

**The recuperation of fertility in Britain: A cross-cohort comparison of the role of education, fertility intentions and partnership careers**

**Ann Berrington and Serena Pattaro**

**ESRC Centre for Population Change  
University of Southampton, UK**

**Email address for correspondence: [A.Berrington@soton.ac.uk](mailto:A.Berrington@soton.ac.uk)  
Webpage: [www.cpc.ac.uk](http://www.cpc.ac.uk)**

**Acknowledgements**

This research is funded by the Economic and Social Research Council (*Grant number RES-625-28-0001*). The National Child Development Study and British Cohort Study are maintained and developed by the Centre for Longitudinal Studies (CLS), Institute of Education, University of London and are made available via the Data Archive. We thank Brian Dodgeon, Jane Elliot, Maggie Hancock, Jon Johnson from CLS for their help in answering data queries and providing data. We acknowledge the contribution of Erzsebet Burkodi and her colleagues in developing the partnership and employment histories.

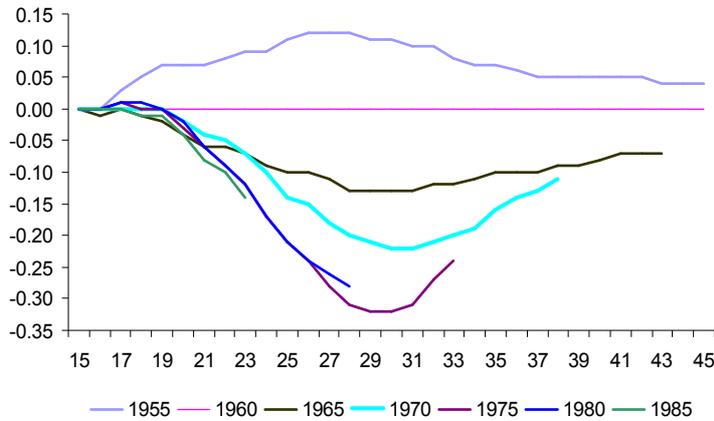
## **1. Motivation**

### **1.1. Postponement and recuperation of births in Britain**

In Britain, as for many developed countries, there has been a sharp rise in the average age at entry into motherhood and an increase in childlessness (Sigle-Rushton, 2008). The proportion with no children by age 40 doubled for cohorts born in the early 1960s when compared to those born in the mid 1940s. Since then the proportion ultimately childless has stabilised at around one in five (Office for National Statistics, 2010). Within Europe, Britain is somewhat unusual, especially when compared with Southern Europe, in the relatively low proportions which have just one child. Among parents, progression to third and higher order births remains commonplace. Hence, overall averages in completed family size conceal significant proportions of women having no children, and significant proportions having larger families. In common with other Anglo-American countries, childbearing patterns in Britain are also characterised by the social polarisation of the timing of childbearing (Rendall, Aracil, Bagavos, Couet, DeRose, DiGiulio et al. 2010). A persistent minority (often from poorer socio-economic backgrounds) continue to enter motherhood in their teens and early twenties. At the same time the average age at motherhood has increased significantly due to a large fraction of women (usually those highly educated) delaying motherhood until their late thirties and early forties (Berrington, 2004).

Patterns of postponement and recuperation of fertility among recent birth cohorts in England and Wales can be seen in Figure 1 where achieved family size by age is plotted for recent cohorts compared to those born in 1960. We see successive declines in achieved family size up until around age 30. After this age, achieved family size increases relative to the baseline suggesting that some recuperation is made. In contrast to many (particularly central, Southern and Eastern) European countries completed family size has fallen only slightly, e.g. from 2.05 among those born in 1953 to 1.93 for those born in 1963 (Office for National Statistics, 2010). The postponement of fertility may have stabilized, with the 1980 birth cohort experiencing higher fertility in their late twenties than those born in 1975 .

Figure 1: Achieved family size by age (relative to 1960 cohort), selected birth cohorts. England and Wales. Females.



Source: (Office for National Statistics, 2010)

## 1.2. Aims

This paper examines the individual level determinants of childbearing postponement and recuperation in Britain by gender and across birth cohorts. We have two main research questions: First, how have the predictors of the timing of entry into parenthood changed between the two cohorts? Second, among those who have postponed their childbearing to their early thirties what factors are associated with the recuperation of fertility, at least in terms of progression to first birth. In particular we seek to identify whether there are particular groups who are more able to fulfil an intention to become a parent. We compare our findings for men and women.

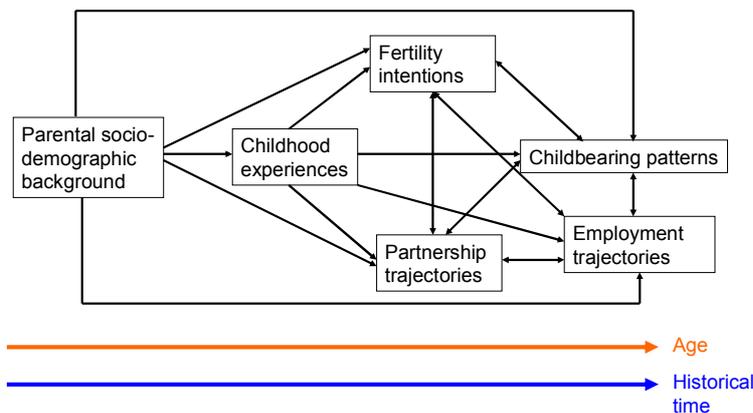
We use data from two prospective birth cohort studies: the National Child Development Study (NCDS) follows those born in Britain in one week of March 1958, roughly equating to the reference group in Figure 1; the British Cohort Study (BCS), follows those born in one week of April 1970 and represents a cohort who have delayed childbearing but with some significant recuperation at older ages. The work reported here extends previous work by: a) taking a life course perspective following up individuals from the time of their birth (and hence incorporating family background circumstances), through their childhood circumstances and the adult years up to (nearly) the end of the reproductive period b) incorporating individuals' fertility intentions in addition to time-varying information about their partnership status c) investigating both men and women.

## 2. Theoretical framework

We take a contextual developmental approach which emphasises the dynamic interaction between a changing individual and a changing structural and attitudinal context (Figure 2) (Elder, 1985). By comparing the life course of the two cohorts we take account of the changing socio-historical context. Important contextual changes include the increased uptake of post-compulsory education, especially among women, and the increased economic uncertainty faced by young adults as they enter the labour market and seek to establish residential independence (Francesconi & Golsch, 2005; Furlong & Cartmel, 2007).

Our theoretical framework highlights the importance of parental background and early life course experiences as predictors of early parenthood. Previous research, including that based on these two cohorts has identified strong inter-generational continuities in teenage childbearing (Berrington, Cobos Hernandez, Ingham & Stevenson, 2005; Hobcraft, 2008; Kiernan, 1997; Maughan & Lindelow, 1997) consistent with a wider literature on the importance of inter-generational transmissions in the timing and number of children born to an individual (Murphy & Wang, 2001; Rijken & Liefbroer, 2009a).

Figure 2: Conceptual Framework



Early childbearing in Britain is more common among those from poorer socio-economic backgrounds (Berrington et al., 2005; Hobcraft, 2008; Kiernan, 1997; Maughan & Lindelow, 1997). Parental background and childhood circumstances impact on fertility via parental educational aspirations for schooling, the age at which the respondent leaves full time education and their subsequent experiences in partnership formation and employment. Socialisation in childhood also impacts on the respondent's family building intentions. Our previous research (Berrington &

Pattaro, 2010) has shown that at age 16 the NCDS cohort members already have strongly differentiated views as to the “right time to start a family”, depending upon their social class background. The timing of sexual debut and the successful use of contraception in young adulthood are known to be affected both by an individual’s cognitive ability and behavioural characteristics (Berrington, Borgoni, Smith, Ingham & Stevenson, 2010; Kiernan, 1997). It is useful therefore to be able to incorporate both such dimensions into our framework as shown in Figure 2. We see no reason to expect the impact of these personality traits should differ across cohorts. Potentially the increased availability and effectiveness of contraception since the 1970s might mean that educational differences in sexual behaviour are less likely to manifest themselves in terms of educational differences in fertility rates. However, evidence suggests that use of efficient contraception and termination of teenage conceptions through legal abortion is lower among women from economically disadvantaged backgrounds (Smith, 1993).

The 1958 birth cohort was leaving school in the early 1970s and the majority left at age 15. Only a minority continued into higher education (around one in five men and one in seven women) and hence this was a select group, particularly among women. By the mid-1980s the legal minimum school leaving age had increased to age 16. A far higher proportion of the 1970 birth cohort stayed on in education and attended higher education institutions. Indeed, the absolute number of full-time undergraduate students in the UK tripled between 1970/71 and 2006/07 (Office for National Statistics, 2009). The expansion of higher education has been particularly dramatic for women. This is reflected in the roughly equal proportion (just under 30 percent) of men and women in the 1970 cohort who continued to higher education. The importance of educational enrolment in the postponement of partnership formation and childbearing to later ages has long been recognised (Blossfeld & Huinink, 1991; Oppenheimer, 1988) and undoubtedly the increased uptake of higher education will in part have contributed to the postponement of partnership and family formation among the more recent birth cohort.

The impact of educational attainment, net of enrolment, on childbearing patterns has previously been found to be complex, across different countries (Becker, 1981; Blossfeld, 1995) and over historical time (Kravdal & Rindfuss, 2008). There are also different effects according to gender (Randinelli, Aassve & Billari, 2010). Consistent with economic theories of family formation (Becker, 1981; Willis, 1973) educational attainment often has a positive relationship with family formation among men but not among women. For women, negative educational attainment gradients in fertility tend to be interpreted in terms of the higher opportunity costs of childbearing

for more highly qualified women (Becker, 1981; Rondinelli et al., 2010) or in terms of their increased emancipation (Lesthaeghe, 1998). It has also been found that less educated women experience more unintended births (Musick, England, Edgington & Kangas, 2009).

For our first research question, focusing on the timing of first parenthood, we examine the role of educational enrolment and educational attainment on entry into parenthood at ages under 23, ages 23-29 and ages above 30. We hypothesise that enrolment will have a large negative effect on entry into parenthood, particularly at younger ages, and particularly among women. We expect that women with higher levels of attainment will be more likely to postpone childbearing beyond age thirty. Among the select group who remain childless at this point, we would expect higher rates of entry into parenthood among those with higher levels of education. We anticipate that there will be a cohort effect. Since the group of degree educated women is more select for the earlier cohort, we might expect a flatter profile for the older cohort of women. Finally, due to the selection of women into early motherhood by education, we would expect significant differences in childbearing intentions by education among those who remain without children in their early thirties. In particular we might expect a higher proportion of less educated men and women will report that they are unable, or have been advised not to have children for health reasons.

There have been significant changes in the youth labour market and levels of economic uncertainty over the past few decades. Unemployment rates were relative low in the early 1970s, increasing at the end of the 1970s to reach a peak in the early 1980s during a period of economic recession (Ashton, Maguire & Spilburg, 1987; Leacker, 2009). Thus, school leavers from the 1970 cohort faced much higher levels of economic uncertainty as compared with the 1958 cohort. The labour market careers of today's youth can be more characterised as an individualized cycle of different forms of insecure employment (Furlong & Cartmel, 2007). The recession that occurred in Britain in the early 1990s meant that even those from the 1970 cohort who went on into higher education also faced a particularly difficult labour market transition as compared with earlier (or indeed subsequent cohorts). Economic uncertainty is usually assumed to delay transitions to partnership and family formation (for a recent review see (Kreyenfeld, 2010). However, this may not be so true for Britain, where early childbearing, often outside of any co-residential partnership, tends to occur disproportionately among women whose lives are very economically uncertain (arguably reflecting the support provided to young parents by the welfare system).

We would expect to see the impact of economic uncertainty on entry into parenthood to interact with both gender and age. Among those in their teens and early twenties, early parenthood may sometimes be the result of economic insecurity (Rendall et al., 2010; Smith, 1993). However, among those who had not become a parent by age 30, economic insecurity may well prevent some cohort members to start a family. This is likely to be especially the case for unemployed and economically inactive men who may be less attractive as a marriage partner (Becker, 1981; Oppenheimer, 1988).

Partnership formation and dissolution is one of the most important proximate determinants of fertility and the delay in childbearing to later ages relates in part to the postponement of partnership formation, especially marriage (Morgan & Rackin, 2010). Previous analysis at the individual level suggests that the absence of a suitable partner is one of the key barriers to the achievement of fertility intentions (Berrington, 2004; Rijken & Liefbroer, 2009b; Schoen, Astone, Kim, Nathanson & Fields, 1999; Tanturri & Mencarini, 2008). For more recent cohorts childbearing outside of marriage has become more accepted (Steele, Joshi, Kallis & Goldstein, 2006) and hence we would expect that the importance of marriage as a precursor to childbearing will be less among the 1970 cohort as compared with the 1958 cohort.

Recent attention has been focused on the potential use of fertility intentions data in the context of continental Europe where fertility intentions remain, in many countries, significantly above actual realised fertility behaviour (Goldstein, Lutz & Testa, 2003). The unquestioning use of fertility intentions data has been criticised on a number of fronts including the fact that respondents will tend to give socially desirable answers; the fact that intentions will tend to be dominated by a two-child norm, that respondents tend to revise their intentions over the life course, and that there is a very large level of uncertainty in intentions (for a recent review see (Ni Bhrolchain, Beaujouan & Berrington, 2010). However, we argue that information on childbearing intentions can help in a number of ways: First we can identify those persons who are unable to have children so that we can focus our attention on those who are fertile. Secondly, since a desire for children is considered normal, those who report they do not want children are making a definite statement. We interpret this response as representing “voluntarily childlessness<sup>1</sup>”. Thirdly, it is useful to be able to contrast the fertility outcomes of those who are uncertain in their childbearing intentions from those who report that they intend to have children. Uncertainty regarding childbearing is likely to reflect both

---

<sup>1</sup> The word “voluntary” is somewhat problematic since this “decision” may have been made as a result of constraints e.g. the lack of a partner or financial constraints, rather than through choice.

measurement error and real uncertainty. For those respondents not currently in a partnership, whether or not they intend to have children is likely to be very uncertain. Our second research question focuses on the recuperation of fertility among those childless in their early thirties. We anticipate that fertility intentions will have an independent predictive power on the risk of entry into parenthood as found previously in other British longitudinal surveys (Berrington, 2004; Iacovou & Tavares, 2010). By using a nested model approach we examine the extent to which intentions are associated with partnership status. By testing for interactions between intentions and partnership situation we also test whether there are particular groups of men and women who are more or less likely to realise their intentions.

### 3. Data and Method

#### 3.1 The samples

Children born in Britain in one week of March 1958 and one week of April 1970 have been followed up within the NCDS and BCS at the time points shown in Table 1. Due to a number of factors, including industrial action by teachers in 1986, the age 16 sweep of BCS had a particularly low response rate. In order to maximise the sample for analysis we do not include in this paper any measures from the age 16 surveys.

Table 1: Main sweeps of data collection in NCDS/BCS.

	Age at which interviews completed								
	0	7	11	16	23	33	42	46	50
1958 cohort (NCDS)	0	7	11	16	23	33	42	46	50
1970 cohort (BCS)	0	5	10	16	30	34	38		

Retrospective employment, partnership and fertility histories are collected at each wave after age 16 providing details of transitions made since the respondent's previous interview. The starting point for our analysis sample is those cohort members who have a valid fertility history. Educational histories were collected at ages 23 and 33 for NCDS and ages 30 and 34 for BCS. Fertility intentions were collected at age 33 for NCDS and at age 30 for BCS. In analyses which include fertility intentions as a covariate our sample is thus restricted to those who took part at the age 33/30 sweep when these intentions were collected. For the hazard model of entry into first parenthood we include only those with a valid fertility and partnership data. To reduce sample loss through attrition, respondents are included up until the point when either a) they have a first conception leading to a live birth; b) we no longer have valid information concerning the fertility or partnership history. A comparison of the childbearing patterns of our analysis sample with national vital statistics (available for women only) suggests that teenage mothers are under-represented in our sample. However, completed family size distributions for the sample are very similar to those from vital registration (Berrington & Pattaro, 2010).

### 3.2 Variables

#### *Childbearing histories*

Information on the dates of birth of natural children born since the respondent was last interviewed is asked in adult sweeps. Theoretically respondents should provide information on all births even children with whom they are not co-resident. For men there is likely to be an underreporting of births – this may have worsened over time since a) response may have generally decreased b) a higher proportion of fathers are not currently living with their children. Where it was possible we have cross-referenced the fertility reports with details of children collected in intra-household and extra-household grids and, where additional natural children are reported in these grids who were not reported in the birth history, these have been used to supplement the data provided in the birth history. The retrospective fertility information collected in successive sweeps has been seamed together to provide a continuous fertility history for both men and women.

#### *Parental and birth characteristics*

Respondents are identified according to whether they were a first or higher order birth to their mother. The age of their mother at her first birth is classified as ‘under 20’, ‘20-24’, ‘25 and above’ years. The occupational social class of the father is categorized as: ‘professional and intermediate’, ‘junior non-manual’, ‘skilled manual’, ‘semi and unskilled’<sup>2</sup>. Those not living with a father figure at birth have a missing value as do those for whom we do not have any information. Maternal education is coded according to whether the respondent’s mother continued on in school after the legal minimum age.

#### *Childhood circumstances*

Whether the child is living in social housing<sup>3</sup> or is in receipt of free school meals<sup>4</sup> are used to identify poorer economic circumstances. Family situation at age 11/10 identifies those living with both natural parents, those living with just their natural mother in a lone mother household and a final third group (mainly representing those living in reconstituted families as well as a few children who are adopted and fostered).

---

<sup>2</sup> For those with a father at birth, missing social class information for BCS70 was supplemented by occupational class information collected at ages 11/10.

<sup>3</sup> As it can be seen in Appendix C the proportion of cohort members who grew up in social housing was higher for the 1958 birth cohort. This reflects the boom period of construction of social housing in the post war housing (reaching a peak of 150,000 new homes built in 1967: Hills, 2007).

<sup>4</sup> In NCDS the question captures those families where any of the children in the family are currently receiving free school meals. In BCS parents were asked whether the cohort member has received free school meals in the past 12 months. Around one in ten BCS cohort members have received a school meal, slightly higher than the percentage currently receiving as reported in NCDS.

Cognitive ability in childhood is captured by the respondent's reading score at age 11/10<sup>5</sup>. Respondents are identified as to which quartile of ability they lie within each cohort as a whole. Childhood behaviour at age 11/10 is assessed using a version of the Rutter Parent Behaviour Scale (Rutter, Tizard & Whitmore, 1970). Two dimensions of problem behaviour are captured: those who have a tendency for conduct disorder and those who tend to be fearful, miserable and afraid who have a tendency to "neurotic" behaviour. (See Appendix A for details). We identify those who are in the top decile on these behaviours within the whole cohort.

#### *Educational enrolment and level of attainment (time varying)*

Information collected at ages 23/33 for NCDS and 30/34 for BCS is used to identify the age at which cohort members left full time education and their highest educational attainment. For the first research question we identify, for each month, whether the respondent is currently enrolled in full time education and their current highest level of qualification. For the second research question we focus on older ages when almost all of the respondents have left full time education and hence enrolment is not included in these analyses. For educational attainment, we use the same categories in both cohorts, distinguishing those who have no qualifications from those who have secondary level qualifications usually gained at age 16, advanced level qualifications, usually gained at age 18 and degree level qualifications gained from age 21 onwards.

#### *Economic Activity Status*

Since the economic activity histories from the most recent round of data collection for BCS70 are not yet available for analysis we use cross-sectional information on current economic activity and socio-economic group collected at age 33/30. The vast majority of childless men and women in their early thirties were working full time but we can contrast those who are employees with those who are self-employed. A small minority are unemployed (7 percent and 3 percent of NCDS men and women; 4 percent and 2 percent of BCS men and women) are unemployed while a further small percentage are reported as sick and disabled (See Appendix C).

#### *Socio-economic group*

---

<sup>5</sup> A Reading Comprehension Test, especially constructed for the study by the National Foundation for Educational Research, was administered to NCDS cohort members at age 11. The BCS cohort members were given a shortened version of the Edinburgh Reading Test (Godfrey, 1977).

The respondent's current (or most recent) occupation and employment status are used to allocate them into a socio-economic group. Employers and managers are distinguished from other professionals, and those in intermediate non-manual occupations are distinguished from those in more junior non-manual occupations. Those in manual occupations are grouped according to the level of skill involved (Rose & Pevalin, 2005).

#### *Partnership situation (time varying)*

Information collected retrospectively in the adult waves of the survey is used to reconstruct the starting and ending dates of each of the respondent's partnerships where they have lived with someone for a month or longer. In the hazards models of entry into first parenthood we identify, for any given month, whether the subject was married, cohabiting or not in a co-residential partnership. For those who are currently cohabiting or married the duration of the current partnership is identified. For those currently married who lived with their partner before marriage the completed duration of the whole partnership is used.

#### *Fertility intentions*

The 1958 cohort members were asked their childbearing intentions at age 33, whilst the 1970 cohort members were asked intentions at age 30. Details of the questions asked are provided in Appendix B. We identify those who were not asked their intentions due to either the respondent or their partner being sterile or having being advised not to have children. Those who were asked their intentions have been coded according to whether they do not intend to have (additional) children, or the number they intend. Those who are uncertain are coded in a separate "Don't know" category. Frequency distributions for the covariates by gender for the two cohorts who remain childless at age 33/30 are presented in Appendix C.

### **3.3 Discrete time hazards model of entry into first birth**

The response variable is a binary indicator of a conception occurrence<sup>6</sup> ( $y_j(t)$ )

$$h_j(t) = \Pr(y_j(t) = 1 \mid y_j(t-1) = 0)$$

The discrete-time hazard function is the probability of a conception event in each monthly time period  $t$ , given event has not occurred before start of  $t$ . We fit a logistic regression model where the covariates  $x_j(t)$  are either constant or time-varying.

---

<sup>6</sup> Conception refers to conception leading to a live birth

$$\text{logit}[h_j(t)] = \log\left[\frac{h_j(t)}{1-h_j(t)}\right] = \alpha(t) + \beta x_j(t)$$

Duration is equivalent to age. We group age into categories<sup>7</sup> and the monthly hazard of conception is constrained to be constant within these age categories. By testing for two-way interactions with the other covariates with age group we test whether the effect of a covariate is constant across duration. (This is found to be the case and so no interactions with duration are presented.)

### 3.4 Model building

For the first analysis of the factors affecting the timing of entry into parenthood from age 15 to exact age 38 it is necessary to take a sequential approach and model the probability of having a child in a particular age group given that the cohort member had not become a parent in the previous age group(s). This is because almost all of the parental background, childhood and adult socio-economic variables interact with age in their effect on the probability of having a child. That is to say, poorer socio-economic circumstances are positively associated with the risk of parenthood among those in their teens and early twenties, but negatively associated with the risk of parenthood among those who remain childless into their thirties. For each age range we build the model up in two stages corresponding to our conceptual framework; first including the parental background and childhood covariates, and secondly including three adult characteristics: educational enrolment, educational attainment and partnership status. To aid comparison across the nested models we retain covariates found to be significant ( $p < 0.05$ ) in the first model in the second model even if they are no longer significant in the second model<sup>8</sup>. All of the adult covariates are time-varying and can alter in each month. Hence, for the first research question, we have eight models for each gender for the 1958 cohort (Tables 6 & 7), and six models for each gender for the 1970 cohort (Tables 8 & 9).

For the second research question focusing on the role of fertility intentions among those childless in their early thirties we include cross-sectional information from the age 33/30 questionnaires. In this way we assess the impact of the respondent's economic activity and socio-economic group on childbearing outcomes. Since these cross-sectional data are conditional on the respondent being present at age 33/30 the sample sizes shown in Tables 10 and 11 are smaller than those seen for the relevant age group in Tables 6-9. In order to test whether the impact of fertility intentions is similar

---

<sup>7</sup> In Tables 6-9 each age range is split into two age groups. For example for the 15-22 age range we allow the hazard to change from the age group 15-19 and 20-22.

<sup>8</sup> The cohort member's birth order was not found to be significant for either gender in either cohort and so is not shown.

across partnership status we test for the significance of two-way interactions between partnership status and fertility intentions.

## **4. Results**

### **4.1 Descriptive findings**

As can be seen in Tables 2a and 2b, there are large class<sup>9</sup> differentials in the timing of entry into parenthood. Among the 1958 cohort, half of all men had become a parent by age 30, but the figure was 39 percent for those from professional and intermediate class backgrounds as compared with 59 percent for those from semi- and unskilled class backgrounds. For women born in 1958, differences in the proportion achieving motherhood by age 30 according to class background are somewhat larger than for the men (50 percent and 75 percent respectively).

The postponement of childbearing among the 1970 cohort is clear and has occurred within all class backgrounds. The proportion becoming a father by age 30 fell from 51 percent to 40 percent whilst the corresponding figure for women fell from 66 percent to 55 percent. This said, early childbearing remained high among the group for whom father's social class is not known or inapplicable (over a third of women in this group became mothers by age 23 in both cohorts). The majority of this group is made up of those born into a lone mother family reflecting the continued prevalence of high teenage fertility in Britain among those more socio-economically disadvantaged. However, by age 38, the 1970 cohort had caught up to some extent (as we would expect from Figure 1). This is particularly the case for women, where the overall proportion which had a child by age 38 is reduced only slightly from 81 percent to 78 percent. What can also be seen from Tables 2a and 2b is that recuperation of fertility, at least in terms of having a first birth in their thirties, is greatest among those from the most advantaged social class backgrounds. As a result, at age 38, levels of childlessness are not highest among this group, but are highest (just) among those whose fathers were in junior non-manual work.

Whilst the experience of the 1970 cohort is truncated in 2008 when they were last interviewed, we can follow the 1958 cohort up to age 46 to examine class differences in completed family size. Overall, completed family size at age 46 was 1.74 for men and 1.92 for women. Mean family size is significantly higher among men and women from more disadvantaged backgrounds. However, to a large extent this difference is being driven by the lower proportion remaining childless.

---

<sup>9</sup> Register General's Social Class Classification was used to classify the cohort member's father's occupation in both cohorts (Rose & Pevalin, 2005).

Table 2a: Indicators of timing and quantum by social class background, males born in Britain in 1958 and 1970.

	Percentage became a parent by exact age				Total completed family size at age 46	Family size at age 46 among parents
	23	30	38	46		
<b>1958 cohort</b>						
Professional and intermediate (n=875)	4	39	67	75	1.66	2.20
Skilled non-manual (n=475)	11	49	71	79	1.67	2.08
Skilled manual (n=2,213)	15	54	75	79	1.73	2.18
Semi and unskilled (n=865)	21	59	76	79	1.80	2.28
Not applicable / not known (n=154)	17	58	81	84	2.13	2.49
Total (n=4,582)	14	51	74	78	1.74	2.20
<b>1970 cohort</b>						
Professional and intermediate (1,023)	3	27	68			
Skilled non-manual (701)	6	34	67			
Skilled manual (2,529)	11	43	71			
Semi and unskilled (1,232)	15	46	68			
Not applicable / not known (356)	12	45	68			
Total (5,841)	10	40	69			

Table 2b: Indicators of timing and quantum by social class background, females born in Britain in 1958 and 1970.

	Percentage became a parent by exact age				Total completed family size at 46	Family size at 46 among parents
	23	30	38	46		
<b>1958 cohort</b>						
Professional and intermediate (n=890)	11	50	75	78	1.76	2.26
Skilled non-manual (n=477)	20	59	78	81	1.77	2.19
Skilled manual (n=2,390)	30	70	84	85	1.96	2.30
Semi and unskilled (n=1,019)	40	75	86	87	2.00	2.31
Not applicable / not known (n=169)	32	69	83	86	2.01	2.34
Total (n=4,945)	28	66	81	84	1.92	2.29
<b>1970 cohort</b>						
Professional and intermediate (1,002)	9	41	75			
Skilled non-manual (709)	13	48	73			
Skilled manual (2,640)	23	57	80			
Semi and unskilled (1,287)	32	63	80			
Not applicable / not known (410)	34	64	82			
Total (6,048)	22	55	78			

If we restrict our attention to those who became a parent and calculate mean family size for those who had at least one child, the gap narrows considerably. For example, mothers from professional and intermediate class backgrounds have an average family size of 2.26 – a very similar figure to 2.31 seen for mothers from semi- and unskilled backgrounds.

Table 3 shows intended family size for the two cohorts as reported at age 33 for NCDS and age 30 for BCS70<sup>10</sup>. The percentages who report that they want one, two, three or four or more children are shown, together with the percentage who do not know whether they want (additional) children (or do not know how many they want if they say they do want more).

<sup>10</sup> Intended family size is calculated as the sum of current parity and the reported number of future intended births. Those who were not asked about future intentions due to either themselves or their partners being unable to have children (e.g. due to contraceptive sterilisation) are assumed to intend to remain at their current parity.

Table 3: Intended family size by sex and birth cohort (including those who are unable to have (additional) children who stay on current parity).

	0	1	2	3	4+	Don't know <sup>1</sup>	Mean intended <sup>2</sup>	Sample size
<b>NCDS at age 33<sup>3</sup></b>								
Men	8.9	9.1	40.0	14.3	5.4	22.4	2.00	5,455
Women	7.8	10.2	41.0	17.2	5.9	17.9	2.06	5,718
<b>BCS at age 30<sup>4</sup></b>								
Men	8.9	10.7	40.1	11.8	4.2	24.4	1.89	5302
Women	8.0	10.4	43.1	13.7	5.3	19.5	1.97	5653

<sup>1</sup> 'Don't know' includes those who say that they do not know whether they want (additional) children and those who say they want additional children but don't know how many they want. We refer to these respondents as being 'uncertain' in their intentions.

<sup>2</sup> Based on sample who do **not** give an uncertain response.

<sup>3</sup> Based on total sample present at age 33

<sup>4</sup> Based on total sample present at age 30

In both cohorts around one fifth do not know their intended family size, with men tending to be slightly more uncertain than women. There is a remarkable similarity across both cohorts and between men and women in the proportion who report an intended family size of zero, one and two children. Only 8 percent intend to remain childless, with around 10 percent intending one child and 40 percent intending two. Fewer men and women in the younger cohort intend to have three children, with a relatively small percentage – around 5 percent - in both cohorts intending to have four or more. If we focus on just those who are certain in their intentions then mean intended family size is only very slightly reduced in the younger cohort. If these intentions are taken at face value (and not seen as simply reflecting a two-child norm) then we suggest there is little evidence of a major shift in intended family size despite the significant changes in the timing of entry into parenthood. In other words, the 1970 cohort at age 30 were very positive about their future childbearing. This includes many who remained childless at this age.

In Table 4 we focus on those who were still childless either at age 33 (for NCDS) or age 30 (for BCS). We group respondents according to their highest educational qualification at this age and present the percentage who intend and the percentage who do not intend to have children, the percentage who do not know their intention and the percentage who report that they (or their partner) cannot have children. In interpreting this table the reader should bear in mind that the earlier childbearing profile of the 1958 cohort together with the later age at which the fertility intentions question is asked (age 33 rather than age 30) means that the sample who remain childless at age 33 is more select (e.g. for those who are either unable to have children) than is the case for the 1970 cohort.

Table 4: Fertility intentions of childless men and women aged 33 (NCDS) and 30 (BCS) by highest educational qualification.

	<b>Not intend to have children</b>	<b>Intend to have children</b>	<b>Don't know</b>	<b>Can't have children<sup>1</sup></b>	<b>Sample size</b>
<b>NCDS at age 33<sup>2</sup></b>					
<b>Men</b>					
None	27.9	27.4	34.7	10.0	190
Secondary	21.6	35.9	34.7	7.8	689
Advanced	15.3	44.5	34.5	5.7	595
Degree	16.5	47.6	29.7	6.2	370
Total	19.2	40.1	33.6	7.1	1,844
<b>Women</b>					
None	34.4	20.4	22.6	22.6	93
Secondary	25.6	32.0	31.5	10.9	540
Advanced	21.3	36.6	33.5	8.6	418
Degree	19.6	35.0	39.3	6.1	280
Total	23.6	33.3	33.1	10.0	1,331
<b>BCS at age 30<sup>2</sup></b>					
<b>Men</b>					
None	16.5	51.1	28.7	3.7	721
Secondary	13.4	55.4	28.2	3.0	1,008
Advanced	12.1	57.0	28.4	2.5	440
Degree	10.4	61.1	27.2	1.3	902
Total	13.1	56.3	28.0	2.6	3071
<b>Women</b>					
None	15.2	54.2	22.3	8.3	422
Secondary	14.9	59.2	17.9	8.0	766
Advanced	12.3	59.1	24.4	4.2	382
Degree	9.8	60.3	26.9	3.0	915
Total	12.7	58.8	22.9	5.6	2485

<sup>1</sup> Either respondent or their partner (if applicable) is unable to have children

<sup>2</sup> Based on total sample present at that sweep.

A significant proportion (ranging between one quarter and one third) of the childless men and women in their early thirties were uncertain about their future childbearing. This is more so for 1958 cohort reflecting the fact that more of the 1958 cohort will have attempted to have children at an earlier age and discovered that they are unable to do so. In the younger cohort childless men are generally more uncertain than are childless women. Uncertainty among men is similar across educational groups but this is not the case for women where it is those with degree level qualifications who appear to be most uncertain. In both cohorts having a higher level of education is associated with a greater intended number of children. For the 1970 cohort only 10 percent of women with degree level qualifications intended to remain childless as compared with 15 percent of those with no qualifications.

In Table 5, we examine the extent to which the childbearing intentions of fertile childless men and women in their early thirties are realised. We contrast the subsequent fertility experience of those who said they wanted at least one child, from those who said they did not want any children and those who said they did not know. We follow the 1958 cohort up to exact age 46 which for the vast majority captures the whole of their childbearing career, whilst, for the 1970 cohort we can only examine their experience up to exact age 38. For both cohorts, those who expressed an intention to have a child were significantly more likely to do so as compared with those who did not intend. Those who were uncertain about their childbearing lie somewhere in between.

A higher proportion of the 1970 cohort who intended to become a parent in their thirties did so as compared with the 1958 cohort. In part this reflects the younger age at the start of the observation period but also reflects the fact that a higher proportion of the cohort had postponed childbearing to this age resulting in a less select group of women remaining childless at 30 as compared with 33. Nevertheless it is clear that their intention to become a parent remained unfulfilled – at least by age 38 - for 42 percent of men and 37 percent of women. Among those who were uncertain about their future childbearing intentions the percent who remained childless at 38 was considerably higher – 64 percent of men and 61 percent of women. This could be taken to suggest that there are barriers to these individuals becoming a parent which are explored further in the multivariate analyses.

Table 5: Achieved family size according to intentions of fertile childless men and women.

Intentions for children expressed at age 33/30	Achieved family size <sup>1</sup>			Sample
	0	1	2+	
<b>NCDS<sup>2</sup></b>				
<b>Males</b>				
Yes	44.4	22.0	33.7	683
No	85.3	10.3	4.4	272
Don't know	68.1	15.6	16.3	436
Total	59.8	17.7	22.5	1,391
<b>Females</b>				
Yes	47.0	22.3	30.7	413
No	89.3	7.0	3.7	270
Don't know	67.7	16.3	16.0	337
Total	65.0	16.3	18.7	1,020
<b>BCS70<sup>3</sup></b>				
<b>Males</b>				
Yes	42.3	24.0	33.7	1402
No	85.4	9.6	5.0	260
Don't know	64.2	19.8	16.3	424
Total	52.1	21.3	26.6	2086
<b>Females</b>				
Yes	37.1	26.3	36.6	1258
No	78.5	9.7	11.8	237
Don't know	61.3	24.8	13.8	326
Total	46.8	23.9	29.3	1821

<sup>1</sup> For the 1958 cohort this is achieved family size by age 46. For the 1970 cohort it is achieved family size by exact age 38.

<sup>2</sup> NCDS sample based on those who were present at age 33 and we know their completed family size at age 46.

<sup>3</sup> BCS sample based on those who were present at age 30 and we know their completed family size at age 38.

## 4.2 Factors influencing the timing of entry into parenthood

The first set of multivariate analyses show the parameter estimates (log odds ratios) from sequential modelling of the hazard of first parenthood at ages under 23, age 23-29 and age 30-37 for men and women born in 1958 (Tables 6 & 7) and 1970 (Tables 8 & 9).

The timing of transition to first birth is clearly related to the respondent's socio-economic background. Almost all of the parental and childhood factors identifying a poorer environment are associated with an increased risk of early entry into parenthood (under age 23) for both men and women in both cohorts. The patterns according to social class background seen in the descriptive analysis persist in the multivariate analyses. For example, among the 1970 cohort, the monthly odds of experiencing a conception are around twice as high for teenagers from semi and unskilled manual backgrounds, compared to those from professional and intermediate backgrounds. Comparison of the parameter estimates in Model 1 and Model 2 for those aged under 23, show how the impact of parental and childhood factors is diminished once the respondent's educational enrolment, attainment and partnership status are included. For example, the size of the coefficients relating to father's social class is roughly halved for all cohort members, irrespective of year of birth or gender. The effect of maternal education becomes non-significant (apart for women born in 1970). This pattern reflects the fact that those from poorer backgrounds are more likely to leave school early with low level qualifications and more likely to form partnerships at an early age.

Among those who postpone childbearing to at least age 23, the impact of socio-economic background differs in the two birth cohorts. For those born in 1958, the impact of father's social class, maternal education, housing tenure and whether the respondent was in receipt of free school meals are all small, especially for men. However, for the 1970 cohort the impact of socio-economic background is neutral for the age range 23-29 but much more significant among those who remain childless at exact age 30 (especially for men). For example among childless men in their thirties: those whose father's were in semi and unskilled occupations are 0.69 times as likely to become a father as compared to those from professional and intermediate backgrounds. For women a similar reversal can be seen in the effect of maternal education: At younger ages, maternal education is negatively associated with the risk of motherhood, whilst at the oldest ages it is positively associated with the risk of motherhood.

The stronger interaction between socio-economic background and age among the 1970 cohort may reflect the increased social polarisation in the timing of childbearing in Britain over time.

To a large extent, socio-economic background influences family formation behaviour via the length of time individuals remain in education and the highest level of qualification they receive. As shown in Tables 6-9, current educational enrolment<sup>11</sup> is strongly associated with a delay in childbearing, especially for men and women in their teens and early twenties. Among the 1970 cohort enrolment remains negatively associated with childbearing for women in their mid to late twenties, but is not significant for men at these ages.

Parenthood is also postponed among those with higher educational qualifications. For both cohorts, higher qualifications are associated with a lower risk of childbearing at ages up to 29. Among those who remain childless at age 30, the relationship is either neutral or slightly positive. (As will be discussed further later on, educational attainment acts on childbearing at older ages via the propensity to cohabit and marry). There are no obvious cohort differences in the effect of education (despite the distribution of men and women according to highest qualification changing significantly across the cohorts).

We can also see that over and above these socio-economic differentials, there remains an inter-generational transmission effect whereby the age at which the respondent's mother had her first birth is consistently associated with the age at which the respondent enters parenthood. In fact, even among those born in 1970 who remain childless in their thirties, having a mother who had her first birth when she was aged 25 or more years is associated with the postponement of fatherhood beyond age 38 for men. Among women in their thirties, maternal age at childbearing is only associated with delaying motherhood further, once the respondent's partnership experience is controlled for.

---

<sup>11</sup> We do not include educational enrolment for ages 23 and above in NCDS and ages 30 and above in BCS since insufficient numbers of the cohorts remain in full time education.

Table 6: Sequential discrete time hazards model of first birth. Men born in Britain in 1958.

Variable		Age 15-22		Age 23-29		Age 30-37	
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age group (ref. = 1)	2	1.48 ***	0.25 ***	0.30 ***	0.01	-0.47 ***	-0.41 ***
Father's Social Class (ref. = Prof. & Inter.)	Skilled non man.	0.52 ***	0.26	0.09	-0.10	0.00	-0.04
	Skilled man.	0.70 ***	0.40 ***	0.09	-0.06	-0.07	-0.05
	Semi & Unskilled	0.81 ***	0.46 ***	0.09	-0.04	-0.10	-0.03
	Not known	0.98 ***	0.49 *	0.15	0.03	-0.11	-0.07
Mother had post compulsory ed. (ref.=No)	Yes	-0.33 ***	-0.13	-0.10 *	0.03	-0.03	-0.01
Mother's age at her first birth (ref. = <20)	20-24	-0.26 ***	-0.22 ***	0.05	0.05	0.09	0.13
	25+	-0.55 ***	-0.35 ***	-0.32 ***	-0.16 **	-0.12	-0.07
	Not known	-0.50 **	-0.25	-0.09	0.16	0.28	0.30
Reading ability at 11 (ref. = Lowest quartile)	Q2	-0.17 *	-0.19 **	0.10	-0.01	0.19 *	0.20 *
	Q3	-0.38 ***	-0.26 **	0.02	-0.06	0.16	0.18
	Highest quartile	-0.80 ***	-0.43 ***	-0.15 **	-0.21 ***	0.19 *	0.13
	Not known	-0.20	-0.04	-0.12	-0.14	0.09	0.23
Social housing at 11 (ref. = No)	Yes	0.43 ***	0.32 ***	0.01	-0.05	-0.14 *	-0.13
	Not known	0.05	0.09	0.16	-0.11	-0.17	0.06
Family structure at 11 (ref. = Two natural parents)	Lone Mother	-0.09	-0.20	-0.06	-0.01	-0.02	0.08
	Other	0.25 *	0.12	-0.05	-0.11	-0.30	-0.39 **
	Not known	0.91 *	0.56	0.63 *	-0.56	0.48	0.03
Free school meals at 11 (ref. = No)	Yes	0.12	-0.04	0.15	0.19 **	-0.14	-0.18
	Not known	0.13	0.12	0.38 **	0.29 *	0.41 *	0.34
Anti-social behaviour at 11 (ref. = No)	Yes	0.29 ***	0.08	-0.01	-0.02	0.11	0.09
	Not known	-0.15	-0.14	0.14	0.26 *	-0.26	-0.23
Neurotic behaviour at 11(ref. = No)	Yes	-0.42 ***	-0.38 ***	-0.08	-0.14 *	-0.46 ***	-0.50 ***
	Not known	-0.45 **	-0.35 *	0.07	0.14	-0.38 **	-0.24
Educ. enrol. (t) (re=No)	Yes		-1.43 ***				
Educational qualification (t) (ref. = None)	Secondary level		-0.24 ***		-0.07		-0.22 **
	Advanced level		-0.29 ***		-0.03		0.00
	Degree level		-1.24 ***		-0.28 ***		-0.07
Partnership status and duration (t) (ref.= Not in a partnership)	Cohab. <2 yrs		2.16 ***		1.75 ***		2.24 ***
	Cohab. 2-3 yrs		1.31 ***		1.60 ***		1.75 ***
	Cohab. 4+ yrs		1.52 **		1.78 ***		1.50 ***
	Married <2 yrs		2.84 ***		2.87 ***		3.25 ***
	Married 2-3 yrs		3.00 ***		2.98 ***		3.18 ***
	Married 4+ yrs		2.32 ***		2.94 ***		2.65 ***
<i>Constant</i>		-7.25	-8.17	-5.03	-6.62	-4.86	-6.97
<i>Person months</i>		450,299	450,299	263,212	263,212	151,957	151,957
<i>LogLikelihood</i>		-5968.9	-5259.3	-11188.8	-10067.9	-5655.9	-5217.7
<i>Pseudo R<sup>2</sup></i>		0.06	0.17	0.01	0.11	0.01	0.09

Note: \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 7: Sequential discrete time hazards model of first birth. Women born in Britain in 1958.

Variable		Age 15-22		Age 23-29		Age 30-37	
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age group (ref. = 1)	2	1.01 ***	-0.09	0.19 ***	0.12	-0.58 ***	-0.48 ***
Father's Social Class (ref. = Prof. & Inter.)	Skilled non man.	0.25 **	0.08	0.05	-0.05	-0.06	-0.11
	Skilled man.	0.53 ***	0.28 ***	0.18 ***	0.07	-0.04	-0.09
	Semi & Unskilled	0.66 ***	0.36 ***	0.21 **	0.09	-0.04	-0.10
	Not known	0.51 ***	0.37 **	0.04	0.12	0.04	0.09
Mother had post compulsory ed. (ref.=No)	Yes	-0.23 ***	-0.02	-0.17 ***	-0.05	0.11	0.09
Mother's age at her first birth (ref. = <20)	20-24	-0.31 ***	-0.25 ***	0.09	0.02	0.00	-0.08
	25+	-0.66 ***	-0.45 ***	-0.16 **	-0.13	0.09	0.02
	Not known	-0.34 ***	-0.15	0.00	-0.02	0.14	0.05
Reading ability at 11 (ref. = Lowest quartile)	Q2	-0.16 **	-0.06	-0.00	-0.07	0.25 *	0.13
	Q3	-0.44 ***	-0.18 **	-0.07	-0.07	0.15	0.06
	Highest quartile	-0.86 ***	-0.32 ***	-0.22 ***	-0.19 **	0.07	-0.06
	Not known	-0.21 *	-0.02	-0.19	-0.12	0.27	0.09
Social housing at 11 (ref. = No)	Yes	0.25 ***	0.19 ***	-0.01	-0.00	-0.25 **	-0.21 **
	Not known	-0.21	-0.10	-0.24	-0.30	1.43 **	1.33 **
Family structure at 11 (ref. = Two natural parents)	Lone Mother	0.01	0.00	0.05	0.05	-0.11	-0.04
	Other	0.23 **	0.01	0.19 *	0.15	-0.06	-0.09
	Not known	0.31	0.16	0.54	0.65	-1.46 **	-1.18 *
Free school meals at 11 (ref. = No)	Yes	0.34 ***	0.19 **	0.06	0.12	0.02	0.07
	Not known	0.04	-0.01	-0.06	-0.14	-0.58 **	-0.47 *
Anti-social behaviour (re. = No)	Yes	0.26 ***	0.19 **	-0.13	-0.05	-0.34 *	-0.25
	Not known	-0.02	-0.14	-0.22	-0.37 **	-0.05	-0.11
Neurotic behaviour (ref. = No)	Yes	-0.07	-0.02	0.13	0.06	-0.22	-0.13
	Not known	0.08	0.17	-0.07	0.09	0.07	-0.00
Educ. enrol. (t) (re=No)	Yes		-1.41 ***				
Educational qualification (t) (ref. = None)	Secondary level		-0.54 ***		-0.10		0.16
	Advanced level		-0.89 ***		-0.10		0.05
	Degree level		-1.38 ***		-0.33 ***		0.27
Partnership status and duration (t) (ref.= Not in a partnership)	Cohab. <2 yrs		1.62 ***		1.61 ***		1.48 ***
	Cohab. 2-3 yrs		1.09 ***		1.33 ***		1.32 ***
	Cohab. 4+ yrs		0.53		1.29 ***		1.14 ***
	Married <2 yrs		2.15 ***		2.62 ***		3.21 ***
	Married 2-3 yrs		2.42 ***		2.75 ***		2.84 ***
	Married 4+ yrs		2.10 ***		2.54 ***		1.97 ***
<i>Constant</i>		-5.91	-7.02	-4.92	-6.47	-4.94	-6.65
<i>Person months</i>		441,433	441,433	208,834	208,834	111,206	111,206
<i>LogLikelihood</i>		-11074.6	-10043.1	-10859.5	-10082.5	-4068.4	-3802.9
<i>Pseudo R<sup>2</sup></i>		0.05	0.13	0.01	0.08	0.01	0.08

Note: \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 8: Sequential discrete time hazards model of first birth. Men born in Britain in 1970.

Variable		Age 15-22		Age 23-29		Age 30-37	
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age group (ref. = 1)	2	1.15 ***	0.43 ***	0.39 ***	0.02	-0.10	-0.10
Father's Social Class (ref. = Prof. & Inter.)	Skilled non man.	0.41 *	0.22	0.11	0.02	-0.16	-0.12
	Skilled man.	0.64 ***	0.36 **	0.13 *	0.04	-0.21 ***	-0.25 ***
	Semi&Unskilled	0.74 ***	0.50 ***	0.15	0.10	-0.36 ***	-0.29 ***
	Not known	0.59 ***	0.50 **	0.05	0.05	-0.34 **	-0.31 **
Mother had post compulsory ed. (ref. = No)	Yes	-0.33 ***	-0.13	-0.24 **	-0.16 **	0.01	-0.08
	Not known	-0.69 *	-0.72	-0.08	-0.12	-0.18	-0.67 *
Mother's age at her first birth (re. = <20)	20-24	-0.19 **	-0.12	-0.17 ***	-0.12 *	-0.15 *	-0.14
	25+	-0.82 ***	-0.58 ***	-0.46 ***	-0.24 ***	-0.28 ***	-0.18 *
	Not known	0.25	0.47	-0.14	-0.02	0.07	0.07
Reading ability at 10 (ref. = Lowest quartile)	Q2	-0.12 ***	-0.05	0.05	0.09	0.16	0.01
	Q3	-0.33 ***	-0.17	-0.09	-0.13	0.25 **	0.08
	Highest quartile	-0.64 ***	-0.25	-0.22 **	-0.24 ***	0.27 **	0.00
	Not known	-0.27 **	-0.09	-0.15 *	-0.06	0.16	0.05
Social housing at 10 (ref. = No)	Yes	0.45 ***	0.35 ***	0.10	0.12 *	-0.15 *	-0.03
	Not known	0.48	0.46	-0.02	0.07	-0.09	-0.19
Family structure at 10 (ref. = Two natural parents)	Lone Mother	0.36 **	0.34 **	-0.03	-0.20	-0.20	0.11
	Other	0.26 *	0.16	-0.10	-0.13	-0.09	-0.14
	Not known	0.30	-0.09	0.24	-0.06	-0.28	-0.09
Free school meals at 10 (ref. = No)	Yes	0.12	0.10	0.01	-0.04	-0.19	-0.19
	Not known	-0.65	-0.46	0.19	0.14	0.74 *	0.45
Anti-social behaviour (re. = No)	Yes	0.39 ***	0.27 **	0.14	0.26 ***	-0.11	-0.02
	Not known	0.75 ***	0.66 ***	0.29	0.26	-0.01	0.04
Neurotic behaviour (re. = No)	Yes	-0.29 *	-0.25	-0.20 **	-0.19 *	-0.24 **	-0.21 *
	Not known	-0.58 **	-0.42	-0.47 **	-0.14	-0.26	-0.26
Educational enrolment (t) (ref. = No)	Yes		-1.37 ***		-0.11		
	Secondary level		-0.22 **		0.04		0.20
Educational qualification (t) (ref. = None)	Advanced level		-0.59 ***		-0.29 **		0.16
	Degree level		-0.81 ***		-0.35 ***		0.31 **
Partnership status and duration (t) (ref. = Not in a partnership)	Cohab. <2 yrs		1.44 ***		1.56 ***		1.77 ***
	Cohab. 2-3 yrs		1.81 ***		1.49 ***		1.81 ***
	Cohab. 4+ yrs		2.00 ***		1.58 ***		1.51 ***
	Married <2 yrs		2.82 ***		2.67 ***		3.00 ***
	Married 2-3 yrs		2.52 ***		2.92 ***		3.07 ***
	Married 4+ yrs		3.26 ***		2.80 ***		2.60 ***
Constant		-7.40	-8.25	-5.32	-6.57	-4.92	-6.72
Person mths		511,502	511,502	336,193	336,193	173,826	173,826
LogLikelihood		-4768.3	-4445.4	-100096.1	-9088.5	-6821.9	-6233.4
Pseudo R <sup>2</sup>		0.05	0.12	0.009		0.004	0.09

Note: \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 9: Sequential discrete time hazards model of first birth. Women born in Britain in 1970.

Variable		Age 15-22		Age 23-29		Age 30-37	
		Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Age group (ref. = 1)	2	0.68 ***	-0.09	0.37 ***	0.12 **	-0.20 ***	-0.18 ***
Father's Social Class (ref. = Prof. & Inter.)	Skilled non man.	0.23 *	0.09	0.06	-0.10	-0.27 **	-0.31 ***
	Skilled man.	0.34 **	0.15	0.03	-0.08	0.05	0.09
	Semi&Unskilled	0.52 ***	0.25 **	0.01	-0.12	-0.10	-0.10
	Not known	0.49 ***	0.30 **	-0.05	-0.09	-0.27 *	-0.22
Mother had post compulsory ed. (ref. = No)	Yes	-0.37 ***	-0.22 ***	-0.16 ***	-0.01 **	0.13 *	0.15 **
	Not known	-0.15	-0.02	0.42 **	0.51 **	-0.12	0.23
Mother's age at her first birth (ref. = <20)	20-24	-0.41 ***	-0.35 ***	-0.10 ***	-0.14 **	-0.14	-0.20 **
	25+	-1.04 ***	-0.83 ***	-0.43 ***	-0.39 ***	-0.10	-0.19 *
	Not known	-0.11	-0.09	-0.62	-0.65 ***	-0.04	-0.45
Reading ability at 10 (ref. = Lowest quartile)	Q2	-0.18 **	-0.14 *	0.12	0.11	0.14	0.00
	Q3	-0.35 ***	-0.23 **	-0.18 **	-0.18 **	0.44 **	0.26 *
	Highest quartile	-0.82 ***	-0.54 ***	-0.28 ***	-0.20 **	0.42 **	0.19
	Not known	-0.46 ***	-0.33 ***	-0.16 *	-0.12	0.27 *	0.15
Social housing at 10 (ref. = No)	Yes	0.47 ***	0.43 ***	0.01	0.03	-0.10	0.01
	Not known	-0.21	-0.09	0.22	0.18	0.19	0.45
Family structure at 10 (ref. = Two natural parents)	Lone Mother	-0.16	-0.13	-0.03	0.02	-0.06	0.11
	Other	0.04	-0.03	0.21 **	0.11	-0.15	-0.16
	Not known	0.29	0.31	0.03	0.14	0.37	0.45
Free school meals at 10 (ref. = No)	Yes	0.37 ***	0.29 ***	0.11	0.18 **	-0.07	-0.15
	Not known	0.21	0.19	-0.11	-0.20	0.04	-0.42
Anti-social behaviour (re. = No)	Yes	0.31 ***	0.24 **	-0.12	-0.02	-0.01	0.15
	Not known	-0.45 *	-0.51 **	-0.23	-0.27	0.06	0.29
Neurotic behaviour (re. = No)	Yes	-0.15	-0.13	0.03	-0.04	-0.07	-0.14
	Not known	0.18	0.17	0.02	0.02	-0.43	-0.49
Educational enrolment (t) (ref. = No)	Yes		-1.19 ***		-0.41 ***		
Educational qualification (t) (ref. = None)	Secondary level		-0.32 ***		-0.20 **		0.23
	Advanced level		-0.59 ***		-0.43 ***		0.13
	Degree level		-0.71 ***		-0.57 ***		0.31 *
Partnership status and duration (t) (ref.= Not in a partnership)	Cohab. <2 yrs		1.33 ***		1.28 ***		1.65 ***
	Cohab. 2-3 yrs		0.92 ***		1.23 ***		1.40 ***
	Cohab. 4+ yrs		1.43 ***		1.34 ***		1.22 ***
	Married <2 yrs		2.14 ***		2.40 ***		2.79 ***
	Married 2-3 yrs		2.33 ***		2.62 ***		2.77 ***
	Married 4+ yrs		2.19 ***		2.56 ***		2.26 ***
<i>Constant</i>		-5.57	-6.27	-4.83	-6.09	-5.07	-6.81
<i>Person mths</i>		496,030	496,030	281,186	281,186	136,185	136,185
<i>LogLikelihood</i>		-8974.6	-8452.3	-10796.1	-9876.8	-5973.6	-5566.7
<i>Pseudo R<sup>2</sup></i>		0.04	0.10	0.01	0.09	0.01	0.07

Also of interest are the independent effects of cognitive and behavioural characteristics of the respondent. These effects are consistent across birth cohorts but differ by gender. Whilst anti-social behaviour tends to be associated with early childbearing, it has no impact on the risk of childbearing among those who remain childless at age 23. For women, having a nervous or shy disposition as captured in the “neurotic” behaviour has no impact on the risk of motherhood. However, among men, there is a persistent effect whereby those who had a childhood tendency for neurotic behaviour are less likely to become a father. This effect, previously observed for teenage fatherhood (Berrington et al., 2005), can be seen to carry through to men who are still childless in their thirties.

It is clear however, that partnership status is the most important proximate determinant of childbearing. For both men and women and for all ages, those who are currently married have higher risks of childbearing than those who are cohabiting, who in turn, have higher risks of childbearing than those who remain single. The parameter estimates relating to partnership status are slightly smaller for women than for men but the differences are not large. In both cohorts and both genders the risk of childbearing is lower among those who are in their thirties and who have already been married for at least four years – this may reflect unmeasured heterogeneity, for example in the respondent’s or their spouse’s ability to have children. In general, the size of the coefficients for partnership status are similar between the two cohorts, but childbearing within cohabiting unions which have persisted for four years or more is more common among the 1970 cohort. Again, this may be due to a selection effect: cohabitations among the 1958 birth cohort tended to be of relatively short duration and hence those who cohabited for four years or more would have been a rather select group.

### **4.3 Fertility intentions and the recuperation of fertility at later ages**

Tables 10-11 show for men and women born in 1958 and 1970 the log odds ratios of becoming a parent among those who remain childless in their early thirties. Model 1 controls for parental and childhood characteristics, educational attainment, economic activity, socio-economic group, and fertility intentions. In Model 2 we also include our time varying indicator of partnership status. Of all the possible interactions between partnership status and intentions, one sub-set (between longer durations of marriage and positive fertility intentions) was found to improve model fit (for both men and women in NCDS, and just for men in BCS) and is presented.

In Model 1, economic activity status and socio-economic group are significant predictors of childbearing even when educational attainment is controlled. (In fact, if we compare Model 1 with the last column of Tables 6-9 we see that the effect of educational attainment is attenuated when fertility intentions are included into the analyses). For both cohorts and both genders the unemployed and those who are sick or disabled are significantly less likely to make the transition to parenthood.<sup>12</sup> Comparison of Models 1 and 2 in Tables 10 and 11 shows how the inclusion of partnership status attenuates the effects of economic activity. In other words, lower rates of childbearing, for example among the unemployed, results from an inability of the unemployed to find a co-residential (especially a marital) partner. Among the 1970 cohort we also see that part-time work (especially for men) is associated with a lower probability of childbearing. To the extent to which part time working can be interpreted as an indicator of economic uncertainty (Del Boca, Pasqua & Pronzato, 2005; Furlong & Cartmel, 2007; Pattaro, 2006) then this also suggests that increased economic uncertainty may act to delay childbearing (Kreyenfeld, 2010).

For men, particularly those born in 1958, there is an additional impact of socio-economic group. Men employed in lower status occupations, especially those in semi and unskilled jobs were less likely to become a father. Once again, comparison of Model 1 and Model 2 suggests that this was, in part, explained by them being less likely to form a partnership. Among women, the small sample sizes in some socio-economic groups make analysis difficult and the estimated coefficients tend not to be significant. There is weak evidence for both cohorts that, in contrast to the top two groups of 'employers and managers' and 'professionals', those in manual occupations were less likely to become a mother.

---

<sup>12</sup> Due to small sample sizes some of the coefficients for women are not statistically significant but are of the same magnitude and direction as those shown for men.

**Table 10. Parameter estimates from discrete time hazards model of first birth after age 33. Women and men born in Britain in 1958.**

Variable		Men		Women	
		Model 1	Model 2	Model 1	Model 2
Age group (t) (ref. = 33-35)	36-39	-0.31 ***	-0.23 **	-0.33 ***	-0.31 ***
	40-45	-1.34 ***	-1.27 ***	-2.50 ***	-2.44 ***
Father's Social Class (ref. = I & II Prof. & Inter.)	III n Skilled non manual	0.06	0.05	0.14	0.12
	III m Skilled manual	-0.03	-0.03	0.02	-0.01
	IV & V Semi & Unskilled	-0.17	-0.15	-0.03	-0.10
	Not known	-0.05	-0.01	0.31	-0.36
Neurotic behaviour (re. = No)	Yes	-0.37 **	-0.32 **	-0.28	-0.30
	Not known	-0.03	-0.16	-0.13	-0.18
Educational qualification (ref. = None)	Secondary level	-0.14	-0.30 *	0.30	0.21
	Advanced level	0.14	-0.06	0.17	0.05
	Degree level	0.09	-0.16	0.40	0.27
Economic activity at t0 (ref.= Full-time employee)	Part time	0.43	0.32	0.06	0.12
	Full time self employed	-0.16	-0.07	0.24	0.33
	Unemployed	-0.91 ***	-0.52 **	0.06	0.26
	Sick/disabled	-1.78 **	-1.56 **	-1.08	-1.06
	Other	-0.46	-0.54	0.11	0.15
Socio-economic group at t0 (ref. = 1. Employers & managers)	2. Professional	-0.22	-0.18	0.30	0.30
	3. Intermediate non-man.	-0.26 *	-0.15	-0.18	-0.11
	4. Junior non-manual	-0.35 **	-0.23	-0.13	-0.13
	5. Skilled manual	-0.41 ***	-0.37 **	-0.83	-0.63
	6. Semi & unskilled man.	-0.60 ***	-0.44 **	-0.33	-0.02
	7. Other	0.03	0.03	-0.40	-0.29
Fertility intentions (ref.= Not want any children)	Want one	1.60 ***	1.25 ***	1.94 ***	1.73 ***
	Want two	1.51 ***	1.21 ***	2.01 ***	1.54 ***
	Want three or more	1.86 ***	1.63 ***	1.98 ***	1.93 ***
	Don't know	0.77 ***	0.85 ***	1.30 ***	1.32 ***
	Can't have children	0.46 *	0.21	0.69 **	0.55
Partnership status and duration (t) (ref.= Not in a partnership)	Cohabiting <2 yrs		2.05 ***		1.79 ***
	Cohabiting 2-3 yrs		1.43 ***		1.59 ***
	Cohabiting 4+ years		1.26 ***		1.06 ***
	Married <2 yrs		2.89 ***		3.15 ***
	Married 2-3 yrs		2.58 ***		2.63 ***
	Married 4+ years		1.79 ***		1.32 ***
Interaction: Partnership status x intentions	Married 4+ yr x Want 1		0.15		0.23
	Married 4+ yr x Want2		0.43 **		0.68 ***
	Married 4+ yr x Want3		0.76 **		-0.11
Constant		-5.90	-7.33	-6.80	-8.04
Person months		167,448	167,448	129,644	129,644
Log Likelihood		-3419.2	-3247.2	-2087.2	-1981.3
Pseudo R <sup>2</sup>		0.06	0.11	0.09	0.13

Note: \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

**Table 11. Parameter estimates from discrete time hazards model of first birth after age 30. Women and men born in Britain in 1970.**

Variable		Men		Women	
		Model 1	Model 2	Model 1	Model 2
Age group (t) (ref. = 30-31)	32-34	0.10	0.09	0.06	0.10
	35-37	-0.02	-0.00	-0.18 **	-0.11
Father's Social Class (ref. = I & II Prof. & Inter.)	III n Skilled non manual	-0.13	-0.13	-0.23 **	-0.27 **
	III m Skilled manual	-0.08	-0.16 **	0.05	0.09
	IV & V Semi & Unskilled	-0.20 *	-0.18 *	-0.13	-0.12
	Not known	-0.23 *	-0.27 **	-0.31 **	-0.17
Neurotic behaviour (re. = No)	Yes	-0.28 **	-0.21	-0.09	-0.13
	Not known	0.05	0.07	0.13	0.07
Educational qualification (ref. = None)	Secondary level	0.07	0.07	-0.07	-0.07
	Advanced level	0.26 **	0.13	0.05	-0.10
	Degree level	0.28 ***	0.20 *	0.08 *	0.04
Economic activity at t0 (ref.= Full-time employee)	Part time	-0.73 **	-0.32	-0.28 *	-0.31 **
	Full time self employed	-0.04	0.09	0.06	0.11
	Unemployed	-0.79 ***	-0.04	-0.74 **	-0.17
	Sick/disabled	-0.90 **	0.04	-0.66	-0.27
	Other	-0.56 *	0.00	-0.25	-0.21
Socio-economic group at t0 (ref. = 1. Employers & managers)	2. Professional	0.18	0.17	0.06	0.09
	3. Intermediate non-man.	-0.02	0.09	0.05	0.15 *
	4. Junior non-manual	-0.24 **	0.02	0.00	0.04
	5. Skilled manual	0.01	0.21 **	-0.23 **	-0.06
	6. Semi & unskilled man.	-0.16	0.21	-0.33	-0.23
	7. Other	-0.01	-0.04	-0.01	0.02
	Fertility intentions (ref.= Not want any children)	Want one	1.68 ***	1.10 ***	1.47 ***
Want two		1.63 ***	1.29 ***	1.54 ***	1.37 ***
Want three or more		1.68 ***	1.40 ***	1.45 ***	1.69 ***
Don't know		1.11 ***	1.19 ***	0.75 ***	0.76 ***
Can't have children		1.07 ***	0.60 *	0.57 **	0.26
Partnership status and duration (t) (ref.= Not in a partnership)	Cohabiting <2 yrs		1.67 ***		1.65 ***
	Cohabiting 2-3 yrs		1.79 ***		1.45 ***
	Cohabiting 4+ years		1.50 ***		1.35 ***
	Married <2 yrs		2.89 ***		2.74 ***
	Married 2-3 yrs		2.94 ***		2.72 ***
	Married 4+ years		2.18 ***		2.29 ***
	Interaction: Partnership status x intentions	Married 4+ yr x Want 1		0.25	
Married 4+ yr x Want2			0.48 ***		0.01
Married 4+ yr x Want3			0.64 ***		-0.31
Constant		-6.34	-7.89	-5.94	-7.56
Person months		159,419	159,419	128,493	128,493
Log Likelihood		-6152.4	-5671.7	-5520.4	-5154.7
Pseudo R <sup>2</sup>		0.02	0.10	0.03	0.09

Note: \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Fertility intentions have a strong, independent association with subsequent childbearing. As we would expect from the descriptive findings, those who want children are significantly more likely to become a parent. When partnership status is controlled for, the intentions become even more discriminatory. That is to say those who desired three or more children were more likely to become a parent than those who wanted two, who were more likely to become a parent than those who wanted just one. Uncertain respondents were more likely to become a parent than those who said they did not want to have children. Negative intentions are particularly likely to be realised. This is particularly the case among the 1958 cohort. This probably reflects firstly: the fact that the 1970 cohort were at a slightly earlier stage in their life-course and hence had more time to change their mind and secondly: that those who remained childless at age 30 among the 1970 cohort were a less select group than those who remained childless at age 33 among the 1958 cohort.

Having a co-residential partner, and especially being recently married, is strongly associated with entry into parenthood. The effect sizes are much larger than for the other covariates. Contrary to our expectations concerning changing attitudes to extra-marital childbearing, the parameter estimates are of similar magnitude for both cohorts. For example, in both cohorts, the monthly odds of a conception leading to a live birth is seventeen times as high among men who have been married less than two years as compared to un-partnered men. As discussed previously in relation to Tables 6-9, childbearing among cohabitations of longer duration is somewhat less likely, but still more likely than for un-partnered respondents.

In general, married men and women who had lived with their spouse for four or more years and had still remained childless were less likely to become parents than those who had only been married for a shorter time. However, the significant two-way interaction between partnership status and fertility intentions suggests that longer married couples with positive fertility intentions are just as likely to have a child as those who had been together a short time. Among longer married couples, uncertain and negative intentions were associated with remaining childless.

## **5. Discussion**

### **5.1 Key findings**

This paper provides new evidence as to cohort and gender similarities and differences in the factors affecting the timing of entry into parenthood in Britain. The paper uses data newly available for two cohorts that allow us to look at the recuperation of fertility among childless men and women in their thirties according to current socio-economic circumstances and fertility intentions.

Using a life course perspective we have identified how parental background factors and childhood experiences work through education and employment experiences to impact on childbearing. The effects of these socio-economic determinants largely act through partnership formation as a proximate determinant of fertility.

Parental and childhood experiences are particularly good at predicting who becomes a parent in their teens or early twenties, but generally become less important for predicting who becomes a parent among those still childless in their early thirties. This said, we find that parental socio-economic background is more important in affecting the timing of childbearing among the 1970 cohort than the 1958 cohort, consistent with the increased social polarisation in the timing of parenthood. The effect of socio-economic background is very obviously non-proportional in the more recent cohort, being negatively associated with early parenthood and positively associated with parenthood at older ages.

Over recent decades there has been a large increase in the proportion of young adults, particularly women, continuing into higher education and our analyses show how enrolment delayed childbearing, particularly for women in the younger cohort. Educational attainment has a non-proportional effect on the risk of childbearing. At younger ages, higher attainment is associated with a lower risk, while among older childless men and women attainment is positively associated with childbearing. Among those who remain childless in their thirties, more educated men and women have more positive intentions to childbearing. Thus when we include intentions into the analyses the expected educational gradient disappears. This highlights the importance of considering carefully the use of intentions data in the modelling of childbearing.

In Britain, as in continental Europe, debates concerning the implications of economic uncertainty have tended to focus on young adults' transitions to adulthood. The results from this paper suggest that economic uncertainty also affects men and women into their thirties. In particular we find a residual group of socio-economically disadvantaged individuals (particularly men), often in low skilled occupations, or who are unemployed or economically inactive who find it difficult to form a co-residential partnership and thus make the transition to parenthood. Of interest is the fact that the 1958 cohort were particularly affected in this regard. This may relate to the particular historical time period in which this cohort had reached their early thirties. In contrast to the early 2000s which were characterised as a relatively buoyant economy in Britain, the early 1990s when the NCDS cohort reached age 33, was characterised by economic recession.

Remarkable similarities across gender and cohort in the role of partnership formation on childbearing are found. Given the increased acceptance of cohabitation and non-marital childbearing we might have expected the probability of a conception (leading to a live birth) to be more similar for cohabitations and marriages in the more recent cohort. This is not the case however. The explanation probably lies in the fact that we are focusing on the partnership status at the time of conception rather than birth – we would have found more cohort change had we been analysing the context in which the child was born. In other words cohabitators appear to be similarly likely to conceive in the two cohorts but far fewer of the 1970 cohort married their partner before the child was born (Steele et al., 2006).

Fertility intentions data were found to significantly predict fertility outcomes – and the effect size is second only to partnership status. In this regard we might regard fertility intentions data as a useful guide to future fertility. However, positive intentions to become a parent expressed at age 30 remained unfulfilled by age 38 for around four in ten men and women. If we can take positive fertility intentions at face value then this would suggest that there remain significant barriers to recuperation. The lack of a partner is clearly one such barrier, especially at older ages (even if not among the youngest mothers).

We demonstrate that fertility intentions can be used to differentiate sub-groups within the group of older, childless respondents. Those who are uncertain about their childbearing or who say they only want one child are significantly more likely to remain childless as compare with those who still maintain a more positive intention to have a child. This suggests to us that fertility

intentions do have some validity. A significant proportion (ranging between one quarter and one third) of the childless men and women in their early thirties were uncertain about their future childbearing. In the 1970 cohort, childless men are generally more uncertain than are childless women. Uncertainty among men is similar across educational groups but this is not the case for women where it is those with degree level qualifications who appear to be most uncertain. This may reflect the greater opportunity costs of childbearing for such women. High levels of uncertainty could suggest that childbearing decisions are potentially affected by changes in socio-economic conditions and policy changes.

Much cross-national research has highlighted the importance of the institutional setting in facilitating the transition to parenthood (Del Boca et al., 2005; Gauthier, 2007; McDonald, 2000). The increased availability of formal childcare (at least to those who can afford it) means that the economic opportunity costs of parenthood can change over space and time (Ermisch, 1989). Those from this generation who postponed childbearing till their thirties benefited from the increased availability and affordability of formal childcare that the Labour Government developed during its tenure from 1997 to 2010. This period also saw the development of work – life policies in employment settings, including flexible working arrangements for those with dependent children. It would seem that such an environment has been fairly positive in allowing, at least those in more advantaged socio-economic positions, the ability to recuperate their fertility at older ages. During the same time period, however, increased economic insecurity for young adults and a decline in the availability and affordability of housing will have acted to postpone further entry into parenthood for those more socio-economically disadvantaged.

Those born in the 1980s have so far shown an increased willingness to enter parenthood in their late twenties as compared with the postponement cohorts born around 1970. The extent to which this increase is due to an improved economic position and increased flexibility of work arrangements through the early 2000s is unclear. The cessation of postponement among recent cohorts in Britain might be expected to keep completed family size not far from two. However, the recent economic downturn in the economy, coupled with welfare retrenchment under the Conservative Government in power since 2010 may mean that recuperation among those who have not made the transition to parenthood by age 30 may not be as easy as it was for the 1970 cohort.

## **5.2 Limitations and next steps**

In this paper we have focused on entry into parenthood. Clearly, recuperation of fertility also involves the progression to second and higher order births and this will be the subject of future work. Harmonised, continuous versions of the economic activity histories for the 1970 cohort through to 2008 are not yet available. Once this is the case we will be able to incorporate time varying indicators of economic activity into our analyses rather than cross-sectional indicators. This will provide a more precise test of the impact of economic uncertainty on patterns of childbearing. It would also be of interest to tease out any impact of the availability of family-friendly policies using information from the surveys regarding the economic sector and size of firm in which respondent's are working.

We have provided new evidence on the importance of partnership careers on the achievement of fertility intentions. However, our analyses could be further refined. For example, among those who are cohabitating at older ages we do not identify whether the respondent had been previously married. Furthermore, we are not able to include information on the childbearing of the respondent's current partner – it is very likely that future childbearing plans are influenced by the presence of, and responsibilities assumed for, any children who are born to a partner (Henz & Thomson, 2005). Of particular interest would be to identify the extent to which childbearing at later ages is associated with new family formation following earlier partnership dissolution. This analysis would however need to focus on progression to higher order births and not just entry into parenthood. In this paper we have not considered the fact that respondent's employment, partnership and childbearing careers are related processes and that they are likely to be jointly determined by unmeasured factors (Steele, Kallis, Goldstein & Joshi, 2005). Future extensions of this work will consider the use of multi-process models to take account of these correlations.

In the 1970 BCS information on fertility intentions were only gathered at age 30. Ideally, we would have liked to have had intentions measured across the life course. In fact, this is the case for the 1958 cohort and other work we have completed has demonstrated the way in which aspirations expressed as early as age 16 are important in influencing later childbearing patterns (Berrington & Pattaro, 2010). Furthermore, whilst we do know if a current partner is unable to have children, e.g. due to contraceptive sterilization or ill-health, we have no information about the childbearing desires of fertile partners. Given that fertility outcomes are likely to reflect the synergy of both partner's intentions (Berrington, 2004; Thomson & Hoem, 1998) this would be a useful area to be able to explore further.

## REFERENCES

- Ashton,D., Maguire,M., & Spilburg,M. (1987). Labour market segmentation and the structure of the youth labour market. In P. Ashton, & D. Brown (Eds.), Education, unemployment and labour markets (pp.160-178). London: Falmer.
- Becker,G.S. (1981). A treatise on the family. Cambridge MA: Harvard University Press.
- Berrington,A., & Pattaro,S. (2010). The recuperation of fertility at older ages: Evidence from the National Child Development Study.British Society for Population Studies Annual Conference, Exeter, September.
- Berrington,A.M. (2004). Perpetual postponers? Women's men's and couple's fertility intentions and subsequent fertility behaviour. *Population trends*, 117 9-19.
- Berrington,A.M., Borgoni,R., Smith,P.W.F., Ingham,R., & Stevenson,J. (2010). Life course determinants of poor psychosocial health in adulthood: young motherhood as a mediating pathway. Southampton Statistical Sciences Research Institute.
- Berrington,A.M., Cobos Hernandez,M.I., Ingham,R., & Stevenson,J. (2005). Antecedents and outcomes of young fatherhood:longitudinal evidence from the 1970 cohort.: Southampton Statistical Sciences Research Institute.
- Blossfeld,H.P. (1995). Changes in the process of family formation and women's growing economic independence: A comparison of nine countries.The New Role of Women: Family Formation in Modern Societies (pp.3-32). Boulder, CO: Westview Press.
- Blossfeld,H.P., & Huinink,J. (1991). Human-Capital Investments Or Norms of Role Transition - How Womens Schooling and Career Affect the Process of Family Formation. *American Journal of Sociology*, 97(1), 143-168.
- Del Boca,D., Pasqua,S., & Pronzato,C. (2005). Labour supply and fertility in Italy, France and the UK. *Labour*(19), 51-77.
- Elder,G.H. (1985). Life course dynamics. Ithaca: New York: Cornell University Press.
- Ermisch,J.F. (1989). Purchased childcare, optimal family size and mother's employment: theory and econometric analysis. *Journal of Population Economics*, 2 79-102.
- Francesconi,M., & Golsch,K. (2005). The process of globalization and transitions to adulthood in Britain. In H.-P. Blossfeld, E. Klijzing, M. Mills, & K. Kurz (Eds.), Globalization, uncertainty and youth in society Oxford: Routledge.
- Furlong,A., & Cartmel,F. (2007). Young people and social change: new perspectives. Maidenhead: Open University Press.
- Gauthier,A.H. (2007). The impact of family policies on fertility in industrialized countries: a review of the literature. *Population Research and Policy Review*, 26(3), 323-346.
- Godfrey,T.U. (1977). The Edinburgh Reading Test. Sevenoaks: Hodder and Stoughton.

- Goldstein,J., Lutz,W., & Testa,M.R. (2003). The emergence of sub-replacement family ideals in Europe. *Population Research and Policy Review*, 22 479-496.
- Henz,U., & Thomson,E. (2005). Union stability and Stepfamily fertility in Austria, Finland, France & West Germany. *European Journal of Population-Revue Europeenne de Demographie*, 21(1), 3-29.
- Hobcraft,J. (2008). The timing and partnership context of becoming a parent: Cohort and gender commonalities and differences in childhood antecedents. *Demographic Research*, 19(34), 1281-1322.
- Iacovou,M., & Tavares,L.P. (2010). Yearning, Learning and Conceding:(some of) the reasons people change their childbearing intentions. *Working Paper 2010-22*.
- Kiernan,K.E. (1997). Becoming a young parent: a longitudinal study of associated factors. *British Journal of Sociology*, 48(3), 406-428.
- Kravdal,O., & Rindfuss,R.R. (2008). Changing Relationships between Education and Fertility: A Study of Women and Men Born 1940 to 1964. *American Sociological Review*, 73(5), 854-873.
- Kreyenfeld,M. (2010). Uncertainties in Female Employment Careers and the Postponement of Parenthood in Germany. *European Sociological Review*, 26(3), 351-366.
- Leacker,D. (2009). Unemployment: trends since the 1970s. *Economic and Labour Market Review*, 3(2), 37-41.
- Lesthaeghe,R. (1998). On theory development: Applications to the study of family formation. *Population and Development Review*, 24(1), 1-14.
- Maughan,B., & Lindelow,M. (1997). Secular change in psychosocial risks: the case of teenage motherhood. *Psychological Medicine*, 27(5), 1129-1144.
- McDonald,P. (2000). Gender equity in theories of fertility transition. *Population and Development Review*, 26(3), 427-+.
- Morgan,S.P., & Rackin,H. (2010). The Correspondence Between Fertility Intentions and Behavior in the United States. *Population and Development Review*, 36(1), 91-+.
- Murphy,M., & Wang,D.L. (2001). Family-level continuities in childbearing in low-fertility societies. *European Journal of Population-Revue Europeenne de Demographie*, 17(1), 75-96.
- Musick,K., England,P., Edgington,S., & Kangas,N. (2009). Education Differences in Intended and Unintended Fertility. *Social Forces*, 88(2), 543-572.
- Ni Bhrolchain,M., Beaujouan,E., & Berrington,A. (2010). Stability and change in fertility intentions in Britain 1991-2007. *Population trends*, 141 13-35.
- Office for National Statistics (2009). Social Trends 39. In M. Hughes (Ed.), Basingstoke: Palgrave Macmillan.
- Office for National Statistics,U.K. (2010). Series FMI No. 37. Birth Statistics 2008.: Office for National Statistics, United Kingdom.

- Oppenheimer, V.K. (1988). A theory of marriage timing. *American Journal of Sociology*, 94(3), 563-591.
- Pattaro, S. (2006). The impact of women's career interruptions on the postponement of first childbirth decisions in Italy. Paper presented at EqualSoc, Faculty of Political Sciences, University of Turin, Italy.
- Rendall, M., Aracil, E., Bagavos, C., Couet, C., DeRose, A., DiGiulio, P., Lappegard, T., Robert-Bobee, I., Ronsen, M., Smallwood, S., & Verropoulou, G. (2010). Increasingly heterogeneous ages at first birth by education in Southern European and Anglo-American family-policy regimes: A seven-country comparison by birth cohort. *Population Studies-A Journal of Demography*, 64(3), 209-227.
- Rijken, A., & Liefbroer, A. (2009a). Influences of the family of origin on the timing and quantum of fertility in the Netherlands. *Population Studies-A Journal of Demography*, 63(1), 71-85.
- Rijken, A.J., & Liefbroer, A.C. (2009b). The Influence of Partner Relationship Quality on Fertility. *European Journal of Population-Revue Europeenne de Demographie*, 25(1), 27-44.
- Rondinelli, C., Aassve, A., & Billari, F.C. (2010). Women's wages and childbearing decisions: Evidence from Italy. *Demographic Research*, 22 549-577.
- Rose, D., & Pevalin, D.J. (2005). The National Statistics Socio-economic Classification: Origins, Development and Use. Office for National Statistics; Palgrave Macmillan.
- Rutter, M., Tizard, J., & Whitmore, K. (1970). Education, Health and Behaviour. London: Longmans.
- Schoen, R., Astone, N.M., Kim, Y.J., Nathanson, C.A., & Fields, J.M. (1999). Do fertility intentions affect fertility behavior? *Journal of Marriage and the Family*, 61(3), 790-799.
- Sigle-Rushton, W. (2008). England and Wales : Stable fertility and pronounced social. *Demographic Research*, 19 455-502.
- Smith, T. (1993). Influence of Socioeconomic-Factors on Attaining Targets for Reducing Teenage Pregnancies. *British Medical Journal*, 306(6887), 1232-1235.
- Steele, F., Joshi, H., Kallis, C., & Goldstein, H. (2006). Changing compatibility of cohabitation and childbearing between young British women born in 1958 and 1970. *Population Studies-A Journal of Demography*, 60(2), 137-152.
- Steele, F., Kallis, C., Goldstein, H., & Joshi, H. (2005). The relationship between childbearing and transitions from marriage and cohabitation in Britain. *Demography*, 42(4), 647-673.
- Tanturri, M.L., & Mencarini, L. (2008). Childless or childfree? Paths to voluntary childlessness in Italy. *Population and Development Review*, 34(1), 51.
- Thomson, E., & Hoem, J.M. (1998). Couple childbearing plans and births in Sweden. *Demography*, 35(3), 315-322.
- Willis, R.J. (1973). New Approach to Economic Theory of Fertility Behavior. *Journal of Political Economy*, 81(2), S14-S64.

Appendix A: Statements from NCDS and BCS used in Mother Rated Behavioural Scale (Rutter et al., 1970).

	NCDS (Scale: 1)Never; 2)Sometimes, 3)Frequently, 4) Don't know 9) Inapplicable	BCS (Continuous scale: "Does not apply" to "certainly applies")
Anti-social	<p>Is Squirmy or fidgety</p> <p>Destroys own or other's belongings (e.g. tears or breaks)</p> <p>Fights with other children</p> <p>Irritable, quick to fly off the handle</p> <p>Is disobedient at home</p> <p>Has difficulty settling to anything for more than a few moments</p>	<p>Is Squirmy or fidgety</p> <p>Often destroys own or others belongings</p> <p>Frequently fights with other children</p> <p>Irritable: is quick to fly off the handle</p> <p>Is often disobedient</p> <p>Cannot settle to do anything for more than a few moments</p>
Neurotic	<p>Worries about many things</p> <p>Prefers to do things on his/her own rather than with others</p> <p>Is miserable or tearful</p> <p>Is upset by new situation, by things happening for the first time</p>	<p>Often worries: worries about many things</p> <p>Tends to do things on his/her own, rather solitary</p> <p>Often appears miserable, unhappy, tearful or distressed.</p> <p>Tends to be fearful or afraid of new things or new situations</p>

Appendix B: Fertility intention questions used in BCS and NCDS

**NCDS age 33**

Asked to men and women who do NOT report themselves (or their partner) to have been sterilized, to have been told by a doctor that they should not have children, or to have been advised not to have children for health reasons.

*“Do you intend to have any (more) children?”*

*Yes*

*No*

*Don't know*

If “yes” then:

*How many (more) children do you intend to have?*

*(Write in box)*

**BCS age 30**

Asked to men and women who do NOT report themselves to have been sterilized, to have been told by a doctor that they should not have children, or to have been advised not to have children for health reasons.

*“Do you intend to have any (more) children?”*

*Yes*

*No*

If “yes” then:

*How many (more) children do you intend to have?*

Appendix C: Frequency distribution of covariates for model of entry into parenthood among those childless at age 33/30.

		Percentage distribution of covariates by sex			
		NCDS 1958 cohort		BCS 1970 cohort	
Variable		Males (1,571)	Females (1,150)	Males (2,537)	Females (2,074)
<i>Birth Survey</i>					
Father's Social Class	I & II Prof. & Inter.	24.1	25.0	22.1	22.5
	III <sub>n</sub> Skilled non manual	10.6	11.5	14.3	14.2
	III <sub>m</sub> Skilled manual	45.7	44.5	40.2	41.8
	IV & V Semi & Unskilled	16.9	15.7	15.4	13.7
	Not known	2.7	3.3	8.0	7.8
Mother had post-compulsory education	No	69.6	67.1	60.9	59.3
	Yes	30.4	32.9	39.1	40.7
Mother's age at her first birth	Under 20	13.6	11.9	15.9	13.5
	20-24	39.9	41.1	45.1	44.9
	25+	42.0	41.2	30.3	34.6
	Not known	4.7	5.8	8.7	7.0
CM birth order	First birth	36.9	37.5	35.7	38.0
	Second	32.1	30.4	33.2	33.1
	Third or higher order	27.3	27.3	23.0	22.3
	Not known	3.8	4.8	8.1	6.6
<i>At age 11/10</i>					
Whether had free school meals	No	86.8	84.8	79.0	79.9
	Yes	6.2	5.8	8.7	8.4
	Not known	7.0	9.4	13.3	11.7
Social housing	No	56.1	57.0	67.2	69.9
	Yes	29.6	28.4	20.1	18.0
	Not known	14.3	14.6	12.7	12.1
Family structure	Two natural parents	78.6	78.3	76.6	77.4
	Lone mother	3.1	3.7	4.4	5.5
	Other	4.4	3.4	6.9	5.7
	Not known	13.9	14.5	12.1	11.4
Reading ability	Lowest quartile	20.1	14.8	15.2	10.3
	Q2	17.8	16.7	16.1	15.5
	Q3	20.6	22.8	20.6	22.4
	Highest quartile	28.9	31.2	22.5	27.0
	Not known	12.7	14.5	25.6	24.8
Antisocial behaviour	No	76.8	76.8	78.0	81.8
	Yes	10.0	5.7	7.5	4.3
	Not known	17.2	17.5	14.5	13.9
Neurotic behaviour	No	70.2	71.6	77.3	77.8
	Yes	11.0	10.4	8.2	8.8
	Not known	18.8	18.1	14.5	13.4
<i>Adult years</i>					
Partnership status and duration (t)	Not in a partnership	41.1	32.8	52.7	42.8
	Cohabiting <2 yrs	10.1	9.4	12.7	11.6
	Cohabiting 2-3 yrs	5.2	3.9	7.7	6.4
	Cohabiting 4+ years	7.1	10.2	7.2	10.0
	Married <2 yrs	5.9	3.0	2.8	3.7
	Married 2-3 yrs	6.4	4.5	5.8	6.8
	Married 4+ years	24.3	36.4	11.1	18.7

Educational qualification (t)	None	17.8	14.6	21.9	15.4
	Secondary level	33.4	38.6	32.7	30.4
	Advanced level	23.3	21.3	14.5	15.6
	Degree level	25.6	25.5	30.9	38.6
Economic activity	Full time employee	73.9	79.0	80.0	82.3
	Part time	1.2	6.7	1.6	6.1
	Full time self employed	13.9	5.0	9.7	4.0
	Unemployed	6.9	2.6	4.1	2.1
	Sick/disabled	2.2	1.8	2.5	2.0
	Other	1.8	4.9	2.1	3.5
Socio-economic group	1. Employers & managers	19.7	16.7	22.8	21.6
	2. Professional	8.3	5.5	9.1	6.1
	3. Intermediate non-man.	14.0	27.3	16.8	25.5
	4. Junior non-manual	11.6	34.7	10.7	29.6
	5. Skilled manual	20.8	2.5	17.2	2.9
	6. Semi & unskilled man.	12.3	6.1	7.4	3.9
	7. Other	13.3	7.2	16.0	10.4
<i>Fertility intentions</i>	Not want any children	19.4	24.4	12.6	12.7
	Want one	5.4	5.1	5.9	6.9
	Want two	29.1	23.1	41.8	42.1
	Want three or more	5.5	3.2	9.2	9.7
	Don't know	33.7	33.6	28.1	23.1
	Can't have children / partner can't have children / not advised to have children	7.0	10.5	2.4	5.5