

Statistical bulletin

Childbearing for women born in different years, England and Wales: 2013

The changing composition of families over time, comparing the fertility of women of the same age and the number of children they have had.



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Next release:
To be announced

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1 . Main points

- The average completed family size for women born in 1968, and reaching age 45 in 2013, was 1.92 children per woman. This compares with their mothers' generation, represented by women born in 1941, who had on average 2.34 children
- Two children was the most common family size for women born in both 1941 and 1968
- The level of childlessness among women born in 1968 (18%) is higher than for women born in 1941 (11%). One in ten women born in 1968 had four or more children, compared with nearly one in five women born in 1941
- Women born in 1983 – the most recent cohort to reach age 30 - have had slightly fewer children on average (1.02) by their 30th birthday than women born in 1968 who had 1.15 children by the same age

2 . Introduction

This release previously called 'Cohort Fertility' has been renamed as "Childbearing for women born in different years" and presents statistics on childbearing among women in England and Wales. These figures are presented by the year of birth of mother – for groups of women born in the same year - rather than by the year of birth of child. The estimates have been updated with 2013 births, the latest data available, which means that completed family size for women born in 1968 (women reaching age 45 in 2013) is presented for the first time. Although the release is now called "Childbearing for women born in different years" we shall be using the word "cohort" at places within the text for simplicity. A cohort in this statistical bulletin is a technical word to describe a group of women born in the same year.

This statistical bulletin provides supporting commentary for the release, which includes data tables on:

1. Average number of live-born children by age and year of birth of woman, 1920-1998
2. Proportion of women who have had at least one live birth, by age and year of birth of woman, 1920-1998. The proportion of women who have not had children (see [childlessness definition](#)) is also shown in this table
3. Percentage distribution of women of childbearing age by number of live-born children, by age and year of birth of woman, 1920-1994
4. Age-specific fertility rates by age and year of birth of woman, 1920-1998

This new interactive web page [Changing family size](#) lets you compare childbearing patterns for your cohort, to those of other cohorts to examine how childbearing has changed over time. This is a non-functional reproduction of the page.

Changing Family Size

Compare childbearing statistics of women your age with those from your mother's generation

What year were you born?

Enter a year between 1920-1998

1981

What year was your mother born?

Enter a year between 1920-1980

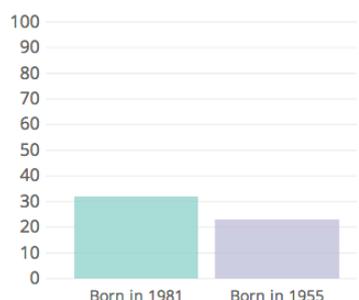
1955

or ...

use the average birth year of a mother for someone of your age

Compare

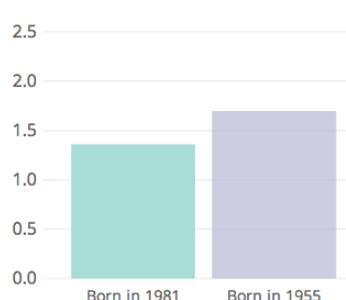
Percentage of women with no children at your age



32% of women born the same year as you had not had any children by the end of 2013.

In comparison, 23% of women born the same year as your mother had not had any children when they were your age.

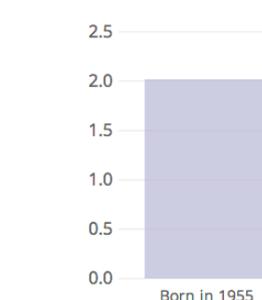
Average number of children for women at your age



1.36 was the average number of children that women born in the same year as you had by the end of 2013.

In comparison, 1.70 was the average number of children that women born in the same year as your mother had when they were your age.

Average number of children for women at the end of their childbearing years²



2.02 was the average number of children that women born in the same year as your mother had by the end of their childbearing years.

16% of women born the same year as your mother had no children by the end of their childbearing years.

The methods used to create these estimates by cohort / birth year of women require the use of data collected from women at birth registration on the number of previous children they have had. At present this information is not collected for men. Without this information it is not possible to produce an estimate of the proportion of men who have not fathered a child.

Even if full information on previous births was collected for men, due to the method used to compile these estimates, there would be a long delay before any comparable statistics could be produced using these cohort methods. In addition approximately 6% of births are registered without information on the father and these births further affect our ability to generate statistics for male fertility.

[Male fertility rates for 2013](#) are published on the same day as this release, and this release includes some methodological details on how we deal with sole registrations.

3 . Childlessness definition

Childlessness is defined as the condition of being without children. There are two distinguishable types of childlessness, voluntary and involuntary. The difference between the two is mostly self-defined. Voluntary childlessness, also described as childfree, child-free, childless by choice or childfree by choice¹, relates to women who have chosen not to have children. Involuntary childlessness relates to women who are without a child because of circumstance or biology rather than choice.

The Office for National Statistics publishes data on all childless women, whether by circumstance or by choice. This is in line with the United Nations definition of childlessness².

Notes for childlessness definition

1. ["Childless by Choice Project"](#)
2. [United Nations World Fertility Report 2009](#)

4 . Key figures

Table A shows the average family size and estimated family size distribution for women who have completed their childbearing years in 2013, and of the cohort assumed to be their mothers. The 1941 cohort is assumed to be their mothers' generation because the average age of mothers giving birth in 1968 was 27 years, and so women of that age were assumed to be born in 1941.

This comparison of the most recent cohort to have finished their childbearing with their mothers' cohort lets us examine change over time. The completed family size of the 1968 cohort is much smaller than for the 1941 cohort, and the proportion of women remaining childless is substantially higher for the 1968 cohort.

Table A: Average family size and estimated family size distribution for women who have completed their childbearing, by year of birth of woman, selected cohorts

England and Wales

Year of birth of woman ²	Average completed family size	Number of live-born children (%) ¹						Total ³
		0	1	2	3	4+		
1941	2.34	11	13	37	22	17	100	
1968	1.92	18	17	37	18	10	100	

Source: Office for National Statistics

Notes:

1. Percentage of women with 0, 1, 2, 3 or 4+ children who have completed their families
2. The 1968 cohort is the latest group assumed to have completed their childbearing. The 1941 cohort is assumed to be their mothers' generation because the average age of mothers giving birth in 1968 was 27 years, and women of that age were born in 1941
3. Figures may not add exactly due to rounding

5 . What is cohort fertility?

A cohort is a group of people having experienced during the same period a particular event (birth or marriage, for example). In this bulletin birth is the event considered; therefore the cohort will be called a birth cohort, e.g. the 1983 female birth cohort will refer to all women born during the year 1983 in England and Wales.

Cohort fertility analyses explore whether current generations of women of childbearing age are reaching, exceeding or falling short of the fertility levels of previous generations. This bulletin contains statistics on changes in average family size for past and present cohorts, levels of childlessness for different cohorts of women, and the proportions of women having one, two or more children.

The key cohort presented here is women born in 1968, who were aged 45 in 2013. This is the most recent cohort that is assumed to have completed their childbearing¹. This statistical bulletin compares the completed family size of women born in 1968 with that of their mothers' generation; the average age of mothers giving birth in 1968 was 27 years, and women of that age were assumed to be born in 1941.

Women born in 1983, who have reached age 30 in 2013, are also used as a comparison group, as age 30² may be considered the mid-point of childbearing age which starts from age 15 and to age 45. This bulletin compares the achieved fertility of the 1983 cohort by this age with that of previous cohorts by the same age.

Notes for what is cohort fertility?

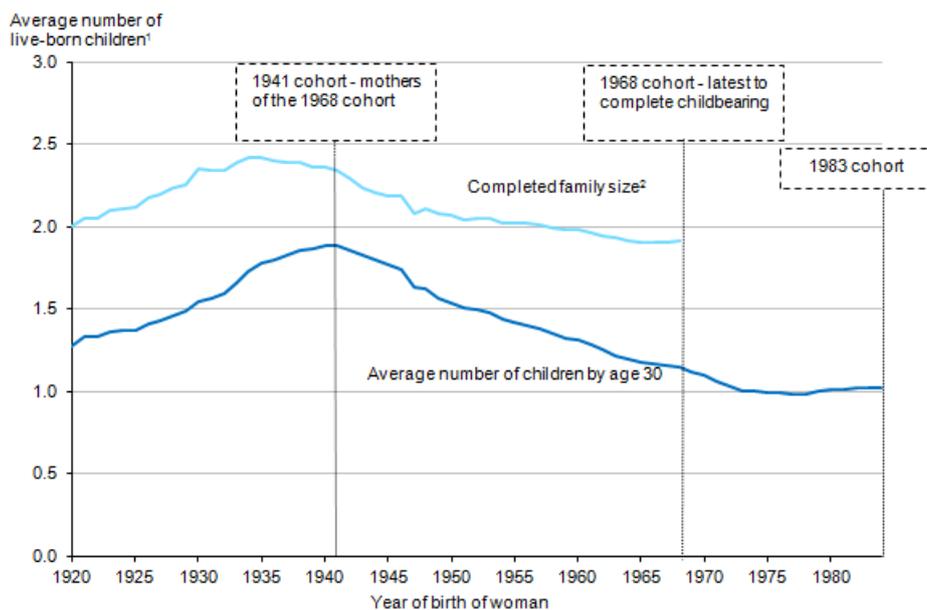
1. A woman is assumed to have completed her childbearing by the last day she is aged 45, that is by her 46th birthday (exact age 46). Completed fertility includes fertility rates up to and including age 45. See background note 4 for a more technical explanation
2. The ages of women are presented in 'exact years'. Therefore figures should be interpreted as the average number of children a woman has had up to that birthday. So childbearing up to exact age 30 includes cumulative fertility through her lifetime up to the day before her 30th birthday. Any childbearing in the 12 months from her 29th birthday onwards will be included in fertility up to exact age 30. See background note 4 for a more technical explanation

6 . Average family size

Figure 1 shows the average number of live-born children (completed family size) for women who are assumed to have completed their childbearing. This is a cumulative measure derived from summing the fertility rates of female birth cohorts at each age from 15 to 45 and over. The most recent cohort to complete their childbearing (women born in 1968) had on average 1.92 children, a slight rise from the previous three cohorts (1965-7). Average completed family size peaked at 2.42 children for women born in 1935, and has been falling since. Women belonging to the 1958 cohort were the first estimated to have an average completed family size of fewer than two children over their childbearing lifetime. This decrease in the average family size is mainly due to rising levels of childlessness, which is discussed further in the next section.

Figure 1: Average number of live-born children by age 30 and completed family size, by year of birth of woman

England and Wales



Source: Office for National Statistics

Notes:

1. Table 1 in the reference tables and Figure 1 (above) show cumulative fertility. For example, Figure 1 shows that women born in 1983 had given birth to 1.02 children on average by their 30th birthday (this includes fertility up to and including age 29)
2. Includes births after 45th birthday, achieved up to the end of 2013 by women born in 1968 and earlier years

Figure 1 also shows the average number of live-born children for women by their 30th birthday.

The average number of children women have had up to their 30th birthday can give an indication of more recent trends in family size. Figure 1 shows a slight upturn in average family size by the 30th birthday for the most recent cohorts, from 0.99 children for the 1975 cohort to 1.02 for the 1983 cohort. This is mainly because women born in 1983 had higher fertility rates in their late twenties than those born in 1975. There is no single explanation for this increase, but possible reasons include the changes in support for families introduced by the previous government (Such as tax credits and maternity/paternity leave)¹ and the increasing proportion of women aged 25-29 who were born outside the UK (with fertility above the UK born average)².

Overall, women born in the 1960s and 1970s have had fewer children by age 30 than previous generations. The 1968 cohort had 1.15 children on average by their 30th birthday, compared with 1.89 by the same age for their mother's generation, the 1941 cohort. This reflects their postponement of childbearing to older ages, for reasons including:

- increased participation in higher education (see section note 3)
- delayed marriage and partnership formation (see section note 1)
- the desire to establish a career, get on the housing ladder and ensure financial stability before starting a family (see section note 1)

Notes for average family size

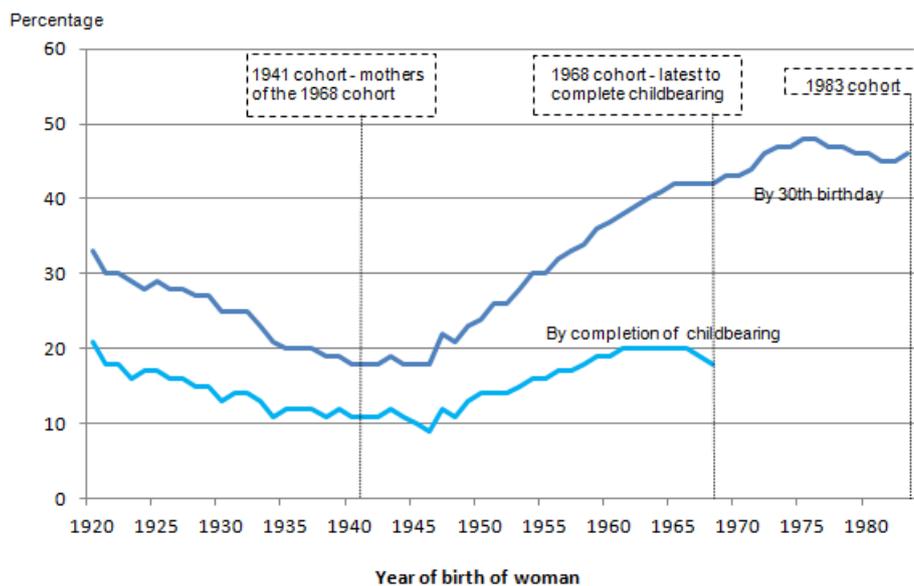
1. Jefferies, J (2008), Fertility assumptions for the 2006-based national population projections (297 Kb Pdf), Population Trends, no 131, pp 18-27
2. Zumpe, J, Dormon, O, and Jefferies, J (2012) Childbearing among UK born and non-UK born women living in the UK. Office for National Statistics
Dormon, O (2014) Childbearing of UK and non-UK born women living in the UK, 2011 Census data. Office for National Statistics
3. Ni Bhrolchain, M, Beaujouan, E (2012) Fertility postponement is largely due to rising educational enrolment, Population Studies, Volume 66, issue 3, pp. 311-327

7. Childlessness

Childlessness is estimated as the proportion of women who have not had a live birth by a specific age.

Figure 2: Percentage of women remaining childless by their 30th birthday and completion of childbearing, by year of birth of woman

England and Wales



Source: Office for National Statistics

Notes:

1. The percentage of women remaining childless by their 30th birthday or by age 45 is calculated as 1 minus the proportion of women who have had at least one live birth by age, multiplied by 100
2. This calculation takes into account all first live births from a woman's teenage years through to the last day she is 29 (the day before her 30th birthday) or the last day she is 45 (the day before her 46th birthday)

Figure 2 shows that the level of childlessness at age 45 for women born in 1968 is relatively high at 18%, but slightly lower than for the 1967 cohort (19%) and the previous six cohorts, which had 20% childlessness each. Around one in five women born in 1968 remained childless by the end of their childbearing years compared with one in nine women born in 1941. However, late 1960s levels are not new; they are comparable to early 1920s levels. A wide range of explanations relating to circumstances and choices have been put forward for the increasing childlessness seen in recent cohorts. These include the decline in the proportion of women married, changes in the perceived costs and benefits of childrearing versus work and leisure activities, greater social acceptability of the childfree lifestyle and the postponement of decisions about whether to have children until it may be biologically too late¹.

On their 30th birthday, 46% of the 1983 cohort were childless, a higher proportion than for the 1968 cohort at the same age (42%). This highlights the trend that women have been increasingly delaying having children to older ages. However, Figure 2 shows that while the proportion of women childless by age 30 increased slightly for women born in 1983, prior to that it had been falling for successive cohorts born from 1975 to 1982 (when 48% of women had not yet had a live birth by age 30). However, it is too early to say whether this new upward trend will continue.

Notes for childlessness

1. For reasons for increasing childlessness, see for example:

- O'Leary, L, Natamba, E, Jefferies, J and Wilson, B (2010) Fertility and partnership status in the last two decades, *Population Trends* 140, page 5-35- (95.5 Kb Pdf)
- Simpson, R (2009) Delayed childbearing and childlessness in Britain, in Stillwell, J, Kneale, D and Coast, E (eds.) *Fertility, Living Arrangements, Care and Mobility: Understanding Population Trends and Processes Volume 1*, Springer, Dordrecht, pp. 23-40
- Kneale, D, Joshi, H (2008) Postponement and childlessness: Evidence from two British cohorts volume 19, article 58, (2008) <http://www.demographic-research.org/Volumes/Vol19/58/>
- Basten, S (2009). Voluntary childlessness and being Childfree. *The Future of Human Reproduction: Working Paper #5*
- Berrington, A.M. (2004). Perpetual postponers? Women's, men's and couple's fertility intentions and subsequent fertility behaviour. *Population Trends* 117: 9-19. (137.7 Kb Pdf)

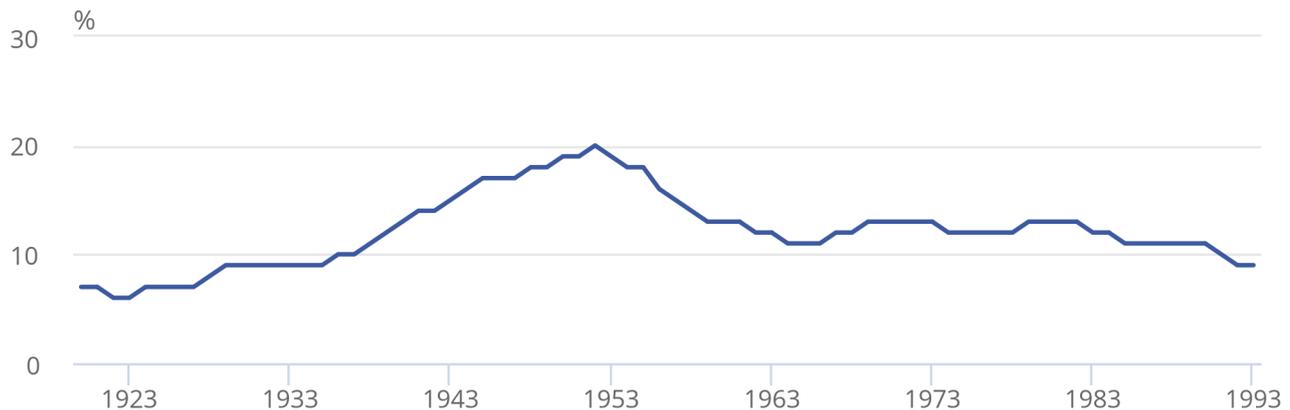
8 . Teenage childbearing

Figure 3: Percentage of women who have had a child by their 20th birthday, by year of birth of woman

England and Wales

Figure 3: Percentage of women who have had a child by their 20th birthday, by year of birth of woman

England and Wales



Source: Office for National Statistics

Notes:

1. This calculation takes into account all first live births from a woman's teenage years through to the last day she is 19 (the day before her 20th birthday)

Figure 3 shows that the proportion of women who have a child by age 20 has been gradually decreasing for recent cohorts. From a peak of around two in ten for women born in 1952, it has declined to one in eleven women for those born in 1993, the most recent cohort to reach age 20. This shows that the proportion of women becoming teenage mothers is falling, though the level of teenage motherhood remains above that of the cohorts born in the early 1920s when around 7% of women had a child by age 20. This fall in the proportion of teenagers becoming mothers has accompanied recent falls in the annual number of teenage conceptions.

Conception statistics include all pregnancies of women usually resident in England and Wales which lead to either a live birth, still birth or an abortion under the 1967 Act. The most recent figures on under 18 conception rates for England and Wales show that in 2012 the rate was 27.9 conceptions per thousand women aged 15 to 17, which is the lowest level since records began in 1969 (a decrease of 40.8% since then) ¹. Teenage conception and birth rates are used widely as outcome indicators in the sexual health context ¹.

Notes for teenage childbearing

1. More details on teenage conceptions can be found in the annual ONS conceptions release:

www.ons.gov.uk/ons/rel/vsob1/conception-statistics--england-and-wales/2012/sty-conception-rates.html

www.ons.gov.uk/ons/rel/vsob1/conception-statistics--england-and-wales/index.html

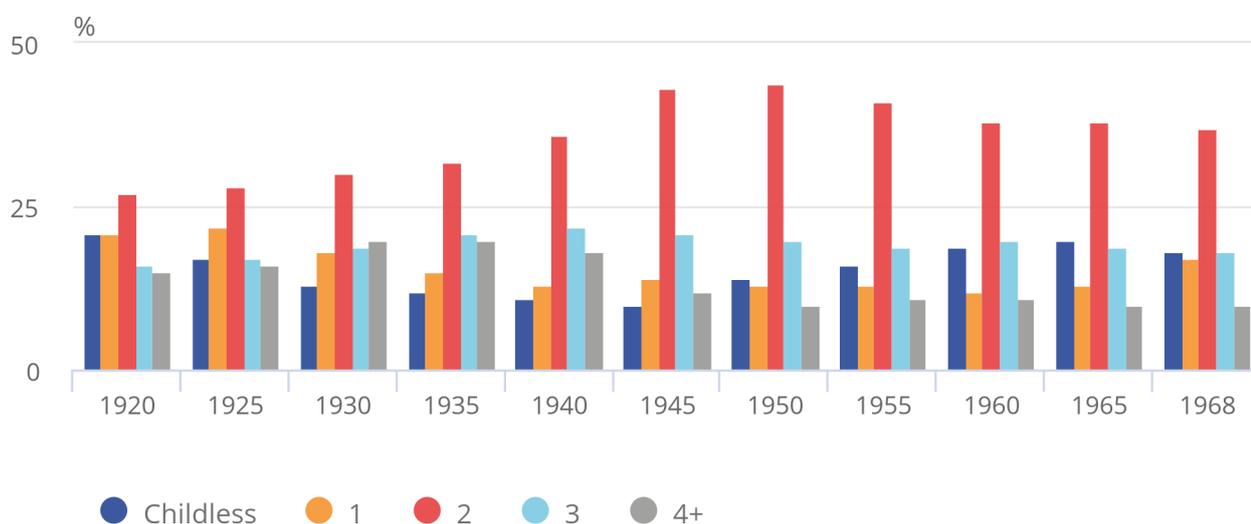
9. Number of children

Figure 4: Estimated family size distribution for women born between 1920 and 1968 who are assumed to have completed their childbearing

England and Wales

Figure 4: Estimated family size distribution for women born between 1920 and 1968 who are assumed to have completed their childbearing

England and Wales



Source: Office for National Statistics

The traditional two-child family remains the most common family type in England and Wales, with 37% of women born in 1968 having two children (Figure 4, Table B). Families with none or three children are equally second most common at 18% each of the total for the 1968 cohort. The proportion of families with one child has increased over time to 17%, a level last seen for the 1932 cohort.

Table B: Average family size and estimated family size distribution for women who are assumed to have completed their childbearing, by year of birth of woman, 1920 to 1968

England and Wales

Year of birth of woman	Average Family Size	Number of live-born children (%) ¹						Total ²
		Childless	1	2	3	4+		
1920	2.00	21	21	27	16	15	100	
1925	2.12	17	22	28	17	16	100	
1930	2.35	13	18	30	19	20	100	
1935	2.42	12	15	32	21	20	100	
1940	2.36	11	13	36	22	18	100	
1945	2.19	10	14	43	21	12	100	
1950	2.07	14	13	44	20	10	100	
1955	2.02	16	13	41	19	11	100	
1960	1.98	19	12	38	20	11	100	
1965	1.91	20	13	38	19	10	100	
1968	1.92	18	17	37	18	10	100	

Source: Office for National Statistics

Notes:

1. Percentage of women with 0, 1, 2, 3 or, 4+ children who have completed their childbearing
2. Figures may not add exactly due to rounding

Table B shows the family sizes of women who are assumed to have completed their childbearing. The latest cohort to complete their childbearing were those women born in 1968, who were aged 45 in 2013. Of this cohort roughly 18% remained childless. This compares with the 1945 cohort where only approximately 10% of women remained childless.

17% of women completing their childbearing in 2013 had one child, continuing a rise over the last few years from 13% in the 1965 cohort. This is a fairly substantial increase in the proportion of women with one child. One child families were more common among women born in the 1920s and 1930s, where as many as 22% had one child. Of the cohorts of women born in the 1940s, 10 to 14 per cent had one child by the age of 45, slightly lower levels than for women completing childbearing in 2013.

Two children has remained the most popular family size. After peaking around 1950, with 44% of women having two children, it stabilised at 38% for cohorts born through the 1960s before declining slightly to 37% for the 1967 and 1968 cohorts.

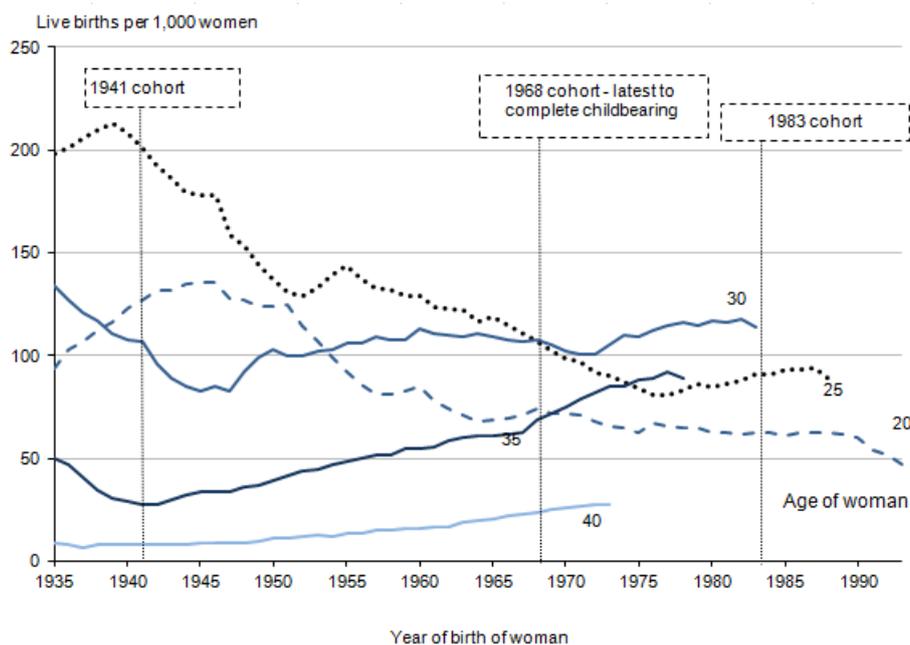
A woman born in 1940 was more likely to have one, three or, 'four or more' children than not to have any. Only one in ten women born in 1968 had four or more children, compared with nearly one in five in the 1940 cohort (Table B).

10 . The changing age pattern of fertility

The fertility rates of selected cohorts at particular age milestones highlight how the age distribution of women giving birth has changed over time. As an example, the two vertical lines on Figure 5 allow a comparison of the age profile of fertility in the 1968 cohort (who have completed their childbearing), their mothers' generation (cohort of 1941) and that of the 1983 cohort to date. The fertility rates for women at ages 20, 25, 30, 35 and 40 have been chosen for illustration here (Figure 5), but equally any age or selection of ages could be charted.

Figure 5: Age-specific fertility rates at selected ages, by year of birth of woman, 1935 to 1993

England and Wales



Source: Office for National Statistics

Notes:

1. Age-specific fertility rates 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 of each age group by the number of females in the mid-year population of that age. Rates can be expressed per 1,000 women in the age group

For the 1968 cohort the highest fertility rate of those shown was at the age of 30, closely followed by age 25. Lower levels of fertility were recorded at ages 20 and 35, while the number of live births per 1,000 women at the age of 40 was lower still. On average the 1968 cohort reached 1.92 children per woman. In comparison with the 1941 cohort, the 1968 cohort had much lower fertility at ages 20 and 25, though at age 30 fertility rates were similar. At older ages, the 1968 generation had higher fertility, as shown at ages 35 and 40 (Figure 5). However, this recuperation at older ages was not sufficient to catch up with the larger completed family size of the 1941 cohort who had 2.34 children per woman on average.

Age-specific fertility rates for the 1983 cohort are currently only available up to the age of 30. For this cohort, fertility rates at age 30 were a little higher than for the 1968 cohort but decreased slightly from the level experienced by the 1982 cohort. In contrast, fertility rates at age 20 were slightly lower than seen in the 1968 cohort, while at the age of 25 they were much lower for the 1983 cohort than for the 1968 cohort.

Fertility at age 25 hit a low for women born in 1977 before rising slightly among cohorts born between 1978 and 1987. Women born in 1983 had 15% fewer live births per 1,000 women at age 25 than women born in 1968.

If recent trends in childbearing at older ages continue, the 1983 cohort would be expected to have an older average age at childbearing than the 1968 cohort.

11 . Further releases on live births in 2013 in England and Wales published on 4 December 2014:

- Characteristics of Mother 2 – this package presents live birth statistics (numbers and rates) within and outside marriage/civil partnership. It also provides data on first live births by marriage/civil partnership duration, and live births within marriage/civil partnership by age of mother and number of previous live-born children
- Further Parental Characteristics – this package presents age-specific fertility rates for men, the average age of fathers, and paternities within and outside marriage/civil partnership. This package also presents data on birth registrations in England and Wales by National Statistics Socio-economic Classification (NS-SEC), where a household level classification is used taking the most advantaged NS-SEC in the household. More detail on this combined approach to NS-SEC can be found on the ONS website. These data were previously published as a separate package “Live Births by Socio-economic Status of Father, England and Wales”

Key findings from these releases

- In 2013, 38% of live births were first births, 36% were second births and 16% were third births
- The standardised mean age of all fathers at the birth of their child has increased by nearly two years over the last two decades from 31.1 years in 1993 to 32.9 in 2013 (see background notes 6 and 7). The standardised mean age of mother increased by a similar amount over the same period, from 28.0 in 1993 to 30.0 in 2013
- For men, the 30-34 age group had the highest fertility rate in 2013 (107.5), the same age group that had the highest fertility rate for women (109.4). Previously, men in their mid-to-late twenties had the highest fertility rate but were overtaken in 1993 by men in their early thirties. The same trend occurred among women a decade later, with the fertility of women in their early thirties overtaking that of women in their mid-to-late twenties in 2004
- Babies born within marriage/civil partnership are more likely to have an older father. Nearly two-thirds (62%) of babies born within marriage/civil partnership in 2013 had fathers aged 30-39. For babies born outside marriage/civil partnership 37% had fathers aged 30-39 while 52% had fathers aged under 30
- In 2013, households employed in intermediate and routine occupations had a mean age of mother at birth under 30 years while households employed in higher managerial, administrative and professional occupations had a mean age of mother over 30 years

12 . Uses of births statistics

The Office for National Statistics uses birth statistics to:

- produce mid-year population estimates and population projections, both national and subnational
- quality assure census estimates
- report on social and demographic trends

Other key users of birth statistics include the Department for Education and the Department of Health, academics, demographers, health researchers, lobby groups, international organisations and the media.

Cohort fertility statistics and estimates of fertility by family size are used by ONS for producing the fertility component of population projections and for reporting on social and demographic trends. They are also of key interest to academics researching changing family building patterns over time.

The Department for Work and Pensions uses information on family size for modelling future lone parents, pensions and benefits.

Estimates of childlessness are of interest to policymakers concerned with the support and care available to people at older ages. Estimates of family size are of use to special interest groups such as organisations and networks supporting large families and for people who are, or who have, an only child.

13. Further information

Cohort fertility figures in this release are based on all live births registered in England and Wales. However due to the method of estimating true birth order up to 2012 for certain tables (see data sources and changes to data section), these figures cannot be disaggregated separately for England only and Wales only, nor produced for males.

For information on data quality, legislation and procedures relating to birth statistics please see Births Metadata. The ONS Births Quality and Methodology Information Document provides overview notes which pull together key qualitative information on the various dimensions of quality as well as providing a summary of methods used to compile birth statistics.

There is a new version of the [interactive mapping tool](#) which enables the total fertility rate to be analysed at the local level for the years 2001 to 2013. This is a non-functional reproduction of the page. The tool now includes revised rates for 2002-2010 which have been calculated using population estimates revised to take account of the 2011 Census.

The 'Childbearing of UK and non-UK born women living in the UK' reports provide statistics and analysis on births by country of birth of mother. They are available in

- Zumpe, J, Dormon, O, and Jefferies, J (2012) Childbearing among UK born and non-UK born women living in the UK. Office for National Statistics
- Dormon, O (2014) Childbearing of UK and non-UK born women living in the UK, 2011 Census data. Office for National Statistics

International comparisons of live birth rates are available in the Vital Statistics: Population and Health Reference Tables.

Annual summary birth statistics for the UK and its constituent countries can be found in the Vital Statistics: Population and Health Reference tables.

[National Records of Scotland](#) provides more detailed birth statistics for Scotland, including cumulative fertility by cohort.

[The Northern Ireland Statistics and Research Agency](#) provides more detailed birth statistics for Northern Ireland, including cumulative fertility by cohort.

14. Data sources and changes to data

Birth data used in this publication are collected from compulsory birth registrations. Every Registrar of Births and Deaths is required to secure the prompt registration of births occurring within the sub-district covered. Registration of a birth is legally required within 42 days of its occurrence, and the registrar will, if necessary, send a requisition to the person whose duty it is to register the birth.

The coverage of the release is of births occurring, and then registered, in England and Wales. Births to residents of England and Wales which are registered elsewhere are thus excluded, while births registered in England and Wales to mothers whose usual residence is elsewhere are included. This means that births to women who subsequently migrate out of England and Wales are included in the numerator for calculations, but the women may not be included in the denominator. The reverse is true for women who give birth abroad then migrate to England and Wales (and do not have a subsequent birth).

The population estimates used for the calculation of fertility rates are the latest consistent estimates available at the time of production. Further information on population estimates and their methodology can be found online.

Estimates of childlessness and number of children are based on estimates of true birth order. Up to May 2012, the number of previous births was only collected, at birth registration, from married women. This partial information on birth order from registration data was supplemented with data from the General Lifestyle Survey.

During May 2012 changes were made to the Population Statistics Act 1938, which means that information on the number of previous children and whether previously married is now collected from all mothers at birth registration and not just from married women. This has a small impact on a number of tables and proposals for changes (73 Kb Pdf) to outputs for 2012 and 2013 data were outlined on the ONS website in July 2012. Feedback from users was invited. No feedback was received so the planned changes are being implemented. The cohort fertility figures and tables presented in this report include a full year of the newer, more complete, data.

A paper describing the changes that have occurred to ONS birth statistics as a result of improvements to the [Population Statistics Act is available on the ONS website](#). It provides background to the changes and provides high level findings from the new data collected in 2012 and 2013.

This birth order information, both the new complete data, and the older estimated data, is combined over a number of years with population estimates to create a picture of the fertility for each cohort. As more years of data are added each cohort moves towards completed fertility by adding in births each year to the estimated population exposed to those births (i.e. childless women having a birth in one year are then part of the population who could have a second birth in the next year). It is only possible to present cohort fertility information for women, as men are not required to give information on previous births at birth registration.

15. Background notes

1. Cohort fertility analysis allows the fertility experience of a group of women sharing the same year of birth (a cohort) to be traced through time and compared with the experience of other cohorts. Statistics relating to the family building of women born in given years shed light on the trends underlying year-to-year changes in fertility and are particularly valuable in helping to formulate models of future fertility.

Period measures of fertility, such as the Total Fertility Rate (TFR), provide a timely snapshot of the intensity of childbearing in a particular year. However the TFR should not be interpreted as a measure of family size because it is affected by the timing of childbearing. The TFR is likely to under or overestimate average family size during periods where women are delaying having children or later catching up. Cohort fertility analysis may not be as timely, but provides an accurate measure of trends in family size.

The TFR in England and Wales of 1.85 children per woman in 2013 represents the current level of childbearing among women of all childbearing ages. The average family size of 1.92 children is for women who have completed their childbearing in 2013. The two measures should not be directly compared for the reasons noted above.

2. A woman is assumed to have completed her childbearing by the last day she is aged 45, i.e. by her 46th birthday (exact age 46). Completed fertility includes fertility rates up to and including age 45. See background note 4 for a more technical explanation.
3. The ages of women are presented in 'exact years'. Therefore figures should be interpreted as the average number of children a woman has had up to that birthday. So childbearing up to exact age 30 includes cumulative fertility through her lifetime up to the day before her 30th birthday. Any childbearing in the 12

months from her 29th birthday onwards will be included in fertility up to exact age 30. See background note 4 for a more technical explanation.

4. Completed fertility is the sum of age-specific fertility rates for ages 15 to 45 and therefore relates to fertility up to the 46th birthday. In this bulletin the 1968 cohort, who are aged 45 in 2013, are presented as the latest to complete their fertility up to the 46th birthday. Although women born in 1968 will not reach their 46th birthday until 2014, the age-specific fertility rate at age 45 includes births to women aged from 45 years and 0 days to 45 years and 364 days in 2013 and thus fertility up to (but not including) the 46th birthday.

In calculating estimates of completed family size for women born in different years, an assumption must be made about the year each woman was born, based on her age when she gives birth. In this case it is assumed that births at age 45 in 2013 are to women born in 1968. This assumption is necessary because information on the mother's year of birth is not available in historic births datasets so has to be assumed from the age of the mother when she gives birth. However women giving birth at age 45 during 2013 were actually born between January 1967 and December 1968 – half of these women will have their 45th birthday in 2013 (those born in 1968 who give birth after their 45th birthday,) and half will have their 46th birthday in 2013 (those born in 1967 who give birth before their 46th birthday). However for simplicity the latest cohort to complete their childbearing is presented as the 1968 cohort, with their completed fertility based on the sum of age-specific fertility rates from age 15 in 1983 to age 45 in 2013.

Age 45 is assumed as the end of childbearing in line with international standards to allow timely publication of estimates, as only 0.2% of births occur after this age. Births occurring after age 45 are included for previous cohorts, even though the cohort has nominally completed childbearing. This may mean that complete cohort's completed family sizes change in future publications, though this has not occurred to date

Similarly, the bulletin presents fertility up to exact age 30 for the 1983 cohort and other cohorts, as age 30 may be considered the mid-point of childbearing age. However fertility up to the 31st birthday for the 1983 cohort is available in the published Tables 1 and 2 because cumulative fertility to exact age 31 includes the age-specific fertility rate for age 30 in 2013 (from Table 4).

5. The methods used to create cohort fertility require use of data collected at birth registration from women on the number of previous children they have had. At present the birth registration system does not collect information on the number of previous children a man has had. Without this information it is not possible to produce estimates of the proportion of men who have not fathered a child.

It is also important to note that a man's reproductive span is not as well defined as a woman's, in terms of the upper age at which a man can father a child and so this means we would need a longer time series to calculate cohort measures. Male period fertility rates can be found in another release from ONS - [Further Parental Characteristics](#).

6. Measures of male fertility are estimated. The age of the father is not collected for births that are registered solely by the mother (5.6% in 2013), therefore these ages are estimated. More information is available from the metadata in the '[Further parental characteristics](#)' package.
7. The standardised mean age is a measure which allows fertility trends to be separated out from the effects of changes in the population's age structure. It is therefore useful for comparing mean ages across population subgroups and over time.
8. There is a large degree of comparability in birth and death statistics between countries within the UK. However, there are some differences although these are believed to have a negligible impact on the comparability of the statistics. These differences are outlined in Quality and Methodology Information document for births.
9. Special extracts and tabulations of births data for England and Wales are available to order for a charge (subject to legal frameworks, disclosure control, resources and agreements of costs, where appropriate). Such enquiries should be made to:

Vital Statistics Outputs Branch (VSOB) Tel: +44 (0)1329 444 110 E-mail: vsob@ons.gsi.gov.uk

Enquiries on Childbearing for women born in different years, England and Wales, should be made to:
Demographic Analysis Unit (DAU) Tel: +44 (0)1329 444 644 E-mail: fertility@ons.gsi.gov.uk

10. We would welcome feedback on the content, format and relevance of this release. If feedback relates to this Childbearing for women born in different years release, please send to: fertility@ons.gsi.gov.uk. If it relates to Characteristics of mother 2 or Further parental characteristics, please send feedback to: VSOB@ons.gsi.gov.uk.
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