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Research Article

The timing and partnership context of becoming a parent: Cohort and gender commonalities and differences in childhood antecedents

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Abstract

This paper uses two British birth cohorts, born in 1958 and 1970. There are substantial inter-cohort shifts in timing and context of becoming a parent and gender differences in timing. We use common childhood measures for the two cohorts, pool the two data sets and fit common models. We then ask whether explicit terms for gender or for cohort are required. These can be an unexplained gender or cohort differential or specific differential pathways through measured childhood antecedents. There is considerable support for elements of a common model, but some interpretable gender and cohort terms are also necessary.

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1. Introduction

Britain is unique in having a series of long-running prospective birth cohort studies that allow us to study changing lives within and across generations (Ferri et al. 2003). In this paper we use data from two of these studies, the 1958 National Child Development Study (NCDS) and the 1970 British Cohort Study (BCS70) to examine the childhood antecedents of both the timing of entry into parenthood and the partnership context within which these transitions occurs, and to assess the extent to which the interplay of these childhood antecedents with cohort and gender matters.

The lives of these two cohorts mark different stages in what has come to be known as the Second Demographic Transition (Lesthaeghe 1995; van da Kaa 1987), during which there were profound changes in both partnership and fertility behaviours. The 1958 cohort was born before the transition was underway, but grew up in the 1960s and 1970s when the SDT emerged, whereas the 1970 cohort grew up in the 1970s and 1980s when the SDT was more established. The 1958 cohort were brought up in an era of relative family stability where the loss of a parent was equally as likely to arise from a death as from a marital separation (Kiernan and Hobcraft 1997); in contrast, for the 1970 cohort parental separation rates were higher than amongst the 1958 cohort (Kiernan 2004a; Sigle-Rushton, Hobcraft, and Kiernan 2005). By the time both cohorts reached their teens the contraceptive pill was freely available to single women (Leathard 1980). However marriage generally heralded the start of a first union amongst the 1958 cohort whereas cohabitation was becoming a more important marker amongst the members of the 1970 cohort. The timing of first births also changed quite substantially between the 1958 and 1970 cohorts, being much delayed in the later born cohort, at least amongst those who postponed having their first child beyond the teenage years (ONS 2003). There were even more marked changes in the partnership context of childbearing between these two cohorts, with dramatic increases in out-of-wedlock childbearing, most notably having children in cohabiting unions, but also having children outside of co-residential partnerships. Later patterns of childbearing and increased propensities to bear children within cohabiting unions are shared with the USA and many other developed countries, but "solo" parenthood (having a child outside of a union) appears to have increased mainly in the Anglo-Saxon countries (Kiernan 2004b; Raley 2001). Despite all these changes, the gender age gap in the transition to parenthood continued.

Research on the life course and human development emphasises that events occurring during childhood are likely to be strongly associated with adult experiences (see, for example, Elder 1974 and 1998; Bronfenbrenner 1986). Existing research, including work on the NCDS and BCS70 samples shows that there are many factors in childhood that are correlated with later demographic behaviours. These include aspects

of the home and school environments, a child's individual attributes, and parent-child interactions.

Childhood poverty and socio-economic disadvantage has been shown to be clearly linked with early age at first birth and with the context of childbearing and both are linked to subsequent adult social disadvantage (Kiernan 1995; Hobcraft and Kiernan 2001; Kiernan 2002; Hardy et al. 1998; Duncan et al. 1998; Hobcraft 2004). Childhood academic test scores have been shown to have powerful residual associations with a wide range of adult disadvantages, net of qualification levels (Hobcraft 2000) and academic ability has been found to be very strongly associated with the timing of childbearing (Kiernan and Diamond 1983; Kiernan 1997; Upchurch et al. 2002) and the context of childbearing (Kiernan 2002). A related factor is parental interest in their child's development and education, which has been found to be an important discriminator between children across a range of behaviours from early childhood into adulthood (Douglas 1964; Douglas, Ross, and Simpson 1968; Chavkin 1989; Hobcraft 1998; Sigle-Rushton 2004).

Childhood behavioural problems also affect well-being in late adolescence and early adulthood (Moffitt 1993; Hobcraft 1998; Schoon, Sacker, and Bartley 2003; Sigle-Rushton 2004), and behavioural problems in adolescence are associated with early parenthood and out-of wedlock childbearing (Kiernan 1997; Maughan and Lindelow 1997; Berrington and Diamond 2000). Across many developed countries there have been increases in the incidence of mental health problems amongst adolescents in the latter half of the twentieth century (Smith and Rutter 1995). This trend continues in Britain but studies in the USA and the Netherlands have shown either decreases or no increase in levels of psychosocial difficulties (Collishaw et al. 2004; Achenbach et al. 2003; Verhulst et al. 1997). The British study by Collishaw and colleagues (Collishaw et al. 2004) using data from the 1958 and 1970 cohorts and a later survey, clearly shows that conduct problems amongst 15 and 16 year olds have continued to rise from the 1970s to the late 1990s. On a more positive note the gender gap in academic performance has narrowed over time and subsequent to these two cohorts girls have overtaken boys in the qualification stakes (e.g. Coles and Richardson in Bradshaw and Mayhew 2005).

Parents' demographic behaviour is also known to be associated with that of their children. For example, a fairly strong relationship has been established between a mother's age at first birth and those of her off-spring (Barber 2001; Hardy et al. 1998; Kiernan 1997) and there is robust evidence for the USA, Great Britain and a range of other European countries that children who experience parental divorce are more likely to become parents at a younger age and have to have a child outside of marriage (McLanahan and Bumpass 1988; McLanahan and Sandefur 1994; Kiernan 1992; Upchurch et al. 2002; Kiernan 2004a). The cohort born in 1970 were far more likely

than those born in 1958 to see their parents divorce and, consequently, a higher percentage of the younger cohort was exposed to the negative consequences of family disruption. On the other hand, the increasing prevalence of divorce and non-traditional family types may have led to less stigmatisation, reducing the negative associations of family structure with disadvantage. However, the few studies that address this issue find few cohort differences in divorce effects (Ely et al. 1999; Sigle-Rushton, Hobcraft, and Kiernan 2005).

The broader socio-historical context in which these children grew up also differed. Despite being born only 12 years apart, the two cohorts faced very different circumstances in their transitions to adulthood. The decline of well-paid industrial jobs and greater job insecurity mean that educational achievement is likely to be more important to the socioeconomic success of the younger cohort (Bynner and Parsons 2000; 2001). In addition, relative to the 1958 cohort, material conditions were better on average, but income inequality was high (Dearden, Goodman, and Saunders 2003). Indeed, it has been suggested that links between economic deprivation and subsequent disadvantage actually strengthened over time, despite average improvements (Schoon, Sacker, and Bartley 2003).

The two cohorts grew up and also reached maturity in different policy contexts. For example, the 1958 cohort came of age during the late 1970s, just as many local authority houses were being sold at well under market value. One result of this policy was an extremely favourable housing market (Kleinman 1996; Smith and Ferri 2003). In contrast, the 1970 cohort reached adulthood in the late 1980s and early 1990s, when housing costs were very high. Moreover, the early policy of selling off local authority housing meant that there was a limited stock of public accommodation and the available stock tended to be "concentrated in the least salubrious areas and among the most economically and socially disadvantaged groups" (Smith and Ferri 2003: 206). Additionally, although the 1970 cohort members were less likely than the 1958 cohort members to have been raised in public housing, for them public housing was a more residual housing category than was the case amongst their predecessors (Burrows 1997).

Finally, the younger cohort was born at a time when traditional gender roles and norms were being increasingly questioned and challenged. In Britain, these changes led to increasing female employment and a narrowing of the gender gap in educational attainment (Bynner and Pan 2002). However, gender continues to be an important source of stratification for both cohorts (Hobcraft 2003; Hobcraft, Hango, and Sigle-Rushton 2004; McKnight 2002), but gains in gender equity mean that gender differences in both outcomes and associations may have changed over time.

The rich information available from these two British birth cohort studies, which have followed members of the cohorts from birth through into adulthood and have

enough in common, including similar timing of waves during the life course and considerable overlap in content, to enable us to make quite rigorous comparisons of their experiences. The inter-cohort shifts in timing and context of becoming a parent and the continuing gender differences in timing might seem to suggest that search for common childhood antecedents would prove fruitless. However, in this paper, we explore the extent to which a common model for childhood antecedents of parenthood, both across cohorts and across genders, suffices to capture whatever pattern there is.

2. Data and methods

Our analysis pools data from two prospective longitudinal studies of birth cohorts in Great Britain: the National Child Development Study (NCDS) and the British Cohort Study (BCS70). The National Child Development Study (NCDS) is a longitudinal study of children born in March 1958. A total of 17,414 mothers were originally interviewed, representing 98 percent of all births that occurred in that week. Follow-up interviews were conducted when the cohort members were aged 7, 11, 16, 23, 33, and 42. The British Cohort Study (BCS70) is a longitudinal study of children born in Great Britain in April 1970, with just under 18,000 new mothers originally interviewed. Successive interviews were conducted when the cohort members were aged 5, 10, 16, 26 and 30. The studies are quite similar and contain a wealth of behavioural, health, socioeconomic, and demographic information. Moreover, much of the information is collected using the same (or similar) questions. Even though the studies are not identical, we can identify a substantial subset of variables that are available for both cohorts and create a pooled data set.

As with any prospective study, attrition is an issue. Restricting the sample to those who only have complete information or setting missing values to the mean may bias our results. Instead, we adopt a procedure that maximises use of the information we have (Hobcraft 1998). For most of our measures, we construct categorical summary variables that combine information collected at different childhood waves and are coded to allow for some missing information. Each summary measure is then converted into dummy variables, and those cases with no information at all on the measure are identified by a separate dummy variable.

2.1 The timing and partnership context measures

The timing of becoming a parent and the history of partnership contexts are derived from the retrospective birth and partnership histories collected at age 33 for the NCDS

and at age 30 for the BCS70. We created 'episode' files that included a separate record for each partnership context and age segment that the individual experienced up to either the time of the first birth or their 30th birthday (to retain comparability between the cohorts) and recorded whether the transition to parenthood occurred or the episode was censored and the number of months of exposure to risk in the episode. The partnership contexts identified were: never partnered; out of a partnership; cohabiting; married, following cohabitation; and direct marriage. The age groups used were: 16-19, 20-22, 23-24, and 25-29; the very few births before age 16 (some of which were coding or reporting errors) were excluded. The division of the early twenties into two groups was made because of the evidence from the NCDS that first births to women aged 20-22 were significantly associated with subsequent parental disadvantage and that this disadvantage was often as great as that for teenage mothers (Hobcraft and Kiernan 2001); thus, with delayed childbearing, births in the early twenties can be almost as 'off-time' as teenage births; and this may be even more true for males and for the 1970 cohort.

Summary information on the sample by age and partnership context is provided in Appendix Table 1. The first panel shows the incidence first birth rates. Within partnership contexts we see that the rates do not differ a great deal by age, except for the much higher rates for teenagers who have partnered at all and slightly higher rates among those who have a previous partnership or have moved from cohabitation to marriage at ages 20-22. Rates do not differ much by age for those who are married, whether they entered directly or through cohabitation (except age 20-22). Panel B shows the months of exposure in each of the combinations of age and partnership context and Panel C the number of age-partnership context episodes. The large sample size, with a total sample of 22,324, means that there are quite good numbers of first births in most cells, with fewest for the out of partnership group.

2.2 Childhood antecedents

Our childhood antecedents, presented in Table 1, cover parental background, parent-child interplays and the childhood characteristics of the cohort member (more details concerning the construction of these measures is provided by Hobcraft 1998 and Sigle-Rushton 2004).

Socioeconomic deprivation during childhood is measured by combining social class of origin, social class of the father, and a measure of childhood poverty. Social class of origin is measured using a combination of the occupational information about the father at birth of the child and the social class of the paternal and maternal grandfathers (similar information was not available concerning grandmothers).

Childhood poverty was defined using two indicators: obtaining free school lunches at age 10/11, and whether the family was in financial difficulty at age 16. *Housing tenure* summarises information collected at all three childhood follow-up waves and distinguishes between any indication of living in social/public housing and other housing circumstances.

Family disruption summarises information collected at birth and at all three childhood waves, along with reports of parental separation at age 33 in the NCDS and age 30 in BCS70. The procedure for creating this summary variable was complicated and is only briefly summarised here (for more detail refer to Hobcraft 1998 and Sigle-Rushton 2004). For each of the three childhood waves several family living situations were identified and these were then used to create a summary measure across all childhood waves. We then identify three groups which are contrasted with those reared in stable two-parent families: those cohort members who were born out of wedlock or ever lived in care or were fostered; those who were identified as having experienced parental separation by age 16, from the childhood waves or from the adult reports; and the remainder who were identified as having any indication of family disruption, including death of a parent, in either the child or adult measures. *Parental interest in schooling* is derived from the two second childhood follow-up surveys: teachers were asked to indicate the level of parental interest in the cohort member's school activities. From the age 10 and 11 waves of the BCS70 and NCDS respectively, we combine reports of the mother's and father's interest into one summary measure.

Anti-social behaviour is measured using a combination of reports on contact with the police, frequent school absences, and a measure of aggression (following Hobcraft 1998; see also Elander and Rutter 1996). We combined two reports at the age 16 wave on whether the cohort member had been in contact with the police; reports on truancy or frequent school absences from the two later childhood waves; and measures of aggression at each of the three childhood waves (see Hobcraft 1998 and Sigle-Rushton 2004 for further details). The *academic test scores* variable summarises performance on age appropriate tests at each of the three childhood waves. Different tests were administered to each cohort so the measures are not entirely comparable (Sigle-Rushton 2004), but they do summarise academic performance at roughly the same ages. At each wave (except age 16 of the BCS70), two test scores were used which measured verbal and mathematical ability. Each score was standardised and then the two were added together. The total was then divided into quartiles; the top quartile was coded as high performance, the bottom quartile was coded as low performance. The other two quartiles formed a middle category. The three age-specific performance measures were then combined to form a summary variable.

Table 1: Descriptive sample statistics (percentages) for childhood antecedents, by cohort and gender (excluding 192 cases where all information on family structure or socioeconomic deprivation is missing at all waves)

	NCDS		BCS	
	Male	Female	Male	Female
Childhood Indicators				
Socioeconomic Deprivation (Based on social class of origin, social class of father, and poverty indicators)				
Not Deprived	40.1	38.9	47.8	46.6
Slight	18.3	18.3	15.2	15.3
Some	16.6	17.4	17.5	17.6
Clear	18.0	18.2	14.3	14.6
Strong	6.9	7.2	5.2	5.9
Housing Tenure (at age 5/7; 10/11 & 16)				
No Local Authority	54.6	53.4	64.4	63.2
Any Local Authority	43.7	45.1	33.0	34.2
All Missing	1.6	1.5	2.6	2.6
Parents' Ages at Cohort Member's Birth				
One or both older; neither young	72.2	71.4	63.1	62.9
One young (Dad<25 or Mum<23)	13.0	13.1	18.0	19.5
Both young	10.3	11.1	13.6	12.7
Both missing	4.5	4.4	5.3	4.9
Family Disruption up to age 16 (at birth, ages 5/7; 10/11 & 16 or adult retrospective report of separation)				
No evidence of disruption	83.6	82.6	76.8	75.4
Parental death & possible separation (child or adult reports)	6.6	6.6	7.8	7.8
Separation (both child and adult reports)	4.9	5.6	10.0	10.6
Ever in care or born out of wedlock	4.9	5.2	5.3	6.2
Parental Interest in School (age 10/11)				
Any very interested	37.4	38.4	41.6	43.0
No very & no little or no interest	25.9	25.6	23.0	22.4
Any little or no interest	15.1	13.5	6.8	5.9
All missing	21.6	22.5	28.6	28.7
Anti-Social Behaviour (Aggression, school absences & contact with police)				
No evidence of ASB	42.6	47.4	55.5	58.3
Slight ASB	39.1	41.8	33.9	34.0
Fairly ASB	14.9	9.1	8.1	6.0
Very ASB	2.9	1.0	1.1	0.5
All missing	0.6	0.7	1.4	1.3
Child Test Scores (at age 5/7; 10/11 & 16)				
2/3 high quartile scores	21.8	18.1	12.6	12.4
0 low, 0/1 high quartiles	43.5	49.0	48.4	49.2
Any low quartile score	16.2	15.9	22.8	22.5
2/3 low quartile scores	16.9	15.7	9.3	9.9
All Missing	1.6	1.3	6.9	6.0

Table 1 contains the descriptive statistics for all of these childhood antecedents, disaggregated by cohort and gender, as well as information on the ages at which the data were collected. The only sample exclusions are: cohort members for whom we do not have information on parenthood status and the date of first birth for those who became parents by age 30; and those with no information on the socioeconomic deprivation measures or with no information on family structure (a total of 192 cases). The results in Table 1 show several noteworthy cohort differences. Socioeconomic deprivation is slightly greater for the 1958 cohort and a much higher fraction of the 1958 cohort experienced living in social housing. The parents of the 1970 cohort were more likely to be young and also experienced greater incidence of divorce. The children born in 1958 were much more likely to have parents who were reported as showing little or no interest in their child's education. The 1970 cohort has a lower proportion with two or three high quartile scores on the educational tests, although this may well arise from the higher levels of missing information for the 1970 cohort, especially at age 16, which also complicate some of the other inter-cohort comparisons.

Not surprisingly, we see fewer gender differences than cohort differences in the childhood antecedents. In fact, we only see notable gender differences in the antisocial behaviour scores, with males showing significantly higher levels. Interestingly, we do not see a significant gender difference on having 2/3 high quartile test scores in the BCS, a finding that was present in the NCDS: girls in the younger cohort appear to have closed the gap in childhood educational test scores.

2.3 Analytic strategy

Some exploratory analyses were undertaken using sequential logit models to examine the childhood correlates of becoming a parent before age 20, at ages 20 to 22, 23-24, and 25-29, in each case restricting the sample to include those still at risk of becoming a parent . However, we prefer to look at the timing and partnership context of becoming a parent in a more holistic way. Moreover, we did not want to assume that the legacy of all childhood antecedents would be similar at all ages and that makes the use of Cox proportional hazards models complex, since they would have to include time-varying covariates. Instead, we opted to use Poisson or rate models using the exposure as an 'offset', which are equivalent to the assumption of piecewise constant hazards within risk groups (see Rodriguez et al. 1984). Such models permit us to explore quite freely the possible interplay between the many childhood antecedents and the timing and partnership contexts in relation to becoming a parent.

For estimation purposes, we code each of the childhood antecedents except family disruption into a series of 'hierarchical' dummies. The missing category is first

identified and, for the remaining cases, the most advantaged group forms the reference category. The first dummy sets all categories other than the reference category equal to one. For example, in the case of socioeconomic deprivation those deemed 'not deprived' form the reference category and all other non-missing categories are coded 1. The second dummy picks out those cases with slightly more evidence of disadvantage: for socioeconomic deprivation this variable is coded 1 for those individuals experiencing 'some' or higher levels of deprivation. A third dummy identifies those with clear or strong deprivation and a final dummy identifies those with strong deprivation.

Since family type cannot be readily ordered from least to most disadvantaged, the summary variable is coded into dummies that are best described as partially hierarchical. The first hierarchical dummy variable is set equal to one if the respondent ever experienced any family disruption (due to living in care, birth out-of-wedlock, divorce or widowhood). The next variables select from among this group those who had consistent evidence from both the childhood waves and the adult wave of having experienced a divorce or separation, and those who had either lived in care or fostering or were born outside a stable partnership. Coding the childhood antecedents into hierarchical or partially hierarchical dummies creates 22 'main effects' dummy variables.

Because we are interested in identifying both cohort and gender differences, we create three sets of interaction terms. Each of the 22 main effect dummy variables is interacted with the female dummy variable so that we can test for any gender differences in childhood associations with adult disadvantage. In addition, a BCS70 dummy variable is interacted with all of the main effect dummy variables so that cohort effects can be identified. Finally, a female*BCS70 dummy variable is interacted with each of the main effect dummies so that we can test whether or not any gender differences have changed over time.

Further, we are interested in exploring whether the association of the childhood antecedents with becoming a parent differs by age group and, for our second analysis, partnership context. We again code age groups and partnership contexts hierarchically, specifically identifying: ages <20, <23, and <25; and never partnered, not in a partnership, not married, and not directly married. These age and partnership dummies are interacted with gender, cohort, and cohort/gender and also interacted with each of the dummies for the childhood antecedents. This enables us to ask questions about which antecedents are associated with the timing or context of becoming a parent. Moreover, in order to explore whether such associations differ by gender or by cohort, we further generate dummy variables identifying gender and cohort specific age-antecedents and context-antecedents. Lastly, for our second analysis, we also include

age by partnership context interactions and their possible interplays with gender or cohort.

In total we have a possible 301 dummy variables to consider in an overall model for the timing of becoming a parent and an additional 316, giving 617 in all, for the combined consideration of timing and context. Estimating and interpreting models with such a large number of potential parameters is problematic. Consequently, we use stepwise regressions to identify those models with the most highly significant parameters and only include associations that are significant at the one in a thousand level ($p<0.001$). Our development of the final models involved a cyclic iterative fitting strategy, whereby we considered the possible correlates in blocks, corresponding to age or age and partnership combinations, and to the 22 childhood antecedent dummies forming each subset of possible interactions. We began by taking each block in turn (taking simple or 'main' effects first and gradually moving out to more complex interactions) and finding the significant correlates. For the first pass through this process, we retained any significant term before asking which terms from the next block were significant. Once we had thus obtained an initial model, we began with this model and went through the whole cycle of blocks one at a time, noting any additional significant relationships and then exploring any possible candidate additions along with the original terms (both through forward and backward selection) for inclusion in the next tentative model. This process was repeated for several steps until the chosen model proved robust in the sense that no further candidates emerged and all terms remained included under forward or backward selection.

3. Results

We begin with a straightforward analysis of the differences that are observed in becoming a parent by cohort and by gender in the timing and partnership contexts. The analysis then goes on to explore the linkages of the childhood antecedents to the timing of entry into parenthood and whether and how these associations vary by gender and cohort. Finally we explore the same linkages for the childhood antecedents, but also introducing the information about the partnership context and its interplays with timing and the antecedents.

3.1 The timing and context of becoming a parent

Table 2 shows the incidence rates for first births (i.e. with the exposure restricted to the period up to the first birth or censoring) by age and partnership context, separately by

cohort and gender. As anticipated, overall rates of becoming a mother are generally higher for each age group than those of becoming a father and the 1970 cohort have significantly lower chances of becoming a parent at each age: as shown in the penultimate row of Table 2, for the 1958 cohort 53 per cent of men and 67 per cent of women were parents by age 30, whereas these proportions were 40 and 54 per cent respectively for the 1970 cohort. But teenage incidence rates for first births reduced less than those for other ages between the two cohorts: from nine to eight per thousand for males and from 32 to 26 per thousand for females, for the 1958 and 1970 cohorts respectively.

However, the pattern of change across the cohorts by partnership context is more complex. The proportion of exposure time at risk of becoming a parent whilst never partnered (penultimate column of Table 2) is remarkably stable across the two cohorts, at 73 or 74 per cent for males and 64 or 65 per cent for females, but the rates of entry to parenthood before entering a partnership have increased significantly over time, nearly doubling for men and increasing by 50 per cent for women. The net result is that the absolute proportions having their first birth by age 30 before entry into any coresidential partnership have roughly doubled and the proportion of such births among those before age 30 has almost tripled for men (from 5.7 per cent to 15.6 per cent) and more than doubled for women (from 8.4 per cent to 18.6 per cent).

The fraction of exposure to risk of entry to parenthood before age 30 spent cohabiting has increased dramatically between the cohorts, rising from 6.6 per cent to 14.4 per cent for men and from 7.8 per cent to 17.5 per cent for women. Moreover, the incidence rates for becoming a parent within a cohabiting partnership have increased by about a third overall (though with some variation by age and gender). As a result the *absolute* proportion entering parenthood whilst cohabiting up to age 30 increased from about four percent for the 1958 cohort to 13 to 14 per cent in the 1970 cohort, whilst the proportion among births before age 30 that occurred within cohabiting partnerships rose from seven to 32 per cent for men and from eight to 27 per cent for women.

In contrast, the incidence rates for having a first birth within marriage for both men and women generally reduced somewhat. The proportion of exposure up to first birth or to age 30 spent in a marriage that had been converted from cohabitation did not change a great deal between the cohorts, but the exposure to risk in direct marriages reduced dramatically, from twelve to three per cent for men and from 19 to five percent for women. As a result, the proportions of births within a direct marriage plummeted: for the 1958 cohort about two-thirds of all births before age 30 occurred within direct marriages, whereas this fraction had reduced to less than a fifth for the 1970 cohort.

Table 2: Incidence first birth rates by age and partnership context (per thousand years of exposure)

Group		Ages			Exposure up to 1st birth or age 30 (%)	First births (%)
NCDS MALES						
Partnership Type	**16-19**	**20-22**	**23-24**	**25-29**	*All ages*	*By age 30*
Never partnered	3	4	3	3	*73.6*	*5.7*
Out of Partnership	55	22	12	8	*3.3*	*0.9*
Cohabiting	42	56	46	56	*6.6*	*7.5*
Married after cohabiting	509	369	244	229	*4.1*	*22.0*
Married direct	517	260	218	231	*12.4*	*64.0*
All contexts (rate)	*9*	*40*	*65*	*92*	*100*	*100*
NCDS FEMALES		**Ages**				
Partnership Type	**16-19**	**20-22**	**23-24**	**25-29**	*All ages*	*Before 30*
Never partnered	9	10	6	8	*64.0*	*8.4*
Out of Partnership	127	32	31	27	*3.7*	*1.8*
Cohabiting	110	64	56	41	*7.8*	*6.5*
Married after cohabiting	476	262	211	247	*5.3*	*19.5*
Married direct	441	200	205	223	*19.1*	*63.8*
All contexts (rate)	*32*	*69*	*96*	*116*	*100*	*100*
BCS70 MALES		**Ages**				
Partnership Type	**16-19**	**20-22**	**23-24**	**25-29**	*All ages*	*Before 30*
Never partnered	5	9	9	8	*73.3*	*15.6*
Out of Partnership	22	16	25	15	*5.2*	*2.7*
Cohabiting	95	70	75	72	*14.4*	*32.4*
Married after cohabiting	393	234	230	237	*4.5*	*32.6*
Married direct	434	201	216	208	*2.6*	*16.7*
All contexts (rate)	*8*	*24*	*42*	*64*	*100*	*100*
BCS70 FEMALES		**Ages**				
Partnership Type	**16-19**	**20-22**	**23-24**	**25-29**	*All ages*	*Before 30*
Never partnered	14	17	11	11	*65.3*	*18.6*
Out of Partnership	111	50	20	21	*5.6*	*3.2*
Cohabiting	147	81	58	65	*17.5*	*26.9*
Married after cohabiting	439	268	226	231	*6.8*	*32.7*
Married direct	498	165	150	205	*4.8*	*18.7*
All contexts (rate)	*26*	*46*	*55*	*84*	*100*	*100*
Crude and standardised rates	**NCDS Males**	**NCDS Females**	**BCS70 Males**	**BCS70 Females**	**Whole sample**	
Crude rates	47	69	33	50	49	
Directly by age	46	72	31	50		
Directly for age and context	46	48	47	51		
Percent with birth by age 30	52.9	67.1	39.3	53.5		
Sample Size	5525	5725	5377	5697	22324	

Thus, we see profound changes between cohorts in the overall incidence of first births before age 30 and major shifts in the partnership context of such births. In contrast, the shifts in the timing of births that did occur before age 30 are less dramatic: the percentage of such births that were to teenagers rose by under one point for both men and women (from seven to eight percent for men and from 18 to 19 per cent for women); and the proportion that were to 25-29 year-olds rose slightly too (from 53 to 56 per cent for men and from 38 to 44 per cent for women; conversely the proportions who entered parenthood at ages 20-24 among those having a first birth by age 30 reduced (from 40 to 36 per cent for men and from 43 to 37 per cent for women).

To emphasise the relative importance of differences by gender and cohort in timing and partnership context the final panel of Table 2 provides the results of a simple direct standardisation, using the entire sample as the standard. The overall crude first birth incidence rates (relating total births to total exposure) show substantial differences, ranging from 33 per thousand for BCS70 males to 69 per thousand for NCDS females. Unsurprisingly, directly standardising for age-structure of exposure to risk alone hardly alters these differences (since these are members of a cohort who were observed at age 30, the only differences in age structure of exposure arise from the exits due to having had the first birth). However, once we standardise for age structure and partnership context the differentials by cohort and by gender largely disappear, ranging from 46 per thousand to 51 per thousand. Thus we see that the differences in entry into parenthood between the two cohorts and, perhaps even more surprisingly, the differences by gender are largely accounted for by differences in partnership context rather than by differential fertility within context. However, as discussed above, this simple standardisation actually masks some quite important countervailing differences in first birth incidence rates by gender and context.

3.2 Modelling the timing and context of becoming a parent

Our primary focus is on examining the links of the childhood antecedents to becoming a parent and their interplays with cohort, gender, age, and partnership context. However, it is of interest to explore the interplays of gender and cohort with the timing and partnership contexts of becoming a parent. Moreover, it is useful to ask how far the inclusion of the childhood antecedents and their related interplays modify the associations observed, whilst acknowledging that our prior assumption is that most of the gender and cohort differences in and the overall levels of becoming a parent would be determined by late adolescent and early adult experiences and shifts in context, such as moves to gender equity in employment, housing markets, and issues related to medium term security (for a fuller discussion see Hobcraft and Kiernan 1995; Hobcraft

2003 and 2004 shows the powerful associations of subsequent disadvantage with several measures of late adolescent/ very early adult disadvantages for the 1958 cohort).

Table 3 provides a comparison of the results from the 'best' model that included only the timing, gender, and cohort factors with those from the 'best' model including the childhood antecedents and their interplays with timing, gender, and cohort. The results show the expected age gradient in the baseline hazards, which correspond to the relative risks for males in the 1958 cohort (the baseline group). The remaining terms for gender and cohort show the relative risk of becoming a parent in comparison to this baseline group. Thus, in the timing only model, a teenage female has 3.3 times the risk of entry to parenthood of a male; a teenage member of the 1970 cohort has a reduced risk of 0.82, regardless of gender; thus a teenage female in the 1970 cohort has a relative risk of 2.7 (=3.29*0.82). In neither model do we find a statistical justification for including any gender by cohort interactions with the timing of becoming a parent; there is no strong statistical evidence for differentiating the female modifiers within age group 23-29, or for differentiating the BCS70 modifiers within the age group 20-29.

Table 3: A comparison of timing elements from poisson rate models for timing only and for timing and childhood antecedents

	Timing only	Timing with child antecedents
Chi-square	5,045	7,774
Degrees of freedom	8	31
BIC	-4,953	-7,415
Baseline Hazard		
16-19	0.105	0.027
20-22	0.412	0.145
23-24	0.715	0.379
25-29	1.000	1.000
Female modifiers		
16-19	3.29	2.67
20-22	1.81	1.84
23-29	1.33	1.36
BCS 70 modifiers		
16-19	0.82	0.81
20-29	0.67	0.63

When we compare the results of the two models from Table 3 we see that the baseline hazard becomes much steeper once the controls for childhood antecedents and their interplays are introduced, reflecting the baseline group now having all of the indicators of childhood disadvantage set to be zero. Thus, the indicators of childhood disadvantage capture quite a bit of further variation in the timing of becoming a parent,

with every result (as we shall see in the next section) showing an association of childhood disadvantage with an increased risk of becoming a parent by age 30 and often of doing so at earlier ages. The direct modifiers for gender attenuate slightly for teenage births when the child antecedents are introduced. The modifiers for cohort barely change. These last two results indicate that the wide range of childhood antecedents considered do not capture cohort or gender differentials very well.

Turning to the models that include both timing and partnership, Table 4 again contrasts results from the one without childhood antecedents with the results from the one including these antecedents and their multiple interplays. However, given the greater complexity of these models, we present the hierarchical terms, since the necessary combinations of these to get at the full modifications for a group can be quite elaborate[2]. Once again, a comparison of the baseline hazard ratios shows that the introduction of the childhood antecedents makes the differentials steeper, largely because the reference group is now controlled for lack of any childhood disadvantage. The introduction of the childhood antecedents captures most of the cohort interactions (with those for age 16-22, age 16-22 for females, and for non-partnered females all no longer being statistically significant) and attenuates the one remaining cohort modifier for the group who are not married.

Perhaps the most important feature to emerge from the analyses presented in Table 4 is that partnership context serves to capture much of the variation in timing of becoming a parent: the only overall rate adjustor by age is for the 16-19 age group, and only one other age-gender modifier remains (for age group 16-24, which becomes stronger) in the timing and context models with childhood antecedents, compared with three age-only ones and five age-cohort and age-gender terms in the timing only model. On the other hand, there is additional evidence of the early age associations being mediated through partnership context.

A fuller analysis than is possible in this paper would thus address the role of the childhood antecedents and their interplays in the processes of partnership change in addition to becoming a parent. Others have begun addressing the scope for examining partnership and parenthood as multi-state, multi-process models with possible correlated error structures, but without tackling the challenges faced here of handling such a wide range of potential antecedents (Aassve et al. 2006; Brien, Lillard, and Waite 1999; Steele et al. 2005, 2006 and 2006a; Upchurch, Lillard, and Panis 2002; Waite and Lillard 1991; Baizan, Aassve, and Billari 2003 and 2004). We intend to

[2] Thus, for example, the overall age-gender-cohort-partnership context modifier for a female born in 1970 who is aged 20-22 and cohabiting involves taking the hierarchical terms that cover this risk group: for the timing and context model that includes the child antecedents this results in 0.64*1.31= 0.84; for the timing and context only model other terms are involved for this group: 0.72*1.37*0.88*1.43*1.37= 1.70)

address the issue of the childhood antecedents and their gender and cohort interplays for partnership context *per se* in a subsequent paper.

Table 4: A comparison of the timing and context IRRs from poisson rate models without and with controls for childhood antecedents

	Timing and context only	Timing and context with child antecedents
Chi-square	22,945	24,863
Degrees of freedom	15	36
BIC	-22,772	-24,446
Baseline Hazard		
Never partnered	0.0139	0.0076
Out of partnership	0.0532	0.0231
Cohabiting	0.2124	0.1052
Married ex-cohabit	*1.0000*	1.1304
Direct marriage	1.0000	1.0000
Modifiers		
Age 16-19	2.25	1.76
Age 16-22 * BCS70	0.72	---
Age 16-22 * Female * BCS70	1.37	---
Age 16-24 * Female	0.88	0.64
Never * BCS70	1.74	---
Never * 16-19	0.44	0.48
Not in partnership * Female	2.26	1.68
Not in Part. * Female * BCS70	0.64	---
Not in partnership * Female * 16-22	1.37	1.40
Not married * BCS70	1.43	1.31
Not direct marriage * 16-19	0.75	0.61
Not direct marriage * 16-19 * Female	----	1.45
Not direct marriage * 16-22	1.37	---

3.3 Childhood antecedents, gender and cohort, and the timing of becoming a parent

We now turn to the results concerning the childhood antecedents of becoming a parent. Table 5 shows the (hierarchically coded) incidence rate ratios from the 'best' model that controls for the timing of entry into parenthood and the childhood antecedents, including the important elements from the wide range of interactions of the childhood antecedents with age at risk and with cohort and gender. In total, 286 possible combinations of the childhood antecedents with age, cohort, and gender were considered; our final model only retains 23 of these (see Appendix Table A.1 for the hierarchical IRR estimates). Among these 23 terms, six are linked to missing information for: parental age at birth of the cohort member, parental interest in schooling, anti-social behaviour, and educational test scores. The remaining 17 are of much greater substantive interest.

The results are presented in two forms: Table 5 shows the retained hierarchical measures and Table 6 shows the combinations of these for the relevant groups in the population. The models examine the extent to which increasing depth or levels of childhood disadvantage are associated with increasingly earlier entry into parenthood. For example, there are five levels of socioeconomic deprivation distinguished in our analyses. All cohort members who show any indication of childhood disadvantage on this indicator show an increased propensity to enter parenthood by age 30 at all ages and for both cohorts and sexes, compared to those with no indication of socioeconomic deprivation (IRR=1.11). Men and women from both cohorts who experienced some (or higher) level of socioeconomic deprivation show a further increased propensity to become parents by age 25 (IRR=1.15) but not subsequently. Females from either cohort who experienced clear or strong deprivation have an added risk of entry to motherhood before age 23 (IRR=1.17). Finally any cohort member (of either gender) who experienced strong deprivation during childhood has a noticeably higher propensity to become a teenage parent (IRR=1.47). The combined impacts of these progressive shifts to greater childhood deprivation are brought together in Table 6: thus we see that women who experienced strong socioeconomic disadvantage during childhood were 2.19 times (=1.11*1.15*1.17*1.47) as likely to become parents in their teens as men or women who show no evidence of socioeconomic deprivation during childhood. Thus, we see higher levels of disadvantage during childhood being indicative of increased risks of earlier entry into parenthood, with the effects gradually ameliorating as a result of both ageing and the earlier selection into parenthood. The associations are the same for both cohorts, but we see an excess legacy of clear or strong disadvantage for females becoming parents by age 23 (Hobcraft and Kiernan 2001 also show that the associations of early motherhood with subsequent disadvantage are predominantly for entry by age 23, rather than just in the teens).

Table 5: Hierarchical incidence rate ratios of becoming a parent for childhood antecedents controlling for timing

Childhood Antecedent	**Age Groups**					
Socioeconomic Deprivation	**16-19**		**16-22**		**16-24**	**All**
			Female			
No evidence	1.00		1.00		1.00	1.00
Slight	1.00		1.00		1.00	1.11
Some	1.00		1.00		1.15	1.11
Clear	1.00		1.17		1.15	1.11
Strong	1.47		1.17		1.15	1.11
Housing Tenure	**16-24**	**All**				
No Local Authority	1.00	1.00				
Any Local Authority – NCDS	1.42	1.00				
Any Local Authority - BCS	*1.42*	*1.17*				
Parents' Ages at Cohort Member's Birth	**All Ages**	**16-22**	**23-29**			
One or both older; neither young	1.00					
Any young (Dad<25 or Mum<23)	1.30					
Both missing		1.33	1.00			
Family Disruption up to age 16	**16-19**	**20-29**				
No evidence of disruption	1.00	1.00				
Any disruption	1.51	1.00				
Parental Interest in School	**16-19**	**16-24**	**All**			
Any very	1.00	1.00	1.00			
No very & no low	1.00	1.00	1.17			
*No very & no low * Female*	*1.34*	*1.00*	*1.17*			
Any little or no	1.00	1.30	1.17			
*Any little or no * Female*	*1.34*	*1.30*	*1.17*			
All missing	1.39	1.17	1.00			
Anti-Social Behaviour	**16-19**	**16-22**	**16-22**	**23-29**	**16-24**	**25-29**
No evidence of ASB	1.00	1.00	1.00	1.00		
Slight ASB	1.00	1.00	1.30	1.00		
Fairly ASB	1.00	1.23	1.30	1.00		
Very ASB – Male	1.00	1.23	1.30	1.00		
Very ASB - Female	2.71	1.23	1.30	1.00		
All missing – BCS70					1.72	1.00
Child Test Scores	**16-22**	**16-24**	**All**			
2/3 high quartile scores	1.00	1.00	1.00			
0 low, 0/1 high quartiles	1.00	1.49	1.22			
Any low quartile score	1.45	1.49	1.22			
All Missing			1.50			
*All missing * Female*	*1.60*					

Table 6: Incidence rate ratios of becoming a parent for childhood antecedents controlling for timing

Childhood Antecedent	**Age Groups**					
Socioeconomic Deprivation	**16-19 Female**	**16-19 Male**	**20-22 Female**	**20-22 Male**	**23-24**	**25-29**
No evidence	1.00	1.00	1.00	1.00	1.00	1.00
Slight	1.11	1.11	1.11	1.11	1.11	1.11
Some	1.28	1.28	1.28	1.28	1.28	1.11
Clear	1.49	1.28	1.49	1.28	1.28	1.11
Strong	2.19	1.88	1.49	1.28	1.28	1.11
Housing Tenure	**16-24**	**25-29**				
No Local Authority	1.00	1.00				
Any Local Authority – NCDS	1.42	1.00				
Any Local Authority - BCS	*1.66*	*1.17*				
Parents' Ages at Cohort Member's Birth	**All Ages**	**16-22**	**23-29**			
One or both older; neither young	1.00					
Any young (Dad<25 or Mum<23)	1.30					
Both missing		1.33	1.00			
Family Disruption up to age 16	**16-19**	**20-29**				
No evidence of disruption	1.00	1.00				
Any disruption	1.51	1.00				
Parental Interest in School	**16-19**	**20-24**	**25-29**			
Any very	1.00	1.00	1.00			
No very & no little or no	1.17	1.17	1.17			
*No very & no low * Female*	*1.58*	*1.17*	*1.17*			
Any little or no	1.53	1.53	1.17			
Any little or no Female*	*2.05*	*1.53*	*1.17*			
All missing	1.63	1.17	1.00			
Anti-Social Behaviour	**16-19**	**20-22**	**23-29**	**16-24**	**25-29**	
No evidence of ASB	1.00	1.00	1.00			
Slight ASB	1.30	1.30	1.00			
Fairly ASB	1.59	1.59	1.00			
Very ASB – Male	1.59	1.59	1.00			
Very ASB - Female	4.32	1.59	1.00			
All missing – BCS70				2.09	1.00	
Child Test Scores	**16-22**	**23-24**	**25-29**			
2/3 high quartile scores	1.00	1.00	1.00			
0 low, 0/1 high quartiles	1.82	1.82	1.22			
Any low quartile score	2.63	1.82	1.22			
All Missing	1.50	1.50	1.50			
*All missing * Female*	*2.40*	*1.50*	*1.50*			

A few of the childhood indicators of disadvantage show simpler relationships to the timing of entry into parenthood. Thus, if the mother or father (or both) were young when the cohort member was born the relative risk of entering parenthood is increased by 30 per cent at all ages up to age 30 for both genders and cohorts. Experience of any family disruption during childhood is linked to a substantially higher risk of becoming a teenage parent compared to those with no family disruption (IRR=1.51), but not for becoming a parent at higher ages. Although the propensity for family disruption increased significantly between the two cohorts there is no evidence of a differential effect. Having lived in local authority (social) housing at any of the childhood waves is associated with a 42 per cent excess risk of becoming a parent up to age 25 for those in the 1958 birth cohort and a 66 per cent excess risk for those in the 1970 cohort. This is the only excess legacy of childhood disadvantage that shows a differential between the two birth cohorts and probably arises from the reduced propensity of the children born in 1970 to have lived in social housing as a result of the 'right-to-buy' policy having led to 'residualization' (i.e. a greater selectivity for disadvantage).

Our measure of parental interest in schooling has the highest incidence of missing information, largely because it is only based on reports at one wave of the survey (the 1970 cohort were not all in school at age 5 and had very low response rates at age 16). If neither parent was reported as very interested in the cohort member's schooling the risk of entry into parenthood at all ages up to 30 was raised by 17 per cent, compared to those who had at least one very interested parent. If either parent was reported as showing little or no interest, the propensity to have a child before age 25 increased by a further 30 per cent, leading to an overall excess of 53 per cent. Finally, young women show particular sensitivity to lack of high parental interest in their schooling, being a further 34 per cent more likely to have a teenage birth if neither parent was 'very interested', leading to doubling of overall risk of entry to teenage parenthood for those women whose parents showed low interest in their schooling (Hobcraft 1998 and 2004 showed for the 1958 that the legacies of maternal interest in schooling were stronger for young women than for young men for a range of adult disadvantages).

Our measures of antisocial behaviour in childhood are linked to early entry into parenthood, especially before age 23, but with no later effects. Even a slight indication of antisocial behaviour is associated with a 30 per cent increase in the rates of entry into parenthood before age 23 and any stronger indication (fairly or very) is linked with a further 23 per cent increase in risk, leading to an excess of 59 per cent. The small group of women who were very antisocial during childhood are very much more likely to become teenage mothers, with an overall rate of over four times that for those with no indication of antisocial behaviour.

Lastly, there are strong associations of entry into parenthood with educational test scores. Here, the reference group show consistently high test scores during childhood,

so that the excess associated with not having two or three test scores in the top quartile is really more indicative of much slower rates of childbearing among the privileged high ability group. Those with fewer than two high quartile test scores were 82 per cent more likely to enter parenthood aged 16-24 and remain 22 per cent more likely to do so when aged 25-29. Cohort members with any low quartile childhood test score were a further 45 per cent more likely to become parents when aged 16-22, with an overall relative risk of 2.63 compared with the high ability group.

In general we see that greater childhood disadvantage tends to be associated with ever higher risks of earlier childbearing, although the strongest legacies 'wear off' quite quickly (by ages 20 to 25), presumably in part because those with the highest risks are selected out, so that the remaining individuals behave in more mainstream ways. The greater risks of low parental interest and high antisocial behaviour for becoming a teenage parent among women could reflect genuine legacies (such stronger legacies by gender almost always seem to be for women – e.g. Hobcraft 2004 on the 1958 cohort) or perhaps just that teenage rates of parenthood are much higher for women than for men, although there is a clear indication of differential effects by gender. There is remarkably little indication of cohort differences in the associations of the childhood antecedents with becoming a parent despite often sizeable changes in the distributions of disadvantages across the cohorts. The only exception to this arose for the association with living in social housing where the legacy is stronger (but not substantially so) for the 1970 cohort.

The childhood antecedents do not capture the differences in patterns of becoming a parent by gender and by cohort very well. In view of the limited indications of interactions of the childhood antecedents with either gender or cohort it is hardly surprising that the gender and cohort modifiers shown for this model in Table 3 hardly changed, with the exception of the teenage one for women, which attenuated somewhat. However, we had never anticipated that the childhood antecedents alone would capture these gender and cohort differences, since the macro-structural and contextual changes involved in the second demographic transition are much wider ranging and reach well into late adolescence and early adulthood (Hobcraft and Kiernan 1995). Yet few studies ever examine the roles of a wide range of childhood antecedents in patterns of subsequent entry into parenthood and we are not aware of any that have posed these questions in the context of pooled cohorts and genders. Perhaps this is why these commonalities are not usually dwelt upon. In general we can say that the great majority of the legacy of childhood disadvantage for the timing of parenthood operates similarly for men and women and similarly for the 1958 and 1970 cohorts.

3.4 Childhood antecedents, gender and cohort, and the timing and partnership context of becoming a parent

In this section we extend consideration to include controls for partnership context. As noted in section 3.1, the most dramatic changes in entry to parenthood between the two cohorts are largely attributable to shifts in the partnership context of childbearing. Modelling the childhood antecedents of entry into and transitions between partnership contexts, including cohort and gender dimensions, is thus a desirable further analysis that is delayed for a further paper for obvious reasons of length and complexity. Arguably we might expect the scope for childhood antecedents to link to becoming a parent would be attenuated once we also control for being in a particular partnership context and in view of the importance of such contexts for entry into parenthood. Nevertheless, as we shall show, there are still quite powerful legacies of childhood disadvantage for entry into parenthood and we are able better to explore whether it is age or partnership context that matter more for these associations with the childhood antecedents.

Table 7 shows the hierarchical incidence rate ratios for the childhood antecedents of entry to parenthood in our preferred model that includes controls for age and partnership context and selects among the many interplays involved. We began with a possible 550 indicators of the childhood antecedents and their interplays with age, partnership context, gender, and cohort; our chosen model only includes 22 of these combinations, three of which cover missing information (all significant at $p< 0.001$, the original hierarchical IRRs are shown in Appendix Table A2)). As discussed in section 3.2, far fewer age-related terms find their way into this model and we find that several of the legacies of childhood disadvantage are better differentiated by partnership context than by age *per se*.

Once again, the interpretation of our results can prove complex, since we are exploring combinations of both the timing and partnership contexts of becoming a parent with a wide range of childhood antecedents; moreover we are further asking whether there is clear evidence of differentials by gender or by cohort. We again adopt a strict hierarchical coding for the many dummy variables used: we expect early childbearing to extend over an age-range, rather than a specific age-group; we anticipate that key partnership context distinctions involve, for example, contrasting those who are not partnered (whether never partnered or currently out of a partnership) with those who are (whether married or cohabiting) or those who are currently married with the rest. Similarly we anticipate that progressive increases in the severity of childhood disadvantage will make for sharper contrasts than individual groups.

Table 7: Hierarchical incidence rate ratios of becoming a parent for childhood antecedents, controlling for timing and partnership context

Childhood Antecedent	**Age Groups**					
Socioeconomic Deprivation			**Not Married**			
	16-24	**16-24**	**16-29**			
No evidence	1.00	1.00	1.00			
Slight & Some	1.00	1.00	1.21			
Clear	1.00	1.13	1.21			
Strong	1.20	1.13	1.21			
Strong, Not partnered, Female				*1.43*		
Housing Tenure	**All**		***BCS70 Never Partnered***			
No Local Authority	1.00		*1.00*			
Any Local Authority	1.16		*1.81*			
Parents' Ages at CM Birth	All					
No young	1.00					
Any young	1.18					
Both missing*Fem*16-22		1.41				
Family Disruption	**No partner**	**With Partner**				
No evidence of disruption	1.00	1.00				
Any disruption	1.49	1.00				
Parental Interest in School	**Not Married**	**All**				
Any very	1.00	1.00				
No very & no little or no	1.29	1.00				
Any little or no	1.29	1.19				
All missing	1.31	1.00				
Anti-Social Behaviour	**16-19 Female**	**16-24 Female**		**Not Married**		**All**
No evidence of ASB	*1.00*	*1.00*		1.00		1.00
Slight ASB	*1.00*	*1.13*		1.17		1.00
Fairly ASB	*1.00*	*1.13*		1.17		1.11
Very ASB	*2.47*	*1.13*		1.17		1.11
Child Test Scores	**16-22**	**16-24 Female**	**Not Married**	**Not Married**	**All**	**All**
2/3 high quartile scores	1.00	1.00	1.00	1.00	1.00	1.00
0 low, 0/1 high q	1.00	1.33	1.00	1.51	1.00	1.15
Any low quartile	1.17	1.33	1.36	1.51	1.00	1.15
2/3 low quartile	1.17	1.33	1.36	1.51	1.11	1.15
All Missing			1.76		1.42	

As in the previous section, we show the hierarchical IRRs in Table 7 and their translation into overall relative risks for combinations in Table 8. From table 7 we can see that those with any indication of socioeconomic deprivation have a higher propensity to become parents outside of marriage at all ages up to 30, whether cohabiting, out of a partnership or never partnered, compared with those with no evidence of socioeconomic deprivation (IRR=1.21). Additionally, rates of entry into parenthood are higher at ages up to 25 (regardless of partnership context) for those with clear indications of socioeconomic deprivation (IRR=1.13) and higher still where the deprivation was strong (IRR=1.13*1.20=1.35). Finally, women who experienced strong deprivation during childhood have a further excess risk of becoming a parent at all ages up to 30 when not currently partnered (IRR=1.43). As shown in Table 8, putting all of these relative risks together, for those experiencing strong socioeconomic deprivation in childhood compared with those with no indication of childhood socioeconomic deprivation: women who were not partnered are 2.35 times as likely to become parents at ages up to 25 and 1.74 times as likely during the age-range from 25-29; further, men who were not married and women who were cohabiting were 1.64 times as likely to become parents whilst aged 16-24 and 1.21 times as likely at ages 25-29; finally, such strongly deprived men and women had a 35 per cent additional risk of becoming a parent within marriage up to age 25 (all combined contrasts are with the group with no indication of socioeconomic deprivation). We thus see the legacies of childhood deprivation being progressively stronger at earlier ages and in less favourable partnership contexts, with a further indication of a greater legacy for the most deprived women who were not in partnerships.

Once again, we see a greater legacy of having lived in local authority (social) housing as a child for those born in 1970 than for those born in 1958, although the excess is now limited to the never partnered (IRR=1.81), rather than the broad age-span seen in the age only model. At all ages and in all partnership contexts, except the never partnered for the 1970 cohort, those who lived in social housing at any of the childhood waves are 16 per cent more likely to become parents; for those born in 1970 who lived in social housing the overall relative risk among the never partnered is thus 2.10 (=1.16*1.81).

Table 8: Incidence rate ratios of becoming a parent for childhood antecedents, controlling for timing and partnership context

Childhood Antecedent	**Age Groups**					
Socioeconomic Deprivation	**Not Married**		**Married**			
	16-24	**25-29**	**16-24**	**25-29**		
No evidence	1.00	1.00	1.00	1.00		
Slight & Some	1.21	1.21	1.00	1.00		
Clear	1.37	1.21	1.13	1.00		
Strong	1.64	1.21	1.35	1.00		
Strong, Not partnered, Female	*2.35*	*1.74*	---	---		
Housing Tenure	**NCDS**	**BCS70 Ever Partnered**	**BCS70 Never Partnered**			
No Local Authority	1.00	*1.00*	*1.00*			
Any Local Authority	1.16	*1.16*	*2.10*			
Parents' Ages at CM Birth	**All**					
No young	1.00					
Any young	1.18					
Both missing*Fem*16-22		1.41				
Family Disruption	**No partner**	**With Partner**				
No evidence of disruption	1.00	1.00				
Any disruption	1.49	1.00				
Parental Interest in School	**Not Married**	**Married**				
Any very interested	1.00	1.00				
No very & no little or no	1.29	1.00				
Any little or no interest	1.53	1.19				
All missing	1.31	1.00				
Anti-Social Behaviour	**Not Married**			**Married**		
	16-19 Female	**20-24 Female**	**Men & 25-29 Female**	**16-19 Female**	**20-24 Female**	**Men & 25-29 Female**
No evidence of ASB	*1.00*	*1.00*	1.00	*1.00*	*1.00*	1.00
Slight ASB	*1.33*	*1.33*	1.17	*1.13*	*1.13*	1.00
Fairly ASB	*1.47*	*1.47*	1.30	*1.25*	*1.25*	1.11
Very ASB	*3.63*	*1.47*	1.30	*3.10*	*1.25*	1.11
Child Test Scores	**Not Married**			**Married**		
	16-22	**23-24**	**25-29**	**16-22**	**23-24**	**25-29**
2/3 high quartile scores	1.00	1.00	1.00	1.00	1.00	1.00
0 low, 0/1 high q * Male	1.74	1.74	1.74	1.15	1.15	1.15
Any low quartile * Male	2.77	2.37	2.37	1.35	1.15	1.15
2/3 low quartile * Male	3.07	2.63	2.63	1.49	1.28	1.28
0 low, 0/1 high * Female	2.32	2.32	1.74	1.53	1.53	1.15
Any low quartile * Female	3.69	3.16	3.16	1.79	1.53	1.15
2/3 low quartile * Female	4.08	3.50	3.50	1.98	1.70	1.28
	Not Married	**Married**				
All Missing	2.49	1.42				

Both demographic indicators considered, being the child of young parents and having experienced any family disruption, show clear intergenerational legacies. If either parent was young at the time of the cohort member's birth the risk of entry into parenthood before age 30 is 1.18 times that for those whose parents were both older: as a consequence this generation also tend to become parents earlier if their parents behaved that way. Those who experienced any form of family disruption during childhood are nearly 50 per cent (IRR=1.49) more likely to become parents when they do not have a partner than those in intact families.

In this more complex analysis we do not find gendered legacies of parental interest in schooling. However, any indication of lacking parents who were very interested in the cohort member's education is associated with a 29 per cent excess risk of becoming a parent whilst not married (including both cohabitation and not being in a partnership). Further, if there was any indication of little or no parental interest in schooling, the cohort members were 19 per cent more likely to become parents at all ages and in all partnership contexts. In combination, those with any little or no parental interest were 53 per cent more likely to become parents when outside marriage than those with any indication of a very interested parent.

Turning to the measures of antisocial behaviour, we see two excess risks of entry into parenthood associated with any indication of such behaviour: a 17 per cent excess risk outside marriage (including cohabitation and not being partnered) for all ages and both sexes; and a further 13 per cent excess risk for such women up to age 25, regardless of partnership context. Taken together (Table 8) these mean that a woman who showed any indication of antisocial behaviour during childhood is 33 per cent more likely to become a mother outside marriage at all ages up to 25 than a counterpart with no indication of antisocial behaviour. Men and women at all ages and in all partnership contexts whose behaviour was fairly antisocial during childhood show a further eleven per cent excess risk of becoming parents, leading to an overall 49 per cent excess risk of entry into parenthood for unmarried women under age 25 and a 30 per cent excess for unmarried men regardless of age and for unmarried women aged 25-29. Lastly, we again see a very large further excess risk of teenage motherhood for women who showed very antisocial behaviour during childhood with an additional relative risk of 2.47 – this is not dissimilar to the excess risk for the same group in the timing only analysis. As a consequence, women whose behaviour was very antisocial during childhood are 3.63 times as likely (compared with those with no evidence of antisocial behaviour) to have a teenage birth whilst unmarried and 3.10 times as likely if married.

The final and most complex set of legacies associated with childhood characteristics are for educational test scores. In Table 7 we see that not being advantaged (i.e. not having two or three high quartile test scores is linked to three

excess risks: everyone in this group is 15 per cent more likely to become a parent at all ages and in all partnerships contexts; secondly, there is an additional 51 per cent excess risk of becoming a parent outside marriage for this group; and thirdly, a 33 per cent excess risk for women only up to age 25. In combination (Table 8) these lead to an excess rate of becoming a parent out of wedlock of 74 per cent for men and for women aged 25-29 and a relative risk of 2.32 for out of wedlock births to women up to age 25. These are all indicative of the delayed childbearing among the highly intelligent.

Additional to the contrasts in the preceding paragraph, any low quartile test score in the childhood waves is associated with two further excess risks of entry into parenthood for both men and women: the rates for the unmarried are a further 26 per cent higher and the rates before age 23 are a further 17 per cent higher. Thus the rates for out-of wedlock childbearing before age 23 are a further 59 per cent higher than the group with no low quartile score but without two or three high quartile scores. Lastly, having two or three low quartile test scores is associated with a further eleven per cent excess risk of parenthood regardless of age or partnership context. All of these components are brought together in the last panel of Table 8, which shows very large differentials in risks of entry to parenthood by educational test scores, with progressively higher risks by lower ability and the excesses being greater at young ages and for out of wedlock parenthood. Moreover, there is further evidence of the greater legacy of lack of high ability for females in terms of risk of early childbearing.

This analysis has shown that there are lasting legacies of a wide variety of measures of childhood disadvantage or characteristics for the risks of becoming a parent. These legacies are greater: with increasing levels of disadvantage; for earlier entry into parenthood; and for 'riskier' partnership contexts. Where gender differences emerge, which is rarely, there is only an excess risk for females and the differentials play through the timing of motherhood, rather than partnership context: perhaps this is unsurprising given the clear differences in the timing of parenthood for men and women, although I find it at least as surprising that there are so few gender differentials in the legacies of childhood circumstances given this inherent timing difference. The dominant conclusion from our analysis is that there is rarely any clear evidence for gender differentials in the legacies of childhood disadvantages for entry into parenthood. Lastly, there is even less evidence for differentials in these childhood legacies for becoming a parent between the two cohorts: the only clear difference is the association with living in social housing for the 1970 cohort both for the timing only analysis and for this timing and context analysis.

It is perhaps surprising that taking account of both the timing and the partnership context does not substantially moderate the differential legacies of childhood disadvantage. We were able to show, by a simple standardization in section 3.1, that controlling for changes in partnership context effectively removed the overall

differences in rates of entry into parenthood by gender and by cohort. Moreover, it is quite clear that shifts in partnership context are at least partly endogenous to the process of becoming a parent: as a result we should be failing to capture those parts of the legacies of childhood that affect changes in partnership context, consequentially reducing the scope for differentials in the propensity to become a parent within a particular partnership context. However, despite these limitations, clear differentials by childhood status do emerge, both across age groups and partnership contexts.

An ideal analysis might have incorporated partnership context changes and births as parallel endogenous processes with correlated errors. Examples that move in this direction include the trio of papers by Steele and collaborators (2005, 2006, and 2006a) which use one or both of the 1958 and 1970 cohorts and apply multilevel multistate competing risks models with correlated errors. However, such models are better formulated to answer questions about overall fertility than first entry into parenthood, since it is impossible to investigate unobserved heterogeneity among first births only because there are no repeated events. We also note that we have identified five partnership contexts (although it appears little would be lost by combining the directly married and cohabitation followed by marriage groups). However, the number of transitions to be modelled proliferates rapidly as the number of states increases: we would still need 'never to cohabitation, never to marriage, cohabitation to marriage, out to cohabitation, out to marriage, cohabitation to out, and marriage to out' as identified partnership transitions and birth transitions within each of four contexts. Thus there would be an eleven by eleven random effects covariance matrix to estimate (compared with the five by five covariance matrices of Steele et al. 2005 and 2006a and of Aassve et al. 2006) and this would make such a model hard to estimate. Furthermore, we have quite deliberately set out to explore a wide range of childhood antecedents and to explore both their time-varying and context-varying effects and moreover to pose questions concerning differentials by gender and by cohort – it might be possible to use the results of the analysis presented here as starting entries for the key covariates in a multilevel multiprocess model, but the huge range of combinations considered here would be extremely challenging to handle.

4. Discussion

Analysis of fertility patterns, including the correlates of entry into parenthood, is usually conducted only for women and analysis for men is rare and often carried out separately (although see Kiernan 1995). We have examined the experience of both men and women for two cohorts that differ quite substantially in the timing and partnership context of becoming a parent, despite being born only twelve years apart. We have

shown the major influence of partnership context as a 'driver' of fertility change and, in particular have shown that the major shift in partnership context exposure prior to first birth or reaching age 30 between the 1958 and 1970 birth cohorts was a shift from time spent in direct marriages to time spent in cohabitation. Simple standardisation for age and partnership context largely accounts for the differences in entry to parenthood between the two cohorts and by gender, and partnership context is clearly responsible for this. However, the results of modelling the timing and partnership context aspects of becoming a parent show that a simple standardisation hides some more subtle interplays in the roles of partnership context.

As expected, the childhood antecedents included here do not suffice to account for a very large part of the variation in timing of entry to parenthood and certainly do not capture much of the gender or cohort differences in parenthood behaviours. We are well aware that experiences subsequent to childhood are an important further element in the life-course (Hobcraft 2003) and that the interplays with macro-contextual changes and gender structures may play a key role in determining this transition to parenthood (Hobcraft and Kiernan 1995). However, our focus here is on the pathways from the childhood experiences up to age 16 to becoming a parent. Exploring the possible long-term legacies of a rich array childhood experiences for adult life is often precluded by lack of prospective studies from birth. We further emphasise experiences throughout childhood, as far as they are captured by the fairly infrequent waves of these two birth cohort studies. Prospective information is particularly valuable in allowing us to explore the potential roles of measures of parental interest, anti-social behaviour, and educational test scores through childhood.

Every one of the domains representing childhood disadvantage proves strongly related ($p<0.001$) to becoming a parent and in all these linkages the evidence points towards childhood disadvantage being associated with earlier entry into parenthood and with parenthood occurring in less favourable partnership contexts. The links of becoming a parent to disadvantage nearly always play through beyond, and often well beyond, the teenage years. We find no evidence that the effects of childhood disadvantage differentially reach through to higher ages for the later cohort, despite the more protracted transitions to adulthood that they have experienced. The greater the childhood disadvantage, the greater are the excess risks of becoming a parent early and in unpropitious partnership contexts.

We have seen that the legacies of childhood disadvantage for off-time or off-context entry into parenthood (though the rapid shifts in childbearing contexts make such normative labelling less meaningful than in the past) are strongly mediated through partnership context and age. The notion that only teenage childbearing is linked to earlier or subsequent disadvantage is no longer tenable and the interplays by partnership context and the shifts in exposure by context show the increasing

importance of out of partnership childbearing (at least in the UK and US – see Kiernan 2004a) and some differentiation between cohabitation and not being in a partnership. We found no indication whatsoever of any difference in the linkages for childhood antecedents between the married from cohabitation and the directly married groups.

Perhaps the most remarkable results from our analyses are how few cohort or gender interplays emerge for the pathways from childhood disadvantage to becoming a parent. In view of the radically different timing of first births for men and women and between the 1958 and 1970 cohorts, it might well have been anticipated that such interplays would emerge quite strongly. Certainly, the usual approach to such analysis that formulates separate models for each cohort and each sex is shown to be unnecessarily profligate with parameters, since the much more parsimonious models that result from a systematic exploration of the kind undertaken here show remarkable consistency in the apparent responsiveness of entry into parenthood to childhood disadvantage in both the underlying levels and the links through age-groups and partnership contexts. We have found similar results for the gendered pathways in the 1958 cohort for a wide range of outcomes (Hobcraft 2003 and 2004) and for gender and cohort interplays for a cluster of adult socioeconomic outcomes (Hobcraft, Hango, and Sigle-Rushton 2004) and for several health outcomes (Mensah and Hobcraft 2008).

The only clear substantive differential in the linkage of a childhood antecedent to becoming a parent by cohort was the very much higher risk (IRR=1.807) for the never partnered who had lived in local authority housing at any of the childhood waves. The emergence of this cohort differential is consistent with prior knowledge concerning the residualisation of such housing tenure for the families of the 1970 cohort. On the other hand, we find no differential response by cohort for the legacy of family disruption despite the considerable increase in parental divorce, nor for having a young parent despite the significant rise in incidence over time. We think it is the *consistency* of virtually all the associations of childhood antecedents with becoming a parent across cohorts that is noteworthy.

There are also relatively few gendered pathways from childhood disadvantage to entry into parenthood. The most powerful and consistent gendered pathway is from having very antisocial behaviour among women to the propensity to become a teenage mother (IRR=2.7 in timing only model and IRR=2.5 in timing and context model). This short term legacy of unusual behaviour patterns is strong and further reinforced for all women who showed any evidence of antisocial behaviour having an excess risk of becoming mothers up to age 25 in the timing and context model (IRR=1.13; such that the excess risk for the very antisocial group of young women becomes 2.80 for the risk of becoming teenage mothers). Childhood deprivation is also fairly consistently linked to excess risks of entry into motherhood (compared with fatherhood), although the detail differs between the two models: a 17 per cent excess risk of parenthood up to age

23 for young women who were clearly or strongly deprived during childhood in the timing only model; and a 43 per cent excess risk of becoming a parent outside a coresidential partnership for young women who were strongly deprived in childhood for the timing and context model. Lastly, for the timing only model, we see a 34 per cent excess risk of teenage motherhood for those women for whom there was no indication of a parent being very interested in their education at ages 10 or 11; and for the timing and context model we see an indication of a 33 per cent excess risk of motherhood (compared with fatherhood) for the very large group who had fewer than two high quartile test scores, which might be better interpreted as indicating an even lower propensity for early parenthood among women with two or more high quartile test scores than for similar men. Once again it is worth stressing the *consistency* by gender for most of the associations of becoming a parent with the childhood antecedents, with no gender differences emerging for the legacies of having had young parents, experience of any family disruption, or growing up in local authority (or social) housing.

Each gendered pathway that we identify is quite plausible and fits with other findings and literatures, that suggest girls are more susceptible to lack of high parental interest, that highly intelligent girls prove better able to avoid early births, and that the greater selection involved in antisocial behaviour for girls has lasting consequences (Maughan and Lindelow 1997; Jaffee 2002).

More research is needed to elucidate the developmental pathways through which childhood disadvantages play through to off-time and off-context entry into parenthood. However several clear lessons of considerable theoretical importance emerge from this largely descriptive analysis. Firstly, a wide range of childhood disadvantages all matter for the timing and partnership context of subsequent entry into parenthood. This in turn can mean several things: different mechanisms or pathways may operate that affect entry to parenthood, such as risk taking, resort to abortion, alternative opportunities, support mechanisms by neighbourhood, etc; or disadvantage of any type has lasting effects on parenting behaviours. Secondly, it is often assumed (and certainly rarely tested) that gender differences are present: the basic presumption of much demographic analysis is that parenthood behaviours are predominantly linked to female characteristics and behaviours. The genuine surprise of the results shown here (which has been found for other adult outcomes too) is that there are hardly any substantial gender differences in the legacies of childhood disadvantage for entry into parenthood, This requires some serious rethinking of common presumptions. It is only marginally less striking that we find virtually no evidence of changes in the legacies of the many childhood disadvantages considered between the two cohorts, despite the significant changes that often occurred in the incidence of such disadvantages and the dramatic shifts in partnership context over the relevant periods. Again this perhaps points to

more lasting and profound implications of childhood disadvantage for the timing and context of becoming a parent. Lastly, the general consistency of legacies of childhood disadvantage by gender and the general pervasiveness over time perhaps suggest that there are lasting and pervasive consequences of childhood disadvantage for entry into parenthood that merit further exploration and may help to shape theoretical debate. We delay further digestion of these implications for our understanding of parenthood behaviour.

Childhood disadvantage is a driver of risky demographic behaviours exemplified more by youthful parenthood and out-of-wedlock childbearing, which have implications for well-being in later life (Kiernan 1997, Hobcraft and Kiernan 2001, Kiernan 2002, and Jaffee 2002). More recently born British cohorts are even more likely to have children out-of-wedlock, and particularly out of partnership than the 1958 and 1970 cohorts. The children in these families are in the great majority of cases unplanned (Kiernan and Smith 2003), and are born into less advantaged families. Cohabiting families generally tend to be poorer than married couple families, and being born to parents who live apart represents a particularly inauspicious start to a child's life, as these families are amongst the very poorest families in Britain (DWP, 2004, Bradshaw and Mayhew 2005). The gender ramifications are also of import in that fathers who do not assume the role of parent or take day to day responsibility for their child, financial or otherwise, may be less likely to be disadvantaged by having experienced parenthood, whereas this is less likely to be the case for the mothers who live with and raise their children. The penalties of arising from "risky" parenthood, whether off-time or off-context, are clearly often greater for mothers than fathers. The clear and wide ranging differential legacies in later adulthood for the 1958 cohort of becoming a lone mother before age 23 are shown in Hobcraft (2003 and 2004) and the similar broad legacies of early motherhood are shown in Hobcraft and Kiernan (2001).

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Appendix Table 1: Summary statistics by timing and partnership context for pooled sample

A) Incidence first birth rates per thousand years of exposure

		Ages			
Partnership type	16-19	20-22	23-24	25-29	All
Never	7.8	9.9	7.3	7.1	8.2
Out	80.8	32.5	22.4	17.9	22.8
Cohabiting	117.9	71.8	61.7	62.8	69.4
Married Ex-Cohab	461.3	277.3	226.2	235.2	243.7
Direct Marr	458.4	212.8	202.9	221.8	227.7
All	18.9	43.9	62.9	86.7	48.9

B) Months of exposure up to 1st birth or interview

		Ages				
Partnership type	16-19	20-22	23-24	25-29	All	Percent
Never	993699	521404	223559	289368	2028030	69.3
Out	4009	19191	25209	82685	131094	4.5
Cohabiting	29708	76843	69612	164867	341030	11.6
Married Ex-Cohab	3278	19038	27217	101903	151436	5.2
Direct Marr	14634	67327	64818	129791	276570	9.4
All	1045328	703803	410415	768614	2928160	100.0
Per cent	35.7	24.0	14.0	26.2	100.0	
Average Years	3.9	2.6	1.5	2.9	10.9	

C) Number of episodes up to 1st birth or interview

		Ages			
Partnership type	16-19	20-22	23-24	25-29	All
Never	22,275	17,813	11,158	7,639	58,885
Out	351	1,320	1,741	3,427	6,839
Cohabiting	2,307	5,063	5,086	7,575	20,031
Married Ex-Cohab	347	1,334	1,885	4,104	7,670
Direct Marr	1,500	3,801	3,896	4,244	13,441
All	26,780	29,331	23,766	26,989	106,866

D) Number of 1st births

		Ages					
Partnership type	16-19	20-22	23-24	25-29	All	Percent (all)	Percent (parents)
Never	643	431	136	172	1382	6.2	11.6
Out	27	52	47	123	249	1.1	2.1
Cohabiting	292	460	358	863	1973	8.8	16.5
Married Ex-Cohab	126	440	513	1997	3076	13.8	25.8
Direct Marr	559	1194	1096	2399	5248	23.5	44.0
All	1647	2577	2150	5554	11928	53.4	100.0
Percent - all	7.4	11.5	9.6	24.9	53.4		
Percent of parents	13.8	21.6	18.0	46.6	100.0		
Total Sample					22324		

Appendix Table A2: Hierarchical incidence rate ratios (IRRs) from poisson rate model for becoming a parent with timing and childhood antecedents

Population Group (hierarchical, non-exclusive dummies)	IRR	z-score
Age 16-19	0.186	-23.7
Age 16-22	0.383	-20.1
Age 16-24	0.379	-17.4
Age 16-19 * Female	1.450	4.7
Age 16-22 * Female	1.356	6.2
Age 16-19 * BCS70	1.290	4.6
Female	1.357	13.3
BCS70	0.631	-18.7
Any socioeconomic deprivation	1.108	4.5
Some or more deprived * 16-24	1.151	4.3
Clear deprivation * 16-22 * Female	1.167	3.4
Strong deprived * 16-19	1.473	5.6
Any LA housing * 16-24	1.416	11.4
Any LA housing * BCS70	1.172	4.8
Either parent young	1.295	12.8
Parents ages both missing * 16-22	1.332	4.0
Any family disrupt * 16-19	1.505	7.7
No very interested parent	1.173	7.0
No very interested *16-19*Female	1.343	4.1
Any low/no interest * 16-24	1.300	7.0
Parental interest missing * 16-19	1.389	4.5
Parental interest missing * 16-24	1.171	4.3
Any antisocial behaviour * 16-22	1.301	7.6
Fairly or very ASB * 16-22	1.225	4.5
Very ASB * 16-19 * Female	2.712	6.4
ASB missing * 16-24 * BCS70	1.724	3.3
< 2 High quartile tests	1.220	5.6
< 2 high Q tests * 16-24	1.490	7.1
Any low quartile test * 16-22	1.449	11.2
Test scores missing	1.497	6.4
Tests missing * 16-22 * Female	1.604	3.9

Appendix Table A3: Hierarchical incidence rate ratios (IRRs) from poisson rate model for becoming a parent with timing, partnership context, and childhood antecedents

Population Group (hierarchical, non-exclusive dummies)	IRR	z-score
Never partnered	0.331	-13.9
Not in partnership	0.220	-18.5
Not married	0.093	-27.6
Not directly married	1.130	5.2
Age 16-19	1.761	11.8
Age 16-24 * Female	0.637	-7.6
Never partnered * 16-19	0.481	-9.3
Not partnered * Female	1.675	6.4
Not partnered * Female * 16-22	1.397	3.9
Not married * BCS70	1.314	6.6
Not directly married * 16-19	0.609	-5.4
Not directly married * 16-19 * Female	1.454	4.5
Any S-E deprivation * not married	1.213	5.0
Clear or strong deprived * 16-24	1.129	3.9
Strongly deprived * 16-24	1.198	3.6
Strongly deprived * not partnered * Female	1.432	3.7
Any LA housing	1.164	7.5
Any LA housing * Never part * BCS70	1.807	9.4
Any young parent	1.178	8.2
Parents ages missing * 16-22 * Female	1.405	4.0
Any family disrupt * Not partnered	1.487	7.4
No very interested parent * not married	1.187	5.9
Any low/no parental interest	1.288	5.8
Parental interest missing * not married	1.305	5.9
Any ASB * not married	1.171	4.1
Any ASB * 16-24 * Female	1.132	3.5
Fairly or very ASB	1.107	3.5
Very ASB * 16-19 * Female	2.474	5.9
<2 high quartile test scores	1.153	4.2
<2 high quartile test scores * not married	1.512	5.1
< 2 high Q tests * 16-24 * female	1.331	4.7
Any low quartile test * 16-22	1.169	4.7
Any low quartile test * not married	1.362	7.5
2/3 low quartile tests	1.106	3.5
Test scores all missing	1.418	5.1
Test scores all missing * not married	1.759	4.5