be taken into account in calculating their fertility rates.

Notes:
1. For 2011, the Annual Population Survey (APS) estimated that there were 90,000 women aged 15 to 44 living in the UK who were born in Germany, of which 57,000 (+/-10,000) were British nationals. Therefore, in 2011, between half and three-quarters of the women of childbearing age who were born in Germany have British nationality. Source: Office for National Statistics (ONS).
The fertility of women born in different countries has been calculated using the general fertility rate (GFR), which is the number of births in a year per 1,000 women aged 15 to 44. Although the total fertility rate (TFR) would be preferable as a measure of fertility, because it also accounts for differences in age structure between populations, the sizeable confidence intervals around survey estimates of the population by five-year age group for individual countries of birth do not allow TFRs to be estimated with satisfactory precision. In contrast, the GFR is sufficiently robust to allow comparisons to be made between the fertility rates of women born in different countries.

This section concentrates on the 2011 top five maternal non-UK countries of birth, since they have the most robust GFRs, and compares them with the GFR for UK born mothers. More information on the GFR and TFR is given in section 2 Notes and Definitions.

The GFR for all non-UK born mothers in 2011 was 88 births per 1,000 women, compared with a GFR of 110 for the top five combined. In contrast the GFR for UK born women was 60 births per 1,000 women, significantly lower than for all of the top five non-UK countries. Pakistan and Nigerian born women had the highest GFRs of the selected countries, of around 140 births per 1,000 women in 2011 (Figure 10). Although not significantly different from each other, the differences between these two and Poland and India are significant. Likewise Poland and India have similar GFRs of around 95, significantly lower than Pakistan and Nigeria but significantly higher than the UK born GFR of 60.

Bangladesh has a GFR of 110, which sits between the two groups, but is only significantly different to that of Pakistan and the UK. Table 8 shows which GFRs for 2011 show significant differences at a 95 per cent confidence level when compared [1].
Figure 10: General fertility rates (GFRs) for the top five non-UK maternal countries of birth and for UK born women, UK, 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. For more details on the calculation of fertility rates see section on Notes and Definitions.
2. These general fertility rates (GFRs) are calculated by the Office for National Statistics (ONS) using birth registration data from ONS, National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download chart

XLS format

(25 Kb)
Table 8: Statistically significant difference matrix UK, 2011

<table>
<thead>
<tr>
<th></th>
<th>Pakistan</th>
<th>Nigeria</th>
<th>Bangladesh</th>
<th>India</th>
<th>Poland</th>
<th>UK</th>
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</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>n/a</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nigeria</td>
<td>:</td>
<td>n/a</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>:</td>
<td>:</td>
<td>n/a</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>India</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>n/a</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Poland</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>n/a</td>
<td>Yes</td>
</tr>
<tr>
<td>UK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>n/a</td>
</tr>
</tbody>
</table>

Table notes:
1. Significance level is 95 per cent.
2. Source: Office for National Statistics (ONS).

Download table

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Figure 11 shows the general fertility rate (GFR) for the same top five countries and for UK born women in 2007. Similar groupings can be seen as for 2011, though Pakistan is significantly higher than all of the other countries, and Bangladesh is closer to the GFR for Nigeria, and significantly different from both India and Poland, unlike in 2011.

The GFR for UK born women in 2007 was numerically very similar to its 2011 level, and remains significantly different from all of the top five non-UK countries of birth shown. Women born in Pakistan had the highest GFR at nearly 180, roughly three times the UK born GFR. For 2007 the GFR for all non-UK born women was 94, compared with a GFR of 119 for these top five combined.

Table 9 shows which of these differences are significant at the 95 per cent confidence level. While the levels do fluctuate over time, the top five countries do appear to have sustained differences in their GFRs (when compared against each other) [2].

Figure 11 shows the general fertility rate (GFR) for the same top five countries and for UK born women in 2007. Similar groupings can be seen as for 2011, though Pakistan is significantly higher than all of the other countries, and Bangladesh is closer to the GFR for Nigeria, and significantly different from both India and Poland, unlike in 2011.

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Table 9 shows which of these differences are significant at the 95 per cent confidence level. While the levels do fluctuate over time, the top five countries do appear to have sustained differences in their GFRs (when compared against each other) [2].

Figure 11: General fertility rates (GFRs) for the top five non-UK maternal countries of birth and for UK born women, UK, 2007

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. For more details on the calculation of fertility rates see section on Notes and Definitions.
2. This chart uses general fertility rates (GFRs) calculated by the Office for National Statistics (ONS) using birth registration data from ONS, National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download chart
XLS format
(18 Kb)
Table 9: Statistically significant difference matrix, UK, 2007

<table>
<thead>
<tr>
<th></th>
<th>Pakistan</th>
<th>Nigeria</th>
<th>Bangladesh</th>
<th>India</th>
<th>Poland</th>
<th>UK</th>
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</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>n/a</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nigeria</td>
<td>:</td>
<td>n/a</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>:</td>
<td>:</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>India</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>n/a</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Poland</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>n/a</td>
<td>Yes</td>
</tr>
<tr>
<td>UK</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>:</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Table notes:
1. Significance level is 95 per cent.
2. Source: Office for National Statistics (ONS).

Download table

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The changes in GFR over time between 2007 and 2011 were not significant, with the exception of Pakistan born women and UK born women, both of which had a significant change between 2007 and 2011 (an increase for UK born and a decrease for Pakistan born). Such a change could be caused by changes in the age structure of the population, changes in fertility behaviour, or a combination of both. Section 4.3 looks at the likely impact of changing age structures on the GFRs for non-UK born women.

Notes

1. Table 8 should be considered in conjunction with Figure 10.
2. Analysis of intervening years was carried out, but is not included in this report. Similar differences and groupings are observed in each year between 2007 and 2011.

Age structures of the non-UK born populations of childbearing age

Because the general fertility rate (GFR) is not standardised by age, examination of the age structures of the different maternal countries of birth can assist our understanding of the fertility differences between them. A higher proportion of women in the key childbearing ages (25 to 34) would lead to a higher GFR assuming that age-specific childbearing patterns were similar across all populations.
The differences in the age profiles (in 2011) of women from the top five non-UK maternal countries of birth and for the UK born are shown in Figure 12 [1]. Most migrants to the UK migrate here from age 20 onwards; the proportion of non-UK born women aged under 20 is therefore much lower than for UK born women. Consequently for foreign born women the proportions in the older age groups tend to be higher. The dip in the number of UK born women in their early 30s, who were born in the late 1970s, has also exacerbated this different pattern (Figure 6).

**Figure 12: Proportions of women in five year age groups of childbearing age, for women born in selected countries and living in the UK, 2011**

![Figure 12: Proportions of women in five year age groups of childbearing age, for women born in selected countries and living in the UK, 2011](chart)

Source: Annual Population Survey (APS) - Office for National Statistics

Download chart

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With the exception of Poland, the overseas maternal countries of birth show similar age distributions with no substantial differences being apparent.

The age distribution of women of childbearing age born in Poland is distinctly different to that of the other countries of birth (Figure 12). Women born in Poland but living in the UK are noticeably more concentrated in the 25 to 29 age group, with much smaller proportions in the oldest two age groups. This reflects the recent (post 2004) migration of Polish people of working age to seek employment in the UK following EU enlargement [2].

Figure 13 shows that this high peak of Polish born women aged 25 to 29 has developed since 2007, with the population in this age group doubling from 48,000 in 2007 to 96,000 by 2011. This age
group now represents approximately 38 per cent of the female population of childbearing age who were born in Poland. A significant rise of nearly two thirds has also been seen in the number of women born in Poland, aged 30 to 34 and living in the UK over this period.

Figure 13: Women born in Poland of childbearing age living in the UK, by age group, 2007 to 2011

The GFR for women born in Poland rose from 93 births per 1000 women in 2007 to 106 births per 1000 women in 2010, but then declined back to 93 in 2011 because of a large increase in the female population of childbearing age who were born in Poland. The recent changes in the age profile of these women (Figure 13) suggest that their changing GFR may be more the result of changes in the size of different age groups, rather than these women bearing more or fewer children on average.

Notes

1. While the populations of non-UK born women born in specific countries are not robust enough at the five year age group to calculate age-specific fertility rates (ASFRs) and thus total fertility rates (TFRs), it is possible to show age distributions within populations. This is because it can
be assumed for the purposes of these charts that the uncertainty is around the total size of that population, not the age distribution within it. More detail can be found in appendix 2.


Summary

Poland, Pakistan and India have been the most common countries of birth for non-UK born mothers in the UK during the period 2007 to 2011. General fertility rates (GFRs) for women born in these three countries show that the fertility of women born in Pakistan was significantly higher in both 2007 and 2011 than the fertility of women born in India or Poland. All three countries had higher fertility using this measure than UK born women.

The GFR is more robust than the total fertility rate (TFR) when analysing individual country of birth data but has limitations as it is affected by differences in age structures between populations. This is illustrated in the case of women born in Poland whose high GFR relative to UK born women may reflect the high proportion of Polish-born women living in the UK who are aged 25-29, rather than a genuine difference in fertility.

Comparing childbearing patterns among UK-born and non-UK born women in different areas of the UK

Total fertility rates (TFRs) (for UK born and non-UK born women combined) differ between the four constituent countries of the UK. For example in 2010 the highest was recorded in Northern Ireland (2.06) and the lowest in Scotland (1.75) [1]. In this report the fertility of UK born and non-UK born women is analysed at sub-national level, by dividing the UK into five areas: ‘England excluding London’, London, Wales, Scotland and Northern Ireland. London has been identified as a distinctive area, because it displays different demographic trends from the rest of England [2] and the other countries of the UK.

How are live births to native and foreign born mothers distributed throughout the UK?

In 2011, the majority (56 per cent) of all births within the UK were to UK born mothers whose usual residence was ‘England excluding London’ (Figure 14). Births to UK born mothers in London accounted for 7 per cent of all births, and births to UK born mothers in Wales, Scotland and Northern Ireland (taken together) accounted for a further 13 per cent of all births. Births to foreign born women, in all areas of the UK, accounted for the remaining 24 per cent.

The smaller pie chart in Figure 14 shows how the births to foreign born women were distributed throughout the UK. In 2011, 5 in 10 births to foreign mothers in the UK occurred in ‘England excluding London’, and 4 in 10 in London, with 1 in 10 occurring in Wales, Scotland and Northern Ireland combined.
For just UK born women the corresponding figures are 7.5 in 10 births to UK born women occurring in 'England excluding London', 1 in 10 in London, and 1.5 in 10 occurring in Wales, Scotland and Northern Ireland combined. Between 2007 and 2011, there was an increase in the overall number of live births in each of the five areas of the UK (Table 10). This was due to increases in the numbers of births to both UK born and non-UK born mothers, apart from in London and Scotland where the rise was solely due to births to mothers born outside the UK.

Table 10: Number of live births in the five regions of the UK, to UK born and non-UK born mothers, 2007 and 2011

<table>
<thead>
<tr>
<th>Area</th>
<th>UK born</th>
<th>Non-UK born</th>
<th>All mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>'England excluding London'</td>
<td>441</td>
<td>450</td>
<td>89</td>
</tr>
<tr>
<td>London</td>
<td>58</td>
<td>57</td>
<td>68</td>
</tr>
<tr>
<td>Wales</td>
<td>31</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>Scotland</td>
<td>51</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>22</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>UK</td>
<td>603</td>
<td>612</td>
<td>169</td>
</tr>
</tbody>
</table>

Table notes:
1. Non-UK born mothers include those whose country of birth is not stated.
2. Percentage changes are on unrounded data. Because there are relatively few births to non-UK women in Wales, Scotland and Northern Ireland, small changes in their numbers may represent large percentage changes.
3. Numbers may not sum exactly to totals due to rounding.
4. Sources: Birth registrations from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

In each area of the UK, the proportion of births to women born outside the UK has risen between 2007 and 2011 (Figure 15). London is the only region where the number of births to foreign born mothers was higher than those to UK born mothers in 2007 and 2011. In 2011, more than half of all births in London (57 per cent) occurred to non-UK mothers, compared with 19 percent in 'England excluding London' and between 11 and 14 per cent in Wales, Scotland and Northern Ireland.
Figure 15: Percentage of live births to non-UK born mothers in the UK by area of usual residence of mother, 2007 and 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Non-UK born mothers include those whose country of birth is not stated.
2. Birth registrations from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

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Figures 16 and 17 show the proportion of births in each age group for UK and non-UK born women by area of usual residence of mother. The proportions of births in each age group for the UK as a whole are shown as a benchmark.
Births to UK born mothers are most concentrated in the 30 to 34 age group (Figure 16). This pattern is particularly marked in London and Northern Ireland, with London also having a comparatively high percentage of births to women aged 35 or over. In Wales and ‘England excluding London’ the highest proportion of births occurred to women aged 25 to 29, with both Wales and ‘England excluding London’ having higher proportions of births to younger mothers than the UK as a whole. The pattern in Scotland generally reflects the UK proportions in different age groups, although it has relatively fewer births among the 20 to 24 age group.
Figure 17: Percentage of live births in each age group for non-UK born women, in the UK by area of usual residence of mother, 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Non-UK born mothers include those whose country of birth is not stated.
2. Births to women older than 44 are included in the 40-44 age group.
3. Birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

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Live births to non-UK born women in the five areas follow the pattern for non-UK born women in the whole of the UK in 2011. They are concentrated in the 25 to 34 age groups, with considerably smaller numbers of births at the younger and older ages (Figure 17). London stands out with a higher proportion of births to women aged 30 and over, particularly for women aged 35-39.

If births to UK and non-UK born women are combined, there are also clear differences by area in the age profiles in 2011 (Figure 18). In ‘England excluding London’ and Wales a greater proportion of births occur to women aged under 30 than to those aged 30 or over. In London the opposite is true, with a particularly small proportion of births to the under 25 year olds and the majority of births occurring to mothers in their thirties and forties.
The order of the five areas according to the proportion of births to under 30 year olds remains identical when considering births to UK born women or births to women born outside the UK. However, the proportion of births to under 30 year olds was higher for UK born women than non-UK born women with the exception of London, where the proportions were the same.

**Figure 18: Percentage all live births that are to women under 30, by age group, by area of usual residence of the mother, 2011**

The percentage changes in births in each age group between 2007 and 2011 by area are shown in Figures 19 and 20. For UK born women, all five areas have seen a falling numbers of births to women under 20 and those aged 35 to 39 years, and the majority have seen an increase at other ages (Figure 19). Compared with other areas, London and Scotland both show smaller percentage increases in births to 25 to 29 year olds, as well as drops in births to 20 to 24 year olds. Together these trends resulted in a decline in births to UK born women in London and Scotland between 2007 and 2011. For births to non-UK born women, most areas saw a decline in the number of births to women aged under 25 and increases above this age (Figure 20).
Figure 19: Percentage changes in live births to UK born mothers by area of usual residence in the UK and by age group, 2007 to 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Percentage changes are on unrounded data.
2. Birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

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In summary, between 2007 and 2011 there were increases in births to UK and also non-UK born mothers in 'England excluding London', Wales and Northern Ireland (See table 10). In London and Scotland there were overall rises in the numbers of births, but this was solely due to a rise in births to foreign born women and despite the decreasing number of births to UK born women in their twenties. All areas saw their proportion of births to non-UK women rise between 2007 and 2011.
In London births are more likely to be to older women than in other parts of the UK, regardless of origin of the mother. In contrast, in Wales and ‘England excluding London’, UK born mothers giving birth are more likely to be younger than their non-UK born counterparts.

How are the populations of UK and non-UK born women of childbearing age dispersed across the UK and have they changed since 2007?

In 2011, there were 12.4 million women aged 15 to 44 living in the UK, of which 60 per cent (7.4 million) had been born in the UK and lived in ‘England excluding London’ (Figure 21). With just under 1 million UK born women of childbearing age, London had a slightly larger UK born population than Scotland (0.9 million), was twice the size of Wales (0.5 million) and three times the size of Northern Ireland (0.3 million) [1].

Non-UK born women living throughout the UK account for 18 per cent of the female population of childbearing age (2.2 million). For every 12 non-UK born women in the UK, 6 would live in ‘England excluding London’, 5 in London and 1 in either Wales, Scotland or Northern Ireland.

Figure 21: Female population aged 15 to 44, living in the UK, by area and whether UK or non-UK born, 2011

Source: Annual Population Survey (APS) - Office for National Statistics

Notes:
1. Non-UK born mothers include those whose country of birth is not stated.
2. Wales, Scotland and Northern Ireland are combined to produce ‘Other areas of the UK’ for non-UK born.
3. Together, unrounded percentages for UK born and non-UK born equal 100 percent.
Between 2007 and 2011 the five areas of the UK have followed the national trends in population change for childbearing-age women (Figure 22). In every area there has been a reduction in the size of the UK born female population aged 15 to 44 and an increase in the size of the corresponding population born abroad (Figures 22 and 23). Reasons for these changes were given in section 3.2.

Figure 22: Number of women of childbearing age who were born in the UK, by area of residence in the UK, 2007 and 2011

Source: Annual Population Survey (APS) - Office for National Statistics
In 2011 there were 101,000 more non-UK born 15 to 44 year old women living in London than there were in 2007. Three-quarters of this increase was seen in the age groups 30 or over. This is higher than for ‘England excluding London’ where 56 per cent of the rise in the childbearing population (141,000) over the period 2007-11 was among those aged 30 or over, and in Wales, Scotland and Northern Ireland (combined) where this age group accounted for 59 per cent of the (24,000) increase.

To summarise, the majority of the population of childbearing age, living in the UK, were born in the UK and are living in ‘England excluding London’. A much larger proportion of the non-UK born childbearing population are living in London compared with the UK born childbearing population. Between 2007 and 2011 the UK born female population aged 15 to 44 decreased in size while the
non-UK born population increased in size and there was a larger relative growth in women aged 30 and over in London compared with the rest of the UK.

Notes

1. Data from the Annual Population Survey (APS) are used to estimate the population by country of birth. The APS data used in this report is weighted to population estimates published in 2011 and does not reflect recent rebasing of population estimates following results from the 2011 Census. See section 2 for further information on the APS. Source: Office for National Statistics (ONS).

How do fertility rates of UK and non-UK born women differ within the UK and have they changed since 2007?

Figure 24 shows the estimated total fertility rates (TFRs) for UK born and non-UK born women, both in the UK and sub-nationally for 2011 [1]. The TFRs for non-UK born mothers are, in all areas, higher than for UK born mothers, although in Scotland the difference between the two is not statistically significant. At 1.73 children per woman, both Scotland and London have the lowest TFRs for UK born women, with Northern Ireland the highest (2.00).

Scotland also has the lowest non-UK born TFR (1.93), which is consistent with the overall low TFR in Scotland (1.75 in 2010). TFRs for non-UK born women are similar in the other areas of the UK, ranging from 2.24 in Wales to 2.32 children per woman in ‘England excluding London’. The exception is Northern Ireland, which has the highest TFR, but the large confidence interval around it makes it less robust.
Figure 24: Total fertility rates (TFRs) (with 95 per cent confidence intervals) for UK born, non-UK born and all women living in the UK, by area of usual residence, 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Non-UK born mothers include those whose country of birth is not stated.
2. Black bars denote 95 per cent confidence intervals. For more details see Appendix 2.
3. Total fertility rates (TFRs) calculated by ONS. For more details on the calculation of fertility rates see section on Notes and Definitions.
4. This chart uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download chart
XLS format
(24 Kb)
Table 11: Impact of the fertility of non-UK born women on the total fertility rate, by area of usual residence in the UK, 2011

<table>
<thead>
<tr>
<th>Area</th>
<th>Extra children per woman</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>0.08</td>
</tr>
<tr>
<td>‘England excluding London’</td>
<td>0.07</td>
</tr>
<tr>
<td>London</td>
<td>0.25</td>
</tr>
<tr>
<td>Wales</td>
<td>0.04</td>
</tr>
<tr>
<td>Scotland</td>
<td>0.02</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Table notes:
1. Non-UK born women include those whose country of birth is not stated.
2. Total fertility rates (TFRs) calculated by ONS. Impact is calculated by subtracting the unrounded TFR for UK born women away from the unrounded TFR for all women. For more details on the calculation of fertility rates see section on Notes and Definitions.
3. Sources: Birth registrations from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

The impact of the fertility of women born abroad on the total fertility rate (TFR for UK born and non-UK born combined) is at its greatest in London, where fertility was 0.25 of a child higher per woman in 2011 because of the presence of women born outside the UK (Table 11). This is because in London a much larger proportion of the childbearing age population (nearly half) was born abroad compared with the rest of the UK (see Figure 21). The fertility of non-UK born women in Wales, Scotland and Northern Ireland has very little impact on their overall TFRs because of the very small proportion of non-UK born women in these areas.

Further differences in fertility between UK areas are evident when comparing age-specific fertility rates (ASFRs) for 2011. Among UK born women aged under 30, ASFRs in Wales and ‘England excluding London’ are higher than the UK benchmark, but ASFRs are lower in Scotland, and considerably lower in London (Figure 25). As expected the ASFRs for non-UK born women [2] are generally higher than for the UK born across all of the areas (Figure 26). The chart for non-UK born women shows a flatter peak because, with the exception of Scotland, the fertility rates for 25 to 29 and 30 to 34 year olds are broadly similar, so the peak is across two age groups. This contrasts with the fertility of women born in the UK which peaks at age 30 to 34 in most areas, excluding Wales where the peak occurs in the 25 to 29 group.

London shows a different profile of ASFRs for UK born women compared with the other areas of the UK, with lower fertility rates among women in their twenties and higher for women aged 35 or over.
Although London has a similar proportion of women of childbearing age who are in their twenties, it has fewer births to women in these age groups. This may relate to the high proportion of women in their twenties in London who are students, or have moved to the capital for career opportunities and perhaps chosen to postpone childbearing until they are older [3] [4]. For non-UK born women living in London, the ASFRs for 20 to 24 and 25 to 29 year olds are more in line with the corresponding rates for other areas. Overall, the non-UK born ASFR profile for London is closer to that observed for the other areas of the UK than the UK born profile was, because all areas are seeing higher levels of fertility in older foreign born women than older UK born women.

In contrast, Scotland (which has the same TFR of 1.73 children per UK born woman as London) follows the profile for the UK but at a lower level, because at every age group it has fewer births relative to the size of its UK born population. This is also the case for non-UK born women in their twenties in Scotland who have relatively low fertility rates; however for non-UK born women aged 30 and over, the age profile follows the national pattern.

Wales shows a younger age pattern of fertility for both UK and non-UK born women. Women living in Wales had the highest fertility rates for UK born 15 to 29 year olds of all UK areas, and equal highest for non-UK born women aged 25 to 29. Wales also has the lowest fertility rates for both groups aged 35 and over.

Figure 25: Age-specific fertility rates (ASFRs) for UK born women living in the UK, by area of usual residence in the UK, 2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency
Notes:
1. The age-specific fertility rates (ASFR) are calculated by ONS. The 40-44 age group uses births to women aged 40 plus and population estimates for women aged 40-44 (from the Annual Population Survey (APS)). For more details on the calculation of fertility rates see section on Notes and Definitions.
2. This chart uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

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**Figure 26: Age-specific fertility rates (ASFRs) for non-UK born women living in the UK, by area of usual residence in the UK, 2011**

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Non-UK born women include those whose country of birth is not stated.
2. The age-specific fertility rates (ASFRs) for Northern Ireland are not robust, because of the small sizes of the population samples used in the calculation of the fertility rates.
3. The age-specific fertility rates (ASFRs) are calculated by ONS. The 40-44 age group uses births to women aged 40 plus and population estimates for women aged 40-44 (from the Annual Population Survey (APS)). For more details on the calculation of fertility rates see section on Notes and Definitions.
4. This chart uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).
Between 2007 and 2011, London and ‘England excluding London’ both saw statistically significant rises in the total fertility rate (TFR) for UK born women, consistent with the increase in the UK as a whole (Figure 27). Throughout this period the area with the highest fertility rate was Northern Ireland, which along with Wales and ‘England excluding London’ had higher fertility among the UK born than the UK as a whole. On average for the years 2007 to 2011, the fertility rate in Northern Ireland was 0.18 above that for the UK, with Wales 0.07 above. The TFR for UK born women in London was the lowest in 2007 but showed a year on year increase from 1.54 children per woman in 2007 to equalling the rate for Scotland (1.73) by 2011, though remaining 0.16 below the UK fertility rate.

**Figure 27: Total fertility rates (TFRs) for UK born women living in the UK, by area of usual residence in the UK, 2007-2011**

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Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

**Notes:**

1. Total fertility rates (TFRs) calculated by ONS. For more details on the calculation of fertility rates see section on Notes and Definitions.
2. This chart uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.
Conversely, non-UK born women living in ‘England excluding London’ and London both saw statistically significant decreases in their TFRs between 2007 and 2011 (Figure 28). For example, the TFR for non-UK born women for ‘England excluding London’ dropped from 2.59 in 2007 to 2.32 in 2011, while for London it dropped from 2.50 to 2.28 children per woman. Since 2009 the fertility rate for London has been identical to that of the UK, with the fertility rate for ‘England excluding London’ consistently above both of them, and the rate for Scotland consistently below.

Changes can also be seen in Scotland, Northern Ireland and Wales, but the small sample sizes for these populations means that the changes lie within the 95 per cent confidence intervals and therefore could result from sampling error rather than a true change in the fertility rate. In particular the TFRs for non-UK born women living in these three areas fluctuate suggesting they are less robust than those for London or ‘England excluding London’.

Figure 28: Total fertility rates (TFRs) for non-UK born women living in the UK, by area of usual residence in the UK, 2007-2011

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. Non-UK born women include those whose country of birth is not stated.
2. Total fertility rates (TFRs) calculated by ONS. For more details on the calculation of fertility rates see section on Notes and Definitions.
This chart uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download chart

Notes

1. The uncertainty of the fertility rates is particularly evident for the rates for Northern Ireland and the non-UK born rates in Wales and Scotland.

2. The age-specific fertility rates (ASFRs) for the non-UK born women show greater variation across the areas, partly because of the use of smaller samples of population in the calculation of the fertility rates. This is particularly the case for Northern Ireland, whose ASFRs should be treated with caution.


Summary

There are large differences in 2011 in the percentage of births to women born outside the UK between the five UK areas considered in this report. These are not just a result of some areas having a larger proportion of their female population of childbearing age born abroad than other areas, although that is clearly an important factor. The estimated fertility rates presented here show that the fertility of non-UK born women is significantly higher than for UK born women in all areas except Scotland. They also show that known geographical differentials in fertility may be evident among both UK born and non-UK born women. This suggests that there could be differences in the fertility behaviour of women living in different areas irrespective of whether they were born within or outside the UK. However the caveat remains that fertility rates may be distorted by timing of births rather than simply reflecting real differences in completed family size between groups.

Non-UK born women are not a homogenous group in terms of childbearing behaviour or migration history. Therefore variations in fertility between UK areas could result from differences in the make up of the non-UK born population living in different areas, in terms of country of birth or year of
arrival in the UK. The final section of this report investigates subnational differences within the non-UK born group in more detail.

Subnational variation in childbearing among non-UK born women born in specific countries

This section explores further the themes from the previous two sections, by investigating both the childbearing patterns of the top five non-UK countries of birth (section 4) and whether there are any differences between the five areas of the UK (section 5).

The top five non-UK countries of birth used here are the top five for the whole UK. Specific areas have different top five compositions (for example, the Republic of Ireland is the second most common non-UK country of birth in Northern Ireland, but doesn't feature in the top five for the other areas), but for ease of comparison we have used the same top five for all areas [1].

While there are other patterns that could be examined in greater detail, due to space and data constraints only a few key ones are presented to illustrate the variation that occurs between areas when looking at the fertility of women born in different countries.

Notes

1. Appendix 1 (Table 3) provides the top 5 non-UK countries of birth for each of the five areas of usual residence of non-UK born mothers.

How does the distribution of live births vary by mothers' country of birth?

Figure 29 shows where in the UK births to women born in the top five non-UK countries took place in 2011. The number of births in London is fairly similar for women born in each of the top five countries, but the number of births occurring in ‘England excluding London’ varies substantially. The chart also shows the modest contribution that women living in Wales, Scotland and Northern Ireland make to the total UK figures, particularly for births to women born in Bangladesh, which take place almost exclusively in England.

The geographical distribution of births varies according to mothers’ country of birth. For example, while the number of births in London is similar for women born in Poland and Nigeria, the proportion of the total births they constitute for that country of birth is not.

Births in London represent only 21 and 23 per cent of total births to women born in Pakistan and Poland respectively in 2011, but 60 per cent of births to women born in Nigeria. So births to women born in Nigeria are highly concentrated in London, but there are many more births to women born in Poland or Pakistan in the rest of England than in London.
These geographical variations in births raise the question of whether these differences are simply due to differences in the numbers or proportions of women of childbearing age born in different countries living in each UK area or whether there could also be differences in fertility rates for women born in specific countries according to where they live in the UK. This can be investigated by comparing general fertility rates (GFRs) for the top five countries of birth between areas of the UK.

How does the general fertility rate (GFR) vary between maternal countries of birth in ‘England excluding London’ and London?

Section 4 examined some of the differences in general fertility rates (GFRs) for non-UK born mothers from five different countries of birth and living in the UK. This section presents GFRs for the same five groups of women but compares those living in London with those living in 'England excluding London'. These two areas have been selected as they offer the most robust estimates [1].
Women born in each of the five countries have significantly higher GFRs in both London and 'England excluding London' than UK born women living in those areas. This is also the pattern in Wales, Scotland and Northern Ireland but the confidence intervals are too large to say that all of the differences are significant in these areas.

For women living in London in 2011, Figure 30 shows clear differences in the GFR according to country of birth. Non-UK born women living in London can be divided into two groups: the high fertility group of Pakistan and Nigeria (GFR around 150-160) and the lower fertility group of Bangladesh, Poland and India (GFR around 100).

The differences within these two groups are not statistically significant, but with the exception of the difference between Nigeria and Bangladesh, the differences between the groups are statistically significant at the 95 per cent confidence level (Table 12). The UK born GFR of 58 in London is similar to that seen in the UK as a whole and is significantly lower than the GFRs for each of the top five non-UK born groups.

It is clear that the fertility of non-UK born women in London is not homogenous, with substantial differences in GFR between countries of birth. The patterns seen for the UK (see figure 10) are reflected here (as would be expected given the large proportional contribution that London makes to the overall UK figures).

**Figure 30: General fertility rates (GFRs) for the top five non-UK maternal countries of birth and for UK born mothers, living in London, 2011**
Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

Notes:
1. For more details on the calculation of fertility rates see section on Notes and Definitions.
2. This chart uses general fertility rates (GFRs) calculated by the Office for National Statistics (ONS) using birth registration data from ONS, National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download chart

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(25 Kb)

Table 12: Statistically significant difference matrix, London, 2011

<table>
<thead>
<tr>
<th>2011 Significant differences matrix for London</th>
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<tbody>
<tr>
<td>Pakistan</td>
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<tr>
<td>Pakistan</td>
</tr>
<tr>
<td>Nigeria</td>
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<tr>
<td>Bangladesh</td>
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<tr>
<td>India</td>
</tr>
<tr>
<td>Poland</td>
</tr>
<tr>
<td>UK</td>
</tr>
</tbody>
</table>

Table notes:
1. Significance level is 95 per cent.
2. Source: Office for National Statistics (ONS).

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General fertility rates (GFRs) for women living in ‘England excluding London’ in 2011 also vary between the top five countries of birth (Figure 31). However it is evident that the groups of similar levels seen for the UK as a whole and London are not as well defined in ‘England excluding London’. For example, in this area the GFRs for women born in Pakistan and Bangladesh are not significantly different from each other. The GFRs for women born in Nigeria and Bangladesh are similar at around 120, a higher level for women born in Bangladesh and a lower level for women born in Nigeria when compared with the results for London.

Women born in Poland and India living in ‘England excluding London’ have GFRs of around 95, a similar level to those living in London and the UK as a whole.
The only significant differences in 2011 for non-UK born women in ‘England excluding London’ are between women born in Pakistan and those born in India and Poland (Table 13). As seen in London, women born in each of the five non-UK countries have significantly higher GFRs than UK born women. While fertility differences between non-UK born groups in ‘England excluding London’ are not significant in all cases, there are still different levels of GFRs and the same countries with higher or lower GFR as for London and the UK as a whole.

**Figure 31: General fertility rates (GFRs) for the top five non-UK maternal countries of birth and for UK born mothers, living in ‘England excluding London’, 2011**

Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency

**Notes:**
1. For more details on the calculation of fertility rates see section on Notes and Definitions.
2. This chart uses general fertility rates (GFRs) calculated by the Office for National Statistics (ONS) using birth registration data from ONS, National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA). Populations are estimated from the Annual Population Survey (APS), ONS.

Download chart

[XLS format](18.5 Kb)
Table 13: Statistically significant difference matrix, 'England excluding London', 2011

<table>
<thead>
<tr>
<th>2011 Significant differences matrix for 'England excluding London'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
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<tr>
<td>Pakistan</td>
</tr>
<tr>
<td>Nigeria</td>
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<tr>
<td>Bangladesh</td>
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<tr>
<td>India</td>
</tr>
<tr>
<td>Poland</td>
</tr>
<tr>
<td>UK</td>
</tr>
</tbody>
</table>

Table notes:
1. Significance level is 95 per cent.
2. Source: Office for National Statistics (ONS).

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(25.5 Kb)

One factor that could explain any differences in GFR between maternal countries of birth within the UK is different age distributions within the same groups living in different areas. The age distributions in "England excluding London" are very similar to the whole of UK age distributions, and so are not shown separately.

The age distributions in London (Figure 32) appear similar to the UK distributions for the same countries of birth (Figure 12). However it is possible to see some differences, for example the population born in Poland and living in London is much more evenly distributed between the 25 to 29 and 30 to 34 age groups than at the UK level where a large peak can be seen solely in the 25 to 29 age group.

This difference in the age structure does not appear to have had a large effect on the GFR, though the GFR for women born in Poland and living in London is slightly higher than the UK GFR for the same group. The greater proportion of women in the 30 to 34 age group, where both UK born and non-UK born ASFRs are typically highest, could explain the difference in GFR between London and UK for women born in Poland [2].
While there appear to be differences between the GFRs for London and ‘England excluding London’ for specific countries of birth (Figures 30 and 31), none of the differences between London and ‘England excluding London’ for 2011 are significant at the 95 per cent confidence level. This illustrates the caution that must be taken when comparing point estimates, and why their confidence intervals must be considered.

In summary, it is not possible to confirm whether or not there are differences between the fertility of women born in the five top non-UK countries according to the area within the UK of mothers’ usual residence. This does not mean that there is no relationship between area of residence and fertility rates by country of birth, but it is not possible to confirm a relationship due to the limitations of these data.

**Notes**

1. Due to data robustness it is not possible to produce age-specific fertility rates (ASFRs) for women born in Poland with the desired level of accuracy in this report. The Office for National Statistics (ONS) plans to use 2011 Census data to undertake more detailed research on ASFRs for specific countries of birth.
Estimated female populations by country of birth for Wales, Scotland and Northern Ireland are too small to produce robust fertility rates for women born in individual countries.

**Summary**

Births to women born in Poland, Pakistan, India, Bangladesh and Nigeria are not evenly spread around the UK. This may reflect a combination of where these populations are living in the UK, how the age structure varies in different parts of the UK and possibly differences in fertility among women born in different countries who are living in different areas.

Although this section has shown significant differences in the general fertility rate (GFR) in both London and the rest of England between women born in these five countries, the limitations of the available data mean that it is not possible to tell whether, for example, women born in Pakistan living in London have a different level of fertility to their counterparts in ‘England excluding London’.

A detailed examination of subnational variations in childbearing by mothers’ country of birth would require much more extensive investigation. Once more detailed 2011 Census figures for populations by country of birth are available, ONS intends to analyse the 2011 fertility differences between women born in different countries, including investigation of area of residence at the same time, using these more robust data.

**Conclusions**

Over the past decade the proportion of births in the UK to mothers born outside the UK has continued to rise, to 24 per cent of births by 2011. Underlying this apparently simple change is a complex interaction of demographic processes.

For example, the increasing proportion of foreign born women in the UK population between 2007 and 2011 is as much a result of the shrinking UK born female population aged 15 to 44 [1] as it is to net immigration of foreign-born women. Similarly, although non-UK born women living in the UK have higher fertility than their UK born counterparts, it is the UK born group who have seen rising fertility rates in recent years.

While the latter could be partially explained by the impact of second generation migrants, it is not possible to confirm this using birth registration data because ethnicity is not available from this dataset. When age is added into the analysis, the picture becomes more complex; however both UK born and non-UK born women are experiencing the same shift towards higher fertility at older ages (35 and over).

The report has also highlighted variation within the UK [2], where the proportion of births to women born outside the UK ranged from 11 per cent in Wales to 57 per cent in London in 2011. Although many of these differences can be explained by variation in population characteristics in different areas, some interesting fertility differentials have also emerged.

For example the difference between the total fertility rates (TFRs) for UK born and non-UK born women was highest in London in 2011, but this was due to the TFR for UK born women in London
being well below average for that group, not because the non-UK born group had a TFR any higher than their counterparts in other UK areas. In Scotland, the fertility of UK born and non-UK born women are both below the national averages, which illustrates that where people live may impact on childbearing behaviour as much as where they were born.

Poland, Pakistan, India, Bangladesh and Nigeria were the five most common countries of birth of non-UK born mothers giving birth in the UK in 2011. General fertility rates (GFRs) for the UK show that women born in Pakistan and Nigeria had the highest fertility in 2011, followed by those born in Bangladesh, then India and then Poland. The finding that women born in Poland had a similar level of fertility to those born in India and higher fertility than UK born women may be initially surprising, given the low fertility in Poland itself [3].

However this can be explained by the younger age structure of the population born in Poland (which the general fertility rate does not control for) and by timing effects, given that the majority of those born in Poland will have been people of young working age who have migrated to the UK since EU accession in 2004. It does not indicate that women born in Poland are having larger families than the UK born, as annual measures of fertility are poor measures of completed family size for either UK born or foreign born women.

If the number of women of childbearing age in the UK who were born in Poland continues to increase relative to other groups, this could act to decrease the overall fertility of non-UK born women living in the UK in future [4], given that the fertility of this group is lower than seen in some other non-UK born groups.

However future changes in the fertility of UK born and non-UK born women are difficult to project as they depend on a variety of factors that are difficult to quantify, including future migration flows between different countries, global changes in fertility and the extent of convergence in fertility between first, second and third generation migrants to the UK and the indigenous UK population.

This report has highlighted the shortcomings of using survey data to estimate populations by country of birth for women of childbearing age, and of using the general fertility rate as a measure of fertility. In the near future, data from the 2011 Census should overcome these shortcomings. Once detailed Census tables on the population by country of birth, age and sex are available, ONS intends to produce 2011 total fertility rates (TFRs) for women born in selected country groups and living in England and Wales [5].

Because the population denominators will be more reliable than comparable survey estimates, it should be possible to produce robust TFRs for a larger number of countries or country groups than in this report. Such fertility rates will provide the most up-to-date estimates of fertility differentials between women born in different countries. However they will still have limitations in that they will not provide an accurate picture of likely differences in completed family size.

Annual fertility estimates such as those presented here complement academic work using alternative data sources and methods (such as the ‘own child method’ based on survey data on children living in the household [6]). Such research is able to delve more deeply into questions such as the impact of the timing of childbearing on fertility or the combined effect of ethnicity as well as country of birth on fertility.
However it can also be limited by survey sample sizes and thus be less up-to-date due to the need
to combine several years of data to obtain reliable estimates. In combination, both this detailed
research and the annual estimates in this report can provide a fuller picture of childbearing among
UK and non-UK born women living in the UK.

Notes

1. The decreasing UK born population of women aged 15 to 44 is due to the large cohorts of
women born in the 1960s “ageing out” of childbearing age and being replaced by smaller
cohorts of women born in the late 1990s.

2. When considering five areas – London, ‘England excluding London’, Wales, Scotland and
Northern Ireland.

3. Latest estimates of the total fertility rate (TFR) for Poland are around 1.3 children per woman
(e.g.Population Reference Bureau 2012 World Population Data Sheet. The TFR in Poland has
been below 1.5 for over a decade.

Population Change working paper number 27.

5. It may also be possible to extend this analysis to the whole of the UK.

6. For example, Dubuc (2012). Immigration to the UK from High-Fertility Countries:
Intergenerational Adaptation and Fertility Convergence. Population and Development Review 38
Centre for Population Change working paper number 27.

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APPENDIX 1: Data tables

Births numbers by area of mother’s usual residence for UK and non-UK born mothers are given here. These expand on the information shown in table 10 by including age group.

Tables 1 and 2 split the number of births by the mothers area of usual residence. The modal group for each area is shown in bold.

Table 1. Number of births, by age group in each area and in the UK for UK born women, 2011

<table>
<thead>
<tr>
<th>Age Group</th>
<th>'England excluding London'</th>
<th>London</th>
<th>Wales</th>
<th>Scotland</th>
<th>Northern Ireland</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>28.9</td>
<td>2.6</td>
<td>2.3</td>
<td>3.2</td>
<td>1.1</td>
<td>38.1</td>
</tr>
<tr>
<td>20-24</td>
<td>93.8</td>
<td>8.8</td>
<td>7.5</td>
<td>9.6</td>
<td>3.7</td>
<td>123.3</td>
</tr>
<tr>
<td>25-29</td>
<td>121.8</td>
<td>12.8</td>
<td>9.1</td>
<td>13.2</td>
<td>6.2</td>
<td>163.1</td>
</tr>
<tr>
<td>30-34</td>
<td>121.4</td>
<td>18.2</td>
<td>7.9</td>
<td>14.1</td>
<td>6.6</td>
<td>168.1</td>
</tr>
<tr>
<td>35-39</td>
<td>67.3</td>
<td>11.7</td>
<td>4.0</td>
<td>8.2</td>
<td>3.7</td>
<td>94.8</td>
</tr>
<tr>
<td>40-44</td>
<td>17.0</td>
<td>3.4</td>
<td>1.0</td>
<td>2.0</td>
<td>0.9</td>
<td>24.2</td>
</tr>
<tr>
<td>15-44</td>
<td>450.1</td>
<td>57.5</td>
<td>31.8</td>
<td>50.2</td>
<td>22.1</td>
<td>611.7</td>
</tr>
</tbody>
</table>
Table source: Office for National Statistics

Table notes:
1. Modal groups are in bold.
2. Births to women older than 44 are included in the 40-44 and the 15-44 age groups.
3. Numbers may not sum exactly to totals (15-44 group) due to rounding.
4. This table uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

Download table

Table 2: Number of births, by age group in each area and in the UK for non-UK born women, 2011

<table>
<thead>
<tr>
<th>'England excluding London'</th>
<th>London</th>
<th>Wales</th>
<th>Scotland</th>
<th>Northern Ireland</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>1.6</td>
<td>1.0</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>20-24</td>
<td>14.9</td>
<td>9.3</td>
<td>0.6</td>
<td>1.1</td>
<td>0.4</td>
</tr>
<tr>
<td>25-29</td>
<td>34.1</td>
<td>21.6</td>
<td>1.2</td>
<td>2.7</td>
<td>1.0</td>
</tr>
<tr>
<td>30-34</td>
<td>33.5</td>
<td>25.0</td>
<td>1.2</td>
<td>2.8</td>
<td>1.1</td>
</tr>
<tr>
<td>35-39</td>
<td>17.3</td>
<td>14.5</td>
<td>0.6</td>
<td>1.4</td>
<td>0.5</td>
</tr>
<tr>
<td>40-44</td>
<td>3.9</td>
<td>3.9</td>
<td>0.1</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>15-44</td>
<td>105.3</td>
<td>75.4</td>
<td>3.8</td>
<td>8.3</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Table source: Office for National Statistics

Table notes:
1. Modal groups are in bold.
2. Non-UK born women include those whose country of birth is not stated.
3. Births to women older than 44 are included in the 40-44 and the 15-44 age groups.
4. Numbers may not sum exactly to totals (15-44 group) due to rounding.
5. This table uses birth registration data from the Office for National Statistics (ONS), National Records of Scotland (NRS) and Northern Ireland Statistics and Research Agency (NISRA).

Download table

Table 3 provides the top five maternal countries of birth for each of the areas of usual residence that have been investigated in this report (see section 6.1).
Table 3: Top 5 countries of birth for non UK-born mothers, by mothers area of usual residence, 2011

<table>
<thead>
<tr>
<th>Position</th>
<th>England excluding London</th>
<th>London</th>
<th>Wales</th>
<th>Scotland</th>
<th>Northern Ireland</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poland</td>
<td>India</td>
<td>Poland</td>
<td>Poland</td>
<td>Poland</td>
</tr>
<tr>
<td>2</td>
<td>Pakistan</td>
<td>Poland</td>
<td>Bangladesh</td>
<td>Pakistan</td>
<td>Republic of Ireland</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>Nigeria</td>
<td>India</td>
<td>India</td>
<td>Lithuania</td>
</tr>
<tr>
<td>4</td>
<td>Germany</td>
<td>Bangladesh</td>
<td>China</td>
<td>Germany</td>
<td>India</td>
</tr>
<tr>
<td>5</td>
<td>Bangladesh</td>
<td>Pakistan</td>
<td>Pakistan</td>
<td>China</td>
<td>Phillipines</td>
</tr>
</tbody>
</table>

Table source: Office for National Statistics

Download table

XLS format
(25 Kb)

APPENDIX 2: Questions and Answers

If populations by age group are not sufficiently robust for TFR / ASFR calculation, why are they shown?

While the populations of women born in specific non-UK countries are not sufficiently robust at the 5 year age group to calculate ASFRs, we are able to show age distributions within populations (for example figure 12). This is because we assume for the purposes of these charts that the uncertainty we have is around the total size of that population, not about the age distribution within it. It would be valid, though much more complex, to attempt to calculate confidence intervals around specific age groups, to allow the calculation of ASFRs. However this approach would lead to very wide confidence intervals as explained later, in question c).

Why are the confidence intervals around fertility rates not symmetrical?

The confidence intervals indicated on the TFR and GFR graphs are asymmetrical (as seen in figure 24), which seems counter-intuitive at first. The uncertainty around the rates is derived from the population denominator used to calculate them, which comes from survey data. This means that to create the confidence intervals on the rates, we use the same numerator (number of births) against high and low population denominators. This means that while the confidence interval around the population estimate is symmetrical, the impact this will have on the rate is not.

A simple example is given below:

- Survey population estimate of women aged 15-44 = 5,000 with a confidence interval of +/- 600.
- Births to women in this population = 300 (no confidence interval.)
So the GFR is:

\[(300 / 5000) * 1000 = 60.\]

Lower limit: \( \text{GFR} = (300 / 5600) * 1000 = 53.57 \) (6.43 lower than the central GFR estimate).

Upper limit: \( \text{GFR} = (300 / 4400) * 1000 = 68.18 \) (8.18 higher than the central GFR estimate).

Thus even though the confidence interval is the same magnitude above or below the survey population estimate, the impact it has on the rate will be different. Due to the nature of the GFR calculation the upper limit will always be further from the estimate than the lower limit.

**How are the confidence intervals around the TFR calculated?**

The calculation of confidence intervals around the TFR is more complex than for other rates and estimates. This occurs because the TFR is not a rate in the true sense of the word, as it is a composite of a number of other rates (the ASFRs). This means that while the calculation of confidence intervals around the populations that are used to derive the ASFRs is not technically complex, when these confidence intervals are applied to each age group, the composite effect is a much harsher test than needs to be applied for statistical significance.

The example illustrates why:

**Table 1: Dummy data to show the effect of confidence intervals on the TFR**

<table>
<thead>
<tr>
<th>Age group</th>
<th>Estimate</th>
<th>Confidence interval</th>
<th>High Population estimate</th>
<th>Low Population estimate</th>
<th>Births</th>
<th>Mid ASFR</th>
<th>Upper limit ASFR</th>
<th>Lower limit ASFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-29</td>
<td>120</td>
<td>45</td>
<td>165</td>
<td>75</td>
<td>10</td>
<td>83</td>
<td>133</td>
<td>61</td>
</tr>
<tr>
<td>30-44</td>
<td>200</td>
<td>70</td>
<td>270</td>
<td>130</td>
<td>15</td>
<td>75</td>
<td>115</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>320</td>
<td>90</td>
<td>410</td>
<td>230</td>
<td>25</td>
<td>TFR = 2.37</td>
<td>TFR = 3.72</td>
<td>TFR = 1.74</td>
</tr>
</tbody>
</table>

The simplified example above shows a population where the confidence interval around the total population is 90, but the confidence intervals for the individual groups sum to 115. (As you would expect, the more the estimates are broken down, the greater the uncertainty). This means that if the ASFRs are calculated using the age specific confidence intervals, they will be over cautious as to the confidence of the interval, thus giving a large range of possible values of the TFR (1.74 – 2.37 – 3.72).

In this example, using a 95 per cent confidence interval around both age groups does not produce the desired effect, because it ignores the fact that we are more confident about the total figure than we are about the individual age groups.
This occurs because a 95 per cent confidence interval denotes that we are prepared to accept
a 5 per cent risk that the true estimate lies outside our interval. When we apply two 95 per cent
confidence intervals and combine their results (by using the individual intervals to calculate high /
low possibilities separately), we are effectively stating that we are prepared to accept only a 5 per
cent error from each age group. This means that the overall error we are prepared to accept if we
calculate the TFR from them falls to 0.25 per cent (5 per cent x 5 per cent).

This means that the confidence intervals for the TFRs end up very large as the process of combining
six age groups, means that a higher level of precision is implied than is sought. (The aim is to be 95
per cent confident about the overall TFR not the individual components of it).

For this reason, we have calculated confidence intervals around the total population and then
distributed this uncertainty between the age groups. Thus the age distribution of the population
observed is assumed to be correct, while the size of the population of interest is assumed to contain
the uncertainty. This allows us to represent the uncertainty in the estimates, but does not over
emphasise it, nor establish a higher level of precision than required. An estimate of each ASFR with
confidence intervals would not be incorrect, but would give a much higher level of confidence than
would normally be used.