

First births by age and education in Britain, France and Norway

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INTRODUCTION

Comparisons of fertility levels across industrialised countries have shown surprisingly large variations both in levels and trends.¹ Within Europe, Central, Southern and Eastern European countries' fertility has fallen to very low levels, while the Nordic countries, France, the UK and Ireland have all maintained levels closer to those needed for population replacement in the absence of international migration.² Close to replacement levels have also been maintained in North America and Australasia, suggesting that a broad range of social and economic environments may support these levels.³

Cross-national similarities in overall fertility levels, however, may mask considerable variation in more disaggregated fertility patterns. One further dimension of fertility for which large cross-national variation has been shown, even between countries with similar overall fertility levels, is women's age at childbearing. In general, age at childbearing has been increasing, along with age at associated transitions, such as: into marriage; completion of full-time education; and, entry to the workforce.⁴ Nevertheless, an early fertility 'hump' has persisted in the Anglo-American countries at the same time as childbearing has become increasingly late among the majority of women in those countries.⁵ More uniform shifts towards later childbearing have occurred in continental Europe. Shifts have been greater in Southern and Central Europe than in the Nordic countries and France, however, where age-specific fertility patterns have remained more concentrated in the 20s and early 30s.⁶

Women's increasing educational levels feature prominently among explanations for increasingly later patterns of age at first birth. A major problem for analysis of education associations with fertility, however, is lack of suitable cross-national data. Using sample survey data alone

Progressively later starting of childbearing has been a feature of cohort change in fertility across Europe and elsewhere over recent decades. Growing differences in the age patterns of childbearing between the Anglo-American and continental European countries, however, have also been found. The present study uses large linked-record databases in Britain, France and Norway to analyse these differences in more detail, focussing on age at entry to motherhood (first childbearing) by level of educational attainment among women born in the 1950s and in the 1960s.

The shift between these two cohorts towards a later pattern of first childbearing in Britain was confined to women with secondary school qualifications and above. For women born in the 1960s, the peak age for risk of first childbearing among those with secondary school qualifications grew to be between seven and eleven years later than among women without secondary school qualifications. In France and Norway, the peak ages for risk of first childbearing shifted more uniformly across education levels between the two cohorts. For these 1950s and 1960s cohorts, improvements in women's educational levels also occurred more uniformly in France and Norway, moving more women into education categories characterised by later patterns of first childbearing.

limits the age detail that can be obtained when considering samples defined by both birth cohort and education level.⁷ Using population data alone usually limits analyses to demographic variables such as age and marital status. The present article overcomes these problems by using large linked-record datasets for three countries: France, Norway and the United Kingdom – specifically England and Wales.⁸ These datasets allow us to address in a comparative case study analysis the education dimension of women's age at first childbearing.

Previous studies of fertility and education in the three countries analysed include a recent study of Norway, finding that having higher educational qualifications is always associated with a higher age-specific probability of first birth among women no longer enrolled in school or university.⁹ In England and Wales, higher qualified women were found to be older (median age five years later) at first birth than women without higher qualifications, but had higher age-specific probabilities of second and third births.¹⁰ In France, similarly, higher educated women were found to have their first birth longer after forming their first union, but to proceed more quickly to the second birth.¹¹ Those individual country studies used different sample and variable definitions and analytical methods, limiting scope for comparison. The object of the present study is to achieve maximum comparability of results by using samples, variable definitions, and analytical methods that are harmonised as much as possible between the three countries. Women born in five-year periods in the mid-to-late 1950s and the 1960s are compared. This allows for analysis of the changes that have occurred both in educational attainment and in their age patterns of first childbearing within broad educational categories.

DATA AND METHOD

Special compilations of linked census and birth registration data found in Britain (specifically, England and Wales) and France, and linked databases of population, birth registrations and educational qualifications in Norway, are used for the present study. The datasets are respectively the ONS Longitudinal Study (LS¹²), the French Demographic Panel (EDP¹³) and the Norwegian Central Population Register and Educational Database.¹⁴ The LS links census and birth records since 1971 for a representative sample of 1 in 100 women in England and Wales, while the EDP does so since 1968 for a 1 in 200 sample in France. The entire population is included in the Norwegian database.

Data on births up to and including calendar year 2001 in England and Wales, 2002 in France, and 2002 in Norway are used in our study. Following the calendar-year structure of our data, age is defined throughout as years attained in the calendar year. This is on average half a year younger than the standard 'completed years at last birthday' definition. Women born in two 'birth cohorts' approximately ten years apart are compared. In England and Wales, these are women born in 1954–58 and 1964–68, thus attaining ages 23 to 27 in the Census years 1981 and 1991 respectively, depending on the woman's exact year of birth within the five-year birth cohort. In France, these are women born in 1955–59 and 1963–67, attaining ages 23 to 27 in the Census years 1982 and 1990 respectively. In Norway, the birth cohorts of 1955–59 and 1965–69 are chosen for analysis. The 1950s birth cohorts of each country allow for estimation of the distribution of age at first childbearing through almost the entire range of potential ages of first childbearing. The 1960s birth cohorts allow for estimation to be compared for the ages up to 33. Approximately three-quarters of women in the 1960s cohorts had a first child already by this age, though with substantial variations according to women's level of education and between countries (see below).

In all three countries, analysis is restricted to women born in the country. Analysis using linked-record studies is more difficult for foreign-born women, due to uncertainty about their date of arrival in the country.¹⁵

The problem of analysing first childbearing that may have occurred before or after immigration, and therefore be affected by that migration and the different country contexts before and after migration, is also minimised by analysing only native-born women.¹⁶

The most difficult challenge is the creation of educational qualification variables that are both appropriate for analytical purposes and that are comparable between the three countries and across the 1950s and 1960s birth cohorts. The main analytical interest is in how educational attainment affects birth timing, and therefore ideally a study would use educational attainment observed prior to any first birth. The structure of the educational qualifications data in England and Wales and, to a lesser extent, France, limits our ability to do this. While in the Norwegian data, all levels of educational qualification are linked annually from educational administrative records, for France and for England and Wales, educational qualifications are linked from censuses that are held at intervals between eight and ten years apart. Educational qualifications obtained at all levels were reported in the French Censuses of 1982, 1990 and 1999, and in the 2001 Census of England and Wales. Only higher (tertiary) qualifications, however, were reported in the 1981 and 1991 Censuses of England and Wales.

Faced with these data constraints, our analysis employs a two-part strategy. It distinguishes first between women who obtain a higher education qualification by around age 25 (exactly 25 in Norway and between ages 23 and 27 in France and England and Wales). The timing of their first birth is then analysed conditional on whether a higher education qualification was obtained by this age. In most cases, this means that the attainment of the higher educational qualification will be observed to have occurred before the first birth, and so interpretation is straightforward.

For women without a higher qualification by around age 25, our analysis distinguishes between women according to their educational attainment level most recently observed: in 2001 in England and Wales; in 1999 in France; and in 2001 in Norway. This means that we do not know whether the educational qualification was obtained before or after the first birth. If the educational qualification was obtained 'on time', this will usually have preceded the first birth. For this reason, the analysis is still of first birth timing by educational qualification and not the converse. A more negative association between educational attainment and fertility, however, is expected when 'education level most recently observed' is used as a predictor variable than when 'education level at the time of fertility exposure' is used. This follows from the findings of previous analyses of a two-way relationship between education and fertility: a birth may reduce subsequent educational attainment, while obtaining educational qualifications may reduce the likelihood of a birth.¹⁷

A second problem for comparability between countries, and even between cohorts within countries, is differences in systems of educational qualifications. These are harmonised as much as possible in the present study by using international standard classification of education (ISCED) categories.¹⁸ We distinguish three levels of educational attainment. 'High' educational qualifications are defined as ISCED categories 5 and 6, and include vocational diplomas and bachelors and higher degrees. 'Medium' education is defined by ISCED categories 3 and 4, and includes virtually all secondary school qualifications. In England and Wales, this includes any 'O' level (or 'GCSE' under the present qualifications system) or 'NVQ' qualifications. For France, this means any 'Baccalauréat' qualification including both vocational and general, plus 'CAP' and 'BEP' qualifications. For Norway, this means progression to upper levels of secondary schooling. 'Low' education is defined as having no qualifications or only qualifications below the 'medium' levels, and corresponds to ISCED categories 1 and 2.¹⁹ The remaining issue is how to classify women who eventually obtain a higher

Figure 1a England and Wales, all women, 1950s and 1960s cohorts

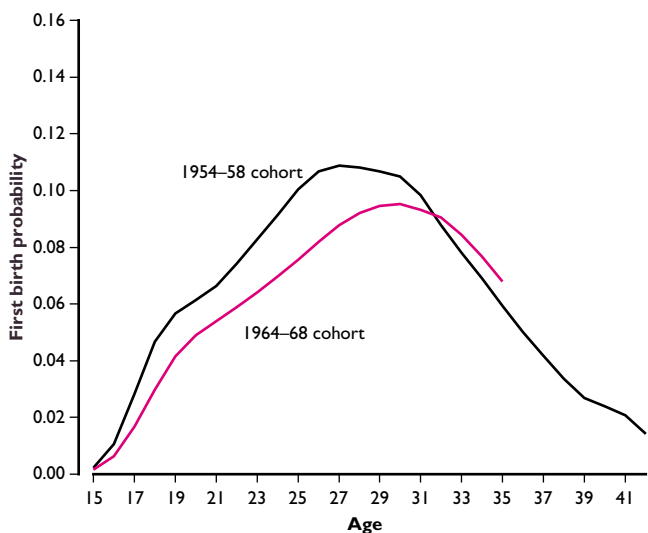


Figure 1b France, all women, 1950s and 1960s cohorts

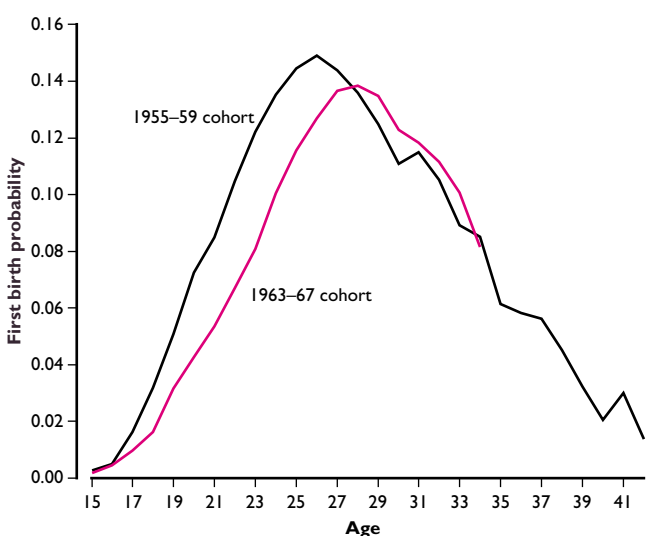
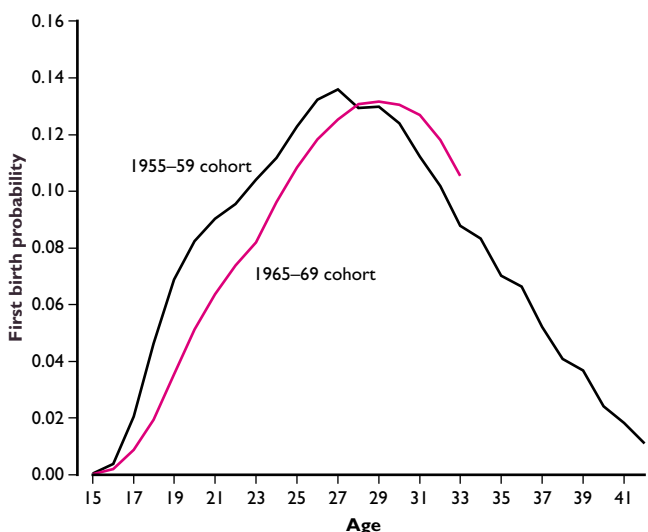


Figure 1c Norway, all women, 1950s and 1960s cohorts



education qualification, but only after the point around age 25 at which we classify women by whether they have obtained a 'high' education level. These women who obtain a higher qualification later are classified for the purposes of our study within the 'medium' group.

RESULTS

Overall patterns of first childbearing by age and cohort

The analyses begin with comparisons of the age patterns of first childbearing across all women in each of the three countries, for 1950s and 1960s birth cohorts in each country. As throughout, age is defined as years attained in the calendar year. As noted above, this is on average half a year younger than the standard 'completed years at last birthday' definition.

The overall picture is of similarity between Norway and France and an increasingly distinct age pattern of first childbearing in England and Wales. This is first shown graphically in the form of annual probabilities of first childbearing among all women that are still childless at a given age, presented in Figures 1a, 1b and 1c. For the 1950s cohorts, the peak first childbearing risk is at around age 26 or 27 for all three countries, but is at a much high level in France (.149) and Norway (.136) than in England and Wales (.109). England and Wales and Norway both have early childbearing 'humps' around ages 19 to 21 where the pace of first childbearing decelerates, then accelerates upwards again from age 22 to 23. France has no more than a slight kink at age 21 in its otherwise rapidly increasing pace of first childbearing through the early to mid-20s. Note that the less smooth shape of the French graph after the age-26 peak is due to its being generated from large sample data, while Norway and England and Wales graphs use, or are based on, population level data.²⁰

In the 1960s cohorts, England and Wales alone continues to display a deceleration with age, beginning at age 19, and without the subsequent re-acceleration seen from age 22 for the 1950s cohort. The peak rate of first childbearing is shifted to age 30 for the 1960s cohort, and at a level of only .095 births per year among women still childless. Both France and Norway display marked shifts away from very early childbearing, with probabilities up to age 20 almost halved. Some acceleration in the pace of first childbearing occurs in both countries from about age 23 to 24, with peak probabilities achieved around 28 to 29 years old. Again, these 1960s cohort peaks are at much higher levels in France (.138) and Norway (.132) than in England and Wales (.095).

Table 1 Percentage of cohort with a first birth by selected ages

Age	1950s cohort			1960s cohort		
	England and Wales	France	Norway	England and Wales	France	Norway
19	13.7	10.3	13.4	9.3	6.3	6.5
21	24.4	23.8	27.7	18.4	15.1	16.9
25	47.6	55.7	54.3	38.2	42.1	43.1
29	66.7	75.6	74.1	57.5	67.4	66.9
33	77.4	84.4	83.5	70.9	79.9	80.2
42	84.1	89.7	89.1			

Note: percentages refer to women who have had a birth by the end of the calendar year in which they attained the specified age.

Data Sources:
 England and Wales: Birth registration statistics, adjusted to include non-marital first births (Smallwood 2002)
 France: 1999 Family Survey
 Norway: Norwegian Central Population Register

The consequences for cumulative first childbearing by age are summarised in Table 1. The percentage of the 1950s and 1960s birth cohorts having already a first child by selected ages is shown for the three countries. The increasing similarity between France and Norway, and the increasing distinctiveness of England and Wales, is clear in this table. With the exception of Norway's earlier pattern of first childbearing than France's in the 1950s cohorts, the two countries' patterns resemble each other closely. Three-quarters of women in the 1950s cohorts and two-thirds in the 1960s cohorts in France and Norway had already given birth by age 29. Approximately half of the entire 1950s or 1960s birth cohort had a first child between the ages 22 and 29 inclusive.

In England and Wales, first births were less concentrated in the 20s. Two-fifths only of both the 1950s and 1960s cohorts had a first birth between ages 22 and 29. In the 1950s cohort, for which near-completed fertility is observed, women in England and Wales had both a higher percentage of first births born to teenagers and a higher proportion of first births to women over 30 than did France or Norway. The greater eventual age heterogeneity in first childbearing among women in England and Wales is likely to be even stronger for the 1960s cohort. This follows from the substantially higher proportion having a first birth by age 21 in England and Wales than in France or Norway, combined with the much higher proportion of women born in England and Wales in the mid-late 1960s still to have a first birth as they enter their 30s: 42.5 per cent in England and Wales versus 32.6 per cent in France and 33.1 per cent in Norway.

Educational attainment compared between countries and cohorts

The remainder of the fertility analyses below consider differences by education. In Table 2, women's educational attainment distributions are presented in three columns for each of the two cohorts. The first column presents educational attainment at around age 25 (ages 23 to 27 for England and Wales and France) and the second presents attainment at last observation in the data. 'Last observation' occurs around age 43 for the 1950s cohorts and age 33 for the 1960s cohorts. The education groupings for which the analyses of first births by age and education are conducted are shown in the third column for each cohort. Here women are first grouped according to whether they had received a higher education qualification by around age 25. For those *without* a higher educational qualification by age 25, the remainder are allocated between those with 'low' educational attainment at last observation and those with 'medium' or 'high' educational attainment at last observation. The 'medium' group of this third column is thus more precisely referred to as women with 'secondary school qualifications or later-gained higher education qualifications'. Note that the percentage with a 'high' education level is always the same between columns 1 and 3, and that the percentage with a 'low' education level is the same between columns 2 and 3 except for the French cohorts.²¹ As noted above, the reason for using data at age 25 to classify the 'high' education group, and not the 'low' and 'medium' groups, is that the 1981 and 1991 Censuses of England and Wales asked for higher education qualifications only.

While comparability of education categories across countries was maximised by using the international standard (ISCED) classification, and by observing education at equivalent ages, the comparison remains approximate only. First, the period of change is 10 years for England and Wales (1954–58 to 1964–68 cohorts) and Norway (1955–59 to 1965–69 cohorts), but eight years only for France (1955–59 to 1963–67 cohorts). Second, while Norway's qualification data are from a linked administrative source, France's and England and Wales' are from self-report census sources. This makes the latter more subject to problems of response completion and response accuracy, as is suggested by comparisons between census and survey estimates for the UK. These indicate some underestimation of the proportion of women with higher qualifications for England and Wales in the results presented in Table 2.

Table 2

Percentage of cohort with a given education level in England and Wales, France and Norway at different ages

	1950s cohort			1960s cohort		
	age 25	at last observation	at age 25 or by last observed date*	at age 25	at last observation	at age 25 or by last observed date*
England and Wales						
Low	34.3	26.6	26.6	18.3	12.9	12.9
Medium	50.7	52.7	58.3	67.5	67.2	72.8
High	15.1	20.7	15.1	14.3	20.0	14.3
France						
Low	45.0	34.2	30.7	25.1	22.5	18.7
Medium	31.0	44.3	55.3	52.4	49.7	58.8
High	14.0	21.5	14.0	22.5	27.8	22.5
Norway						
Low	19.0	12.6	12.6	9.3	6.6	6.6
Medium	62.4	58.1	68.7	64.7	57.7	67.4
High	18.6	29.2	18.6	26.0	35.7	26.0

* 'High' if a tertiary qualification is obtained by age 25; 'Low' if, at last observation, no secondary (ISCED 3 or 4) or tertiary qualification has been obtained; 'Medium' in all other cases (includes secondary qualifications by last observation and tertiary qualifications obtained only after age 25).

Data Sources:

England and Wales: the Longitudinal Study is used for high qualifications at age 25 (age 23 to 27 according to exact year of birth); the Longitudinal Study is also used for low and medium at last observed date (2001 Census); the General Household Survey of 1981 and 1991 is used for low and medium 'at age 25'.

France: French Demographic Panel. "At age 25" is age 23 to 27 according to exact year of birth. Missing values are classified as 'low education' for 'at age 25' and for 'at last observation' columns; for the 'at age 25 or by last observed date' column, the highest reported education value across the latest (1999) and previous censuses is used to assign 'low' versus 'medium' education.

Norway: Norwegian Education Database. Education 'at age 25' or 'at last observation' is used without need for further manipulation.

We include notes or footnotes about potential effects on the comparisons immediately below.

A general pattern of improved educational attainment between the 1950s and 1960s cohorts is seen for all three countries. This trend is more uniform in France and Norway. In both these countries, large proportionate decreases in the percentages of women ending with no more than 'low' educational qualifications (down from 30.7 per cent to 18.7 per cent in France and from 12.6 per cent to 6.6 per cent in Norway), and large proportionate increases in the percentages of women attaining a higher educational qualification by around age 25 (up from 14.0 per cent to 22.5 per cent in France and from 18.6 per cent to 26.0 per cent in Norway), are seen. England and Wales saw a halving of its percentage of women ending with no more than low educational qualifications, but did not register any gains in its percentage of women attaining higher qualifications, either by age 25 or by year of last observation.²²

Norway's 1950s and 1960s cohorts stand out as having the highest educational attainment of the three countries, both in terms of having the lowest percentage of low education women and the highest percentage of higher qualified women. Among the 1960s cohorts, that of England and Wales has the highest proportion in the 'medium' education category (72.8 per cent, versus 58.8 per cent in France 67.4 per cent in Norway). This is opposite to what would be expected if the greater heterogeneity of first births by age in England and Wales seen in Table 1 were caused by a more heterogeneous distribution of educational outcomes. This points to the need to investigate differences across countries in ages at first birth within educational attainment categories to understand better the overall cross-country differences in ages at first birth.

Figure 2a England and Wales, 1954–58 and 1964–68 cohorts, whether or not higher qualified by age 23–27

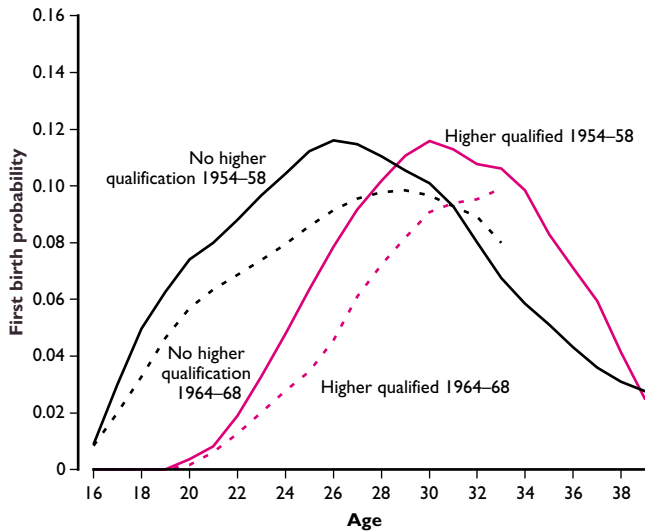


Figure 2b France, 1955–59 and 1963–67 cohorts, whether or not higher qualified by age 23–27

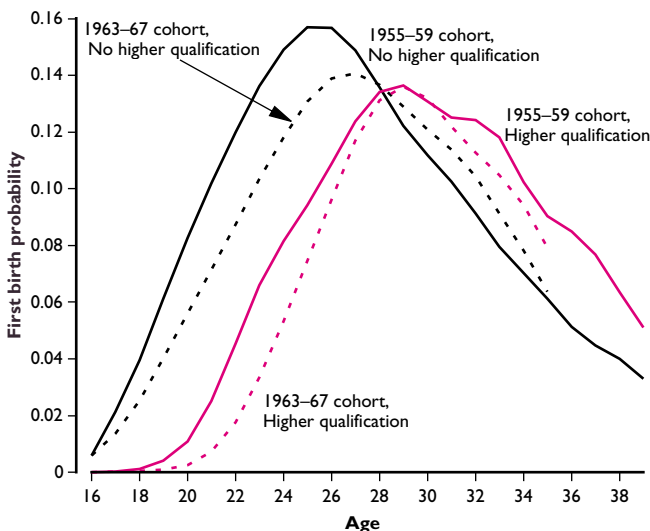
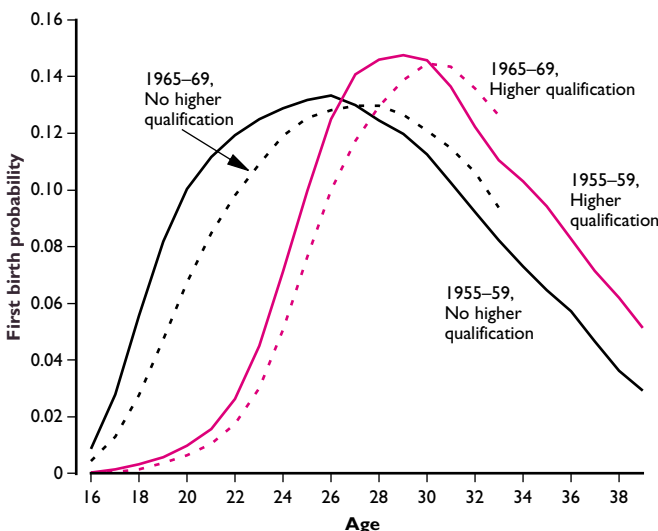


Figure 2c Norway, 1955–59 and 1965–69 cohorts, whether or not higher qualified by age 25



Age and cohort patterns of first childbearing by educational attainment

The patterns of first childbearing by age and cohort are now looked at separately by level of educational attainment. This is done first by whether or not the woman had attained a higher qualification by around age 25 (see Figures 2a to 2c), and second by whether woman who did not attain a higher qualification by age 25 eventually obtained more than the lowest educational qualification – that is, were classified as ‘medium’ in the third column for each cohort in Table 2 (see Figures 3a to 3c).

Two distinct patterns of change are seen across cohorts by education. In France and Norway, the age pattern of first childbearing generally shifts to the right for women at all education levels. The first birth probability is also typically lower in its peak for the 1960s cohorts than for the 1950s cohorts, although by relatively small amounts. In England and Wales, however, the shifting of the age pattern of first childbearing to the right is far from uniform by education group. Instead the rightward shift is much larger for women in the ‘medium’ (Figure 3a) and ‘high’ (Figure 2a) education groups. The medium group’s peak age shifted from age 26 among the 1950s cohort to age 29 for the 1960s cohort, while the high group’s peak shifted from age 30 to at least age 33 – ages 34 and over are not observed in our data. If the true peak is age 33, this is already a full 11 years later than for the low education group’s age 22 peak. The seven and eleven year gaps respectively between the low and medium and the low and high education groups’ peaks in England and Wales contrast most with those of France. For its 1960s cohort, there is no gap between the low and medium education peaks (both at age 27), and a two year gap only is seen between the low and high education (age 29) groups’ peaks. Under this ‘peak age’ measure, Norway’s pattern appears closer to that of England and Wales, with six and eight year gaps respectively between the low and medium and the low and high education peaks. However, Norway’s low education women’s peak both shifted to the right and stretched out, to age 25, by the 1960s cohort (see Figure 3c). In contrast, the peak became more accentuated among low education women in England and Wales in the 1960s cohort than in the 1950s cohort (see Figure 3a). Further, among Norway’s medium and higher educated women, the peak is much higher and more accentuated than among medium and higher educated women in England and Wales, and is in this respect much more similar to the pattern of France.

The consequences for cumulative first childbearing by age and education are summarised in Table 3. The patterns of differences between the countries seen in the 1950s cohort are of similar character, but more accentuated, in the 1960s cohort. The most consistently remarkable differences are found in the much greater concentration of first childbearing in the 20s among medium and high educated women in France and Norway than in England and Wales. In the 1960s cohort of England and Wales, only 41.7 per cent of medium educated women and 37.3 per cent of high educated women had a first birth between the ages of 22 and 29, compared with 55.8 per cent and 49.6 per cent in France and 50.9 per cent and 49.1 per cent in Norway. Three in ten medium educated women in England and Wales had a first birth either by age 21 (17.0 per cent) or between the ages 30 and 33 (13.4 per cent), and 27.9 per cent were still childless after age 33. The largest contrast again is with France, where a total of only 26.6 per cent of medium educated women had a first birth either by age 21 or between 30 and 33, and only 17.6 per cent were still childless after age 33. The age patterns of first childbearing among higher educated women are very similar between France and Norway, and therefore equally distinct from the age pattern among higher educated women in England and Wales.

Concerning early first childbearing, low education women in Norway were the most likely of the 1950s cohorts to have a first birth as a teenager or by age 21 (as many as 53.8 per cent). Among the 1960s cohorts, the level in England and Wales (42.6 per cent, similar to the 41.8

Figure 3a England and Wales, 1954–58 and 1964–68 cohorts, low versus medium education

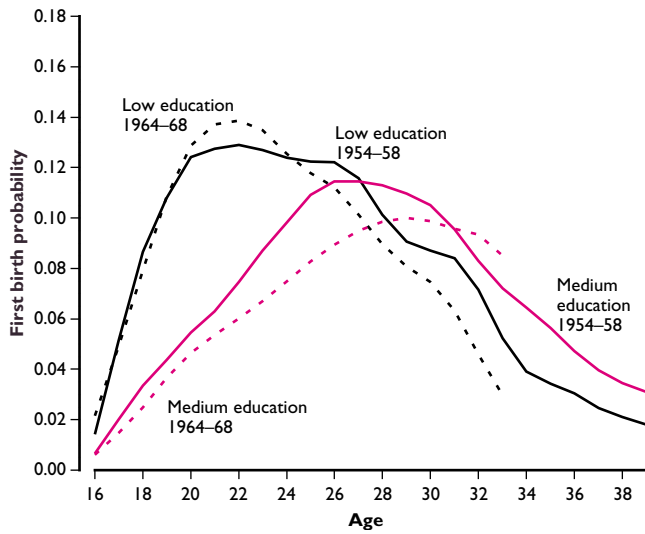


Figure 3b France, 1955–59 and 1963–67 cohorts, low versus medium education

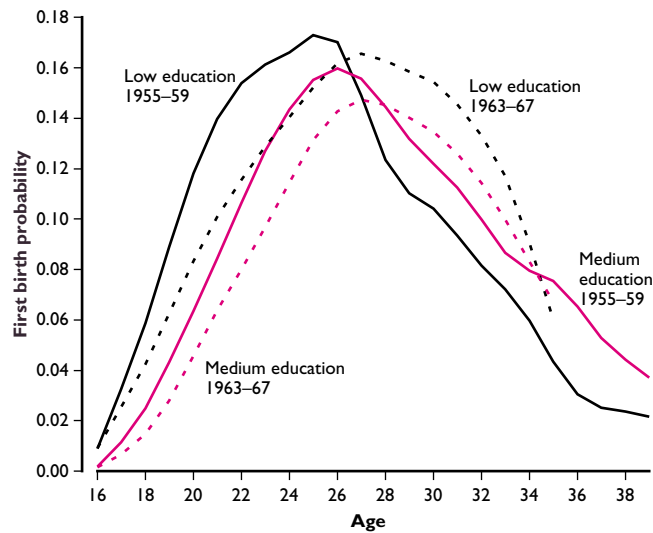


Figure 3c Norway, 1955–59 and 1965–69 cohorts, low versus medium education

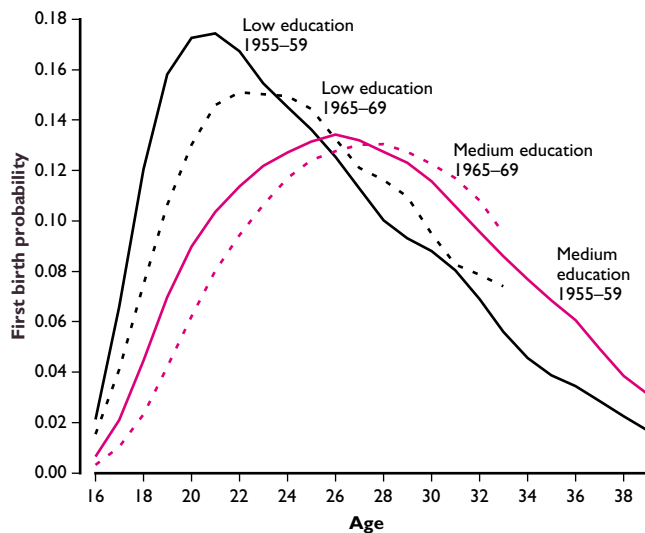


Table 3 Percentage of cohort with a child by selected ages, by education in mid-20s or last observed year

Educational Attainment	1950s cohort			1960s cohort		
	England and Wales	France	Norway	England and Wales	France	Norway
Low education						
age 19	23.8	17.8	32.3	23.6	13.3	21.9
age 21	41.8	37.6	53.8	42.6	28.6	42.0
age 25	66.0	69.5	76.0	67.0	59.9	69.6
age 29	80.3	83.2	84.8	78.0	80.2	81.7
age 33	84.1	88.4	88.8	82.3	89.1	87.1
Secondary or later-gained tertiary qualifications (“Medium education”)						
age 19	10.0	8.0	13.6	8.0	5.0	7.7
age 21	20.3	21.1	29.5	17.0	15.1	20.4
age 25	45.9	55.5	58.4	38.2	45.8	50.2
age 29	66.5	76.5	76.1	58.7	70.9	71.3
age 33	76.9	85.0	84.4	72.1	82.4	82.1
Tertiary qualified by mid-20s (“High education”)						
age 19	0.4	0.6	1.1	0.0	0.2	0.6
age 21	1.8	4.1	3.6	0.2	1.1	2.3
age 25	16.9	28.9	25.1	9.9	17.8	18.4
age 29	50.9	58.5	59.0	37.5	50.7	51.4
age 33	65.3	75.6	76.4	53.8	70.2	73.1

Note: percentages refer to women who have had a birth by the end of the calendar year in which they attained the specified age.

Data Sources:

England and Wales: LS, adjusted to national parity-specific fertility rates
 France: EDP, adjusted to 1999 Family Survey parity-specific fertility rates
 Norway: Norwegian Central Population Register and Educational Database

per cent in the 1950s cohort) was close to that in Norway (down to 42.0 per cent). Medium educated women in Norway’s 1960s cohort, however, were still the most likely of the three countries’ 1960s cohorts to have had a first birth by age 21 (20.4 per cent, versus 15.1 per cent in France and 17.0 per cent in England and Wales). The source of the continuing higher early fertility in England and Wales is therefore different when comparing it to Norway than when comparing it to France. Compared to Norway, the combination of higher proportions in England and Wales with a low education level and the ongoing strength of their propensity towards early childbearing are the two sources of contrast. Compared to France, the higher propensity of low educated women in England and Wales to have their children early is solely responsible for the contrast, while France continues to have a higher proportion of women with a low education in the 1960s cohort. As for Norway, low-education French women’s propensity to have an early first child fell substantially between the 1950s and 1960s cohorts, with the proportion having a first child by age 21 down from 37.6 per cent to 28.6 per cent.

Summary and Conclusion

The present study used large linked-record datasets in three countries, France, Norway and England and Wales, to address the education dimension of women’s age at first childbearing. Comparisons were further made between women born in the 1950s versus in the 1960s to explore associations between age patterns at first birth and improvements in women’s educational attainment over time across the three countries.

In our results, Britain’s pattern of first childbearing by age and education appears increasingly distinct when compared to those of France and Norway. This distinctiveness is as much or more about later first childbearing among Britain’s medium and higher educated women as it is about earlier first childbearing among lower educated women. Early first childbearing persisted over both the 1950s and 1960s birth cohorts

of lower educated women in Britain, while falling substantially from the 1950s to 1960s cohorts of lower educated women in France and Norway. The level of early first childbearing (by age 21), however, was as high in Norway as in England and Wales even for the 1960s cohorts.²³ Both countries had much higher levels of early first childbearing than were seen for low-educated women in France.

The pattern of first childbearing by age in Britain is most consistently distinct from that of France and Norway for women with medium and high education levels, being substantially later in Britain. In both France and Norway, high proportions of women continue to have first births in their 20s, and relatively few are still childless at age 33. In contrast, more than two in five (41.3 per cent) of medium educated women in Britain were still childless entering their 30s, and almost half (46.2 per cent) of higher educated women in Britain were still childless at age 33. The differences in the peak ages for risk of first childbearing in Britain grew to be seven years between women with low and medium education levels, and eleven years between women with low and high education levels. The contrast here with France is greatest, where no more than two years separate the peak ages of risk of first childbearing between low, medium and higher educated women.

When first childbearing was cumulated across all ages up to 33, however, educational attainment proved to be a strong and consistent differentiator of age at first childbearing in all three countries. Substantial improvements in women's educational levels in all three countries, but especially in France and Norway, moved more women into educational attainment categories characterised by later patterns of first childbearing. Britain's increasingly late first childbearing among all but low educated women occurred in the context of an increased proportion of women obtaining secondary qualifications, but no change between the 1950s and 1960s cohorts in the proportion of women obtaining a tertiary qualification.

Key findings

- Compared with France and Norway, women born in England and Wales in the 1950s and 1960s had lower rates of first birth in women's mid-to-late 20s relative to in their late teens and early 20s.
- Between women born in the 1950s versus in the 1960s, shifts away from first childbearing in women's teens and early 20s were much stronger in France and Norway than in England and Wales.
- Later first childbearing was much more common in England and Wales than in Norway and France. More than two-fifths of women born in England and Wales in the mid-to-late 1960s entered their 30s childless, compared with one-third of women in France and Norway.
- The pattern of peak ages for risk of first childbearing differed more by the woman's level of educational attainment in England and Wales than it did in either France or Norway.
- As many as two in five secondary educated women born in England and Wales in the mid-to-late 1960s were still childless entering their 30s, and almost half (46 per cent) of higher educated women were still childless at age 33. Among France's and Norway's 1960s cohorts, fewer than one in three women of secondary and higher educational attainment were respectively childless entering their 30s and at age 33.
- For the 1960s cohorts, compared to women born in England and Wales, Norway had as high a proportion of low educated women, and a higher proportion of medium educated women, who had a first child by age 21.

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7. See, for example, Billari F and Philipov D (2005) Education and the transition to motherhood: A comparative analysis of Western Europe. *European Demographic Research Papers* 3, Vienna Institute of Demography: Vienna.
8. The linked-record dataset we use for the UK has data for England and Wales only, due to the separation of the systems of data collection from those in Scotland and Northern Ireland. As of the 2001 Census, the total population of England and Wales was 52.0 million out of a total UK population of 58.8 million.
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14. See Statistics Norway *About the Statistics*. www.ssb.no/english/subjects/02/02/10/fodte_en/.
15. See especially Robert-Bobée I (2003) Fécondité et EDP: Quelques éléments sur la qualité des données de l'EDP." INSEE: Paris.
16. We correct for remaining linkage problems in the EDP by uniformly scaling the different education groups' age-specific probabilities by a ratio of the first birth probability by age in the 1999 Family Survey to those in the EDP. We do so similarly for England and Wales using the national parity-specific fertility rates (see note 20 below). In both France and England and Wales, moreover, we select into our samples

- for analysis only those women present across all the censuses covering their childbearing ages.
17. Billari F and Philipov D (2005), cited above, and Kraval Ø (2004) An illustration of the problems caused by incomplete education histories in fertility analyses. *Demographic Research* Special collection 3, pp 135–154.
 18. See OECD (2003) *Education Statistics and Indicators, Education at a Glance* www.oecd.org.
 19. In England and Wales, all secondary qualification are classified as ISCED level 3; in France, CEP and BEPC qualifications are classified as ISCED level 2. All other secondary qualifications are classified as ISCED level 3. No qualifications are awarded at ISCED level 2 in Norway. The minimum school leaving ages in all three countries is 16 years of age, although in Britain it was raised from 15 to 16 only in 1973, after the 1954–58 birth cohort had already passed the age-15 milestone. Moreover, while in France and Norway the student must finish the academic year in which their 16th birthday falls, in the UK the student may leave immediately after her 16th birthday.
 20. Neither France’s nor England and Wales’s birth registration systems collect birth order outside marriage. For France, we use instead the Family Survey conducted as part of the 1999 French census. For England and Wales, we use estimates of parity-specific fertility generated by the Office for National Statistics using a combination of birth registration and General Household Survey data (see Smallwood S (2002) New estimates of trends in births by birth order in England and Wales. *Population Trends* 108, pp 32–48).
 21. The reason for the non-equality between the higher percentage with low education in column 2 for France is that responses not indicating any education qualification are coded as ‘low’ education in each of the censuses, including the latest, 1999 Census. In some cases, the same individuals indicate a medium or high education in a previous census, and this response is used in allocating them to ‘medium’ or ‘high’ education in column 3.
 22. Analyses of UK sample survey data confirm this pattern of no change in proportions with a higher qualification between the 1950s and 1960s cohorts as at the most recently observed period. However, our analysis of General Household Survey (GHS) data for England and Wales found gains in the proportion with a higher qualification at age 25 between the 1950s and 1960s cohorts. Published estimates from Labour Force Survey (LFS) data comparing 1960s and 1970s cohorts at latest period of observation show an increase in the proportion of women with a higher education qualification across those cohorts (*Social Trends* 35, p 41, ONS, 2005). Both the GHS and LFS estimates show substantially higher levels of higher educational qualification attainment than found in, and reported in Table 2 from, the Census-based LS source – for example, 29 per cent of women were reported to have a higher education qualification among the 1954 to 1963 cohort using the LFS. In sensitivity analyses with the LS data, we found no substantial differences in educational attainment distributions occurring through our sampling criteria of excluding of women not born in England and Wales and women not present in the three or four successive censuses surrounding their observed period of fertility exposure.
 23. This early childbearing pattern makes Norway different also from the other Scandanavian countries, as highlighted recently in Andersson G (2004) Childbearing developments in Denmark, Norway, and Sweden from the 1970s to the 1990s. *Demographic Research* Special Collection 3, Article 7, pp 153–76). Seen from a family policy perspective, this difference has been noted as being consistent with benefits that are generous and more specifically targeted towards lone mothers in Norway than they are in other Scandanavian countries (Rønsen M and Skrede K (2005) Nordic fertility patterns: compatible with gender equality? In Ellingsæter A L and Leira A *Politicising Parenthood: Gender Relations in Scandinavian Welfare State Redesign* Policy Press).