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The Impact of Marital Dissolution and Repartnering on Childbearing in Britain

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ABSTRACT

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THE IMPACT OF MARITAL DISSOLUTION AND REPARTNERING ON CHILDBEARING IN BRITAIN

By Julie Sarah Jefferies

Motivated by the high divorce rates witnessed in Britain since the 1970s, this thesis explores the links between marital dissolution, repartnering and women's childbearing behaviour. The research expands on pioneering British work carried out in the early 1990s (Clarke et al., 1993; Diamond, Clarke and Clarke, 1995), using data from the General Household Survey.

The thesis starts by assessing the proportion of British births that occur after marital dissolution and the contribution of such births to non-marital fertility in Britain, information that cannot be obtained from vital registration data. In the early 1990s, around 13% of British births occurred following marital dissolution, with less than half of these occurring within remarriage; however, post-dissolution births did not make a large contribution to the big increases in the non-marital fertility ratio seen in Britain during the 1980s.

Second, the thesis examines the lifetime fertility of continuously married women with those who have experienced marital dissolution and those who subsequently repartner, finding the latter two groups to be more diverse in terms of completed family size. Many theoretical issues are raised here, as the causal links between fertility and partnership behaviour are complex and multi-directional. Modelling both completed family size and age at last birth show that observed differences in fertility behaviour between the different groups are often a result of the characteristics of those selected into marital dissolution or repartnering, rather than being direct effects of marital dissolution or repartnering on fertility behaviour.

The focus then shifts to childbearing following marital dissolution and it is estimated that around 45% of British women who experience marital dissolution will subsequently have a birth. A proportional hazards model shows that younger women, those who have a pre-school child, and those who form a new union with a bachelor are the most likely to experience a birth, while the association between parity and subsequent childbearing is small. Logistic models find similar factors to be associated with the current fertility intentions of repartnered women, although the majority of such women are not intending to have a birth. Compared to women in first marriages, repartnered women at parities zero and one are less likely to be intending to have a birth, while repartnered women with two or more children are more likely to be intending a birth than similar married women. This suggests that the decision-making context for repartnered women is different from that of women in first marriages and supports the earlier finding that women who experience marital dissolution are less likely to conform to the two-child norm than those whose marriage does not end in dissolution.

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Chapter One: Introduction.

1.1 Introduction and Rationale

This thesis examines the impact of marital dissolution and subsequent repartnering on the childbearing behaviour of British women. It investigates the contribution of births following first separation, divorce or widowhood to British fertility, the lifetime fertility of women that have experienced a marital dissolution and the extent and correlates of actual and intended childbearing following first marital dissolution.

Marital dissolution has come to the fore as a research topic among British demographers in recent years (e.g. Murphy, 1985; Haskey, 1986; Kiernan, 1992) due to the sharp rise in divorce rates observed in Britain during the 1970s and continuing high divorce rates since that period, particularly at shorter durations of marriage (OPCS, 1990; ONS, 1997a). However, few demographers have asked what effect marital dissolution and repartnering might have on the fertility of individual women or how higher levels of divorce might impact on British fertility in general.

Despite the fact that many British women spend a part of their life in the 'post-dissolution' state, that is, having experienced the dissolution of their first marriage by separation, divorce, or widowhood, an examination of the history of fertility research in Britain shows that this group of women have largely been overlooked. Until the late 1970s, most researchers were content to study marital fertility, as fewer than 10% of births in England and Wales were occurring outside marriage (OPCS, 1987). Births to remarried women have rarely been considered separately, despite the availability of data from vital registration on such births. Since 1995, over one-third of births in England and Wales have been non-marital (ONS, 1999a). The fact that some proportion of these occur to divorced and widowed women has been noted by some (e.g. Cooper, 1991; Jones, 1992) but otherwise generally ignored, due to the lack of appropriate British data. In Hobcraft's discussion of research into British fertility trends over the last fifty years, there is no mention of marital dissolution until the penultimate page, where rising divorce rates, the fragility of partnerships and the consequences of marital dissolution for women are only noted briefly in the context of general low fertility (Hobcraft, 1996). Kiernan (1983) notes specifically that the childbearing behaviour of women following marital dissolution and remarriage requires investigation, but the only quantitative British

research considering such issues in detail is that of Clarke and colleagues (1993) and subsequently Diamond, Clarke and Clarke (1995).

A similar picture emerges in the US. American researchers have noted 'the traditional tendency to design fertility studies based on universes of married women' (Rindfuss and Parnell, 1989) and Wineberg (1992) expresses surprise at the lack of research on the fertility of remarried women, given the large number of women in the reproductive years marrying for the second time. Research on non-marital fertility has largely focussed on adolescent girls and premarital births (Driscoll et al., 1999). However, American research into marital dissolution and fertility is more extensive than in Britain. Studies of the effects of marital dissolution on fertility in the 1960s and 1970s (e.g. Lauriat, 1969; Cohen and Sweet, 1974) indicate that interest in the topic is not a recent phenomenon. More recently, several researchers have studied the fertility of specific groups of women that have experienced marital dissolution, for example remarried women (e.g. Griffith, Koo and Suchindran, 1985; Wineberg, 1990a) or those who do not remarry (e.g. Brown, 2000). Others have focussed on the fertility of couples where one partner has children from a previous union (e.g. Thomson, 1997a). Many of these couples include women that have experienced marital dissolution.

However, much fertility research deliberately excludes women who have experienced marital dissolution. This may be because the sample of women with a marital dissolution is insufficient for a proper analysis (e.g. Westoff and Ryder, 1977; McCarthy and Menken, 1979; Wu, 1996) or because their inclusion would make the study too complex (e.g. Beckman et al., 1983; Wu, 1996). Studies of fertility intentions often exclude such women on the grounds that their intentions are more uncertain (Morgan, 1981; Morgan, 1982; Udry, 1983). Wu (1996) excludes previously married women from a study of the fertility of cohabiting couples, as she claims that the predictors of childbearing will be different between the two groups. These statements may well be correct, but cannot be verified if previously married women are ignored. These examples illustrate the fact that women who have experienced marital dissolution are often excluded from studies because they make life too difficult for the researcher due to their small numbers and the methodological complexities involved with their inclusion. However, in the light of changing family trends in recent years, the exclusion of this group of women is hard to justify. This thesis moves towards redressing the balance by focussing on women who have experienced marital dissolution.

Unlike much previous research, the population of interest for this thesis encompasses women who remain separated, widowed or divorced, those who are cohabiting, those who remarry and those who experience further dissolutions and partnerships. It no longer seems appropriate to

distinguish simply between those who have remarried following marital dissolution and those who have not, because cohabitation has blurred the boundaries between these two states. Cohabitation may be an alternative to remarriage for some previously married women, and even the distinction between cohabiting and not cohabiting is a grey area, as a minority of couples in unions may be 'living apart together', maintaining two separate residences for various reasons (e.g. Toulemon, 1997). In the context of rising non-marital fertility, it cannot be assumed that women who do not remarry or those who do not form a cohabiting union are unlikely to have a birth; indeed Rindfuss and Parnell (1989) found the effects of marital status on childbearing probabilities in the US to be smaller than expected. Given that fertility intentions, pregnancies or births may influence subsequent partnership formation (and dissolution), as well as union formation determining fertility behaviour (e.g. Rindfuss and Parnell, 1989), the inclusion of all women who have experienced a marital dissolution enables some investigation of this circular causation noted by Clarke and colleagues (1993). In the future it may be appropriate to focus on women who have experienced the dissolution of a cohabiting union, rather than those who have been married. However, a lack of suitable data on cohabitating unions in Britain has prevented this so far.

To summarise, this thesis furthers research on the links between marital dissolution and fertility in a contemporary developed society. As the majority of previous work in this area is from the US, it aims to fill a gap in the knowledge about the childbearing behaviour of British women. The research here is also unique in analysing all women who have experienced a marital dissolution and not just subsets of this group.

1.2 Background: Marital Dissolution and Repartnering in Britain

This section provides a review of levels and trends in marital dissolution and repartnering in Britain in recent decades. This is necessary background information for assessing the impact of such trends on fertility in later chapters. The emphasis here is on women, as they are the focus of the thesis.

Marital Dissolution

Marital dissolution encompasses separation, divorce and widowhood, with trends in divorce being the easiest to measure as data are available from vital registration. Divorce rates for married women in Britain began to rise during the 1960s (figure 1.1) and then increased rapidly from nearly five per thousand married women in 1970 to twelve per thousand in 1980.

Figure 1.1 Divorce rate per 1000 married women, England and Wales, 1950-1998.

Source: OPCS, 1990; ONS, 1997a; ONS, 2000a
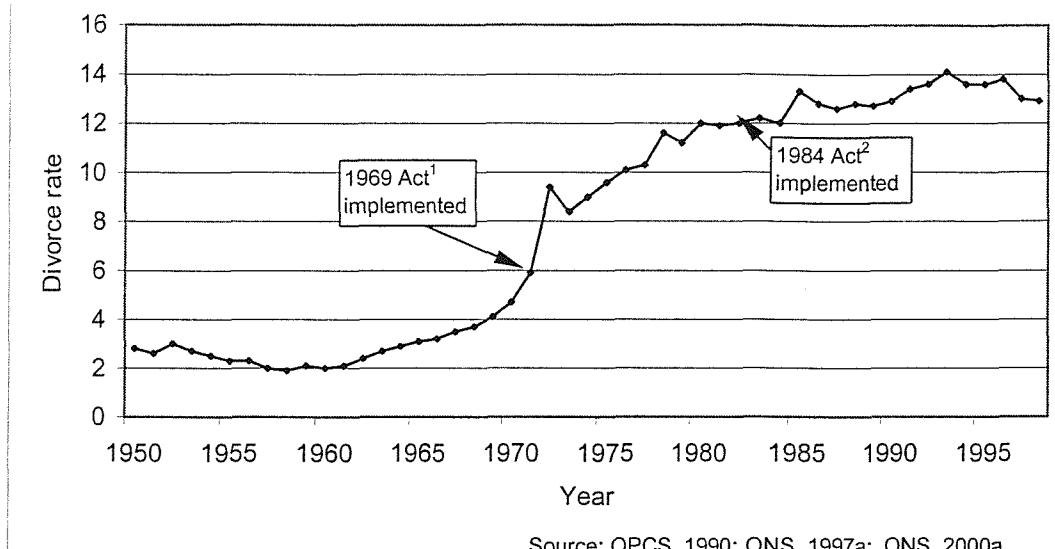
Notes: 1. Divorce Reform Act, 1969. 2. Matrimonial and Family Proceedings Act, 1984.

Since 1980 divorce rates have continued to rise but at a much slower pace. These increases were accompanied by legal changes that altered the possible grounds for divorce and enabled couples to divorce sooner after marriage than previously (see figure 1.1). Increasing divorce rates have contributed to a large increase in the percentage of the total population over age 16 who are currently in the legally divorced state, from 2% of men and 3% of women in 1976 to around 8% of men and 9% of women in 1996 (Haskey, 1999a), with those aged between 35 and 49 making up the largest proportions of the divorced. Many divorces occur among the remarried population; in 1998, vital registration data showed that 19% of women obtaining a divorce were divorcing for the second or subsequent time and 1% were previously widowed (ONS, 2000a). This partly reflects the higher divorce rates of the remarried as compared to those in first marriages (Haskey, 1996).

Marital dissolution can also be examined from the perspective of different birth or marriage cohorts. Rising period divorce rates have led to large increases in the proportion of women ever divorced by certain ages between cohorts born in the mid-1920s and those born in the mid-1950s (table 1.1). More recent cohorts, however, show a decline in the proportion ever divorced, but this is reflecting the increasing trends towards late marriage and non-marriage in these cohorts rather than any reduction in divorce among the married.

Table 1.1 Proportions of women ever divorced (per 1000) by certain ages, by birth cohort, England and Wales.

Birth cohort	Exact age reached				
	25	30	35	40	45
1926	10	30	45	59	73
1936	7	31	60	103	142
1946	20	94	162	210	244
1956	55	138	198	245	
1961	51	128	193		
1966	40	113			
1971	29				

Source: ONS, 2000a.

By examining duration-specific divorce rates from those married between 1951 and 1993, Haskey (1996) shows that more recent marriage cohorts have been more likely to experience divorce at all durations of marriage than earlier marriage cohorts. For example, 13% of those marrying in 1986 had divorced within five years, compared to only 4% of those married in 1966. He estimates using 1993-94 duration-specific divorce rates that two-fifths of marriages in England and Wales would end in divorce. Evidence from the General Household Survey shows that the proportion of married couples separating by certain durations has also increased in recent years; for example, 7% of those married in the late 1960s had separated (stopped living together) within five years, compared to 13% of men and 16% of women married during the late 1980s (ONS, 2000b).

These recent increases in separation and divorce must be seen in the historical context of marital dissolution. Anderson (1989) has shown that marriages contracted at the end of the 19th century were as likely to end in widowhood within twenty years as those contracted in 1980 are to end in divorce within the same period, so marital dissolution is not a recent phenomenon. However, the experience of widowhood has become much less common; Haskey (1982) estimates that the proportion of women widowed by age 40, for example, has fallen steadily from 9.7% of those born in 1890 to 2.4% of those born in 1940. Marriages during the 1920s, 1930s and early 1940's were the most-long-lived in recent history, as mortality had fallen, but divorce had not yet become common. In more recent years, divorce has far outweighed widowhood as a cause of marital dissolution among women of reproductive ages, in spite of women being much more likely to experience widowhood than men due to differential mortality by gender (Haskey, 1982). Haskey (1999a) estimates that approximately 2% of women first married in the 1970s had been widowed by 15 years after marriage compared to 23% who had divorced.

Remarriage

Figure 1.2 shows remarriage rates for British men to be much higher than those for women throughout the period 1931 to 1998, although the gap between the sexes has been decreasing in the last two decades. However rates for both men and women have followed a similar temporal pattern; a sudden rise at the end of World War II followed by a fall during the 1950s and a slow increase in the 1960s. The early 1970s, however, witnessed a sharper increase in remarriage rates, particularly for men, partly as a result of the 1969 Divorce Reform Act that enabled some couples to obtain a divorce after a long separation and thus remarry (Haskey, 1996). Since 1972, male remarriage rates have exceeded first marriage rates for men. However, during the 1980s and 1990s both male and female remarriage rates have been declining steadily. Data from vital registration show remarriage rates to be considerably higher for divorced women than widowed women and to be higher among younger women than older women (ONS, 1997a; ONS, 2000a). The steepest decline in remarriage rates since 1983 has been among divorced women aged 20-24; this age group may be the most likely to cohabit rather than remarry.

Figure 1.2 First marriage rates and remarriage rates, men and women aged 16+, England and Wales, 1931-1998.

Source: OPCS, 1990; ONS, 1997a; ONS, 2000a
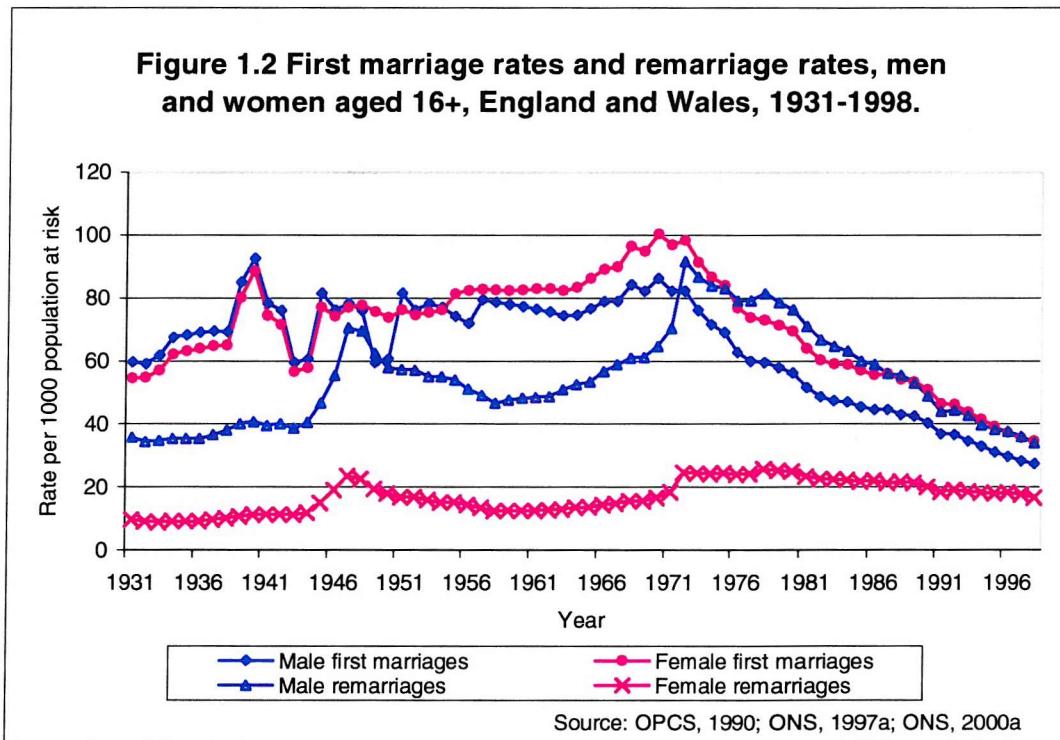
The proportions of women ever remarried in different birth cohorts (table 1.2) follow a similar pattern to the proportion ever divorced. The proportion ever remarried by each age increases between the 1926 and 1956 birth cohorts, but then begins to fall among later cohorts, reflecting the declining proportions ever married or divorced by these ages.

Table 1.2 Proportions of women ever remarried (per 1000) by certain ages, by birth cohort, England and Wales.

Birth cohort	Exact age reached				
	25	30	35	40	45
1926	7	24	40	54	69
1936	5	22	43	73	102
1946	11	56	104	144	176
1956	24	76	124	161	
1961	17	60	103		
1966	11	43			
1971	6				

Source: ONS, 2000a.

Figure 1.3 shows the proportion of women from different separation cohorts that remarried by certain durations. Those separated during the early 1970s were most likely to remarry at all durations after three years, while those separated most recently were least likely to remarry within three years, consistent with the period remarriage rates noted earlier.

Figure 1.3 Cumulative percentages of women remarried by certain durations after separation, by year of separation, Britain, General Household Survey 1996 and 1998.

Source: ONS, 2000b
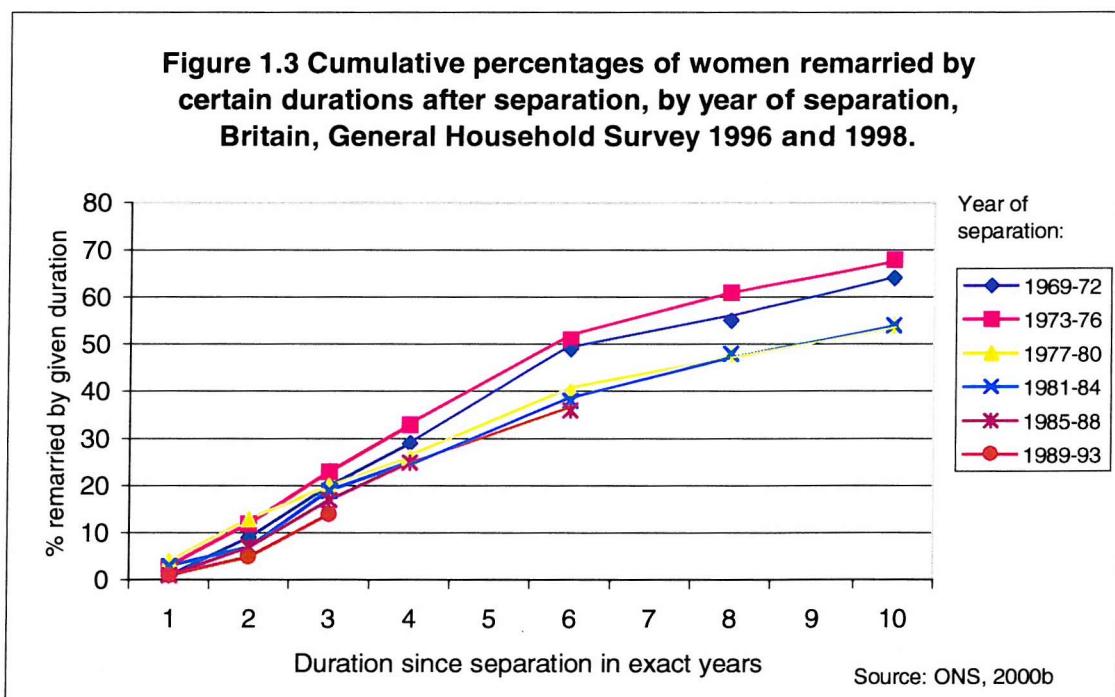
Cohabitation following marital dissolution

Part of the reason for the declining remarriage rates seen in more recent years may be the postponement or indeed replacement of remarriage with postmarital cohabitation, as discussed by Bumpass, Sweet and Cherlin (1991) with regard to the US. Women who are legally

divorced or widowed, or legally married but actually separated may be living in a de facto cohabiting union. Cross-sectional data from the General Household Survey (figure 1.4) show that by the late 1990s over 30% of currently divorced women were cohabiting and as far back as 1979 the comparable figure was 20%. Separated and widowed women, however, were less likely to be cohabiting in any year than the divorced. Shaw (1999) estimates that of the 1.56 million cohabiting women aged 16 and over in England and Wales in 1996, approximately 3% were separated, 26% divorced and 3% widowed, with the remainder being never married. He also shows that the proportion of divorced women cohabiting is higher in younger age groups than among older women, as might be expected.

Figure 1.4 Percentage of separated, divorced and widowed women aged 18-49 that are cohabiting, Britain, 1979-1998, General Household Survey.
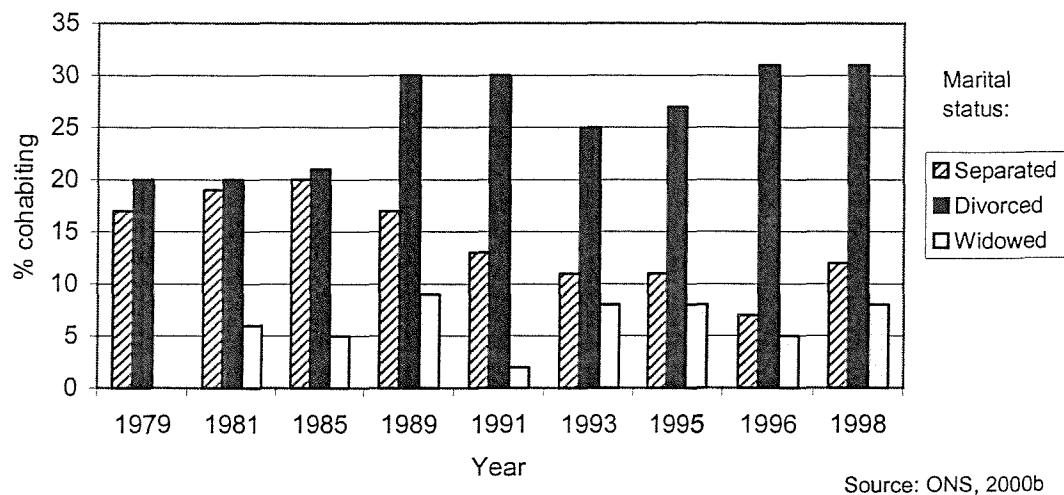
Note: Year-on-year fluctuations can be partly attributed to small bases, particularly for widowed women.

This cross-sectional picture of the proportion of women cohabiting does not indicate whether cohabitation is replacing remarriage or simply postponing it, and longitudinal or retrospective data incorporating full cohabitation histories would be needed to answer this question fully. There is, however, evidence from vital registration that most remarrying couples live together first. In 1998, over four-fifths of marriages in England and Wales involving a divorced person were to couples giving identical addresses prior to marriage. This figure was higher where both parties were divorced but lower among the widowed (ONS, 2000a). General Household Survey data show that the percentage of women reporting premarital cohabitation with their future second husband has increased steadily between the late 1960s and early 1990s (Haskey, 1995). Haskey (1995) also shows that the median duration of cohabitation by the date of

interview among divorced cohabiting women increased from around 38 months in the mid-1980s to around 48 months by the early 1990s; this suggests that remarriage is being postponed for longer or perhaps that fewer cohabiting couples are converting their union into a remarriage in the 1990s.

1.3 Outline of Thesis

This thesis aims to explore the relationship between marital dissolution and women's childbearing behaviour and intentions, in the context of Great Britain. Chapter two provides an introduction to the General Household Survey (GHS) and explains why this particular data set was chosen for the analyses presented here. The practicalities and limitations involved with using these data are discussed as a basis for the later chapters.

Chapter three investigates on an aggregate level births that occur after first marital dissolution in Britain. The chapter begins by estimating the proportion of British births that occur after marital dissolution and noting whether this proportion has changed over time. The contribution of such births to the rise in non-marital fertility witnessed in Britain since the early 1980s is then assessed. The characteristics of births following marital dissolution are examined in terms of the mother's age, birth order and mother's marital status, to discover, for example, whether such births are mainly high order births to older women. Finally, a comparison is made of the contribution made by births after marital dissolution to the fertility of different birth cohorts of women. Throughout the chapter, suggestions are put forward for the trends and patterns observed.

Chapter four explores the effects of marital dissolution on fertility over the life course, by analysing the marital and childbearing histories of a group of British women who are ever married and have reached age 45. Previous attempts to assess the direct effects of marital dissolution on fertility are first drawn to the reader's attention, by highlighting two competing hypotheses. This is followed by a discussion of the more complex inter-relationships between childbearing and partnership formation and dissolution; for example if marital dissolution is associated with high fertility over the life course, is this because dissolution and repartnering may lead to additional births or because high fertility may be a risk factor for marital dissolution? Exploratory analysis focuses on lifetime fertility differences between groups of women with different marital histories in an attempt to answer such questions. A multinomial model is then used to assess the effects of marital dissolution and remarriage on completed

family size, controlling age at first marriage, birth cohort and educational achievement. Finally the links between marital dissolution and births to older women are explored and a multiple regression model is used to gauge the importance of marital dissolution and repartnering relative to other factors in determining a woman's age at last birth.

Rather than examining the whole life course, chapters five and six focus more specifically on fertility following a first marital dissolution. Chapter five begins with a review of previous attempts to estimate the proportion of women having a child following marital dissolution and then draws on both quantitative and qualitative literature to suggest possible factors associated with the decision to have a birth, such as parity and repartnering behaviour. An estimate of the proportion of British women having a birth following first dissolution is obtained by applying life tables to the GHS data. A proportional hazards model is then used to determine the factors associated with a high or low probability of having a birth following marital dissolution. The chapter concludes with a discussion of the findings and their implications, along with areas for further research.

Rather than analysing actual births, chapter six focuses on fertility intentions. After a review of the literature regarding intentions, preliminary analyses explore the fertility intentions of women of differing marital status. The focus then narrows to the fertility intentions of women that have formed cohabiting unions or remarried following marital dissolution. Logistic regression models are used to explore the demographic and socio-economic characteristics associated with positive or negative fertility intentions for repartnered women at different parities. As a comparison, similar models are applied to women in first marriages, in order to ascertain whether there is still a difference in fertility intentions between repartnered women and women in first marriages after controlling for factors such as age and parity that may differ between the two groups.

The final chapter summarises the main results found in chapters three to six and draws together the findings. The implications of these findings are noted and suggestions provided for future research in this area.

Chapter Two:
The General Household Survey.

2.1 The GHS: Past, Present and Future

The General Household Survey (GHS) is a continuous multi-purpose survey of private households in Great Britain. It is carried out by the Social Survey division of the Office for National Statistics (ONS), formerly the Office of Population, Censuses and Surveys (OPCS). The topics covered include housing, employment, health, family life and education. Some questions have been included every year since 1971, for example, those on country of birth, current employment and car ownership, while data on other topics such as drinking or contraceptive use are only collected in some survey years. The survey is sponsored and used by various government departments for planning and policy research. It is valued by academics for many reasons including its value in showing trends over time and its wide coverage of topics enabling the links between many different factors (for example, smoking, income and education) to be examined.

The survey has run continuously from 1971 to 1996, with interviews being carried out every week of the year. Since 1988 the results have been collated annually using the financial year, thus the '1990' survey, for example, actually covers the period from April 1990 to March 1991. During the early 1990s the GHS was threatened by financial constraints imposed by OPCS (Goddard, 1993). In addition, many new surveys had been established in the 1990s that covered similar topics to the GHS, including the Health Survey for England that begun in 1991, The Family Resources Survey, started in 1992, and the Survey of English Housing from 1993. The Labour Force Survey also began to collect quarterly data from 1992, making it the main source of data on employment and education (Bridgwood, 2000). These developments, coupled with the inevitable financial constraints posed the question about whether the GHS was really necessary or whether the money could be better spent elsewhere. In 1997 the survey was suspended, leading to a loss of continuity. It was reinstated in 1998, but in the same year, ONS carried out a five-yearly review of the GHS, concluding that the survey was still needed but that it should be redesigned for maximum efficiency and cost-effectiveness (Bridgwood, 2000). Fieldwork on the GHS was again suspended in 1999 and the survey redesigned and relaunched as a continuous survey in April 2000. The GHS from 2000 onwards will consist of a 'Continuous Survey' containing the core topics, that will remain virtually unchanged until March 2005, and stand-alone 'trailers' that will contain questions on

topics asked in one year only. In the short term, the future of the General Household Survey appears to be more stable than it has been in recent years (Bridgwood, 2000).

Fortunately, the incomplete continuity of the GHS in the late 1990s has not affected this thesis as the data used here come from the surveys carried out between 1990 and 1996. However, had the 1997 survey existed, it is likely that these data would have been added to the dataset for the later stages of the research.

2.2 Rationale for Using the GHS

The ideal data set for studying the relationship between fertility and marital dissolution would consist of up-to-date, high quality data from both men and women, with a sample of people who have experienced marital dissolution that was adequate in size for statistical modeling. Both men and women would be asked about their complete childbearing and childrearing histories, their complete partnership histories and their future fertility intentions. They would also be asked about their current attitudes to a range of family issues. Retrospective information as well as current information on education, income and employment would enable the links between these factors and partnership and childbearing histories to be explored.

At first sight, the British Household Panel Study (BHPS) carried out by the Institute for Social and Economic Research at the University of Essex (Taylor et al., 1999) appears to fit the majority of these criteria. This is a longitudinal study that began in 1991 and aims to follow the same representative sample of individuals over time. So far eight annual 'Waves' of data have been published. The BHPS collects information on panel members' lifetime partnership, fertility and employment histories, as well as data on many other topics including values and opinions, finances and health.

Unfortunately, the major drawback of the BHPS is its sample size. Wave 1 collected data from 10264 individuals, 352 of which were proxy responses providing little information (Taylor et al., 1999). Of the remaining 9912, some are under 16, while those of pensionable age would be of historical interest but are of less use for investigating fertility and marital dissolution in Britain today. In contrast, each annual round of the General Household Survey has a larger sample size than the BHPS. For example in 1990, 18 384 adults were interviewed. In addition, because of the continuous nature of the survey, data from different years can be

combined in order to create larger samples. Even when the effective sample is narrowed down by age, sex, marital history and current marital status it is possible to obtain a large enough sample size to run a model without incurring insignificance due to small sample size. For example, in chapter 6, data from six rounds of the GHS are combined to give a set of 27 014 women aged 16-44 at interview. The population of interest is then narrowed down to women aged 20-44 at interview, who have repartnered following marital dissolution; using the GHS, 2215 women with this marital history can be obtained. In contrast, the BHPS Wave 1 sample contains in total only 2237 women aged 20-44 and if a similar proportion of these women had repartnered following marital dissolution as in the GHS, the effective sample of women would be expected to number fewer than 200. Thus sample size is the prime reason for the choice of data set used here.

A second serious drawback of the BHPS is that for women who have experienced divorce, the month and year of divorce are recorded, but not the month and year of separation (Ermisch and Francesconi, 1996; CASS, 2000). This would be problematic when investigating fertility following dissolution, as some events may occur between separation and divorce, for example births (e.g. Suchindran, Koo and Griffith, 1985) or the formation of cohabiting unions.

One disadvantage of the GHS, as compared to the BHPS, is that respondents are not asked about all previous cohabitation spells. During the survey years used in this research, the General Household Survey collected complete marital histories from both men and women, but respondents were only asked whether they were currently cohabiting and whether they cohabited prior to any marriage, so spells of cohabitation that ended in dissolution before the interview were not recorded. In contrast, the BHPS asks respondents for start and end dates of all cohabitations lasting three months or more. However, the quality of the BHPS cohabitation data may not be particularly high; Murphy (2000) notes that 38% of recorded cohabiting spells ending in dissolution had incomplete start or end dates. Although the lack of complete partnership histories in the GHS is an issue when investigating the relationship between fertility and partnership histories, cohabitation did remain largely a precursor to marriage until the 1990s (Kiernan and Estaugh, 1993). The most recent rounds of the GHS have partly rectified the problem, as in the 1998 GHS respondents were asked how many episodes of cohabitation not leading to marriage they had experienced and those interviewed in 2000/01 will be asked about their first three cohabitations (Lilly, 1999; Lilly, 2000). Unfortunately these data were not available in time for this research.

A second constraint is that unlike the BHPS, the GHS does not collect childbearing histories from men, but only from women, although both are asked about any step-children in the

household. This has meant that the research here focuses on women and any effects of men's previous childbearing cannot be examined. However, Rendall and colleagues (1999) found that men interviewed for the BHPS did not report their past childbearing very accurately. They estimated that, for men, between one-third and one-half of non-marital births and birth from previous marriages were missing due to under-reporting and under-representation of non-resident previously married fathers in the sample. These difficulties indicate that research into British childbearing may have to continue to focus primarily on women until more reliable data are available for men.

The GHS does not include any attitudinal questions, but it does collect data on a wide range of *current* attributes such as employment, income and educational qualifications that are useful as control variables. However there is no information on past employment, income or education. As far as attitudes and employment histories over time are concerned, the BHPS may be preferable (e.g. Berrington, 2000).

Measured against the ideal, the General Household Survey is clearly not perfect and the constraints placed on the research by the data are apparent throughout this thesis. However it does provide high-quality data for a large sample of women and, as such, appears to be the best available option for studying the links between fertility and marital dissolution in Britain.

Other countries are fortunate to have more suitable large data sets. For example, the Family and Fertility Surveys (FFS) carried out in many European countries during the 1990s surveyed larger numbers of women than the BHPS and included questions on values and beliefs, as well as in many cases data on previous births to men. Similarly in the US, the National Survey of Families and Households in the late 1980s and 1990s sampled a large number of adults and obtained useful data on respondents' parental characteristics. Surveys such as these have enabled researchers to start to investigate related topics such as stepfamily fertility (e.g. Vikat, Thomson and Hoem, 1999; Buber and Prskawetz, 2000). It is unfortunate for this research that Britain did not choose to join in with the FFS in order to provide comparative data.

2.3 Using the GHS: Practicalities

2.3.1 Data Collection in the GHS

The GHS aims to obtain a representative sample of persons resident in Britain, i.e. England, Scotland and Wales. (Scottish supplementary samples are available for those wishing to analyse Scotland separately, but were not used in this research). Males and females aged 16 and over in private households are interviewed, therefore persons living in institutions such as residential homes and prisons, as well as the military, are not included in the survey.

Interviews are carried out during every week of the year. Most of a typical interview consists of verbal responses, but the family information section covering relationships, children and contraception can be self-completed on paper by the interviewee if they so wish. Since 1994, interviewers have entered responses straight into a program called BLAISE on a laptop (computer assisted personal interviewing or CAPI). This reduces some respondent error because interviewers are immediately asked to check on entered responses that are unusual or inconsistent with previous responses.

Since 1984, a multi-stage sampling design has been employed for the GHS. The sampling frame consists of 22 'major strata', subdivided into 576 'minor strata' (areas of the country). Each year, one postcode sector is chosen from each minor strata as the primary sampling unit (PSU). Postcode sectors are selected according to their proportion of households in privately rented and local authority housing and the proportion in high socio-economic groups according to the most recent Census data, in order to ensure a representative coverage of different types of area in the final sample. Since 1990 there has been no rotation of postcode sectors when sampling. Within each postcode sector, a systematic sample of 23 addresses is selected using the Postcode Address File (PAF) and interviewers are asked to interview all adult members of every private household at each address. Some sub-sampling occurs at addresses containing more than three households, so households at multiple occupancy addresses are slightly under-represented in the GHS. If a particular household member is repeatedly unavailable, a close relative may answer a limited number of questions on their behalf (by proxy). Unfortunately, data on marriages and children are unavailable for proxy respondents.

The complex survey design of the GHS is likely to have some influence on the standard errors produced for any population estimates. The clustering of households within postcode sectors

as well as individuals within households will tend to increase the standard error around estimates, but the stratification of postcode sectors within minor strata should compensate for this by reducing standard errors (OPCS, 1995). For this reason, calculation by OPCS of design factors ('deft') for various characteristics in the 1993 GHS found most values to be below 1.1, indicating that the precision of estimates for most variables is not greatly reduced by the complex sample design as compared to a simple random sample (OPCS, 1995). Clustering within households is unlikely to be a particular problem for this research as only adult women (and not men) are included in the samples, but there may still be some households where two or more adult women are included in the sample, for example mothers and adult daughters, young friends living together or same-sex female couples. However, a comparison of the 1991 GHS with 1991 Census data suggested that young adults and those living in the parental household were under-represented (OPCS, 1995), so this group is unlikely to be large. In addition, women sharing households with female friends or lovers are unlikely to be those that have experienced marital dissolution, so the analysis in chapters 5 and 6 should barely be affected by any biases resulting from within-household clustering.

Another possible source of bias in surveys is differential non-response. In general, response rates for the GHS are high (see Table 2.1) and compare favourably with those of the British Household Panel Study which had maximum and minimum household response rates (defined in Table 2.1) of 74% and 65% in Wave 1 (Taylor et al., 1999). There has been a slight fall in response rates since the 1991/92 round, with a noticeable decline in response between the 1995/96 and 1996/97 rounds. Since household non-contact has remained fairly stable over the period, the decline can be attributed mainly to refusal of entire households to participate in the survey. This decline has been witnessed in other ONS and non-ONS surveys.

Table 2.1 Response rates, General Household Survey, 1990-1996.

Percentage %	Survey round						
	1990/1	1991/2	1992/3	1993/4	1994/5	1995/6	1996/7
Maximum response rate[1]	83	85	85	84	82	82	77
Middle response rate[2]	81	84	83	82	80	80	76
Minimum response rate[3]	72	74	75	73	72	71	66
Non-contact of household	3.2	2.9	2.9	3.0	2.7	3.0	3.1
Refusal of whole household	14.3	12.2	12.3	13.4	15.4	15.2	19.4

1: Includes all households that take part in the survey, even those where response is partial or proxy responses are given.
2: Includes all fully responding households plus those where information is missing for some questions.
3: Includes only households where all members complete the survey in full.

Source: OPCS 1992, 1993, 1994, 1995, 1996; ONS, 1997b, 1998a.

A comparison of GHS data from January to June 1991 with data from the 1991 Census identified the characteristics of households with high non-response rates (OPCS, 1995). Non-contact was identified as being particularly high in London and for households living in converted or shared accommodation and purpose-built flats or maisonettes. One-person and one-adult households were also difficult to contact as were those where the head of household was unemployed, born in the New Commonwealth or had moved to that address in the past year. Refusal rates were highest in London and also high among households containing three or more adults or a couple with non-dependent children only. This non-response may lead to some under-representation of these groups within the GHS, with a corresponding over-representation of those living in large or detached houses and families with children. Within responding households, individuals from ethnic minority groups are much more likely than white persons to be non-responders or have proxy interviews, so this group is also under-represented in the GHS. Annual GHS reports (OPCS 1992, 1993, 1994, 1995, 1996; ONS 1997b, 1998a) also show the age-sex composition of GHS respondents as compared to mid-year population estimates. Regarding women aged 16-59, the focus of this thesis, women in their early twenties appear to be under-represented in all seven rounds of the GHS used here, as are teenage women in some rounds. Older women are over-represented in some rounds but this is a less consistent pattern. Overall the slight under-representation of young women and over-representation of those with dependent children may be a source of bias, but is not considered to be a serious problem.

For many surveys (such as the British Household Panel Study), the data provider produces weights in order to allow researchers to adjust for unequal selection probabilities and non-response at the household and individual levels. The Office for National Statistics does not provide weights for the GHS, but their calculation of some single-variable correction factors for the 1991 GHS leads them to conclude that 'bias in the GHS responding sample was relatively modest' (OPCS, 1995; p195).

2.3.2 Obtaining the Data Sets

The GHS data were obtained from Manchester Computing with the permission of The Data Archive at the University of Essex. The data were retrieved using the SIR database and then converted into SAS data files. Information held in different 'records' in the GHS such as 'child records' and 'marriage records' had to be merged with the data in the 'person record' for each woman to create a single row of data per woman. An example of a SIR job to achieve this can be found in Appendix 1, while Appendix 2 contains a list of all record types and variables used in the analysis, showing where these changed between survey years.

When a SAS data set had been obtained for each survey year, the data sets were merged to produce combined data sets. Chapter three uses data from the 1990-1994 rounds, chapter four uses the 1990-96 rounds, chapter five the 1990-95 rounds and chapter six the 1991-1996 rounds. The aim was to maximise sample size, with data from later years added when these became available. However, the 1990 data was not used for the research in chapter six due to differences in the fertility intentions questions between 1990 and subsequent years. In most other cases, questions were identical in combined survey years.

2.3.3 Data Quality

Section 2.3.1 noted the relatively high response rates of the GHS and the groups that may be slightly under-represented due to the sampling method, non-contact and non-response. The ability and willingness of respondents to complete all parts of the survey accurately also affect data quality. Before using any of the combined data sets, women with contradicting or implausible data were removed from the sample, as were women with sections of important data missing. To minimise the number of exclusions, only women with problematic data relating to the question at hand were excluded; for example, a woman with missing fertility intentions data would be excluded from the analysis in chapter six, but not from analyses in other chapters where this information is not used. Women were excluded if they stated that they were or had been married but had no marriage records (and were not cohabiting) or if they had children but no child records. Other reasons for exclusion included births or marriages at very young ages, the date of the $n+1th$ birth occurring before the nth birth, missing birth dates, implausibly short birth intervals, marital dissolution occurring after the survey date, and missing date of first marital dissolution for those with two or more marriages. In other cases, women with missing data for one variable only were kept in the sample where this was felt not to be too problematic (e.g. chapter five, missing data on partner's previous marriage; chapter six, missing household income data).

In some cases, interviewers are instructed to impute missing dates (ONS, 1997c). For example, if the month of starting a current cohabitation or marriage or the month of a separation, divorce or widowhood is missing, but the year is given, the interviewer should use the information from the partner's questionnaire where appropriate, but if this is missing, should impute the month as June (6), providing this does not conflict with other dates such as separation dates. Only for premarital cohabitation dates is a 'don't know' answer permissible. Unfortunately there is no indication in the data of which dates are imputed and which are genuine. Imputed dates may affect the results to the extent that births may be wrongly

assigned as occurring inside or outside a cohabiting union, but this error will be random in both directions.

Missing dates for cohabitation spells due to recall difficulties are acknowledged to be a problem in many surveys, although Murphy (2000) believes the retrospective GHS data to be of higher quality in this respect than data from the BHPS or Omnibus Survey. In the data used for this thesis, a small number of women who reported a current or premarital cohabitation but did not give any starting date were assumed not to have been cohabiting at that time. Women who reported the year that they began a premarital cohabitation but not the month (2% of those with the year present, 1990-94 rounds) were assigned the month of June as the start of their cohabitation spell, in accordance with GHS convention. A much smaller group of women reported that they began cohabiting with a new partner before they separated from their husband. This is not necessarily due to recall error, as it is possible that such women may live in two different households intermittently during the process of separation. For practical purposes, however, the start of cohabitation was adjusted to match the month of separation from the marriage. Some of the inaccuracies in recall of dates may be eliminated from the 2000 round of the GHS, where respondents will be asked about the start date, end date and duration of cohabitation spells and asked to check whether these three dates are consistent (Lilly, 2000). However, Lilly also acknowledges that the beginning of cohabitation may be defined differently by different respondents as moving in together or spending most nights together while maintaining two residences.

2.3.4 Region and Ethnicity

As this thesis is concerned with British women as a whole, two variables that are not considered explicitly in this analysis are women's region of residence and ethnic group.

In the GHS, households are grouped within 22 standard regions. An investigation of the 1990-1994 data set (n = 28 147) reveals some large differences in marital status and fertility between different regions. For example, the percentage of women currently childless ranges from 28% in the 'North non-metropolitan' region to 46% in 'Greater London, Inner'. However, regional differences in fertility and marital status may reflect differences in the composition of the female population in terms of age, education and other factors and once these factors are controlled, fertility is likely to be determined by individual preferences rather than any regional factors. Where region was tested in models, it was not found to be significant. There is in any case also a practical problem with using region of residence as an explanatory variable when modelling events in the past, because region of residence indicates

where a woman is currently living at the time of interview and it is not possible to tell whether the woman has moved region between the event and the interview, rendering any interpretation potentially misleading.

As women living in Britain are the focus of this thesis, it would not be appropriate to exclude some women purely because they are of non-white ethnic origin. In the combined 1990-1994 data set, 6.4% of women were described as non-white, a group large enough to examine as a distinct category. However, given large differences in union and fertility behaviour between different ethnic groups, it is not considered appropriate to have a combined 'non-white' group. For example, in comparison to 58% of white women who were married at the time of interview, 70% of Bangladeshi women but only 26% of Black Caribbeans were currently married. However, sample sizes do not permit a separate analysis of different ethnic groups, particularly as these groups are under-represented and have high design factors associated with them (Breeze, 1990; Owen, 1993). For these reasons, non-white women are included in the sample of British women and not analysed separately.

Chapter Three:
The Contribution of Post-dissolution
Births to British Fertility.

3.1 Introduction

3.1.1 Research questions

This chapter aims to explore for the first time the extent of childbearing that occurs after first marital dissolution in Britain. The focus will mainly be on births, but the extent to which different groups of women experience post-dissolution births will also be investigated.

The chapter begins by highlighting the limited data currently available on such childbearing in Britain, focussing on births within remarriage as some data are available from vital registration for such births. Previous research from the UK and the US assessing the contribution of births following marital dissolution to overall and non-marital fertility is then discussed.

Section 3.3 describes the creation of a retrospective sample of births from the General Household Survey that covers the years 1977 to 1995. This new data set allows a full assessment of post-dissolution fertility in Britain for the first time. These data are used to answer the following questions that form the main body of the chapter:

◆ What proportion of British births are post-dissolution births? Has this changed over calendar time, and if so, why?
◆ What contribution do post-dissolution births make to non-marital fertility in Britain?
◆ What are the characteristics of post-dissolution births in terms of birth order, mother's age and mother's marital status?
◆ Does the level of post-dissolution fertility vary between different birth cohorts of women?

The main findings are summarised in section 3.8.

3.1.2 Definition of a Post-dissolution Birth

For the purposes of this research, a post-dissolution birth will be defined as a birth occurring at any time after the dissolution of a woman's first marriage by separation or widowhood. Whether a birth is post-dissolution or not is therefore determined by the mother's union history. At the time of the birth, the mother will be in one of three union states, defined by her current living arrangement and legal marital status:

LIVING ARRANGEMENT	POSSIBLE LEGAL MARITAL STATUS
Not living with a partner	Married (but separated)/divorced/widowed
Cohabiting	Married (but separated)/divorced/widowed
Remarried	Remarried

A birth occurring between separation and divorce is classified here as a post-dissolution birth, although legally it would be a marital birth (because the mother is still legally married) and would be recorded as such in vital registration statistics. Such a birth is difficult to classify, as it could either have been maritally conceived with the husband before or during separation, or could have been conceived with a different partner, either during the marriage (perhaps contributing to its dissolution) or some time later. As it is unlikely that the child will be living with the mother's ex-husband at the time of its birth or subsequently, it is more appropriate to consider the birth as post-dissolution, rather than assigning it to a marriage that has already ended. In connection with this, it should be noted that the timing of the actual birth rather than the conception determines whether a birth is 'post-dissolution' or not.

3.2 What do we already know about Post-dissolution Births?

3.2.1 British Data and Research

In Britain, virtually all births are recorded by the vital registration system, overseen by the Office for National Statistics in England and Wales and the General Register Office for Scotland. In both regions, limited information is collected on women's marital status at the time of a birth. It is not possible with these data to ascertain the proportion of births occurring after marital dissolution. Non-marital births cannot be divided into those born to never-married women and those born to previously married women, as such mothers are simply recorded as

non-married. More usefully, marital births can be classified into those to women in first marriages and those to remarried women, but it is not possible to tell what proportion of births to women legally in first marriages actually occurred after a separation.

However, vital registration data can provide some relevant insights. Figure 3.1 shows that the percentage of births to remarried women has remained well below 10% since 1938, declining slightly during the 1950s and increasing in the 1970s to a high in the early 1980s. By the 1990s, the percentage of births to remarried women was around 5% but declining. These trends may reflect the high remarriage rates seen during the early 1970s (immediately following the Divorce Reform Act 1969 (Haskey, 1986)) and the falling remarriage rates, particularly for men, in the 1980s and 1990s (see figure 1.2), assuming a short time lag between remarriage and births within remarriage. Note that the figures here refer to England and Wales only.

Figure 3.1 Percentage of births occurring in remarriages and outside marriage, England and Wales, 1938-1998.
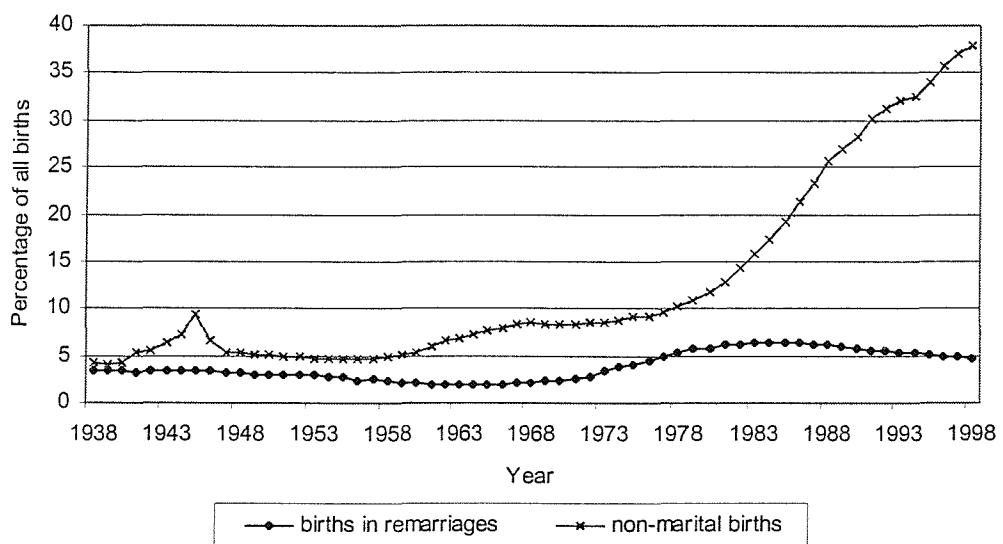
Source: OPCS (1985, 1987); ONS (1997d, 1999a)

The percentage of births to non-married women was stable at around 5% until 1960 apart from a noticeable post-war peak. However the percentage increased rapidly each year from the late 1970s onwards, reaching 38% by 1998. It is not known whether this is due to an increase in the fertility of single women, previously married women or both. The proportion of births to women in first marriages fell correspondingly with the increase in non-marital births.

Figure 3.2 shows a post-war peak in the number of births to remarried women, followed by a decline until the mid-1960s when approximately 16 000 births per year occurred within remarriage. Numbers increased rapidly up to 1979, then more slowly until 1987, peaking at 43 000 births. Since then, the number of births within remarriage has fallen, but is still well above 1960s levels. This trend is somewhat similar to that of the percentage of all births to remarried women, which peaked in 1984 (Figure 3.1). However, it rather different to the trend in numbers of all births over the period (not shown), that peaks in the mid-1960s and bottoms out in the late 1970s.

Figure 3.2 Number of births to remarried women, England and Wales, 1938-1998.

Source: OPCS (1985, 1987); ONS (1997d, 1999a)
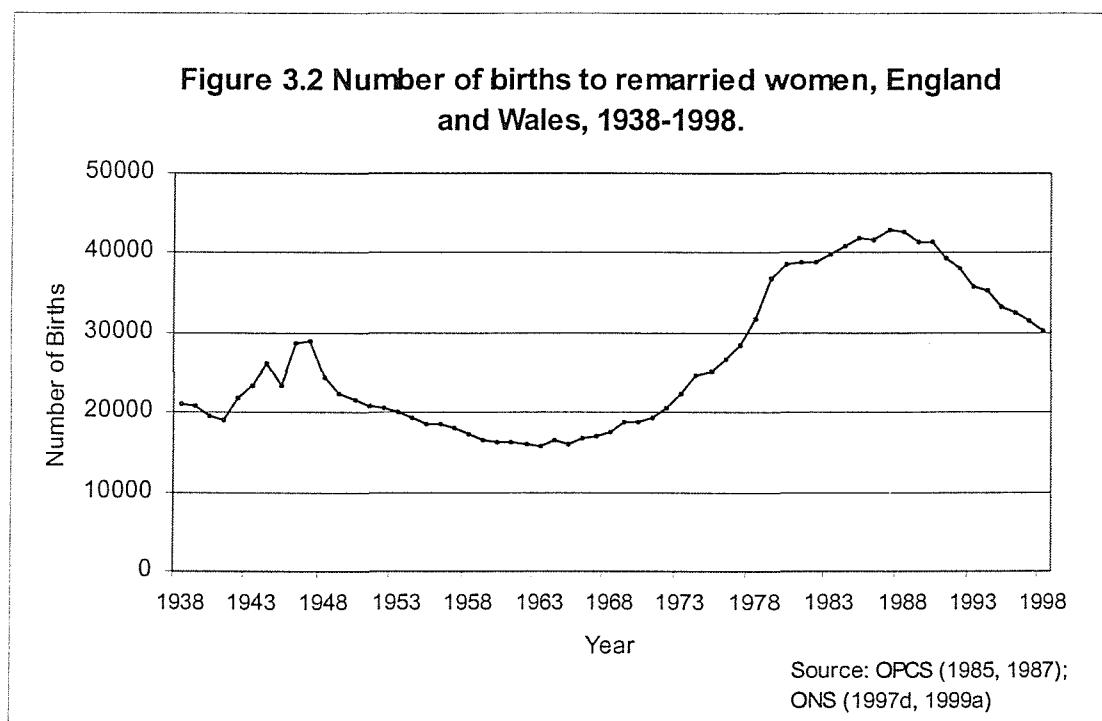
The percentage of births occurring within remarriage is higher among older women (figure 3.3); in 1998, 13.1% of births to women over 35 occurred within remarriages, compared to 6.6% of births to women aged 30-34 and 2.6% of births to women aged 25-59. This is likely to reflect the proportions remarried in each age group. In addition, figure 3.3 shows that the peak in the percentage of births within remarriage occurred slightly earlier among younger age groups than older age groups. The percentage of marital births to remarried women (figure 3.4) follows a very similar pattern over time to the number of births within remarriage, being lowest during the 1960s at around 2%, then increasing until the late 1980s to a high of 8.3% in 1988 before declining slightly. Put together, these graphs suggest that the 1980s was the decade where births within remarriage made the largest contribution to British fertility. The

1990s have seen some decline in the number and proportion of births within remarriage, but not to the low levels of the 1960s.

Figure 3.3 Percentage of births in each age group that occurred to remarried women, England and Wales, 1970-1998.
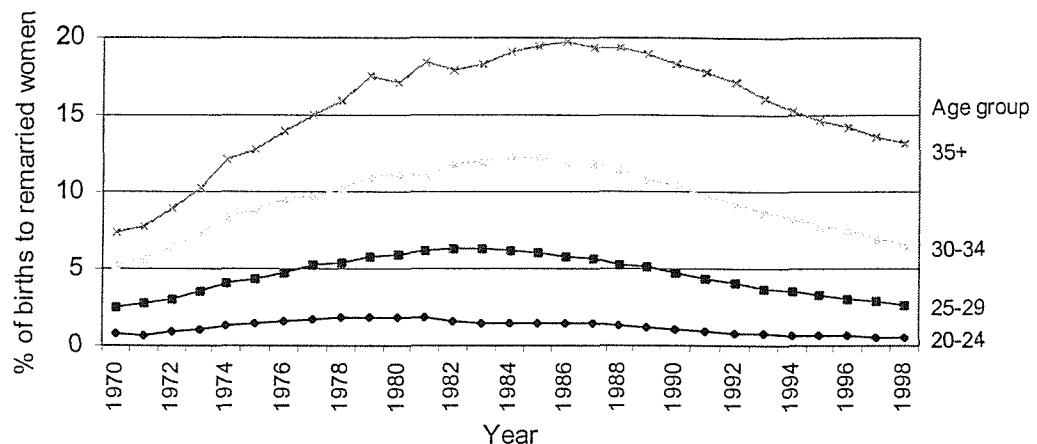
Source: OPCS (1985, 1987); ONS (1999d, 1999a)

Figure 3.4 Percentage of marital births occurring within remarriages, England and Wales 1938-1998.
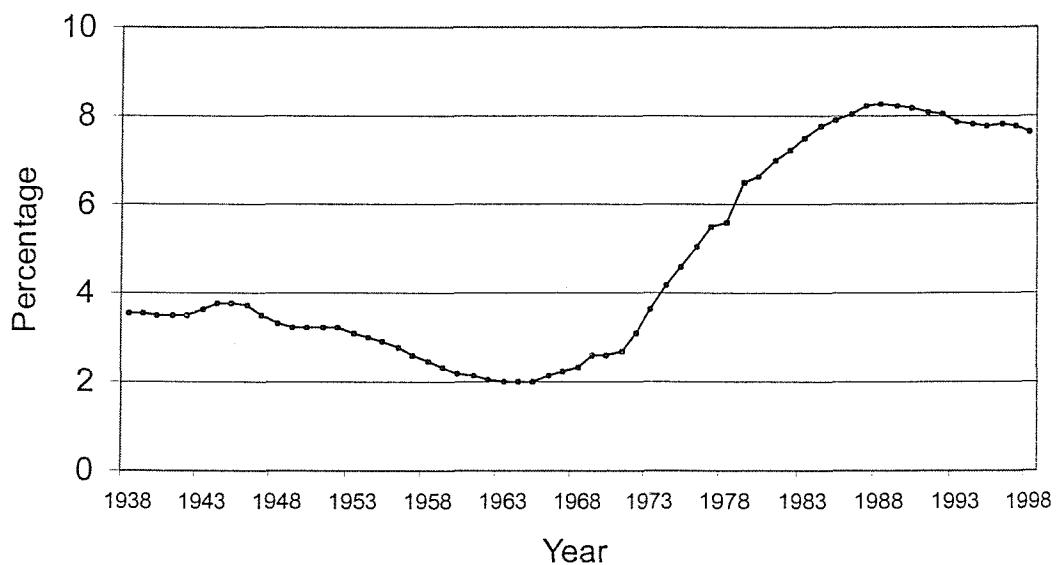
Source: OPCS (1985, 1987); ONS (1997d, 1999a)

The ONS Birth Statistics series provide other information on births to remarried women but not in a form that is useful here. For example, it is possible to calculate the proportion of first

live births to remarried women that are pre-maritally conceived (i.e. occur within the first seven completed months of marriage). In 1995, 21% of first births to remarried women were conceived prior to marriage, compared to 10% of first births in first marriages (ONS, 1997d). However, this measure is of limited use, as it is determined in part by the total number of first births in remarriages and first marriages. A more useful measure would be the proportion of women marrying or remarrying who have a birth during the first seven months of marriage, but these data are unavailable from vital registration. Another limitation inherent in vital registration data is that only married women are asked about their parity and this 'parity' includes previous *marital* births only. Therefore 'first birth' in the above context refers to 'first marital birth'. Women's true parities at the time of births are unavailable. Similarly, marital conceptions are divided into those leading to a birth in a first marriage, those leading to a birth in remarriage and those terminated. Thus it is not possible from published statistics to calculate the proportion of conceptions in remarriage that are terminated.

To summarise, the British vital registration system provides some limited information on births to remarried women, but does not provide any information on non-marital births to previously married women or births to separated women. For these reasons, the research carried out in Britain on this topic is limited.

Other British Research

In an investigation of non-marital fertility, Cooper (1991) notes that the postponement of first marriage and rising divorce rates in the 1980s led to a higher proportion of women over 30 being unmarried and that this contributed to the overall increase in non-marital fertility during the period 1980 to 1989. In 1980, 6% of women aged 30-34 and 7% of women aged 35-39 were divorced, compared with 10% and 12% respectively by 1989. Cooper uses the 1986 General Household Survey to estimate the proportion of non-marital births occurring to previously married women between 1960 and 1985; these results are discussed in depth in section 3.5, as are similar estimates for later periods (Kiernan and Estaugh, 1993). In contrast, a more recent paper on births outside marriage (Babb and Bethune, 1995) does not even mention previously married women.

Cooper (1991) also highlights the increasing proportion of non-marital conceptions leading to a marital birth that took place within remarriage during the 1980s. She notes that among women over 30, over half of the marriages following a non-marital conception in 1988 were remarriages. These trends are likely to reflect both the decline in shotgun weddings among

never-married women and perhaps an increasing tendency for previously married women to cohabit and postpone remarriage until pregnancy occurs.

Cooper and Jones (1992) combine information from vital registration and the GHS to produce estimates of births by true birth order (rather than marital birth order as collected by vital registration). They found that by 1990 the proportion of third births occurring outside marriage was somewhat higher than the proportion of second births occurring outside marriage and suggest that this is due to separated and divorced women having second families with new partners.

Table 3.1 Birth order of births within remarriage, by mother's age, England and Wales, 1980 and 1990.

Age group	% of births within remarriage in age group, by birth order				Total number of births within remarriage to age group ('000s)
	First	Second	Third	Fourth/higher	
1980					
20-24	32	41	19	5	3.7
25-29	32	34	22	12	13.2
30-34	23	31	27	19	14.6
35+	13	23	29	36	7.0
1990					
20-24	32	37	21	11	1.9
25-29	33	33	21	13	11.9
30-34	27	34	23	17	16.2
35+	19	29	26	25	11.3

Note: %s for each age group may not add up exactly to 100 due to rounding in original table.
Source: Adapted from Jones (1992); originally from vital registration data.

In discussing the increasing fertility of women over 30 during the 1980s, Jones (1992) points out that nearly one quarter of the increase in the number of marital births in this age group was accounted for by remarried women. Using the true birth orders estimated from the GHS (Cooper and Jones, 1992), she is able to estimate the true parity distribution of births within first marriage and remarriage. Among women over 30, a larger proportion of births within remarriage than in first marriage were third or higher order births, which Jones suggests may be due to remarried women having second families. Table 3.1 shows that as age increases, a larger proportion of births in remarriage are higher order births. However, it is interesting to note that, between 1980 and 1990, the proportion of births within remarriage to women aged 30 or higher that were first or second births increased, while the proportions of third and higher order births fell. This may be related to the postponement of childbearing among British women in recent years (Ruddock, Wood and Quinn, 1998) and suggests that more women may

be *starting* their childbearing in second or subsequent marriages. Jones (1992) also states that around three-quarters of non-marital births to women over thirty in the early 1980s were to separated and divorced women and that a large proportion of non-marital births to women in this age group occurred within cohabiting unions.

3.2.2 What can we learn from Research in the US?

The US has been chosen for comparison, as it is the only country where post-dissolution fertility has been documented to any extent and there is no language constraint. With the advent of the Family and Fertility Surveys (FFS) in many European countries in recent years, the possibility exists for research into fertility following marital dissolution and it is hoped that this challenge will be taken up (so far research has focussed on fertility within later unions and ignored non-marital fertility e.g. Buber and Prskawetz, 2000).

The contribution of post-dissolution births to overall fertility has been documented rather more in the US than in Britain, generally in the context of non-marital fertility. Jones and colleagues (1985) found using retrospective birth histories from the 1980 Current Population Survey (CPS) that 4.7% of all births during 1968-77 were non-marital births to previously married women. However, births to remarried women were not distinguished from those to women in first marriages in this study, with the exception of 0.6% of births conceived outside marriage but born within a remarriage. Bumpass and Sweet (1989) found 6% of births between 1970 and 1984 to have occurred outside marriage to previously married women, using the National Survey of Families and Households 1987-88 (NSFH), while Bumpass and McLanahan (1989) found 4% of all births in the period 1980 to 1985 to be to divorced women and 3% to separated women, using the June 1985 Current Population Survey (CPS). Wineberg (1990b) used the latter data to study births during the periods 1973-4 and 1983-4. He found that the percentage of all births occurring between first and second marriages (including those to separated women) rose marginally from 4.9% to 5.2% over the decade, with a greater increase in births within second marriages – 5.0% in 1973-4 and 8.3% in 1983/4. The proportion of births following second marital dissolution also increased slightly from 0.6% to 1.6% (Wineberg, 1990b). Using Wineberg's estimates it is possible to infer that the proportion of all births occurring 'post-dissolution' in the US would have risen from 10.5% in 1973-4 to 15.1% in 1983-4. This appears to be a clear increase over time, but caution must be exercised in assuming a constant upward trend from only two points.

Several researchers have attempted to estimate the percentage of non-marital births that occur to previously married women rather than single women, but their results are hard to compare

due to the use of different time periods and age groups. Bumpass and McLanahan (1989) estimated the proportion to be around one-third for births between 1980 and 1985, while Bumpass and Sweet (1989) estimated that 28% of births between 1970 and 1984 fell into this category, their estimates ranging from 15% for black women to 46% for white non-Hispanics. Hollander (1996) reports that 23% of women interviewed in the NSFH who had given birth outside marriage between 1983 and the interview had been separated, divorced or widowed at the time. This implies that nearly one-quarter of non-marital births in the mid-1980's occurred to previously married mothers and suggests a possible decline over time when compared to Bumpass and Sweet's estimate for 1970-1984 using the same data set. In comparison, Wineberg's results from the June 1985 CPS are rather higher, suggesting that around 38% of non-marital births to whites and 16% of non-marital births to blacks in the mid-1970s and mid-1980s occurred after marital dissolution (Wineberg, 1990b). Foster and Hoffman (1996) found using Panel Study of Income Dynamics 1985-1991 data that 46% of non-marital births in the 1970s and 43% of non-marital births in the 1980s to women aged 25 or over occurred to ever married women. These figures are somewhat higher than Wineberg's (1990b), probably due to the restriction to over 25s, but the two studies agree (as does that of Bumpass and Sweet, 1989) that the figure is higher for whites (58%) than for blacks (31%) (Foster and Hoffman, 1996).

Finally, Driscoll and colleagues (1999) investigated the characteristics and subsequent fertility of women with postmarital[1] births using the National Survey of Families and Households 1987-8 (Wave I) and 1992-4 (Wave II). They found women whose most recent birth was postmarital[1] to be older and to have a significantly higher mean parity than other women with a birth in the five years prior to Wave I. Between Wave I and Wave II, women with a postmarital birth were the least likely to have another birth (28% compared to 44% overall) but were more likely to have another *non-marital* birth than women whose last birth was marital or premarital[2], suggesting that many women have two or more non-marital births following marital dissolution.

To summarise, it can be seen that the topic of post-dissolution fertility has received much more attention in the US than in Britain in recent years. However, only Wineberg's study includes all types of post-dissolution birth as defined for this research (Wineberg, 1990b). There also appears to be some discrepancies in the results of different studies.

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[1] Postmarital births are defined here as those occurring to previously married women who have not remarried.
[2] Premarital births are defined here as those occurring to never-married women who subsequently married before Wave I of the survey; these are distinct from births to never-married women who have not yet married.

3.3 Creating a Retrospective Sample of Births from the GHS

3.3.1 The Initial Sample of Women

British data were obtained from the 1990 to 1994 rounds of the General Household Survey. Interviews for these rounds took place between 1 April 1990 and 31 March 1995. Childbearing and marital histories were collected from all women aged 16 to 59 at interview. The women

Table 3.2 Characteristics of British women aged 16-59 from the 1990-1994 rounds of the General Household Survey.

Characteristic		Percentage of women
Birth cohort	1930-39	13.4
	1940-49	22.7
	1950-59	24.2
	1960-69	26.6
	1970-79	13.1
Age at interview	16-19	7.5
	20-24	10.9
	25-29	13.3
	30-34	13.5
	35-39	12.1
	40-44	12.2
	45-49	11.9
	50-54	9.7
	55-59	8.9
Marital status at interview (self-defined)[1]	Married	60.8
	Cohabiting	7.0
	Single	21.0
	Widowed	2.1
	Divorced	6.3
	Separated	2.7
	Same sex cohabiting[2]	0.0
Parity at interview	0	31.0
	1	15.7
	2	30.6
	3	14.3
	4	5.5
	5+	3.0
Total		33 524

Notes: 1. Marital status as defined by the respondent in the household section of the interview. 2. This category was only included in the 1993 and 1994 rounds.
Source: Data from GHS 1990-1994.

were born between 1930 and 1979, with those born in the early 1930s and late 1970s being slightly underrepresented in the sample as they were not able to be selected for all five surveys due to the combination of age limits and interview dates. For example, women born in 1979 were not aged 16 and therefore eligible until 1995, so were only able to participate in the 1994 round of the GHS. After excluding cases with missing or incomplete data (see section 2.3.3), this provided an effective sample of 33 524 women aged 16-59, whose characteristics are shown in table 3.2.

As these data come from a cross-sectional survey, the fertility of more recent birth cohorts is censored at the interview date (Ní Bhrolcháin, 1993a). Therefore we do not have complete information about the lifetime fertility of women aged below forty-five at interview (forty-four being assumed for practical purposes to be the maximum age at childbearing).

3.3.2 Creating the Sample of Births

Of the 33 524 women in the sample, 10 401 women were childless. The remaining 23 123 women had had 53 072 births by the interview date. Using SAS, a data set of 53 072 births was obtained by turning the women-based files into child-based files. The births to women in this sample occurred between 1949 and 1995 and range from birth orders one to twelve. However, this sample of births cannot be utilised for showing period trends without some adjustment, because not all calendar years will have a complete coverage of births to mothers of different ages. Ní Bhrolcháin (1993a) has documented this issue extensively. She states that due to the nature of a cross-sectional survey like the GHS, the information on births for particular calendar years is 'most complete at times close to interview and least complete during periods distant from interview' (Ní Bhrolcháin, 1993a, p35). In periods of calendar time distant from the interview (earlier in time), only births occurring to younger women will be included in the sample because women having births at older ages will be over 59 by the survey date and no longer eligible to be asked the questions on births in the Family Information Section of the GHS. For example, a woman having a birth at age 25 in 1970 would be aged 45 or 46 if she were interviewed during the calendar year 1990 and her fertility would be recorded. However, a woman having a birth at age 43 in the same year would be aged 63 or 64 during the calendar year 1990 and would not be asked for her childbearing history due to being above age 59. Thus the sample of births for 1970 from interviews in 1990 would exclude births to women aged 41 or above.

This principle can be seen clearly in figure 3.5, which shows the coverage of births from

interviews in 1990. The vertical lines represent years of calendar time, while the dotted diagonal lines represent birth cohorts of women moving through different ages over time. Thus point 'A' represents a birth to a woman aged 20 in 1970 and who was therefore born in either 1949 or 1950. The grey triangle represents those births that are excluded from the sample because their mothers are 60 or over by the interview date. The diagram shows, for example, that the birth information for the year 1960 will include only births to women up to age 30 maximum. A woman aged 30 in 1960 might still be 59 in 1990 if interviewed before her birthday that year, but a woman aged 31 or over in 1960 would definitely be 60 or over by 1990 and her births would, therefore, be excluded from the sample. 1974 is the first year in which any births to women aged 44 are included from the 1990 survey. It is assumed that coverage of births is complete for a particular year if births to women of all ages up to exact age 45 are included.

Fig 3.5 Coverage of births over calendar time to women interviewed in the 1990 General Household Survey.
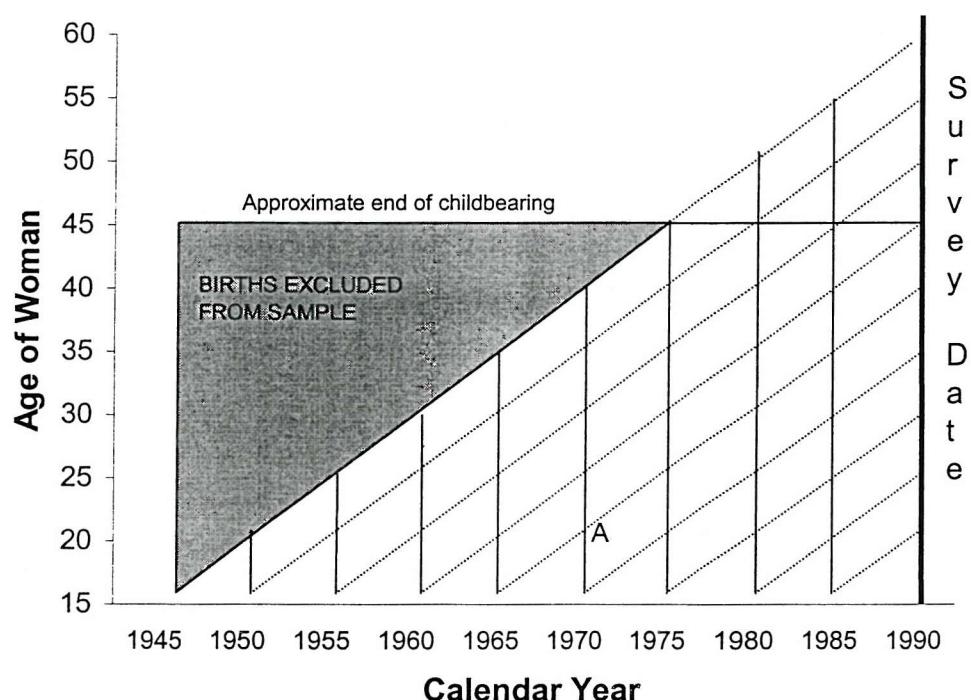
Adapted from Ní Bhrolcháin, 1993a.

The age selectivity issue is further complicated by two other factors. First is the fact that each round of the GHS is spread over a twelve-month period. The 1990 GHS, for example, interviewed women between April 1st 1990 and March 31st 1991 inclusive. This means that a woman aged 59 at interview for the 1990 GHS could have been born on any date between 2nd

April 1930 and 30th March 1932. It has already been noted that 1974 is the earliest year in which any births to 44 year old women are included. However, only births to those women whose 44th birthday is on or after April 2nd and who are interviewed in 1990 before their birthday will be included in the sample. In 1975, all births to women with their 44th birthday that year are included except those to women interviewed in 1991 after their 45th birthday who will be 60 at interview. Births at age 44 to women with their 45th birthday in 1975 will only be included if the birthday is on or after April 2nd and the interview takes place before the 45th birthday. In 1976, all births to women with their 44th birthday that year are included but births to women aged 44 who become 45 that year and are interviewed in 1991 after their birth date are excluded due to being 60. In the diagram, a number of births in the area directly *below* the grey triangle will also therefore be excluded from the sample. From this example it can be seen that the factors determining whether a birth is included in the survey are the mother's birth date and the date on which she is interviewed. It must be remembered that births to women aged 44, for example, can occur to women with either a 44th or a 45th birthday in a particular year (unless their 45th birthday is on January 1st). Taking these factors into account, the earliest year with complete age and survey coverage up to and including age 44 for the 1990 GHS is 1977.

The second complication is the fact that five different rounds of the GHS have been combined for this analysis. Therefore the calendar years for which complete age coverage is available varies by survey year. In addition to differing age coverage for earlier years, the survey rounds will also vary in their coverage of the most recent calendar years. The 1990 survey, for example, will have complete survey coverage of births up to 1989. In 1990 and 1991, survey coverage is not complete because some women will go on to have a birth in 1990 or 1991 after the interview date. However this lack of coverage is not age-biased because information is incomplete for all ages. Table 3.3 shows the earliest and latest years for which both age and survey coverage are complete for all five round of the GHS. It can be seen that complete coverage for the combined data set is only available for the years 1981 to 1989.

Table 3.3 Retrospective age and survey coverage of the 1990-1994 rounds of the GHS, for women aged 15-44.

	GHS Survey				
	1990	**1991**	**1992**	**1993**	**1994**
Earliest year with complete coverage	1977	1978	1979	1980	1981
Latest year with complete coverage	1989	1990	1991	1992	1993

In order to create a sample of births that did not suffer from any age biases in earlier calendar years, while at the same time maximising the number of calendar years that could be studied, the following strategy was used. All births between 1981 and 1989 were included, as these samples are not biased in any way. Births between 1977 and 1980 were included only from those surveys where age coverage is complete, so as to avoid the bias caused by the omission of the oldest women from the later surveys. Births between 1990 and 1995 were included, as these years are not affected by age bias. However, the three most recent years were amalgamated due to the small sample sizes arising from reduced survey coverage. Table 3.4 shows the number of births in each calendar year in the final sample, showing which survey years they are drawn from. A total sample of 22 484 births is available for analysis.

Table 3.4 Number of births included in the retrospective GHS sample by calendar year.

Year	Number of births in sample	Survey Years
1977	287	1990
1978	580	1990-1991
1979	952	1990-1992
1980	1256	1990-1993
1981	1631	1990-1994
1982	1516	1990-1994
1983	1522	1990-1994
1984	1586	1990-1994
1985	1625	1990-1994
1986	1657	1990-1994
1987	1711	1990-1994
1988	1745	1990-1994
1989	1717	1990-1994
1990	1655	1990-1994
1991	1306	1990-1994
1992	934	1990-1994
1993-95	804	1990-1994
TOTAL	22484	

Source: Retrospective sample of births, 1990-1994 GHS.

3.3.3 Comparability of the Sample of Births with Vital Registration Data

In order to check the representativeness of the retrospective sample of births drawn from the GHS, some characteristics of births in the sample were examined and compared to similar data from vital registration; details can be found in Appendix 3. The GHS sample appears to be fairly representative in terms of mother's age and marital status at birth. The fact that some groups (e.g. young, single women) are slightly under-represented at the time of interview should, however, be borne in mind during analysis and interpretation.

3.4 Trends in Post-dissolution Fertility

Section 3.4 examines time trends in post-dissolution fertility and analyses their possible demographic causes.

3.4.1 Levels of and Trends in Post-dissolution Fertility, 1977-1995

In the sample of 22 484 births, it was found that 2416 of the births were post-dissolution; in other words **10.7%** of all births occurred after the breakdown of a first marriage. This suggests that post-dissolution births are an important component of British fertility. Figure 3.6 shows how there has been a general increase in the proportion of births occurring post-dissolution over time, from 7 or 8% in the late 1970's to 11% during the 1980's and 13% by 1993-5. These figures suggest an overall lower proportion of births occurring post-dissolution in Britain than in the US, where Wineberg's results suggested that 10.5% of births in 1973-4 and 15.1% of births in 1983-4 occurred post-dissolution (Wineberg, 1990b). This may be due to crude divorce rates being higher in the US than the UK in both periods (United Nations, 1976, 1985, 1989).

Figure 3.6 Percentage of births occurring after first marital dissolution, Britain, 1977-1995.
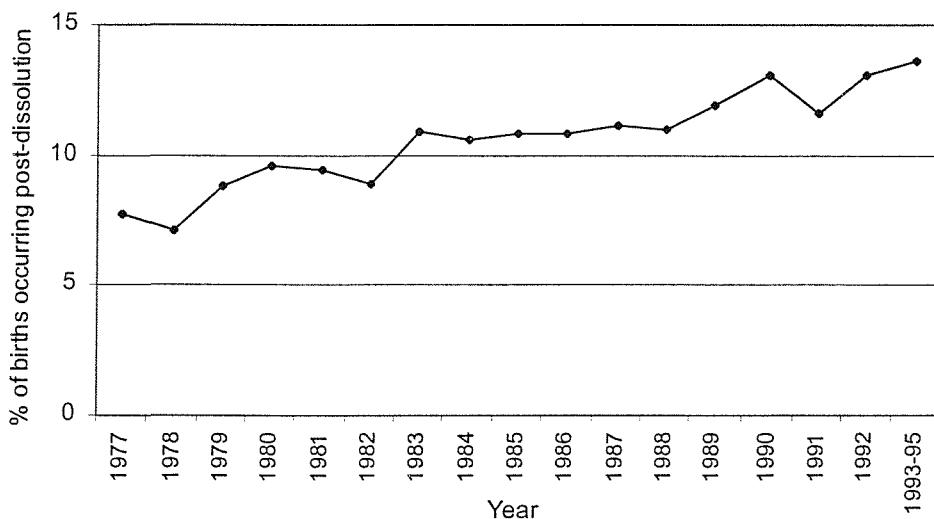
Source: Retrospective sample of births, 1990-1994 GHS

3.4.2 A Framework for Decomposing the Post-dissolution Fertility Ratio

The term 'post-dissolution fertility ratio' is used here to denote the proportion of births occurring after marital dissolution and can be expressed in a similar way to the non-marital fertility ratio:

Post-dissolution   = $\dfrac{\text{Number of births in time t occurring after marital dissolution}}{\text{Total number of births in time t}} \times 1000$
Fertility Ratio

Smith and Cutright (1988) present a formula for decomposing the non-marital fertility ratio into its four determinants: the age structure of the female population of reproductive age, the proportion of women married in each age group and the age-specific marital and non-marital fertility rates. Using the formula, the non-marital fertility ratio in a particular year can then be standardised using the values for each of the four determinants from an earlier year. A comparison of the four standardised ratios then makes it clear which determinants have acted to decrease or increase the ratio during the period. Smith and Cutright's formula in its original mathematical form is as follows:

$$Q_t = \frac{\displaystyle\sum_{j=15}^{44} p_{jt}\left(1 - M_{jt}\right)b_{jt}}{\displaystyle\sum_{j=15}^{44} p_{jt}M_{jt}r_{jt} + \sum_{j=15}^{44} p_{jt}\left(1 - M_{jt}\right)b_{jt}}$$

where Q_t is the non-marital fertility ratio

p_{jt} is the proportion of women aged j at time t

M_{jt} is the proportion married among women of age j at time t

r_{jt} are the age-specific marital fertility rates

b_{jt} are the age-specific non-marital fertility rates

(Smith and Cutright, 1988)

For a more comprehensive decomposition of non-marital fertility, this equation could be adapted by splitting it up into premarital and postmarital components. However this is not the focus of the research here. More pertinently, the decomposition can be adapted to the post-dissolution fertility ratio by substituting women who have experienced marital dissolution for non-married women.

This could be written as follows:

$$D_t = \frac{\sum\limits_{j=15}^{44} p_{jt}\left(1-C_{jt}\right)f_{jt}}{\sum\limits_{j=15}^{44} p_{jt}C_{jt}a_{jt} + \sum\limits_{j=15}^{44} p_{jt}\left(1-C_{jt}\right)f_{jt}}$$

where D_t is the post-dissolution fertility ratio

p_{jt} is the proportion of women aged j at time t

C_{jt} is the proportion of women aged j at time t who have not yet experienced marital dissolution

a_{jt} are the age-specific fertility rates for women who have not yet experienced marital dissolution

f_{jt} are the age-specific non-marital fertility rates for women who have experienced first marital dissolution

From this formula, it can be stated that the increase in the post-dissolution fertility ratio seen between 1977 and 1993-95 (figure 3.6) could be due to one or more of the following factors:

♦ an increase in the proportion of women of reproductive ages who have experienced marital dissolution.

♦ an increase in the age-specific fertility rates of women who have experienced marital dissolution (widowed, separated and divorced and remarried women).

♦ a decrease in the age-specific fertility rates of women who have not experienced marital dissolution (single women and women in first marriages).

♦ a change in the age structure of the female population aged 15-44.

These four components could be broken down further by looking at the demographic processes that determine them, and further still by examining the socio-economic and cultural factors affecting these. For example, the proportion of women that have experienced separation will be determined by age- and duration-specific separation rates, which in turn will be influenced by age-specific marriage rates and both will arise from particular socio-cultural contexts operating at certain times in the past. Similarly, the age-specific fertility rates of women who have experienced marital dissolution will be affected by numerous different factors including the

parity distribution of women at marital dissolution and the repartnering behaviour of women following marital dissolution. These issues are explored further in chapters 4 to 6. To provide a starting point, attention here is focussed on the four direct demographic components identified above. The data required for decomposing the non-marital fertility ratio are easily obtainable from vital registration. Unfortunately this is not the case for the post-dissolution fertility ratio. In the next three sections, estimates from the retrospective GHS sample and other sources are used to determine the underlying causes of the recent increase in the post-dissolution fertility ratio.

3.4.3 Has the Post-dissolution Fertility Ratio Risen due to Changes in Marital Status?

It is not possible to answer this question satisfactorily using published sources such as the 1991 Census (OPCS and GROS, 1993a), GHS reports (e.g. ONS, 1997b) or ONS marriage and divorce statistics (e.g. ONS, 1998b), because their estimates of the population by marital status do not classify women into all the categories needed to determine whether a woman has experienced marital dissolution. GHS reports show the proportion of women separated, divorced or widowed in each year but do not show remarried women as a distinct category (ONS, 1997b). The 1991 Census does provide a separate estimate of remarried women, but includes separated women in the group of married women, as well as only providing data for one year (OPCS and GROS, 1993a). The ONS marriage and divorce statistics series does not classify either separated or remarried women separately from all married women (e.g. ONS, 1998b).

Therefore a retrospective sample of women was created for the years 1982 to 1994 using the GHS data described in section 3.3.1 and the marital status of those women in June of each year was found. (Calendar years prior to 1982 were excluded as they do not have complete age coverage of women up to age 49 and only those survey years with such coverage are used for the years 1982 to 1985. The age range 18-49 was chosen for comparability with published GHS data). Although retrospective estimates of marital status are not ideal, the only notable flaw is that women who have died before age 50 are excluded.

The retrospective estimates appear to be comparable to those from other sources. Table 3.5 shows that the estimated proportions of divorced, widowed and remarried women from the retrospective sample in 1991 are extremely similar to those found in the 1991 Census. However, when compared with 1991 Census data, the GHS overestimates the proportion of women who are legally married and underestimate the proportion who are single. This cannot be explained by the fact that the 1991 Census was taken in April and the GHS estimate is for June, and is likely to be a result of the differential response rates discussed in section 3.3.3. Similarly, table 3.6 compares a selection of marital status figures from individual survey years (ONS, 1997b) with the

retrospective estimates made from the 1990-1994 GHS sample. It should be noted that the retrospective estimates are for June and published figures refer to the period from April to March the following year. However, the retrospective estimates for separated, divorced and widowed women are again extremely similar to the published figures, as are the estimates for the proportion single and married other than in 1983 where the retrospective figures tend to overestimate the proportion of single women and underestimate the proportion of married women. Overall, the fact that the proportions of women who are separated, divorced, widowed and remarried is consistent between sources in different years suggests that the retrospective estimates provide reliable figures with which to identify time trends in the proportion of women who have experienced marital dissolution.

Table 3.5 A comparison of retrospective GHS estimates of marital status of British women aged 18-49 in 1991 with estimates from the 1991 Census.

Percentage of females aged 18-49		
Marital Status	GHS retrospective estimate for 1991	1991 Census (GB residents)
Single	27.1	31.0
Married	53.9	53.1
Separated	3.2	
Divorced	8.1	8.1
Widowed	1.0	0.9
Remarried	6.8	6.9

Source: 1991 Census data (OPCS and GROS 1993a); retrospective estimates from retrospective sample of women, 1990-1994 GHS.

Table 3.6 A comparison of retrospective GHS estimates of marital status of British women aged 18-49 with annual GHS estimates from 1983, 1989, 1991 and 1994.

Percentage of Females Aged 18-49								
Year	1983		1989		1991		1994	
Marital Status	Retrospective estimate	GHS report	Retrospective estimate	GHS report	Retrospective estimate	GHS report	Retrospective estimate	GHS report
Single	23.6	21	26.8	26	27.1	26	28.7	29
Married	61.2	70	55.0	63	53.9	61	51.6	57
Remarried	5.6		6.7		6.8		6.3	
Separated	2.4	2	3.0	3	3.2	3	3.8	4
Divorced	6.2	6	7.6	7	8.1	8	8.6	9
Widowed	1.1	1	0.9	1	1.0	1	0.9	1

Source: GHS report data from ONS, 1997b; retrospective estimates from retrospective sample of women, 1990-1994 GHS.

Using the retrospective estimates, figure 3.7 shows a clear increase in the percentage of women aged 18-49 who had experienced marital dissolution, from approximately 15% in the early 1980s to nearly 20% by the mid-1990s. The proportion of women who were widowed remained fairly stable over time at around 1%, while the proportion separated increased steadily from 2.4% in 1982 to 3.8% in 1994 and similarly the proportion divorced rose from 6.1% in 1982 to 8.6% in 1994. The proportion of women in a second or higher order marriage increased steadily from 5.5% in 1982 to 6.9% in 1990 and then fluctuated (the lower figure for 1994 is likely to be an artefact of the below average sample size for that year). These figures suggest that the increase in the post-dissolution fertility ratio is caused at least in part by an increase in the proportion of women exposed to the risk of having such a birth.

Figure 3.7 Proportion of British women aged 18-49 separated, divorced, widowed and remarried, 1982-1994.
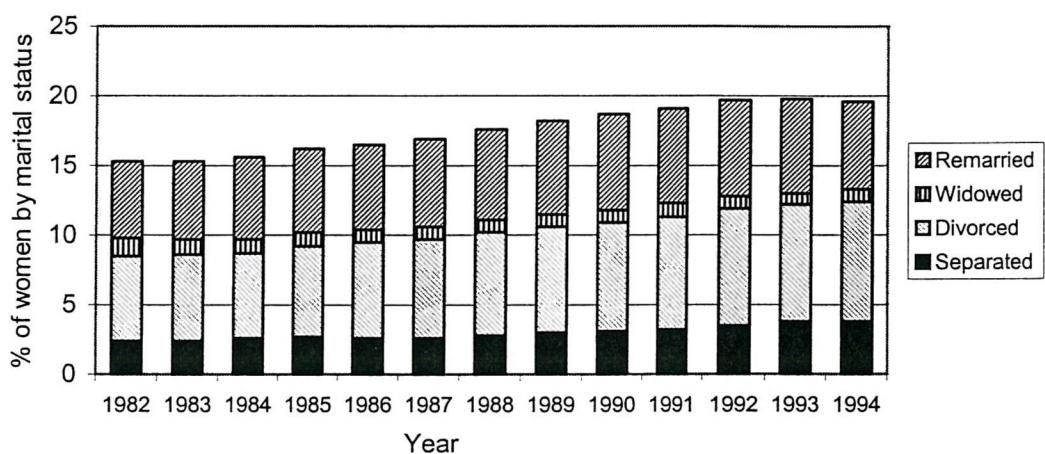
Source: Retrospective sample of women, 1990-1994 GHS

Breaking down the results by age, figure 3.8 provides no evidence of an increase in the proportion of women in their twenties that have experienced marital dissolution. Women aged 30-39 show some increase (if the unusual result for 35-39 year olds in 1994 is dismissed due to the below average sample size in that year). However, the largest changes are seen among women aged 40-49. For example, in 1982 18% of women aged 45-49 had experienced marital dissolution and by 1994 the figure had risen to 30%. However, as women in their forties have relatively low fertility, it is likely that the smaller increase in the proportion of women aged 30-39 who have experienced marital dissolution has made the greater contribution to the increase in the post-dissolution fertility ratio.

Figure 3.8 Percentage of British women who have ever experienced marital dissolution, by age group, 1982-1994.
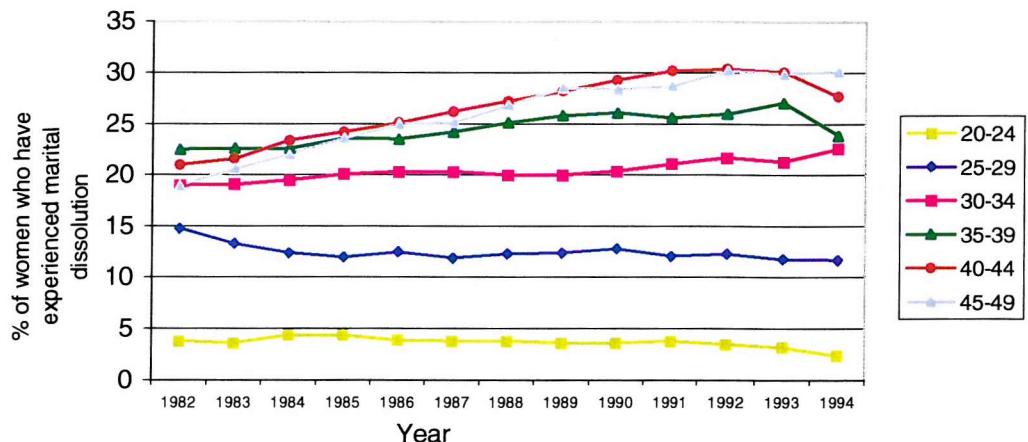
Source: Retrospective sample of women, 1990-1994 GHS

3.4.4 Has the Post-dissolution Fertility Ratio Risen due to Changes in the Age-specific Fertility Rates of Women of Different Marital Statuses?

Vital registration data do not provide fertility rates for married and remarried or single and divorced women separately. However, it is possible to calculate age-specific fertility rates by marital status from the retrospective GHS samples of births (section 3.3.2) and women (section 3.4.3) using the number of births to women of a particular marital status and the number of women of that marital status in June of that year. For example the fertility rate for divorced women aged 30-34 would be calculated:

$$\text{Fertility rate for divorced women aged 30-34} = \frac{\text{Number of births to divorced women aged 30-34 in year}}{\text{Number of divorced women aged 30-34 mid-year}} \times 1000$$

In this section, age-specific fertility rates (ASFRs) are calculated separately for single, married, remarried, separated and divorced women, for the years 1981 to 1994. 1981 is the first available year with complete age coverage up to age 44 from all five survey rounds. ASFRs could not be calculated for widowed women as their base populations were too small (zero among the youngest age groups). Separate rates were calculated for separated, divorced and remarried women in order to ascertain whether there are any differences between these groups, but women below age 25 are excluded here as too few women of this age have experienced marital dissolution. In addition, some rates for the 1990s are missing due to the lower survey coverage

during the 1990s. Although the results for single and married women are based on large denominators, it would be a mistake to place too much confidence in the results for separated, divorced and remarried women as some fluctuation is apparent due to small sample sizes (falling below 100 in a few cases). However, the results for single and married women are of a similar magnitude to those found from vital registration (ONS, 1997d) and the fertility rates decrease with age as would be expected, implying some reliability.

Figures 3.9 to 3.13 show the age-specific fertility rates (ASFRs) for the five marital status groups and reveal some new insights into the fertility rates of women who have experienced marital dissolution as compared to single and married women. First, age-specific fertility rates for separated and divorced women appear to be of a similar magnitude to those of single women during the 1980s and early 1990s. Indeed, among women aged 25-29, the divorced and separated have slightly higher fertility rates than their single contemporaries (figures 3.9 to 3.11). Second, fertility rates for remarried women aged 25-39 are generally higher than those of women in first marriages (figures 3.12 and 3.13).

Regarding trends over time, figure 3.9 shows some increase in the fertility rates of young single women during the late 1980s and early 1990s, particularly in the younger age groups, consistent with the non-marital ASFRs from vital registration during the period (ONS, 1997d). The other marital status groups, however, show no clear upward or downward trends between 1981 and 1994.

Figure 3.9 Estimated ASFRs for single women, Britain, 1981-1994.
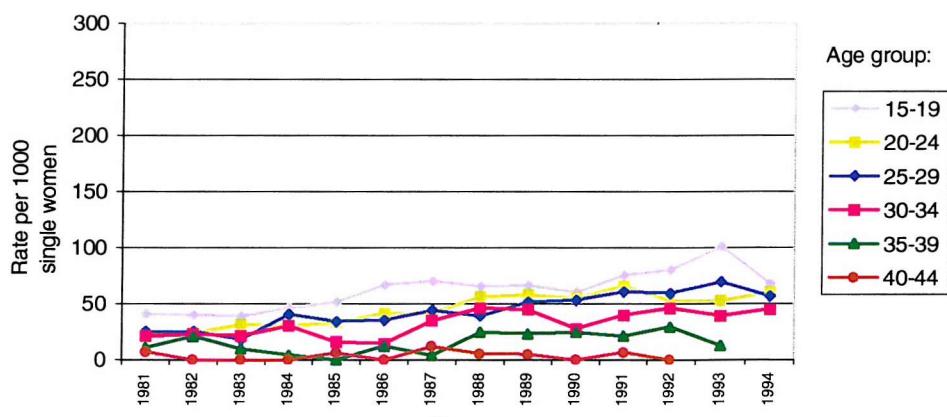
Source: retrospective sample of births and women, 1990-1994 GHS

Figure 3.10 Estimated ASFRs for separated women, Britain, 1981-1994.
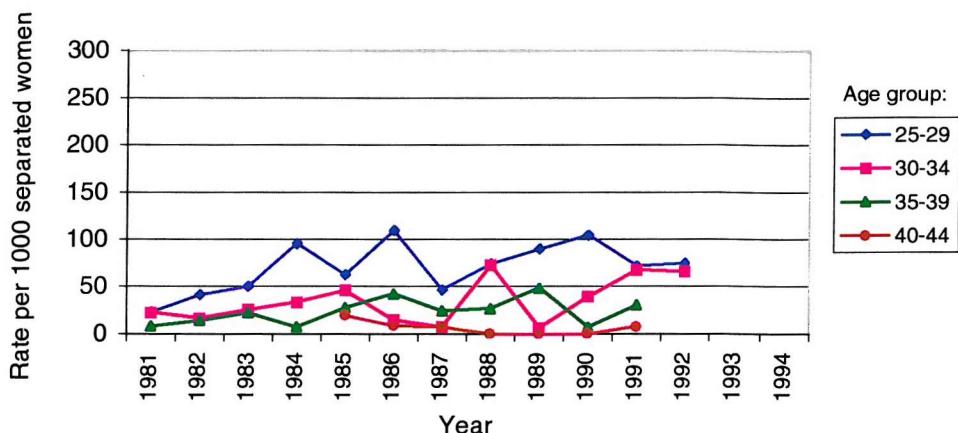
Source: Retrospective samples of births and women, 1990-1994 GHS

Figure 3.11 Estimated ASFRs for divorced women, Britain, 1981-1994.
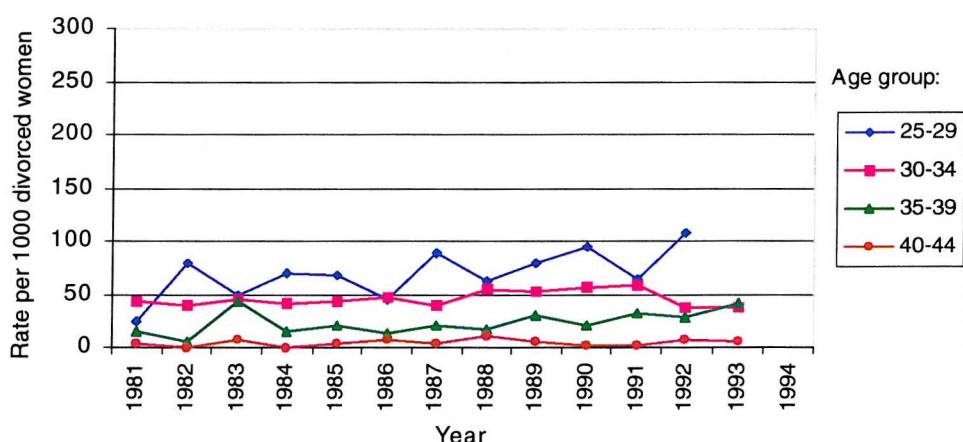
Source: Retrospective samples of births and w omen, 1990-1994 GHS

Figure 3.12 Estimated ASFRs for married women, Britain, 1981-1994.
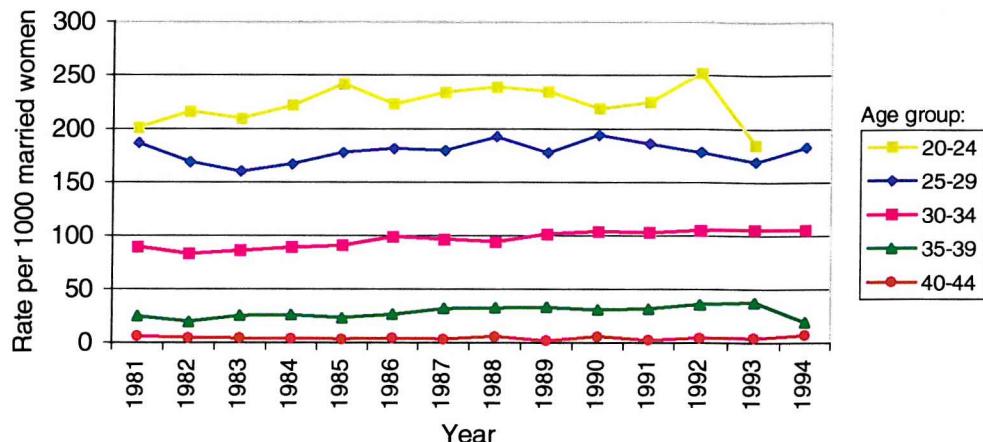
Source: Retrospective samples of births and women, 1990-1994 GHS

Figure 3.13 Estimated ASFRs for remarried women, Britain, 1981-1994.
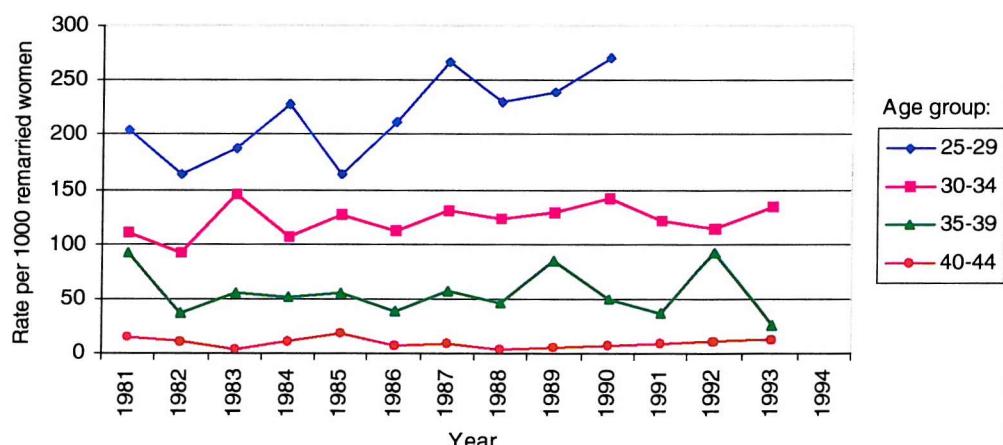
Source: Retrospective samples of births and women, 1990-1994 GHS

In order to carry out a limited check on the estimates from the retrospective GHS sample, fertility rates for first married and remarried women were calculated for 1981 and 1991 using birth data from vital registration and estimates of the female population by marital status from the 1981 and 1991 censuses. This analysis is clearly limited in coverage, referring to only two years and only two out of six marital status groups, but the results are likely to be more accurate than those from the retrospective GHS sample as they use data from the entire population of England and Wales. (Unfortunately the population estimates from the 1991 Census are lower than those used by ONS as denominators for fertility rates; ONS acknowledges the estimates by marital status to be provisional (ONS, 1997d), so the rates calculated here are slightly higher than the marital fertility rates calculated by ONS). Figure 3.14 shows that in both 1981 and 1991 remarried women had higher fertility rates at all ages than women in first marriages, consistent with the results from the GHS retrospective sample.

Figure 3.14 Age-specific fertility rates for first married women and remarried women, England and Wales, 1981 and 1991.
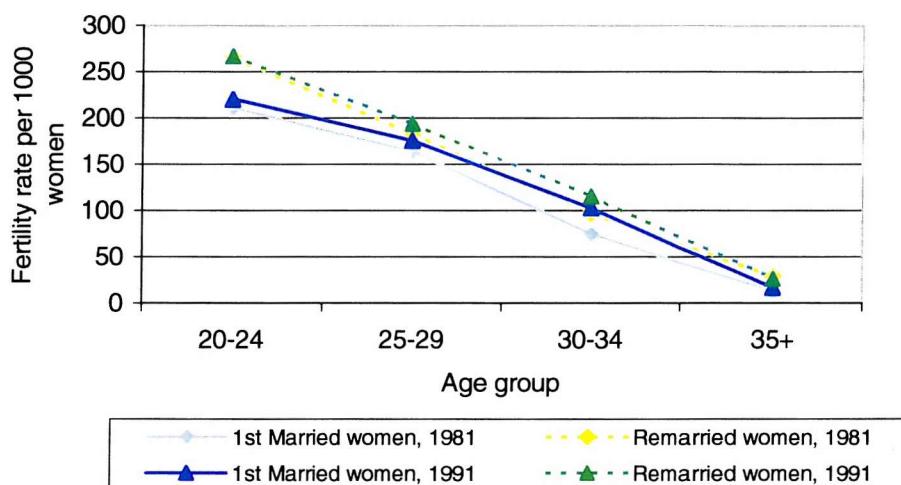
Source: Calculated using births from vital registration data (OPCS, 1984; ONS, 1997d) and populations by marital status from 1981 and 1991 Census data (OPCS, 1983; OPCS and GROS, 1993a).

Returning to the formula in section 3.4.2, it was noted that the post-dissolution ratio could have risen due to an increase in the fertility rates of women who had experienced marital dissolution or a decrease in the fertility rates of women who had not experienced marital dissolution. Figures 3.15 and 3.16, using the GHS retrospective data, show no clear evidence for either trend in any age group, these results being more reliable as the combined groups provide larger sample sizes. Therefore there is little evidence here to suggest that the increase in the post-dissolution fertility ratio since 1981 can be attributed to changes in fertility rates

Figure 3.15 Estimated ASFRs for women who have not experienced marital dissolution (single women and women in first marriages), Britain, 1981-1994.
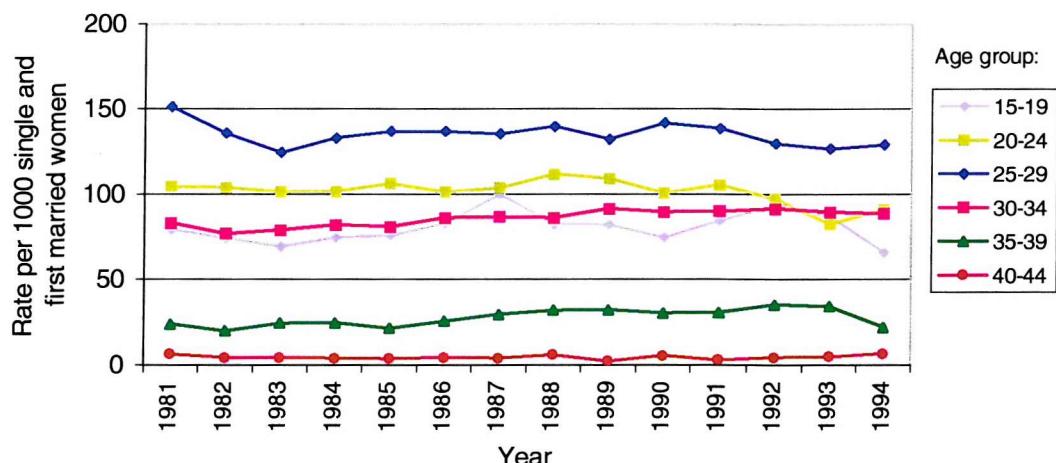
Source: Retrospective samples of births and women, 1990-1994 GHS

Figure 3.16 Estimated ASFRs for women who have experienced marital dissolution (separated, divorced, widowed and remarried women), Britain, 1981-1994.
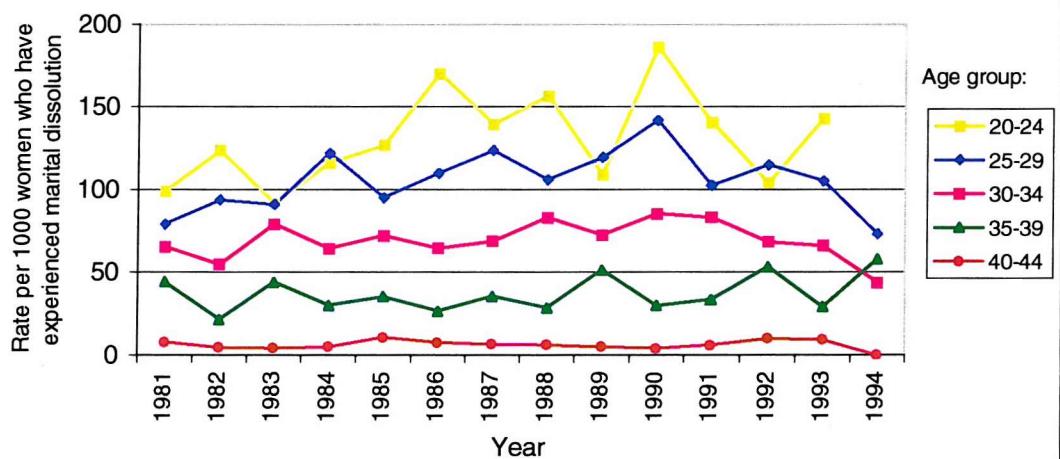
Source: Retrospective samples of births and women, 1990-1994 GHS

either before or after marital dissolution. A similar conclusion might be drawn from figure 3.14; this showed that the fertility rates of women in first marriages increased in all age groups between 1981 and 1991, while the fertility rates for remarried women increased among those aged 25-34 and remained stable in other age groups. Therefore an increase in the fertility rates of remarried women in some age groups could have contributed to the increase in the post-dissolution fertility ratio over the period. However the increase in the fertility rates of first

married women would have had the opposite effect. In any case, caution should be exercised in speculating on trends from two years only.

3.4.5 Conclusions: Why has the Post-dissolution Fertility Ratio Increased?

Figure 3.6 showed a clear increase in the percentage of British births occurring after marital dissolution between the late 1970s and mid-1990s. Of the four reasons originally proposed (section 3.4.2) to explain this increase in the post-dissolution fertility ratio, evidence has only been found to support one – an increase of in the proportion of women who have experienced marital dissolution from just over 15% of women aged 18-49 in the early 1980s to nearly 20% by the early 1990s. Figure 3.8 suggested that this increase was confined to women aged 30 and above.

In contrast, no clear evidence of significant changes over time were found in the age structure of the female population of reproductive ages in the retrospective sample (not shown). Similarly, no clear trends in age-specific fertility rates for women who had or had not experienced marital dissolution could be seen from the retrospective data, although the usefulness of these data was hampered somewhat by fluctuations due to rather small sample size in some groups. The rates calculated from vital registration and census data showed some increase in the fertility rates of remarried women between 1981 and 1991, but were accompanied by increasing fertility rates among women in first marriages which would cancel out their effect on the post-dissolution fertility ratio.

Unfortunately the year-on-year fluctuations in the fertility rates by marital status meant that it was not possible to decompose the post-dissolution fertility ratio with any degree of accuracy. The ratio was decomposed for the years 1982 and 1992 as an example (see Appendix 4). Between 1982 and 1992, an increase in the fertility rates of women with a marital dissolution (and not an increase in the proportion having experienced marital dissolution) was found to be the primary cause of the increase between 1982 and 1992, but this is likely to be due to particularly low post-dissolution fertility rates in 1982 and particularly high rates in 1992 among some age groups (see figure 3.16) – an artefact of the fluctuating trend rather than a genuine increase in the post-dissolution fertility rate. For this reason, the original conclusion, that an increase in older women having experienced marital dissolution is the primary cause of the increase in the post-dissolution ratio, is preferred.

Research from the US backs up this conclusion (although there is no particular reason to

suppose that the situation in the UK will mirror that of the US). Wineberg (1990b) found an increase in births to both divorced and remarried women between 1973-4 and 1983-4, despite an apparent decrease in the proportions of divorced women having an intermarital birth (Wineberg, 1990c) and the proportions remarrying that had a birth within five years (Wineberg, 1990a) between 1960 and 1984. He therefore suggests that the increase in births to divorced and remarried women between 1973-4 and 1983-4 be attributed to women spending more time in the divorced and remarried states (Wineberg, 1990b). However no conclusions can be drawn from this about the period since 1984.

Overall, better data would be needed in order to satisfactorily explain the recent increase in the post-dissolution fertility ratio in Britain, either in the form of a retrospective sample with a greater number of births in each year, or more comprehensive information collected at birth registration regarding the mother's marital status. However, despite the limitations of the retrospective GHS sample, a tentative conclusion has been drawn about the reason for the rising post-dissolution fertility ratio and some useful insights gained about the relative fertility rates of different marital status groups.

3.5 The Contribution of Post-dissolution Births to Non-marital Fertility

It has already been noted that vital registration cannot tell us what proportion of non-marital fertility can be attributed to previously married women, but this information can easily be found from the retrospective GHS sample of births. Figure 3.17 shows the percentage of non-marital births in the sample that occurred to previously married women under two definitions, the first definition including births to separated women as non-marital births. The second definition excludes such births and is more comparable to that used by ONS. Clearly the percentage of non-marital births to previously married women will be higher under the first definition. In the mid-1990s, 23% of non-marital births in the sample were to previously married women under definition one, compared to 16% under definition two. Therefore under either definition, single women are still the major contributors to non-marital fertility in Britain. No clear trend since 1977 is apparent under either definition, although one could argue that a slight downward trend exists, particularly under definition one, indicating a decline over time in the contribution of previously married women to non-marital fertility.

These figures are comparable to previous British estimates; for example, Kiernan and Estaugh (1993) estimated that 32% of non-marital births in the 1970s and 19% of non-marital births

Figure 3.17 Percentage of non-marital births occurring to previously married women, Britain, 1977-1993/5, two definitions.
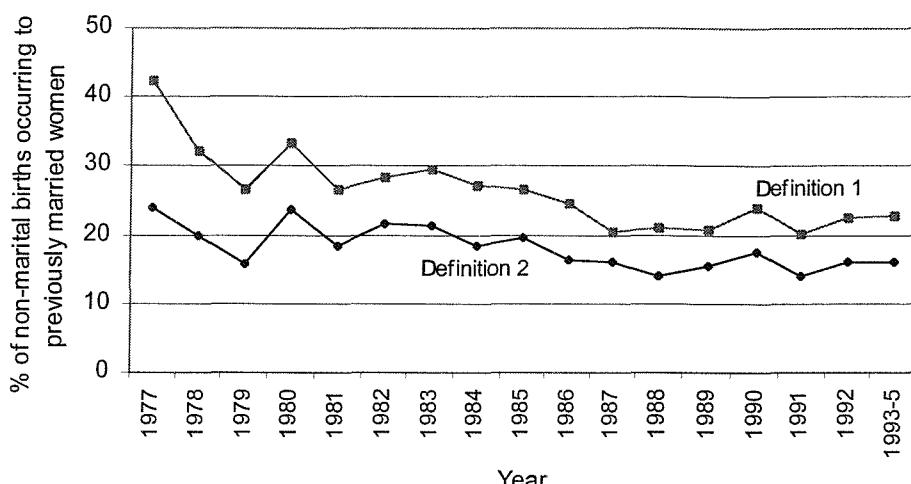
Source: Retrospective sample of births, 1990-1994 GHS

Definition 1. Births to separated women classified as non-marital.
Definition 2. Births to separated women not classified as non-marital.

during the 1980s occurred to separated and divorced women (using 1979-81 and 1989 GHS data respectively). Their estimates are slightly lower than those here using definition one, but suggest that the higher percentages in the late 1970s in figure 3.17 are genuine. In a similar study, Cooper (1991) used retrospective data from the 1986 and 1987 GHS and found that 26% of non-marital births in 1980-85 occurred to previously married women (figures comparable to definition one). The evidence therefore suggests that there has been some decrease in the percentage of non-marital births occurring to previously married women between the late 1970s and early 1990s. Analysis by Cooper (1991) points to an earlier increase in the percentage of births outside marriage to previously married women between the 1960s and 1970s, but it is unclear how she can have achieved an age-representative sample for the early and mid-1960s from the 1986 and 1987 GHS, when the sample used in this chapter could only go back as far as 1977 without age bias (see section 3.3.2).

Figure 3.18 shows the percentage of non-marital births occurring to previously married women by age group in the retrospective sample and indicates that, with the exception of the late 1970s, the percentage of non-marital births to previously married women increases with age, as would be expected given that the population exposed to the risk of a post-dissolution birth increases with age. These results are consistent with similar analysis by Cooper (1991) for the overlapping period of the early 1980s. The decline in the percentage of non-marital births to previously married women between the early 1980s and the early 1990s is apparent in all age

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Figure 3.18 Percentage of non-marital births occurring to previously married women by age group, Britain, 1977-1995.

Age group:
- <20
- 20-24
- 25-29
- 30-34
- 35-44

y-axis: % of non-marital births to previously married women

x-axis: Period — 1977-79, 1980-84, 1985-89, 1990-95

Source: Retrospective sample of births, 1990-1994 GHS
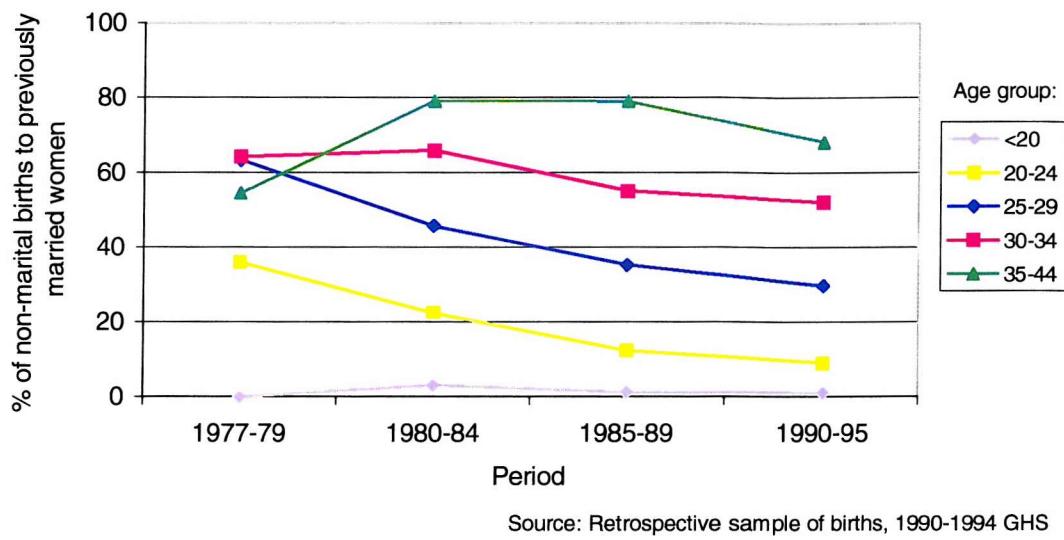
Figure 3.19 Percentage of all births that are to single and (currently unmarried) previously married women, Britain, 1977-1993/5.

y-axis: % of all births

x-axis: Year — 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993-5

- Births to single women
- Births to previously married women (excluding separated women)
- Births to previously married women (including separated women)

Source: Retrospective sample of births, 1990-1994 GHS
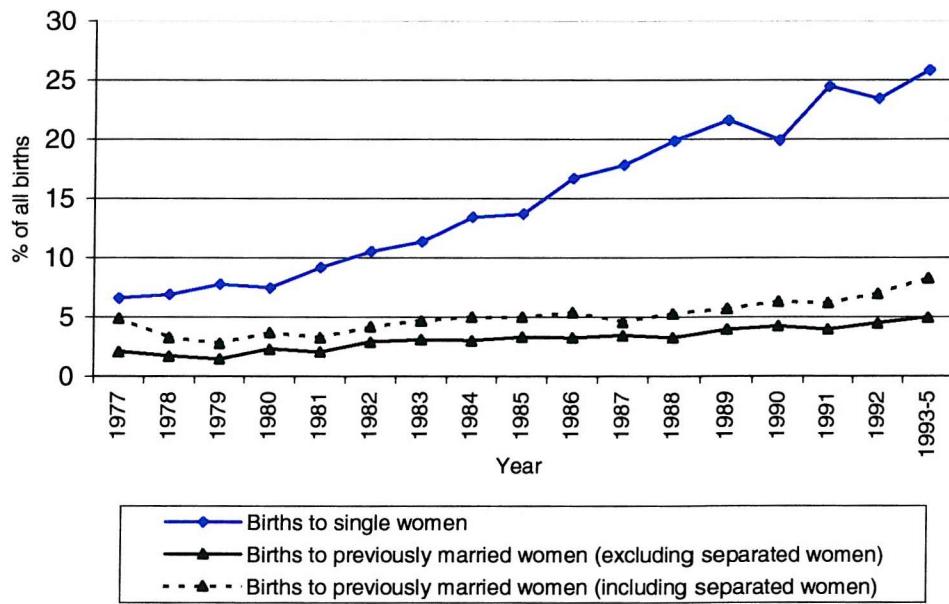
groups. Figure 3.19 shows for the first time the estimated percentages of all British births occurring to single and previously married women separately. The percentage of births to

single women has increased dramatically from 7% in 1977 to 26% in 1993-5. It is, therefore, single women that have driven the large increases in the non-marital fertility ratio in the 1980s and 1990s and not previously married women. Although the percentage of births to previously married women has increased a little over the period, their *relative* contribution to non-marital fertility has declined. However, their contribution to total fertility has increased slightly and by 1993-95, 8% of all British births in the sample were non-marital births to separated, divorced and widowed women. While these percentages are based on adequate sample sizes, the underestimate of non-marital fertility within the GHS (see Appendix 3) must be borne in mind when interpreting these results. If the GHS under-represents young single women slightly (the group at high risk of a single non-marital birth), it is possible that the percentages of births occurring to previously married women in the most recent years are correspondingly slightly over-estimated.

3.6 Characteristics of Post-dissolution Births

This section explores the characteristics of post-dissolution births in terms of birth order, mothers' age and marital status. The analysis uses the retrospective sample of 22 484 births occurring from 1977 to 1993-5 (section 3.3.2), including the 2416 births that occurred following marital dissolution during that period. For much of the analysis, post-dissolution births from all years are combined due to the relatively small sample sizes in individual years.

3.6.1 Birth Order

Some women who experience marital dissolution may already have reached their ideal family size in the first marriage and then begin a second round of childbearing with a new partner following marital dissolution. Others may not have started childbearing or not yet reached their desired family size during their first marriage and their post-dissolution childbearing can be seen as the beginning or continuation of their fertility. If the norm desired family size in Britain is assumed to be two (Scott, Braun and Alwin, 1998; Laybourn, 1994), births of orders one and two could be assigned to this second group of women, while births of order three and higher could be considered to be additional births to women having 'second' families. This classification incorporates many generalisations but may be helpful in interpreting the tables below.

Table 3.7 indicates that, as birth order increases, the proportion of births occurring to women

Table 3.7 Percentage of all British births occurring following marital dissolution, by birth order.

Birth Order	% of all Births Occurring following Marital Dissolution	n
1	5.8	9508
2	9.6	7807
3	18.0	3355
4	26.5	1187
5	31.6	399
6+	44.3	228
Total		22484

Note: Births occurred between 1977 and 1995.
Source: Retrospective sample of births, 1990-1994 GHS.

Table 3.8 Birth order of post-dissolution births and all births in Britain.

Birth Order	% of Post-dissolution births (n = 2416)	% of all births (n = 22 484)
1	22.9	42.3
2	30.9	34.7
3	25.0	14.9
4	13.1	5.3
5	5.2	1.8
6+	2.9	1.0
Total	100.0	100.0

Note: Births occurred between 1977 and 1995.
Source: Retrospective sample of births, 1990-1994 GHS.

who have experienced marital dissolution increases. Third births are three times more likely to occur post-dissolution then first births, while fifth births are five and a half times more likely to occur following marital dissolution than first births. However, low order births of all types occur more frequently than high order births and so the proportion of all post-dissolution births that are of parity five and above is actually quite low, as shown in table 3.8. Post-dissolution births are less likely than all births to be first and second births, but it should by no means be implied that most post-dissolution births are high order births; first and second births made up 53.8% of all post-dissolution births during the period, with second births being the largest group. This suggests that many women do not complete or even start their families before first marital dissolution, but later catch up with the fertility of their continuously married contemporaries in a subsequent union. However, the 46.2% of post-dissolution births that are of orders three or higher suggests that, if a mean desired family size of two is assumed, another

large group of women are having additional births due to their having repartnered following marital dissolution.

3.6.2 Mothers' Age

Table 3.9 shows a very clear pattern: as age increases, the percentage of births occurring after marital dissolution increases. In other words, the proportion of births occurring post-dissolution is higher among older women than younger women. This is not unexpected, given that the proportion of women who have experienced marital dissolution increases with age (see figure 3.8). However, it is again important to look at the composition of post-dissolution births alone in order to obtain the full picture, as the previous table does not take into account the fact that fertility rates decrease with age.

Table 3.9 Percentage of all British births occurring post-dissolution by age of mother.

Age of Mother	% of all Births Occurring following Marital Dissolution	n
<20	1.1	1774
20-24	5.2	6334
25-29	9.8	7896
30-34	16.6	4630
35-39	28.0	1584
40+	31.2	266
Total		22484

Note: Births occurred between 1977 and 1995.
Source: Retrospective sample of births, 1990-1994 GHS.

Table 3.10 Mothers' ages at post-dissolution births and all births in Britain.

Age of Mother	% of Post-dissolution births (n = 2416)	% of all births (n = 22 484)
<20	0.8	7.9
20-24	13.6	28.2
25-29	32.0	35.1
30-34	31.8	20.6
35-39	18.3	7.1
40+	3.4	1.2
Total	99.9	100.1

Note: Births occurred between 1977 and 1995.
Source: Retrospective sample of births, 1990-1994 GHS.

Table 3.10 shows that although post-dissolution births tend to occur to women who are older on average than all mothers, two-thirds of post-dissolution births actually occur to women aged 25-29 and 30-34. The proportion of post-dissolution births to under 25s is relatively low because fewer women of this age have experienced marital breakdown. Despite fewer than 10% of all births occurring to the over 35s, over 20% of post-dissolution births were to mothers in this age group.

On examining the birth order composition of births to mothers in different age groups (figure 3.20), it is clear that post-dissolution births to the youngest mothers are predominantly first and second births. Post-dissolution births to mothers aged 35 or above are more likely to be fourth or higher order births than those to younger women. However, this by no means indicates that most post-dissolution births to older women are high order births; 41.1% of post-dissolution births to 35-39 year olds were first and second births.

Figure 3.20 Post-dissolution births by mother's age and birth order.

Source: Retrospective sample of births, 1990-1994 GHS.
Note: Births occurred between 1977 and 1995.
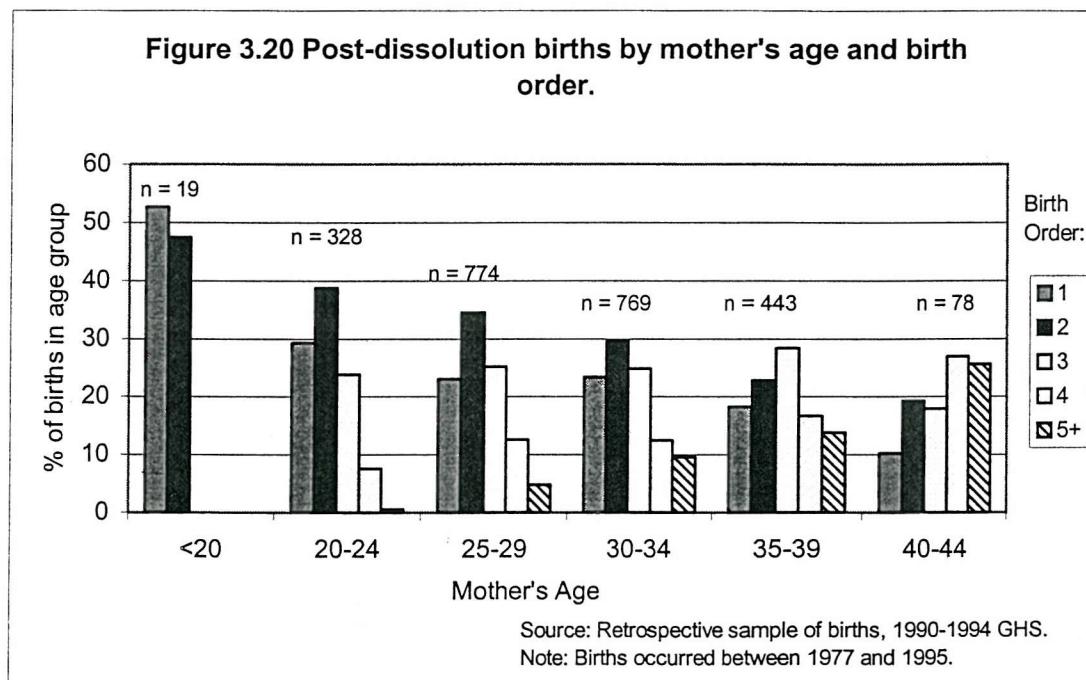
This section and the previous section have shown than there is much heterogeneity among post-dissolution births - they occur to women of all ages and parities. They are not mainly high order births to older women, as might have been expected, as over half are first and second births and over 45% are to women aged below 30.

3.6.3 Mothers' Marital Status

Table 3.11 divides post-dissolution births according to when they occurred in the mother's marital history. This division is based on the mother's dates of separation, divorce, widowhood and remarriage where appropriate. Divorce and widowhood are combined as they represent the *de jure* ending of a marriage, while separation is considered separately as it is usually a *de facto* state. GHS marital histories collect data on a maximum of four marriages, but given the very small number of births occurring in fourth marriages, it is safe to assume that the lack of data on higher order marriages is unlikely to affect the results. The table indicates that second marriages were the most common setting for post-dissolution births during the period 1977 to 1993-5, with 51% occurring here, in contrast to only 2% within higher order marriages. More than one quarter of births occurred following first divorce or widowhood. Many of these non-marital births may have taken place in the context of cohabiting unions. Fewer than 5% of post-dissolution births took place after the second marriage, probably due to the small number of women at risk of such a birth.

Table 3.11 Post-dissolution births in Britain: a detailed breakdown of mothers' marital status.

Timing of Post-dissolution Birth (chronological order)	n	% of all Post-dissolution Births
After first separation (prior to divorce, if any)	371	15.4
After first divorce/widowhood (prior to second marriage, if any)	693	28.7
During second marriage	1241	51.4
After second separation (prior to second divorce, if any)	22	0.9
After second divorce/widowhood (prior to third marriage, if any)	34	1.4
During third marriage	46	1.9
After third separation (prior to third divorce, if any)	5	0.2
After third divorce/widowhood (prior to fourth marriage, if any)	1	0.0
During fourth marriage	3	0.1
After fourth separation/divorce/widowhood	0	0.0
Total	2416	100.0

Note: Births occurred between 1977 and 1995.
Source: Retrospective sample of births, 1990-1994 GHS.

Table 3.11 also emphasises the importance of births that occur during separation but before any divorce; 15% of all post-dissolution births occurred following separation from first marriage. This category is particularly interesting, as legally such births would be assigned to the first marriage, despite their diversity of origin. Some may have been conceived with the ex-husband within the marriage and the pregnancy, perhaps unintended, may have contributed to the marital dissolution. Others conceived with a different partner before or around the time of separation may have caused or hastened the separation, while others may have occurred some time after separation and have no link at all with the marriage or its disruption.

If types of post-dissolution births are examined by five year age group (figure 3.21), it is the 20-24 year age group which stands out as being particularly different. Less than 20% of births to 20-24 year olds take place in a second marriage, compared with 50-60% of births to older women. Births to these younger women are far more likely to occur between first separation and divorce or after divorce than births to older women. This could indicate a greater willingness among younger women to have non-marital births.

Figure 3.21 Post-dissolution births by marital status and mother's age.
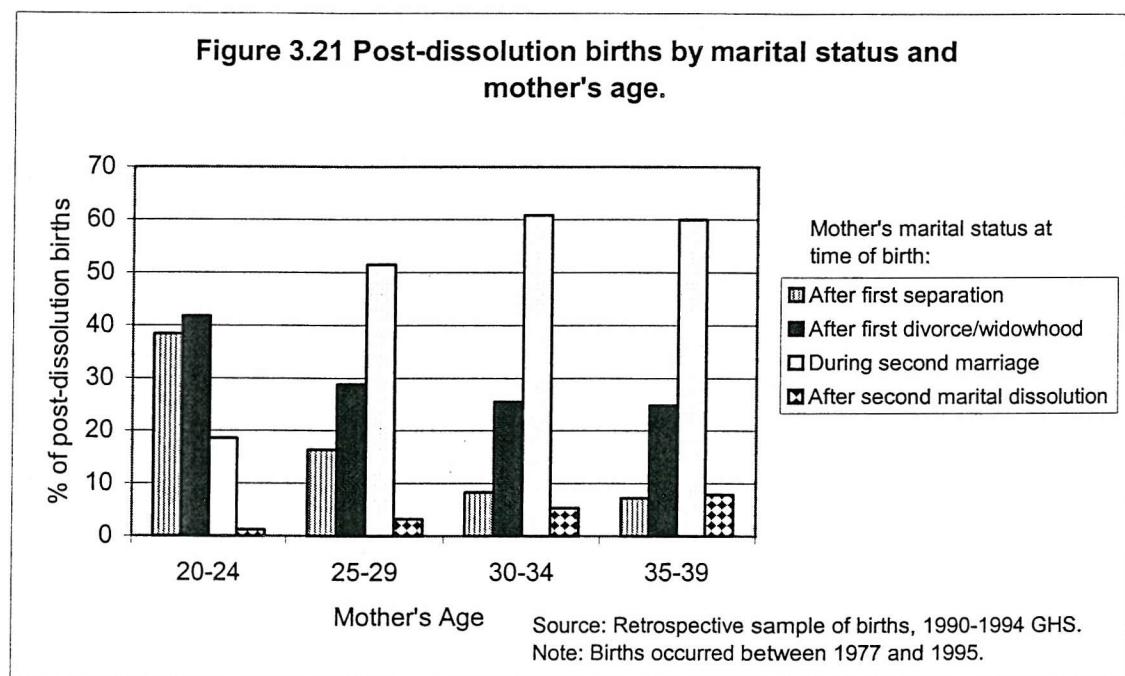
With only a small sample of post-dissolution births, a year-on-year analysis of specific birth types is not realistic. However, it is possible to identify the trend in non-marital births to this group. Figure 3.22 shows some increase in the proportion of post-dissolution births occurring outside marriage between 1980 and 1992 (other years excluded due to sample sizes below 100). From 39% in 1980, the percentage outside marriage fluctuated around 45% throughout the 1980s, finally exceeding 50% by 1991. Changes in the types of post-dissolution births

Figure 3.22 Percentage of post-dissolution births occurring outside marriage, Britain, 1980-1992.
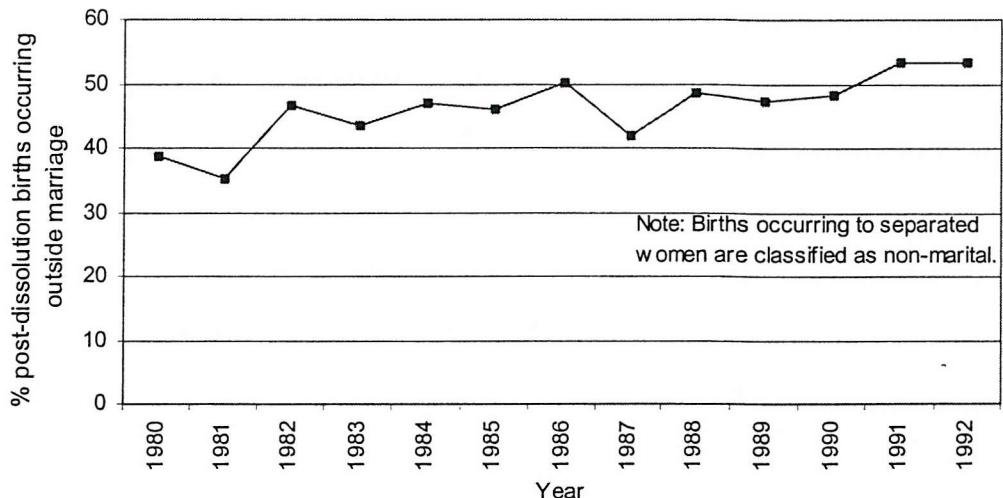
Note: Births occurring to separated women are classified as non-marital.

Source: Retrospective sample of births, 1990-1994 GHS.
Note: Births occurred between 1977 and 1995.

Figure 3.23 Mothers' marital status at post-dissolution births, Britain, 1977-1995.
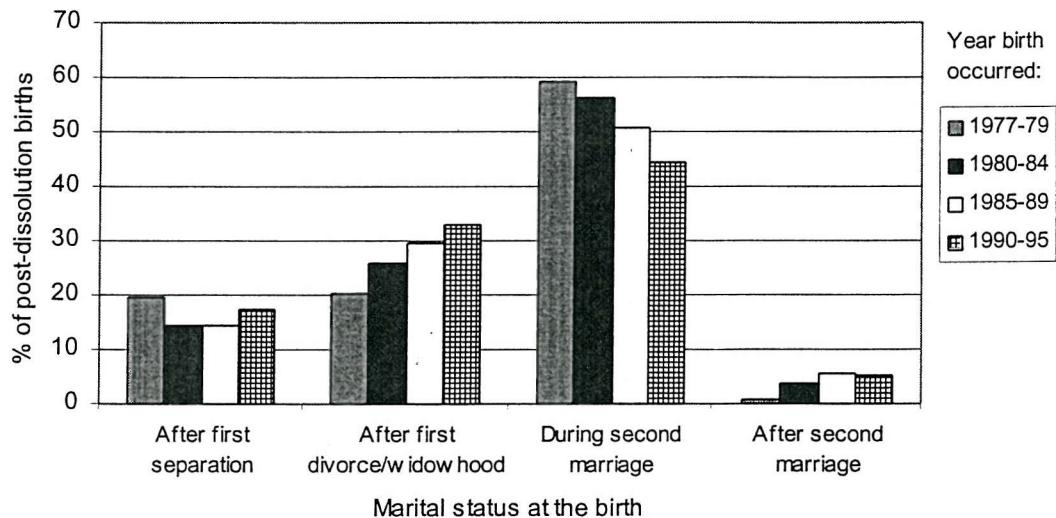
Source: Retrospective sample of births, 1990-1994 GHS.
Note: Births occurred between 1977 and 1995.

occurring between the late seventies to the early nineties can also be explored using a crude grouping of time into four periods. Figure 3.23 shows some interesting changes in the distribution of post-dissolution births over time. While the trend in births following first separation is indefinite, there is a small rise in the proportion of births following second marriage, perhaps reflecting a growing number of women experiencing second marital

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dissolution and forming further unions. More importantly, there is a clear increase throughout the period in the proportion of births occurring after first divorce (or widowhood) accompanied by a clear decrease in the proportion occurring in second marriages, from 59% in the late 1970s to 44% in the early 1990s. This probably reflects the increasing tendency of women to cohabit after marital dissolution rather than rushing into remarriage. Cohabitation and childbearing within cohabiting unions have both become more acceptable during the period in question (Kiernan and Estaugh, 1993). (MacRae, 1993) puts forward qualitative evidence that many previously married women prefer to live with a partner first to check compatibility, do not want to commit themselves to another marriage that might end in divorce, or do not want to marry while pregnant as they do not want to appear that they are forcing their partner into marriage.

Unfortunately, the General Household Survey does not ask women for complete cohabitation histories, so it is only possible to obtain a **minimum** estimate of the proportion of post-dissolution births that occur to cohabiting women. Ideally, the start and end dates of *all* cohabiting spells are needed, but the GHS only collects information about cohabiting spells that are current at interview and those ending in marriage. Therefore births occurring within cohabiting spells that ended in dissolution prior to interview cannot be assigned to a union. Out of the total 2416 post-dissolution births in the sample, 53% were born to remarried women, 19% were born within current cohabiting unions or cohabiting unions preceding marriage and the remaining 28% were to women not recorded as remarried or cohabiting at the time of birth. An unknown proportion of births in this final group were born within cohabiting unions that ended in dissolution. Thus, an estimated minimum of 19% of all post-dissolution births in the sample were born to cohabiting mothers, or 41% of non-marital births to previously married women. Among births to women currently separated from their first marriage, a minimum of 24% took place to cohabiting couples, compared with a minimum of 50% of births to women who are divorced or widowed from their first marriage. These figures underline the importance of taking cohabiting unions into account when investigating births among the previously married. Some women who give birth while cohabiting may never remarry, while for others the birth provides the incentive to later marry their partner.

To summarise, much has been learnt about the characteristics of post-dissolution births from the retrospective GHS sample. However, some questions remain unanswered due to the yearly sample of births being too small to break down by more than one or two variables at a time. For example, has the distribution of births of different orders or to mothers of different ages changed over time? How do the birth order and mother's age at the birth vary according to the mother's marital status at birth? Ideally, births would be broken down by mother's age, marital

status and parity for each calendar year, to obtain the complete picture, but this was simply not possible with the data here.

3.7 Cohort Changes in the Level of Post-dissolution Fertility

This section investigates the incidence of post-dissolution childbearing among different birth cohorts of women. The main purpose is to ascertain whether the period increase in the post-dissolution fertility ratio (section 3.4.1) is a result of increased post-dissolution childbearing among all birth cohorts or has been driven by the childbearing behaviour of the most recent cohorts of women entering the reproductive ages. Two aspects of cohort behaviour are examined: the mean number of post-dissolution births per woman and the proportion of women with at least one post-dissolution birth by certain ages among different birth cohorts.

The analysis in the following two sections uses the sample of 33 524 women aged 16-59 from the 1990-1994 rounds of the GHS (section 3.3.1). 7077 of the women (21.1%) had experienced marital dissolution by the survey date and of these, 31.5% had subsequently borne a child. Of the 33 524 women, 6.6% of women had ever experienced a post-dissolution birth. The true percentage of women ultimately having a post-dissolution birth will be higher, because many women with a recent marital dissolution have not had a child before the survey date due to censoring. In order to overcome the problem of censoring, births to women of up to ages 20, 25, 30, 35 and 40 are compared, excluding women under that age from the sample. Unfortunately this method 'wastes' some of the data because, for example, a woman who has reached age 24 by the interview date will only have her experience up to age 20 used in this analysis.

3.7.1 Mean Number of Post-dissolution Births by Exact Ages

An increase in the mean number of post-dissolution births by ages 25, 30 and 35 between the 1930-34 cohort and the 1955-59 cohort can immediately be identified from figure 3.24. This indicates that women born earlier have fewer post-dissolution births at all ages on average than women born more recently, up to the late 1950s, with the difference between the experience of the 1935-39 and 1940-44 and the 1945-49 and 1950-54 cohorts being particularly great. The highest mean achieved by women who have reached age 40 is 0.18 post-dissolution births per woman among the 1950-54 cohort.

Figure 3.24 Mean number of post-dissolution births per women by certain ages, by birth cohort.
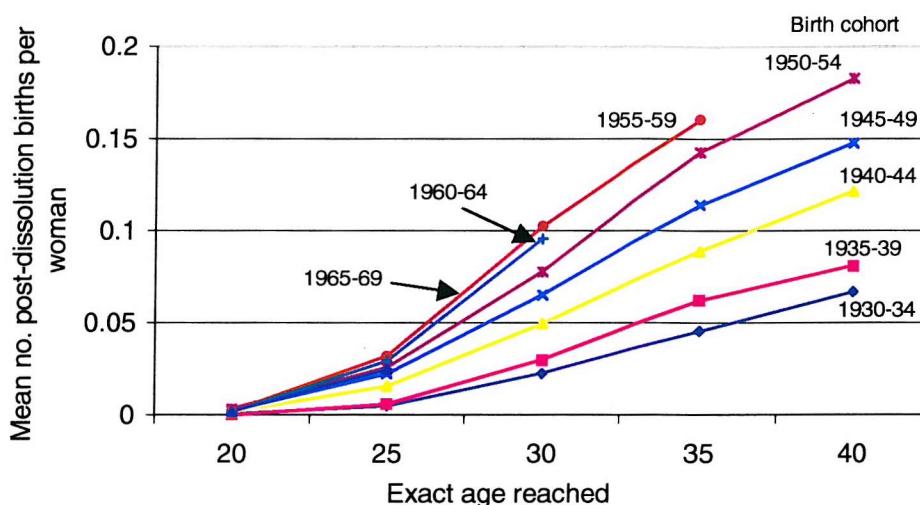
Source: Retrospective sample of women, 1990-1994 GHS.

In contrast, on examining the 1960s cohorts it appears that women born most recently have *fewer* post-dissolution births by ages 25 and 30 than the 1950s cohorts. This *could* mean that women from more recent cohorts who experience marital dissolution have lower post-dissolution fertility rates than previous cohorts. However, the more likely explanation is the delayed childbearing of the 1960s-born cohorts of women (table 3.12). Those born in the sixties have had fewer births of any type by ages 25 and 30 than their predecessors, so the fact that they have fewer post-dissolution births in their twenties may just reflect their lower overall fertility at this age (due in part to the later marriage and increasing non-marriage associated with cohabitation). This does not provide a full explanation, however, because women born during the 1950s also have fewer births by ages 25 and 30 than those born in the 1940s, but still have a greater number of post-dissolution births on average.

Another possible reason for the lower mean number of post-dissolution births among women born in the 1960s compared to those born in the 1950s is that the 1960s cohorts were less likely to have experienced marital dissolution by age 25 or 30 and so fewer of them were at risk of having a post-dissolution birth. Table 1.1 in the first chapter confirms that despite greatly increasing proportions of women having experienced divorce by ages 25 and 30 from the 1930s to the 1950s birth cohorts, this trend begins to reverse among women born in the 1960s. This is unlikely to reflect lower rates of marital dissolution, but can be attributed to the postponing of marriage among this generation: in the 1930s to 1950s cohorts, the percentage married by age 25 did not fall below 70%, but slumped to 61% among women born between

1960 and 1964 and to 47% in the 1965-69 birth cohort (Haskey, 1993).

Table 3.12 Mean number of children by ages 20, 25 and 30, by birth cohort, England and Wales.

Female birth cohort	Mean number of liveborn children by age....		
	20	25	30
1930	0.19	0.93	1.68
1935	0.20	1.07	1.91
1940	0.28	1.26	2.00
1945	0.35	1.23	1.85
1950	0.36	1.06	1.65
1955	0.31	0.92	1.52
1960	0.24	0.82	1.42
1965	0.20	0.71	1.29

Source: ONS (1997d).

To summarise, the mean number of post-dissolution births per women rose steadily between the 1930-34 and 1955-59 birth cohorts of women. It then began to decline among women born in the 1960s, reflecting the lower proportion at risk of a post-dissolution birth in their twenties and lower overall fertility at younger ages, both in turn reflecting the postponement of marriage among this cohort. Time will tell whether the marital and fertility behaviour of sixties-born women will cause an upturn in the mean number of post-dissolution births by ages 35 and 40 for this group or not.

3.7.2 Proportion of Women with a Post-dissolution Birth by Exact Ages

Examining changes in the mean number of post-dissolution births per woman cannot tell us whether an increase in the mean is due to a greater proportion of women having a post-dissolution birth or women with post-dissolution births each having a greater number of such births. Therefore figure 3.25 shows the percentage of women from the different birth cohorts who have *at least one* birth after marital dissolution.

For the 1930-34 to 1955-59 birth cohorts the graph is extremely similar to the graph of means, with the percentage of women with at least one post-dissolution birth by each age increasing for more recent birth cohorts. This implies that, in the more recent birth cohorts (up to 1955-59), a greater proportion of women are having a birth after marital dissolution. Therefore the increase in the mean number of post-dissolution births per woman evident between the 1930-34 and 1955-59 cohorts is due to a greater proportion of women having post-dissolution births

rather than just an increase in the number of such births had by each woman.

Figure 3.25 Percentage of women with at least one post-dissolution birth by certain ages, by birth cohort.
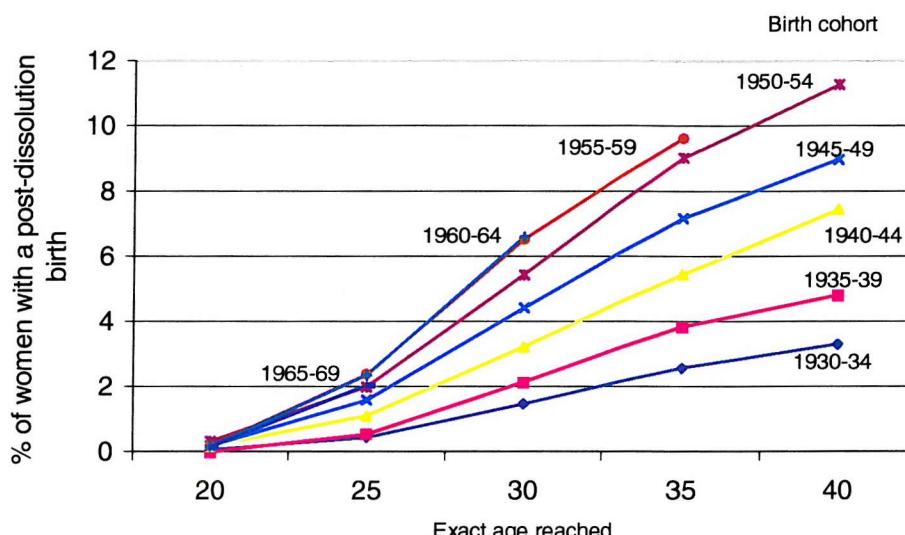
Source: Retrospective sample of women, 1990-1994 GHS.

The 1960-64 and 1965-69 birth cohorts follow virtually the same pattern by age 25 and 30 (where applicable) as the 1955-59 birth cohort, in spite of having a lower mean number of post-dissolution births per woman. This indicates that although the same proportions of women born in the late 1950s and the 1960s have had a post-dissolution birth by ages 25 and 30, each sixties-born woman with a post-dissolution birth has had fewer post-dissolution births on average. This may be linked with the delaying of childbearing mentioned earlier, but suggests that the postponement of marriage and therefore divorce may be a weaker explanation. It is possible, however, that although fewer women born in the 1960s have experienced marital dissolution by ages 25 or 30 compared to their predecessors, those that do are more likely to have a post-dissolution birth than women in earlier cohorts, perhaps due to the increased social acceptability of non-marital childbearing or childbearing with two or more partners.

3.7.3 Conclusion

The increase in the post-dissolution fertility ratio between the late 1970s and early 1990s (figure 3.6) can be attributed to steady increases in the incidence of post-dissolution childbearing between the early 1940s birth cohorts and the late 1950s birth cohorts of women.

Despite a slight downturn in the mean number of post-dissolution births by ages 25 and 30 among women born in the 1960s, the proportion of births following marital dissolution in the early 1990s is still higher than in previous years due to the high post-dissolution fertility of the late 1950s cohorts who are in their thirties during this period. However, if the trend towards a lower mean number of post-dissolution births continues among the 1970s-born cohorts and among the 1960s-born cohorts as they age, a fall in the proportion of births following marital dissolution might be expected in the future. Whether this fall is a temporary adjustment to a change in the tempo of childbearing or a long-term decline in the post-dissolution fertility ratio will depend on the extent to which these most recent cohorts eventually forgo marriage and childbearing rather than postponing them to later ages.

3.8 Summary

This chapter has assessed the contribution of post-dissolution births to British fertility for the first time. The data from the retrospective sample of births showed that the proportion of British births occurring post-dissolution has risen from 7-8% in the late 1970s to 12-13% by the early 1990s (section 3.4), the latter being composed of around 5% of births to remarried women and 8% of births to previously married women. The limited evidence available pointed to an increase in the proportion of women aged 30 and higher that had experienced marital dissolution as the primary cause of this increase. No clear trends over time in the age-specific fertility rates of different marital status groups were identified, other than a slight increase in the fertility rates of young single women. However, some interesting observations arose from this investigation: first, the age-specific fertility rates of remarried women tended to be higher than those of women in first marriages and second, separated and divorced women had similar age-specific fertility rates to single women.

Regarding non-marital fertility, section 3.5 showed that the large increases in the non-marital fertility ratio witnessed since 1980 have been mainly due to an increase in the proportion of births to single never-married women, confirming the unsubstantiated assumption made by many that this was the case. The proportion of all births to previously married (and currently non-married) women only increased a little over this period, indicating a relative decline in the contribution of post-dissolution births to non-marital fertility in recent years.

Section 3.6 showed that post-dissolution births were more likely to occur to older women and those at higher parities, but that over half were first and second births and nearly half were to

women aged below 30. Therefore, while some women are clearly having additional births at older ages following marital dissolution, others appear to be starting their childbearing after their first marriage has ended, often at a relatively young age. Half of the post-dissolution births in the sample took place within second marriage, with nearly as many occurring during the period of separation or divorce from a first marriage. During the 1980s and early 1990s around 40-50% of post-dissolution births occurred outside marriage with a clear increase in births to divorced women and decrease in births to women in second marriages during the period. From the limited GHS data on cohabitation it was estimated that at least 19% of post-dissolution births in the sample took place within cohabiting unions; the true figure is likely to be considerably higher.

Finally, section 3.7 showed an increase in post-dissolution childbearing by all ages between women born 1930-34 and subsequent cohorts up until the 1955-59 cohort. Women born in the 1960s, however, were as likely to have had at least one post-dissolution birth as those born in the late 1950s, but had fewer post-dissolution births on average by age 25 and 30. This may reflect an overall postponement of childbearing until later ages among the 1960s birth cohort.

The findings from this chapter have been limited both by the inadequacies of the data collected under vital registration and the sample sizes for retrospective years available from the GHS, despite combining five rounds of the survey. Ideally for this research, at the registration of a birth, the informant would be asked to provide the mother's current legal marital status (never married, married, separated, divorced, widowed), whether she is currently cohabiting, how many times she had been married previously and how many children she had previously borne (regardless of current marital status or marital status at the time of those births). Such changes should not make the process much more time-consuming for the informant: it would in fact be easier to give the total number of births born to a mother than to work out the number born within marriage where this differs. However, a change in the law would be required in order to amend the data collected at birth registration.

This work could also have been extended, had the retrospective GHS sample provided a larger sample of births for each year. For example, a more detailed breakdown of post-dissolution births by year, birth order, mother's age and marital status would have been possible with a larger sample. In addition, complete cohabitation histories in the GHS would have enabled more accurate estimates of the proportion of post-dissolution births to cohabiting couples to be made. The most recent round of the GHS has gone some way to addressing this last problem (Bridgwood, 2000).

Chapter Four:
The Effects of Marital Dissolution on Women's Childbearing Trajectories.

What effect does marital dissolution has on a woman's lifetime fertility? Does marital dissolution increase or decrease a woman's completed family size and is the timing of her childbearing affected? This chapter attempts to move forward research into the effects of marital dissolution on fertility, particularly in the British context, while acknowledging the many difficulties involved in doing so. It starts with a review of previous research and some explanation of the complexities involved. This is followed by exploratory analysis of British data. The focus then narrows to two particular relationships; that of marital dissolution and completed family size, and that of marital dissolution and age at last birth.

4.1. The Relationship between Marital Dissolution and Fertility over the Lifecourse: Literature Review

Research into the effects of marital dissolution on fertility is by no means a very recent phenomenon – interest in this issue certainly existed in the 1960s and 1970s (e.g. Lauriat, 1969; Palmore and bin Marzuki, 1969; Cohen and Sweet, 1974; Thornton, 1978). More recently, the majority of research has focussed on fertility following marital dissolution, mainly in the US (e.g. Griffith, Koo and Suchindran, 1985; Brown, 2000), rather than addressing the question of interest here. Only Clarke and colleagues (1993) and Diamond, Clarke and Clarke (1995) have attempted to assess the relationship between marital dissolution and overall fertility in Britain.

This review is divided into three sections. The first discusses the potential direct effects of marital dissolution on women's lifetime fertility, highlighting two simple competing hypotheses. Issues of reverse causality are ignored in this first section. The second section attempts to explain some of the complexities of the relationship between fertility and marital dissolution and the causality issues. The third section describes British research on the relationship between marital dissolution and lifetime fertility.

4.1.1 The 'Exposure' Hypothesis versus the 'Union-commitment' Hypothesis.

Davis and Blake (1956) identified the proportion of the reproductive period spent after or between unions as one of the intermediate variables determining a woman's fertility. At that time, marital dissolution generally indicated that a woman was no longer exposed to sexual intercourse and therefore not at risk of pregnancy. The logical conclusion from this 'exposure' hypothesis is that a woman who experiences marital dissolution will end up with fewer children than a woman who remains married, other factors being equal. Similarly, a woman who remarries would be expected to have more children than one who does not remarry, but fewer children than a continuously married woman as some proportion of the reproductive period is still spent not exposed to intercourse.

Some studies of developing countries provide support for this hypothesis. For example, Palmore and bin Mazuki (1969) found multiple marriages to be associated with lower cumulative fertility among currently married and remarried women in Western Malaysia in the mid-1960s, after controlling for age at first marriage and other factors. Similarly, El Guindy (1977) found that continuously married Egyptian women in the mid-1970s had on average 3.73 children by the survey date, after standardising for age at marriage, compared to 3.15 children for remarried women and 2.42 children among those who had experienced marital dissolution but not remarried. Other authors appear to support the exposure hypothesis without question because they have chosen to study reproductive time lost due to instability and not bothered to investigate the actual effect on fertility (e.g. Onaka and Yaukey, 1973).

Less recent American research is also consistent with this hypothesis. For example, Lauriat (1969) demonstrates using 1960 US Census data that marital dissolution is associated with lower fertility once age at first marriage is controlled. Divorced white women who did not remarry had fertility 32% lower than their contemporaries in intact marriages, while those who remarried after divorce had fertility only 19% lower. Cohen and Sweet (1974) found using the 1965 US National Fertility Study that women who remarried after divorce had 0.6 fewer children on average than continuously married women, after controlling for age at first marriage and several other factors. From further multiple regression models they conclude that most of this difference is due to differences in exposure (i.e. the number of months married) and to higher childlessness among the divorced. Thornton (1978) found dissolution without remarriage to be associated with reduced family size and remarried women to have similar family sizes to those who had not experienced marital dissolution. However, the fact that these results are consistent with the exposure hypothesis does not mean that they support a causal link between marital dissolution and fertility due to lack of exposure; small family size and

marital dissolution could both occur as a result of an unhappy partnership or unwanted infecundity.

The exposure hypothesis is unlikely to apply to modern developed countries for two important reasons. First, it is not the case that either sexual intercourse or childbearing occurs solely within marriage, as evidenced by the high non-marital fertility ratios in many European countries (Kiernan, 1999). Second, although married women are usually exposed to intercourse and therefore the risk of conception, modern contraceptive methods allow women to determine the number of children they have to some extent. In low fertility countries, childbearing has become largely a matter of personal choice, influenced by social and economic factors, rather than being a purely biological phenomenon. For both these reasons, the length of time a woman spends in the married state is much less related to her exposure to conception and therefore her eventual family size than was perhaps the case in the early twentieth century. Kiernan and Lewis (1996) document this separation of sex, marriage and parenthood in Britain since the 1960s in detail.

More recent research has arrived at what could be termed the 'union-commitment' hypothesis (Vikat, Thomson and Hoem, 1999). This is based on the idea that in a new union a shared child of both partners may serve to confirm the union and demonstrate the commitment of the partners to each other (e.g. Thornton, 1978; Griffith, Koo and Suchindran, 1985). Therefore there may be a desire to have at least one child in each union. Under this hypothesis, the greater the number of marriages or unions a woman has, the more children she is likely to have.

Two Swedish zoologists have tested this hypothesis explicitly from a biological perspective, and found, surprisingly, that having a larger number of cohabiting partners was associated with higher fertility for men but not for women (Forsberg and Tullberg, 1995). They suggest that in a society where monogamy is considered the norm, serial monogamy (having a series of monogamous unions) may be regarded as a 'conditional reproductive strategy for males' (p230). Much more research on this topic has been carried out in the English-speaking Caribbean because the system of visiting unions, common-law unions and marriages is highly suited to testing the 'union-commitment' hypothesis. The three studies outlined below all obtained results consistent with the 'union-commitment' hypothesis.

Ebanks, George and Nobbe (1974) found a positive association between the number of partnerships and number of live births for women in Barbados in a 1971 survey. They suggest that in many cases, there is no interval between union dissolution and repartnering or even an

overlap between unions, ensuring no loss of exposure due to multiple unions. In addition, many women hope to stabilise their visiting unions through pregnancy, but visiting partners often dissolve the union when pregnancy occurs in order to evade responsibility. Therefore providing the woman repartners before the next ovulation after pregnancy, there is no loss of exposure, but if this pattern is repeated, the woman may end up with a large number of births from trying to stabilise her partnerships. Lightbourne and Singh (1982) studied women in Guyana and Jamaica in the mid-1970s and found a positive relationship between number of partners and fertility for younger women, more so than for older women, suggesting that the instability of unions is no longer acting as a fertility depressant. They theorise that if contraception is not practised, women in one stable union are likely to have the highest fertility, but if all women adopt contraception after reaching their desired family size, the completed fertility of continuously married women is likely to be lower than those with multiple unions, because women are likely to want children with every partner in order to increase their chances of the union continuing. Lightbourne and Singh also point out that the number of partnerships is not the best way of measuring instability, because women in one continuous union and women with one dissolved union who do not repartner both come under the same classification of having one partner. They propose the number of dissolved partnerships to be a better measure and find this also to be positively associated with family size. Finally, Leridon and Charbit's analysis of women in Guadeloupe and Martinique found married women aged 35-49 to have the highest fertility, women in visiting unions the lowest, and those in common-law unions medium fertility. This result is consistent with the 'exposure' hypothesis because married women have the greatest exposure. However, once total exposure is controlled, women with more partners were found to have higher fertility (Leridon and Charbit, 1981). This study therefore lends some support to both hypotheses.

To summarise, the 'exposure' hypothesis suggests that marital dissolution will decrease completed family size, particularly if repartnering does not occur quickly, while the 'union-commitment' hypothesis suggests that marital dissolution and repartnering will serve to increase fertility. Prior research in different countries lends support to both hypotheses, but the 'union-commitment' effect might be expected to have greater importance in a modern low-fertility country such as Britain, where contraceptive use is high and sequential monogamy becoming an increasingly common lifestyle. However, in reality, women may exhibit a wide variety of different childbearing behaviours and be affected by both 'exposure' and 'union-commitment' processes. Separated women in Britain might be expected to have a lower average family size and finish childbearing at an earlier age than those who remain married if they separate before reaching their desired family size and as a consequence experience a loss of 'exposure'. Those who repartner might reach their desired family size or have additional

children in a second family, so we might expect them on average to have a higher completed family size and greater age at last birth than women married once. The average family size and age at last birth for women experiencing two marital disruptions might be expected to fall somewhere in between the 'separated' and 'remarried' groups, as they may desire a child in their remarriage but then be subject to a further loss of 'exposure'.

4.1.2 Fertility and Marital Dissolution: Issues of Causality

The first section has discussed the possible effects of marital dissolution on fertility in a very straightforward way. However, Clark (1982, p56) notes that 'the divorce, remarriage and fertility issue is a minefield of competing and cross-cutting variables.' In fact, the relationships between fertility and partnership formation and dissolution are so complex that it is unlikely that the effects of marital dissolution on fertility can be quantified at all. This chapter will attempt to make some progress in answering the question of what effect marital dissolution may have on fertility, but it must be acknowledged that this question is similar to that which asks which came first, the chicken or the egg!

There are two issues in particular that make the question far more complex than would first appear.

- Circular causation: in addition to marital dissolution and repartnering affecting fertility, previous fertility may affect the probabilities of marital dissolution and repartnering. (And some other set of factors may affect both fertility and repartnering behaviour).

- The process of marital dissolution may affect fertility before the actual separation as well as the fertility following it.

Figure 4.1 attempts to show the inter-relationships between fertility and partnership behaviour over the lifecourse. The left-hand side of the diagram refers to partnership behaviour and the right-hand side to fertility, with the vertical downward arrows on the right representing cumulative fertility. The diagram will be described first and specific processes will then be explained in more detail.

Premarital fertility may affect marriage chances either positively in the case of the mother marrying the father after the conception or birth, or negatively in some other cases. On the other hand, the possibility of marriage, perhaps evidenced by premarital cohabitation, may increase the chance of having a premarital birth. The relationship between marital fertility and

Figure 4.1 Inter-relationships between fertility and partnership formation and
dissolution during the lifecourse.

PREMARITAL FERTILITY

FIRST MARRIAGE

MARITAL FERTILITY

MARITAL DISSOLUTION

POST-DISSOLUTION
FERTILITY (NON-
MARITAL)

REPARTNERING

POST-DISSOLUTION
FERTILITY (MARITAL/
NON-MARITAL)
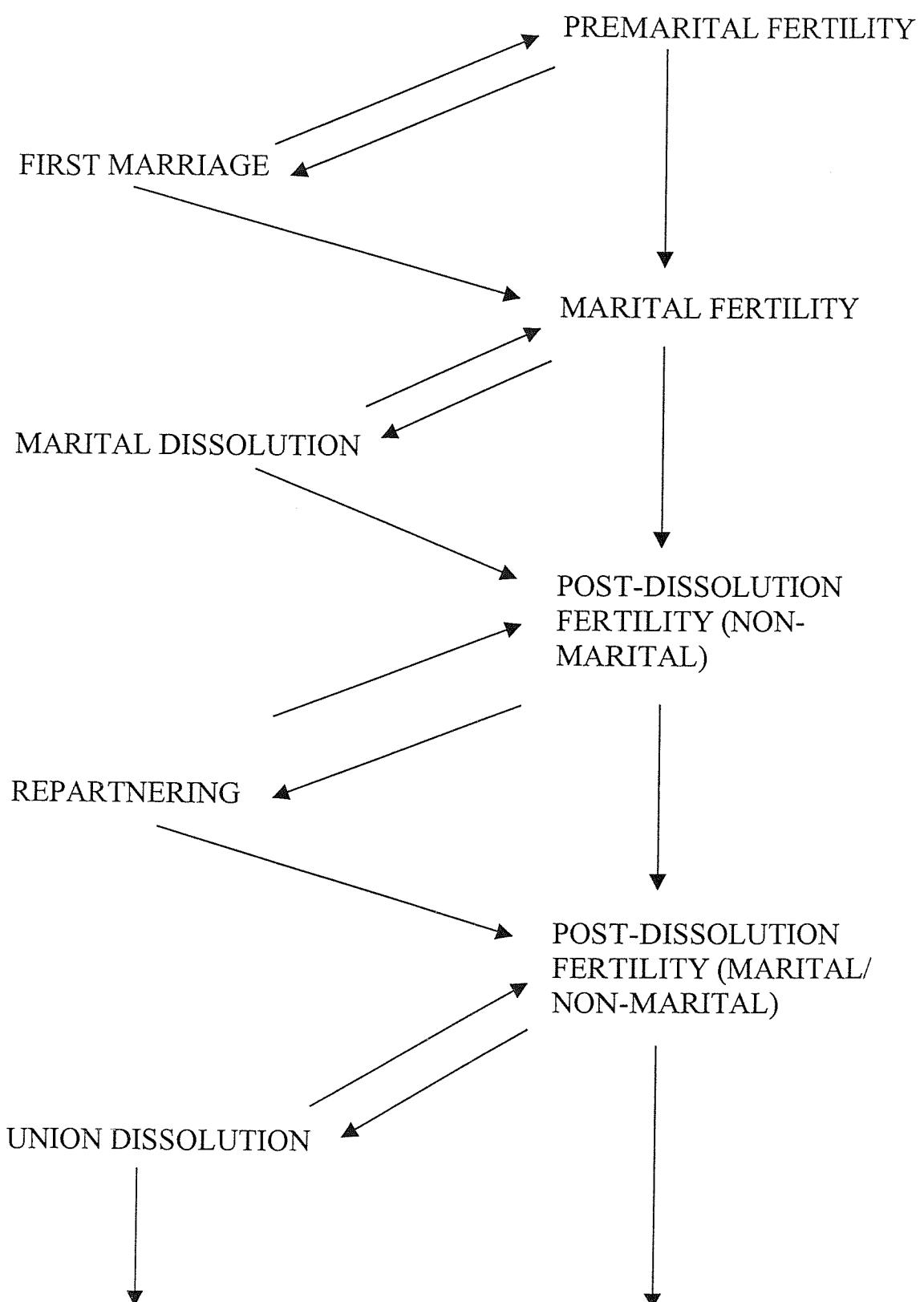
UNION DISSOLUTION

marital dissolution is of considerable interest, as causality works in two directions, as indicated by the arrows. The number of children that a woman has prior to and during marriage may affect her probability of experiencing marital dissolution. However, being at high risk of marital dissolution may affect the number of children that a woman gives birth to during the marriage. Therefore marital dissolution and childbirth are not competing risks, but interdependent processes. Moving down the diagram, there is a similar two-way causality between prior fertility and repartnering following marital dissolution. The number and ages of a woman's children may affect her chances of repartnering, but on the other hand, some women may repartner due to a pregnancy or because they want to have another baby. Finally, the link between cumulative fertility and further union dissolution works in two directions, in a similar way to that described above for first marital dissolution, although the presence of children from more than one marriage may make the issue more complex at this stage. The sections below summarise previous research on four of the main processes.

Effects of Prior Fertility on Marital Dissolution

There is a very large literature addressing the effects of prior fertility on separation and divorce in the US, including much from the 1970s and earlier (e.g. Thornton, 1977). Only more recent work is summarised here, in the light of shifts in behaviour and attitudes regarding both childbearing and marital dissolution in the last two decades (e.g. Preston, 1987) and advances in the methodology available to tackle these questions. For example, given that marital duration affects both cumulative fertility and the risk of dissolution, the development of hazards models have allowed the individual effects of marital duration and children's age on the risk of disruption over time to be identified. Theories on the effects of children on marital dissolution abound and could fill an entire chapter, so this summary focuses on those supported by empirical findings.

When considering prior fertility, three factors may be considered important: the number of children, their ages and the timing of their birth relative to a marriage. In the US, Wineberg (1990d) found childlessness to be associated with an increased risk of separation while Waite, Haggstrom and Kanouse (1985) found a first marital birth to be associated with increased marital stability in the short term. Similarly, Waite and Lillard (1991) found that a first birth dramatically reduced the probability of disruption, but later births were found to have a much smaller effect on disruption. Heaton (1990) found the risk of dissolution to decrease with the number of children up to three but to increase by the fifth child, controlling other factors. However these results may be confounded by the ages of children at different marital durations. Morgan and Rindfuss (1985) found that a marital birth reduced the risk of disruption

much more when the child was young that when he or she were older. This is consistent with the findings of Heaton (1990) who found that the rate of dissolution increased as the youngest child grew up, being highest among parents of teenagers, but then falling to its lowest level once the children had left home. Waite and Lillard (1991) also found pre-school children to be associated with a low hazard of disruption and children over 12 to be associated with the highest risk. Heaton (1990) suggests that young children stabilise a marriage, because they are the most dependent on their parents and perceived to be most vulnerable to the effects of parental separation, while the stress of adjusting to the demands of parenting teenagers may explain the high disruption rates among parents of this age group. Waite and Lillard (1991), however propose a second explanation for high disruption rates among parents of teenagers; the possibility that if births cause couples who would otherwise have separated to stay together while the children are young, the sample of couples with teenage children include some who have simply postponed divorce until the children are older. They note that the overall effects of children on marital stability over a twenty-year period are quite modest, given the protective effects of young children and the disruptive effects of teenagers. Having children may delay marital dissolution but not significantly affect the overall probability of it eventually occurring.

American research also suggests a link between the timing of fertility and the risk of marital dissolution. Castro Martin and Bumpass (1989) found the risk of dissolution among whites married between 1970 and 1985 to be 71% higher for those with a premarital birth. Wineberg (1990d) and Lillard and Waite (1991) also found premarital births to be associated with significantly higher risks of dissolution, while Morgan and Rindfuss' results (1985) suggest that this is only the case at short marriage durations. Morgan and Rindfuss (1985) found that couples with a premarital conception were more likely to experience dissolution than whose with first conceptions after marriage, but less likely to separate than childless women or those with a premarital birth. Both Morgan and Rindfuss (1985) and Wineberg (1990d) found that delaying a marital birth has no significant effect on separation probabilities. Finally, the sex of children may also be relevant: Morgan, Lye and Condran (1988) found that couples with sons were slightly less likely to separate than those with daughters and attribute this to the greater involvement of fathers in the upbringing of sons.

On a slightly different note, Koo, Suchindran and Griffith (1984) and Suchindran, Koo and Griffith (1985) examined the effects of marital childbearing and childbearing during separation on the probability and timing of obtaining a divorce. The relative risks of divorce were found to be higher for childless women and those with one child than for women with two or more children from their first marriage, and higher for women whose youngest child is aged 2-5

years compared to those with babies or older children. Births during separation were found to have no significant effect on the probability or timing of divorce for white women.

Less work has been done in the British context. Most recently, Berrington and Diamond (1999) studied marital dissolution patterns among the 1958 British birth cohort. Their research showed childless couples to have a higher risk of marital dissolution than parents. The timing of the first birth was also found to be significantly associated with marital dissolution – those with a premarital first birth were most likely to separate, followed by those with a premarital conception, while couples having a birth later in marriage were least likely to separate. These findings are similar to those from earlier research by Murphy (1984, 1985). Murphy, however, studied the number of children as well as the timing of births and identified couples with delayed two-child families as being at the lowest risk of marital dissolution at most durations. Couples who were still childless after five years of marriage had an above average risk of marital disruption after this time, while those with large families were also at greater risk of separation, consistent with research from Finland (Lutz, 1991). This last observation may, however, be due to the association between early childbearing and large families (Murphy, 1984, 1985). All three papers suggest that the timing of childbearing may be more strongly associated with the risk of marital dissolution than the number of children a couple has. Overall, findings from Britain appear to be broadly consistent with those from America.

Effects of Marital Dissolution on Marital Fertility

It is not necessarily the case that marital dissolution only impacts on fertility from the time of dissolution onwards. The discord that leads to marital dissolution may reduce fertility within the marriage before the actual separation. A direct effect of discord may be that couples who are not happy in their relationship are less likely to have intercourse regularly (Thornton, 1977, 1978; Clark, 1982), although if pill use is discontinued due to lack of sexual activity, the risk of conception may increase if sporadic intercourse occurs (Miller, 1986a). Discord may also cause a reduction in the co-operation between partners required for successful contracepting (Koo and Janowitz, 1983). A more important, though indirect, effect is that discord may be associated with uncertainty about the future stability of the marriage (Clark, 1982). Lillard and Waite (1993) hypothesise that couples are aware of the potential costs of marital dissolution (to themselves and their children) and take into account the chance of their marriage ending when making fertility plans. Couples who perceive themselves to be relatively likely to separate in the future are likely to deliberately postpone or forgo childbearing, because the costs of dissolution (in terms of well-being and finances) are likely to be higher for couples with children. An alternative to the hypothesis that discord will reduce fertility is that the

opposite will occur, if couples have children with the aim of salvaging their marriages (Cohen and Sweet, 1974; Thornton, 1978; Koo and Janowitz, 1983).

The potential effects of discord and marital instability on fertility must be balanced against the fact that some couples who experience discord or perceive their union to be unstable remain married (Thornton, 1978). However, their fertility may still be decreased by the instability, reducing any differences between women who experience separation and those who do not. Koo and Janowitz (1983) attempt to resolve this issue by assuming that marriages that do dissolve are different from intact unhappy marriages due to 'a period of planning to separate which affects fertility behaviour' (p133). Unfortunately, survey data cannot reveal whether discord is confined to a relatively short time before separation or occurs over a much longer period.

The fact that many previous studies of the effects of fertility on marital dissolution have had to assume that fertility is independent from the probability of dissolution, means that incorrect conclusions may have been drawn, if in fact probabilities of childbearing and dissolution are dependent, as outlined above (Murphy, 1985). Thornton (1978) points out that comparing the completed family sizes of women with intact and non-intact marriages will result in a biased estimate of the effects of marital instability on fertility if the marital fertility of the first group before dissolution is different to that of the second. This will occur if instability affects fertility, but also if divorce is selective of subfecund women or those with different fertility intentions (Lauriat, 1969).

Because of the two-way causality inherent in the relationship between fertility and marital dissolution, two sets of researchers have attempted to model marital dissolution and fertility simultaneously, believing decisions about childbearing and separation to be jointly determined. Koo and Janowitz (1983) hypothesise that the discord leading to separation originates in a certain time period before separation and thus marital dissolution will only influence fertility occurring in the few years before dissolution and not earlier fertility. Instead, early fertility is hypothesised to influence the probabilities of both having additional children and experiencing marital dissolution. Using data from the 1970 National Fertility Study, and controlling for a large number of independent variables, they model the effects of earlier and recent fertility on separation at various marital durations and the effects of earlier fertility and separation on fertility just prior to separation. Their results, however, are not clear-cut. Childlessness is associated with higher risks of disruption at medium durations of marriage, consistent with their hypothesis that childlessness can be seen as the norm at short durations but not at medium durations, where it may be a source of tension. In contrast with some other studies, the number

of children and age of youngest child did not significantly influence the chance of separation at most marital durations, raising questions about whether the number and ages of children really does affect the probability of marital disruption. Separation itself had little impact on fertility during the period prior to separation, except among women born in 1947-56, where separation at longer marital durations was associated with an increase in fertility in the preceding period. They suggest that these women might try to have a baby to keep their marriage together or are less successful at avoiding pregnancy due to discord, but an alternative explanation could be that an unintended pregnancy late in marriage might lead to separation. Koo and Janowitz conclude that further work on this topic is needed to reach definite conclusions. Lillard and Waite (1993) use a more sophisticated hazards model to estimate the probability of dissolution, incorporating time varying variables such as number of children, age of mother and marital duration, as well as fixed variables. The hazard of divorce-proneness from this model is then utilised as an explanatory variable in a second model that estimates the hazard of the nth conception at each time point. These models are estimated simultaneously. Using 1985 data from the Panel Study of Income Dynamics, they find that many couple characteristics found previously to be predictors of marital childbearing act primarily through the risk of disruption and are insignificant when the risk of disruption is accounted for in the model. The probability of disruption is found to have a strong negative effect on the probability of a marital birth, particularly for women with one child. In other words, the higher the chance that a marriage will end in separation, the higher the chance is of postponing and perhaps forgoing a birth. The authors therefore suggest that the rising high divorce rates and declining fertility rates of recent years may be linked. Although this effect holds at all parities, potential instability appears to inhibit childbearing more among parents than among childless women. Regarding the effects of children on marital dissolution, Lillard and Waite (1993) find that first children in a marriage act to stabilise the union, even if premaritally conceived, while higher order births have similar destabilising effects, so that women with two or more children have higher risks of disruption than childless women.

Lillard and Waite's method is ideal for examining both the childbearing and dissolution behaviour of married women. Unfortunately it is unsuitable for an investigation of such behaviour over the whole lifecourse, the topic of interest here, as it is examining the time to the next event, rather than the overall outcome.

Having children or being childless may affect a woman's chances of forming a cohabiting union or remarrying. The repartnering process can be subdivided into two stages - searching for a partner and receiving a suitable partnership offer (Ermisch and Wright, 1991).

Women with children may have a greater desire to repartner than childless women in order to improve the family's economic circumstances and gain child-rearing support (Ermisch and Wright, 1991; Rowlingson and McKay, 1998;). Alternatively, childless women may be more likely to want to repartner, either to provide a significant other, or a role for themselves, or in order to have children in an approved context. The desire for parenthood, particularly among older women may lead to an urgent search for a partner (Rowlingson and McKay, 1998; Lampard and Peggs, 1999). Lone parents may find it harder to search for a partner than non-parents because their social lives may be constrained by finances and childcare responsibilities (Ermisch and Wright, 1991). A large number of children may reduce work opportunities and hence opportunities to meet potential partners in the workplace.

Ermisch and Wright (1991) suggest that children will reduce remarriage probabilities because prospective partners may not want the responsibilities of raising stepchildren. They also suggest that men may suspect a woman to be less likely to bear a child in the new union if she already has children, although this assumes that the man wants children, which may not always be the case. All the mechanisms mentioned above are likely to be stronger, the more children a woman has. The ages of children may also be an important determinant of repartnering success. For example, younger children are more likely to reduce a mother's ability to search for a partner. Children's ages may also affect the probability of an offer; for example, Lampard and Peggs (1996) suggest that in general men prefer to take on older children who need less care and may not be a financial commitment for so long. Parents may also have different concerns about the effects on children of different ages of bringing potential partners home (Lampard and Peggs, 1999) and in some cases older children may actively oppose their parents going out with a new partner or remarrying (Koo, Suchindran and Griffith, 1984).

The empirical evidence on the effects of children on repartnering in the British context is documented elsewhere (Haskey, 1987; Coleman, 1989; Ermisch and Wright, 1991; Lampard and Peggs, 1999). The results are inconclusive, perhaps due to the differing methods employed. The effects of prior fertility on repartnering have also been discussed in great depth in the American literature (e.g. Koo, Suchindran and Griffith, 1984; Glick and Lin, 1987; Bumpass, Sweet and Castro Martin, 1990; Jayakody, 1998). Suchindran, Koo and Griffith

(1985) examined the effects of births following separation or divorce on remarriage (controlling for other previous births) and found that while births during separation had no significant effects, births after divorce nearly doubled the probability of remarriage among white American women. As many of these births occurred during pregnancy, they suggest that remarriage is often used to legitimise post-divorce births.

The Links between Prior Fertility and Second Marital Dissolution

Some of the processes whereby prior fertility influences the probability of a second marital dissolution and the processes whereby instability in second marriages affects fertility in such marriages are likely to be similar to those operating in first marriages. However, in the context of second marriages, fertility from the first marriage and fertility within the second marriage (as well as any non-marital fertility) must be considered separately in addition to total fertility. The research below has been carried out in the US; British researchers have not yet addressed this issue.

Stepchildren may be expected to be a source of discord in a second marriage as they belong to only one partner and are a reminder of a previous union (Lillard and Waite, 1993). This is supported empirically by White and Booth (1985) who find that the only remarriages to have higher divorce rates than first marriages during the three years of their study are those where both partners are previously married and stepchildren are involved. They conclude from a detailed analysis of remarried couples that children from a first marriage can destabilise a second marriage by increasing the strains and reducing the quality of family life as perceived by the parents. Similarly, Lillard and Waite (1993) found that non-marital births and to a greater extent births from previous marriages increased the risk of a second marital dissolution, while Wineberg (1992) found that bringing school-aged children from previous unions into a remarriage to be associated with a higher risk of disruption in the first five years of remarriage, though not later. Conversely, Wineberg found that women giving birth in remarriages were less likely to experience a second dissolution within five years than those who did not, in agreement with Lillard and Waite (1993) who believe that a first birth in a marriage usually has a stabilising effect (although this is not tested explicitly for remarried women). They hypothesise a feedback loop whereby stepchildren both increase the risk of a second marital dissolution and decrease the likelihood of the couple having a joint birth that would stabilise the new marriage.

British researchers have been slow to investigate the relationship between marital dissolution and fertility. In recent years, only two related papers have been published on this topic. First, Clarke and colleagues (1993) used data from the 1986-1989 rounds of the GHS to compare the fertility of continuously married, separated, remarried and re-separated women, using multiple decrement life tables and measuring time from the date of first marriage. This method enables the inclusion of recently-married women with incomplete childbearing, although the amalgamation of such women with women married in earlier periods assumes that the relationship between marital dissolution and fertility has not changed over time, an assumption that is not tested. The results for longer durations following first marriage and therefore for completed family size refer only to women married in earlier periods, so it is not really clear what is to be gained by including women married more recently (indeed they are excluded from some of the analysis).

Clarke and colleagues (1993) found the group with two marital dissolutions to have the highest premarital fertility of the four groups and subsequently to have children faster and to finish with the highest mean completed family size. They speculate that this relationship may arise due to women entering second marriage with a larger number of children being more likely to experience a second marital dissolution. Differences in completed family size of children between the other three groups were small, with remarried women catching up with continuously married women after a slowdown between five and ten years after first marriage. Separated women have slightly more children at longer durations than others and therefore end up with a larger completed family. The authors suggest that the high completed family sizes of separated women may be due to above average numbers of children before or during first marriage being linked with higher probabilities of separation and lower probabilities of remarriage thus leading to women remaining in the separated state. Overall, separated and re-separated women were found to have larger completed families than continuously married women and remarried women 25 years after first marriage. A similar pattern was found on controlling for age at first marriage, but it was noted that women marrying as teenagers averaged half a child more than those marrying later, irrespective of their marital status.

From calculating the conditional probabilities of having another child at different parities, the authors concluded that married women predictably tend to have two or sometimes three children fairly soon after marriage, while women with a marital dissolution are much more variable in their fertility behaviour with a greater spread in the timing of childbearing. On examining marital status and parity by time since first marriage, they note that at all durations

women with two children are the most likely to still be in their first marriage. Re-separated women are the most likely to have three or more children at durations ten years or more after first marriage, followed by remarried women. Clarke and colleagues (1993) conclude that re-separated women in particular require further investigation with respect to the circular causality regarding their partnership and fertility histories.

Diamond, Clarke and Clarke (1995) updated their earlier research, analysing the 1990-1993 rounds of the GHS, using similar methodology. Period of marriage is controlled in the analysis this time, but in spite of this, no clear differences between the 1960s, 1970s and 1980s marriage cohorts were seen in the fertility of the four groups. Separated and re-separated women tended to have higher cumulative fertility than continuously married women in the first five years after first marriage, followed by lower cumulative fertility between 5 and 15 years, with the re-separated women finishing with the highest fertility after 20 years and the once separated women having slightly lower fertility than the continuously married women (the latter result in contrast to Clarke and colleagues, 1993). These patterns may reflect the years after first marriage in which different groups of women may be in partnerships. The remarried women had lower fertility than the other three groups in the first fifteen years after first marriage, reflecting a delay in childbearing due to marital dissolution, but their cumulative fertility exceeded that of the married and once separated women by 20 years after first marriage. However it must be noted that the differences are very small: 0.21 of a child by 25 years after first marriage between the highest and lowest fertility groups.

Diamond, Clarke and Clarke (1995) also found remarried women to have higher probabilities of third and fourth births than other women. They suggest that this is due to the 'union-commitment' effect referred to earlier, but it could also be due to separated or divorced women with two or three children becoming pregnant and forming a more permanent union because of the pregnancy. A logistic regression model controlling for socio-demographic characteristics confirms that the odds of a third birth (for women with two births by ten years after first marriage) are highest for remarried women with both children from their previous marriage, while remarried women who already have a child with their second husband are much less likely to have a third child, consistent with the 'union-commitment' effect. Continuously married women were least likely to have a third child, suggesting that marital dissolution might increase fertility overall. The authors also show that the period from first marriage to completion of childbearing is longer for women that have experienced a marital dissolution. By investigating closed birth intervals, they find that, unsurprisingly, marital dissolution increases the length of the birth interval in which the dissolution occurs, but has no impact on other birth intervals. The paper finishes with competing risks models for women of each parity

and marital status group, estimating the probability of either changing marital status or having a birth. However it could be argued in the case of divorced women in particular that remarriage and having a baby are not competing risks, but are very much inter-related processes.

Both Clarke and colleagues (1993) and Diamond and colleagues (1995) conclude that marital dissolution has little effect on the completed family size of British women. Some women with a marital dissolution may take longer to complete their childbearing due to a longer birth interval around the time of dissolution. Clarke and colleagues (1993) also conclude that re-separated women tend to start childbearing early and finish with the largest families, while Diamond and colleagues (1995) note that divorced women who do not remarry have an above average likelihood of remaining childless and those who do remarry with two children from their first marriage have a high chance of having a third birth. The analysis in this chapter will attempt to explore these issues further.

4.2 The Sample of Women with Completed Fertility

4.2.1 Rationale for using Women with Completed Fertility

In order to investigate the effects of marital dissolution on fertility throughout the lifecourse, the simplest method is to use only those women with completed fertility. This avoids the selectivity and censoring biases inherent in data for women who have not completed their fertility by the survey date. Because marital dissolution may extend the length of the childbearing period (Diamond, Clarke and Clarke, 1995), births later in the reproductive career may be of particular interest and so it is especially important when studying this topic that women are not censored before the end of their reproductive career (Thornton, 1978). This enables the calculation of total family size and average age at last birth for different groups of women.

The clear disadvantage of this approach is that the fertility experiences of more recent birth cohorts are ignored. However, the completed childbearing patterns of these cohorts are unknown and any conclusions about the relationship between marital dissolution and fertility for these cohorts would be premature. Indeed, incorrect conclusions might be drawn, were the timing of fertility or the relationship between marital dissolution and fertility over the lifecourse changing. In spite of this, the importance of looking back at cohorts that have finished their childbearing is often understated in the rush to examine the latest birth cohorts.

Subsequent chapters will include women with potentially incomplete fertility and it is hoped that these exploratory analyses will aid interpretation of the results from later chapters.

4.2.2 Characteristics of Sample

Data for 14 272 women who had reached age forty-five by the interview date were obtained from the 1990 to 1996 rounds of the GHS. Age forty-five was used as a cut-off point, as very few women give birth after this age. Because the research interest here relates to any differences between women who remain married and those who experience marital dissolution, 577 never married women were excluded. Women marrying for the first time at age 40 or above (120 women) were also excluded as the aim was to compare women who had a reasonable length of time to have children and/or experience marital dissolution by age forty-five.

Widowhood after the age of forty-five was deemed not to affect a woman's fertility. However, 474 women who experienced the death of their first or second husband before age forty-five were excluded from the sample, as the mechanisms by which fertility and marital dissolution jointly affect each other may be different for those who are widowed compared with those whose marriage ends in separation or divorce. For example, widows have a differential chance of remarriage (Coleman, 1989) and women prone to separation and divorce may have different characteristics to those experiencing widowhood. It is also possible that the early death of a husband could signify prior ill health and thus lower fertility in a limited number of cases.

The exclusions detailed above left an effective sample of 13 098 women who were ever married by age forty and who had not been widowed before age forty-five. The general characteristics of women in this sample are shown in Table 4.1. It can be seen that the majority of women were born between 1935 and 1949 and nearly 83% of the women were married by age twenty-five. Nearly one-quarter experienced a marital dissolution and the most common completed family size was two children, followed by three children.

Table 4.1 General characteristics of women aged 45-59 at interview.

CHARACTERISTIC	% DISTRIBUTION (n = 13 098)
Year of Birth	
1930-34	9.3
1935-39	28.0
1940-44	32.6
1945-49	27.4
1950-54	2.7
Age at First Marriage	
15-19	26.1
20-24	56.7
25-29	12.6
30-34	3.4
35-39	1.2
Completed Family Size (by age 45)	
0	8.5
1	13.3
2	40.4
3	22.6
4	9.7
5+	5.7
Ever experienced marital dissolution?	
No	76.5
Yes	23.5

Source: Sample of women aged 45+, GHS 1990-1996.

4.3 Exploratory Analysis: A Comparison of the Women with Differing Marital Histories.

4.3.1 Marital History Groups

For the purposes of the fertility analysis, the women are divided into five groups according to their marital histories up to age forty-five. The 'continuously married' group consists of 10 022 women who do not experience marital dissolution before age forty-five. The 'separated' group consists of 1493 women who experience separation but do not remarry by age forty-five, while in the 'remarried' group are 1271 women who experience separation but then remarry and remain remarried up to age forty-five. The 're-separated' group consists of those who experience a second marital dissolution but do not remarry before age forty-five (221 women), while the 'third marriage' group represents those marrying for the third time by age 45 (91 women). This final group is all-inclusive, and incorporates those who experience a

third marital dissolution by age 45. These groupings are fairly crude, as they do not allow for when a particular marital dissolution or remarriage occurred, but they do allow for samples to be kept at a reasonable size.

Clarke and colleagues (1993) and Diamond and colleagues (1995) use 25 years after first marriage as the cut-off point for defining marital history and childbearing, but this may not quite cover the whole reproductive career of women marrying in their teens. Using age forty-five is therefore preferable, but any time limit imposed on the observation of later behaviour will have two shortcomings. First, it is assumed that the marital history of women after age forty-five is of little importance, as dissolutions or remarriages after this age are unlikely to affect fertility. However, fertility could potentially be affected, for example, by a marital dissolution after age 45 if the woman perceives her marriage to be unstable and therefore reduced her marital fertility (Thornton, 1977; Lillard and Waite, 1993). Second, the characteristics, for example, age at first marriage, of those women who separate or remarry before age 45 and those who do so after age 45 may be similar, so the groupings may be somewhat artificial. In addition, the GHS does not provide full data on cohabiting histories, so cohabitation has been ignored in the crude groupings here. This is not ideal, as some women in the 'separated' group may in fact form cohabiting unions and may thus resemble the remarried group more in behaviour. Although this would be a serious problem when considering more recent cohorts, it may be less problematic for women in the birth cohorts considered here. (Chapters 5 and 6 consider more recent cohorts and distinguish between the cohabiting and the remarried.) In spite of these limitations, the five groups provide a basis for assessing the impact of marital dissolution and remarriage on fertility. All the factors mentioned above are likely to make estimates of fertility differences between groups more conservative.

4.3.2 Background Characteristics of the Marital History Groups

Before comparing fertility behaviour in the five groups, it is important to note how other relevant characteristics vary between groups. Factors such as birth cohort, age at first marriage and educational qualifications may affect fertility independent of marital history. In addition, age at first marriage, educational qualifications and marital histories themselves may vary between birth cohorts.

Birth Cohort

Figure 4.2 shows that larger proportions of more recent cohorts have had complex marital histories; over four-fifths of women born in the 1930s remained married until age 45, while

Figure 4.2 Changes in marital histories by birth cohort.

Source: Sample of women aged 45+, GHS 1990-1996.
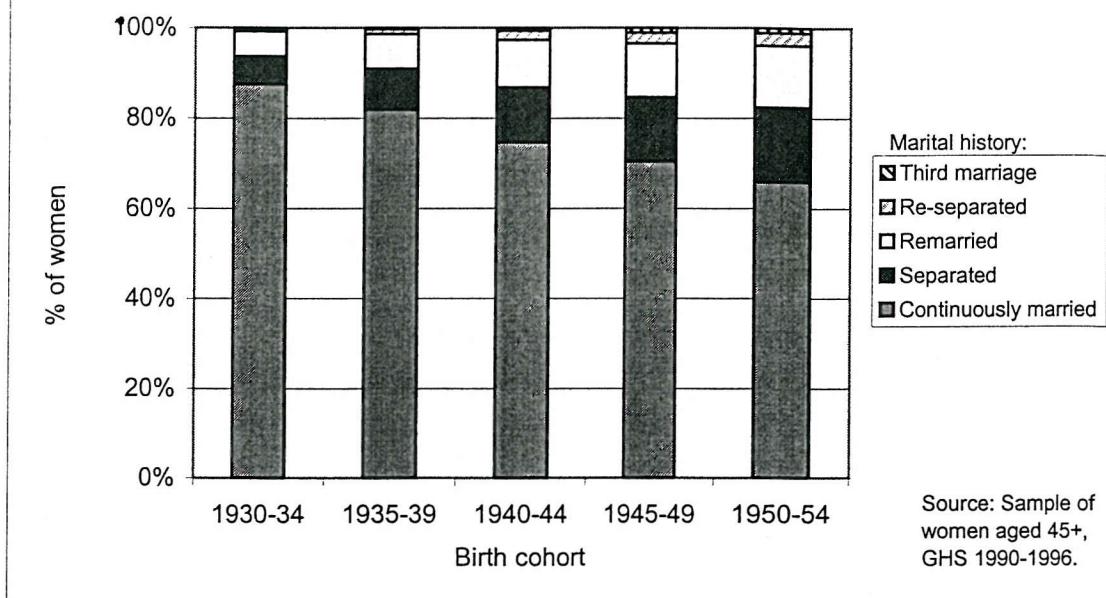
only two-thirds of the 1950-54 cohort did so. Each successive five-year cohort is more likely to experience marital dissolution, remarriage or second marital dissolution than the preceding cohort. This is consistent with vital registration data on cohort divorce and remarriage patterns (ONS, 1999b).

Age at First Marriage

Figure 4.3 shows a clear relationship between age at first marriage and marital history group. Continuously married women tend to be older at first marriage, while the proportion of women marrying as teenagers increases as marital history becomes more complex. This is likely to be because teenage marriages are more likely to end in divorce (Murphy, 1985; Kiernan, 1986; Berrington and Diamond, 1999) and the younger the age at marriage, the longer the period at risk of separation before age 45. In addition, figure 4.3 shows that women who remarry following marital dissolution tend to marry first at younger ages than those who do not remarry; this is a selection effect due to remarriage probabilities being higher at younger ages (Coleman, 1989). Among women with two marital dissolutions, half were first married as teenagers.

Between the 1930-34 and 1950-54 birth cohorts, the proportion of women in the sample marrying in their teens increased steadily from 21% to 29%, while the proportion marrying aged 20-24 declined steadily from 60% to 50%. This reflects the declining median age at marriage witnessed between the 1950s and 1970s (OPCS, 1990).

Figure 4.3 Age at first marriage, by marital history group.

Legend: Continuously married (n = 10022), Separated (n = 1493), Remarried (n = 1271), Re-separated (n = 221), Third marriage (n = 91)
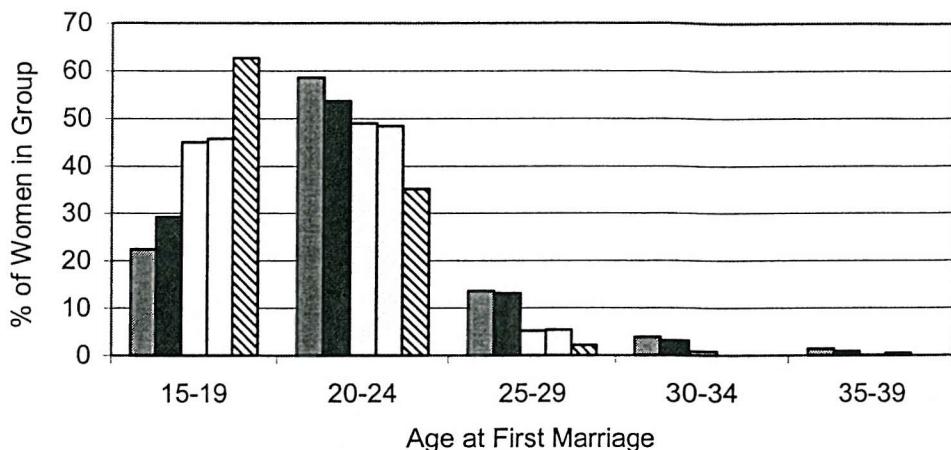
Source: Sample of women aged 45+, GHS 1990-1996.

Educational Qualifications

Cross-tabulations of highest educational qualification and marital history group (not shown) reveal no clear differences between continuously married women and those who experience marital dissolution. However, this result may be misleading, as both marital dissolution and educational achievement have increased in more recent birth cohorts; the proportion of women in the sample with no qualifications decreases from 61% in the 1930-34 cohort to 34% in the 1950-54 cohort, with a corresponding increase in the proportion with higher education qualifications from 12% to 21%. Unfortunately, an examination of the relationship between education and marital history for each birth cohort separately is hindered slightly by small sample sizes in some groups (for example only 11 women born in 1930-34 experienced two dissolutions), but still no clear pattern emerges. There is no compelling evidence that women who experience marital dissolution are different in educational qualifications to those who remain married. There is, however, evidence of an association between education and age at marriage, whereby women with no or low qualifications are more likely to have married as teenagers and less likely to have married in their late twenties or thirties than women with higher qualifications, regardless of subsequent marital history. Since those with less education tend to marry younger and young age at marriage is associated with more complex marital

histories, we might theoretically expect some association between education and marital history.

4.3.3 Differences in Fertility by Marital History

This section aims to compare the fertility behaviour of women with different marital histories, using various demographic measures. First, total family size and corresponding parity progression ratios are used to measure differentials in the quantity of children born. Second, measures of the age at first and last birth, birth interval length and premarital conception show differentials in the timing of childbearing between groups. These analyses are mainly exploratory, as multivariate analysis is needed to identify the independent contribution of each variable (see sections 4.4 and 4.5).

Completed Family Size

Most previous research comparing family sizes among different groups uses mean number of children as the measure of family size (e.g. Cohen and Sweet, 1974; Clarke et al., 1993; Diamond, Clarke and Clarke, 1995). This is clearly appropriate for addressing the question of whether marital dissolution increases or decreases fertility. However, this approach is not considered to be completely satisfactory for several reasons. First, number of children is not necessarily best considered as a continuous variable, and if it is considered as such, is likely in low fertility societies to be positively skewed, indicating the median to perhaps be a more suitable measure of the average than the mean. Second, given that British women generally have a small number of births, any differences in mean family size between groups are likely to appear very small in magnitude (e.g. Diamond, Clarke and Clarke, 1995). Third, using an average alone may mask any diversity in completed family size arising from marital dissolution and repartnering. These last two factors combined can lead to a preoccupation with explaining minor differences in mean family size between groups, when there may be genuine differences in the distribution of completed family size. Therefore, while means are presented to facilitate comparisons with other work, medians, quartiles and cross-tabulations are also used to give a more complete picture idea of the distribution of completed family sizes among different groups of women.

Table 4.2 shows that that, on aggregate, women in the sample who have experienced marital dissolution have slightly higher mean fertility (2.38) than those who remain married (2.31). This difference is significant at the five-percent level and could be taken to indicate that marital dissolution has the effect of increasing fertility, but in reality the difference of 0.07 of a

child does not make a great deal of substantive sense. Those with a marital dissolution are not a homogenous group; separated women who do not remarry have the lowest mean fertility, while remarried women have higher mean fertility than continuously married women, and mean fertility increases with marital complexity. Women with three or more marriages have the highest mean fertility, giving some support to the 'union-commitment' hypothesis that fertility increases with the number of unions.

Table 4.2 Measures of completed family size (by age 45) by marital history group.

Marital History	Completed Family Size by Age 45			
	Mean	Lower quartile	Median	Upper quartile
Continuously married (n = 10022)	2.31	2	2	3
Separated (n = 1493)	2.29	1	2	3
Remarried (n = 1271)	2.42	1	2	3
Re-separated (n = 221)	2.57	2	2	3
Third marriage (n = 91)	2.91	2	3	4
All women with a marital dissolution (n = 3076)	2.38	1	2	3

Source: Sample of women aged 45+, GHS 1990-1996.

It is difficult to compare these results to those of Clarke and colleagues (1993) or Diamond and colleagues (1995), as their sample includes women born more recently as well as those born during the period of this sample. The mean completed family sizes estimated by Clarke and colleagues (1993) for each of the four groups of women appear to be higher than those found here, but if the data for women born between 1930 and 1944 are compared to Clarke's results for women married 25 or more years prior to interview they are not dissimilar as completed family sizes for all marital history groups tend to be higher for women born earlier. Overall, Clarke and colleagues (1993) found separated and re-separated groups to have slightly higher fertility than continuously married and remarried women, while Diamond, Clarke and Clarke (1995) found remarried and re-separated women to have the higher fertility, results more consistent with those found here.

The fact that the differences in means between groups are small is underlined by the fact that the median family size is two for all groups except the women with three marriages who have a median of three children and a higher upper quartile than the other groups. It is noteworthy that the women with three marriages stand out as being different since previous work (Clarke

et al., 1993; Diamond, Clarke and Clarke, 1995) has analysed these women together with re-separated women and may, therefore, have attributed features of this combined group's behaviour to re-separation rather than to third marriage.

On investigating the distribution of completed family size (Table 4.3), a more complex picture emerges. It can be seen that continuously married women are the most likely to end up with the median family size of two children. Childlessness is highest among those who separate and do not remarry by age 45, while separated and remarried women are most likely to have an only child. Women with a marital dissolution are generally no more likely to have exactly three children than continuously married women, but are more likely to have four or more children. The proportion of women with four or more children increases with the complexity of marital history.

Table 4.3 Distribution of completed family size (by age 45) by marital history group.

Completed family size	% Distribution by Marital history group				
	Continuously married	Separated	Remarried	Re-separated	Third marriage
0	8.0	11.1	9.5	6.3	7.8
1	12.6	15.7	15.8	13.1	11.0
2	42.5	35.5	30.9	35.8	26.4
3	22.9	20.6	22.4	23.1	19.8
4	8.9	10.3	13.9	12.7	22.0
5+	5.1	6.8	7.5	9.0	13.0
n	10022	1493	1271	221	91

Source: Sample of women aged 45+, GHS 1990-1996.

The parity progression ratios (PPRs) for births up to age forty-five in Table 4.4 tell a similar story. As expected, PPRs are high for the first two births and lower for third and fourth births in all groups. Progressions to first and second birth are slightly lower for the women who are separated or remarried by age forty-five than for the continuously married, re-separated and women married three times. This supports the suggestion that, for some women, marital dissolution may reduce the completed family size by curtailing childbearing prematurely. In other cases, marital dissolution may increase family size and this can be seen clearly in the PPRs for third and fourth births. As marital histories become more complex, the likelihood of having a third or fourth birth increases steadily, with women married three times being particularly likely to progress to a third or fourth birth. For example, only 46% of continuously married women with two children went on to have a third birth, compared to 68% of women with three marriages.

Table 4.4 Parity progression ratios by marital history group.

Parity Progression Ratio	Marital History Group				
	Continuously married	Separated	Remarried	Re-separated	Third marriage
0-1	0.92	0.89	0.90	0.94	0.92
1-2	0.86	0.82	0.83	0.86	0.88
2-3	0.46	0.52	0.59	0.56	0.68
3-4	0.38	0.45	0.49	0.48	0.64

Source: Sample of women aged 45+, GHS 1990-1996.

To summarise, there appears to be less conformity to the two-child norm (Scott, Braun and Alwin, 1998) among those who have experienced marital dissolution than among their continuously married peers. Marital dissolution may be associated with either a reduction or an increase in the number of children that a woman has, giving a greater diversity in completed family size for such women. However, two children was still the most common completed family size in all groups except those marrying three times who appear to have the highest fertility, whatever measure is used. For the full picture, these analyses must incorporate age first at marriage and birth cohort – this will be done in section 4.4, so will not be elaborated upon here.

Age at First and Last Birth

Results from Diamond, Clarke and Clarke (1995) suggest that marital dissolution increases the length of the childbearing period. An analysis of age at first and last birth can confirm whether this is the case for this sample. The analyses here refer only to women with at least one birth.

For these birth cohorts (although not for more recent cohorts with higher premarital fertility), the age at first birth will be closely linked to the age at marriage, so figure 4.4 shows a very similar pattern to figure 4.3. Continuously married women are less likely to have had their first birth as a teenager and more likely to have started childbearing aged 25-34 than women who experience marital dissolution. As marital history becomes more complex, the likelihood of a teenage first birth increases and the likelihood of a first birth in the late twenties decreases. This could be due to the link between teenage births and above average risks of both first and second marital disruptions (McCarthy and Menken, 1979), the link between teenage marriage and later marital dissolution (Kiernan, 1986; Berrington and Diamond, 1999) in the case of marital teenage births, or the link between births prior to a union and later marital dissolution (Lillard and Waite, 1993; Berrington and Diamond, 1999) in the case of non-marital teenage births. Remarried women are the most likely to start childbearing aged 35+, perhaps reflecting

a minority who do not give birth until their second marriage. All these observations are reflected in the median ages at first birth (table 4.5), 24 for continuously married women but only 20-22 among women with a marital dissolution.

Table 4.5 Age at first and last birth, by marital history.

Marital History	Age at First Birth (lower quartile, median, upper quartile)	Age at Last Birth (lower quartile, median, upper quartile)	n (no. women with 1+ children)	Mean years from first to last birth	n (no. women with 2+ children)
Continuously married	21.67, 24.08, 27.00	26.00, 29.00, 32.42	9220	5.5	7954
Separated	20.58, 22.83, 25.83	24.92, 28.08, 31.08	1328	5.8	1093
Remarried	19.92, 22.17, 25.58	25.50, 29.45, 34.08	1150	7.7	949
Re-separated	19.75, 21.42, 24.08	25.33, 29.17, 33.58	207	7.9	178
Third marriage	19.00, 20.67, 23.17	25.38, 29.08, 33.04	84	8.5	74

Source: Sample of women aged 45+, GHS 1990-1996.

Figure 4.4 Age at first birth, by marital history group (women with at least one birth).

Source: Sample of women aged 45+, GHS 1990-1996

Continuously married (n = 9220) Separated (n = 1328)
Remarried (n = 1150) Re-separated (n = 207)
Third marriage (n = 84)
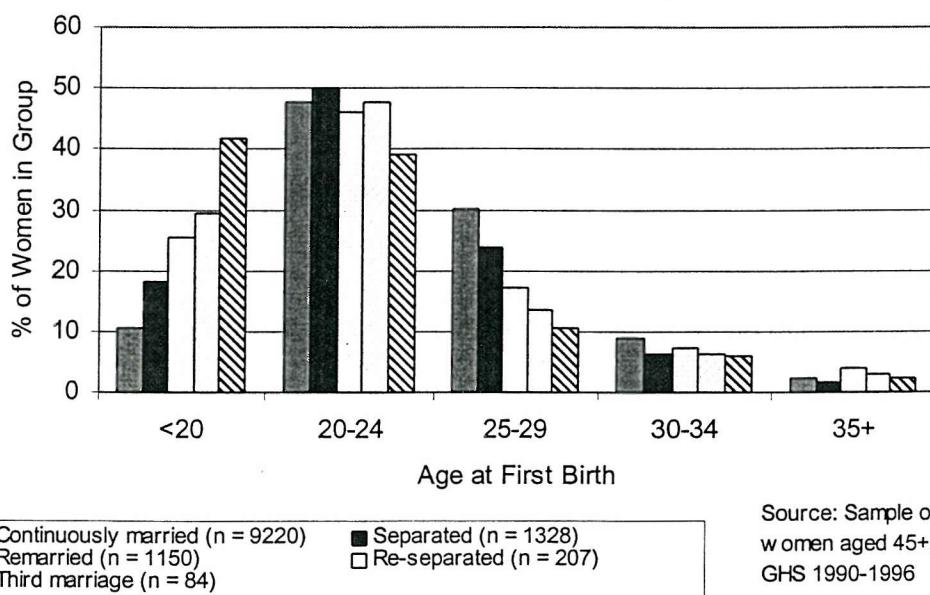
It is harder to find a clear pattern for age at last birth (figure 4.5), but two features stand out. First, women who are separated, but not remarried by age forty-five are slightly more likely than other women to have their last birth in their early twenties, suggesting that childbearing might be curtailed by separation for some of these women. Second, all women who experience a second marriage have an above average propensity to have their last birth in their late

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thirties. Table 4.5 shows that the median age at last birth is 29 for all groups, except separated women who finish about one year earlier on average. The inter-quartile range for age at last birth is greater for women with a marital dissolution, pointing to a greater diversity in the fertility behaviour of women with a marital dissolution, as compared to those who are continuously married. When combined with the lower age at first birth for women with a marital dissolution, the similar ages at last birth indicate that, on average, women with a marital dissolution have longer childbearing spans. This is confirmed by the fact that as marital history becomes more complex, the mean time from first to last birth increases (table 4.5, column 5), rising from 5.5 years among continuously married women to 8.5 years for women married three times. This may reflect completed family size but is also determined by birth interval length.

Figure 4.5 Age at last birth, by marital history group (women with at least one birth).

Legend: Continuously married (n = 9220); Separated (n = 1328); Remarried (n = 1150); Re-separated (n = 207); Third marriage (n = 84). Source: Sample of women aged 45+, GHS 1990-1996
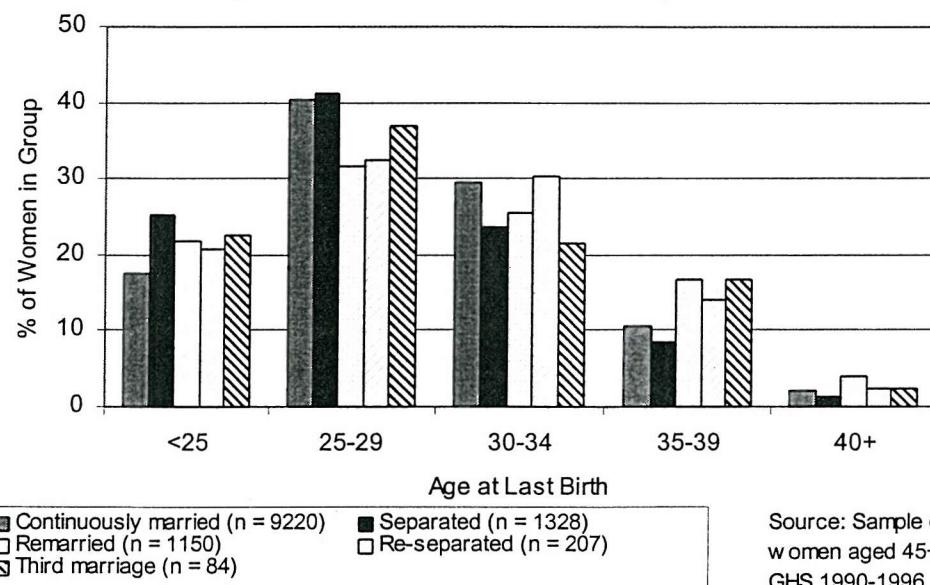
Birth Intervals

This section considers whether birth interval lengths vary by marital history. Birth intervals up to the third birth are considered here, as numbers having fourth births become rather small. When calculating birth intervals, multiple births were considered as one pregnancy, although they are treated as multiple births when calculating a woman's parity. Premarital conceptions are defined conservatively as births occurring between 1 and 7 months after marriage.

On examining the first birth interval (figure 4.6), it is noticeable that women who have experienced marital dissolution are more likely to have had either a premarital birth or a premarital conception than continuously married women. For example, 14% of re-separated women had a premarital first birth and 20% a premarital conception, compared with only 5% and 13% respectively for continuously married women. This may reflect links between premarital fertility and subsequent marital dissolution (Castro Martin and Bumpass, 1989; Lillard and Waite, 1993; Rowlingson and McKay, 1998; Berrington and Diamond, 1999) and the association of premarital conception with above average dissolution risks (Murphy, 1985; Berrington and Diamond, 1999).

Figure 4.6 Interval from first marriage to first birth, by marital history.

First Birth Interval in Months

Source: Sample of women aged 45+, GHS 1990-1996

- Continuously married (n = 9220)
- Separated (n = 1328)
- Remarried (n = 1150)
- Re-separated (n = 207)
- Third marriage (n = 84)
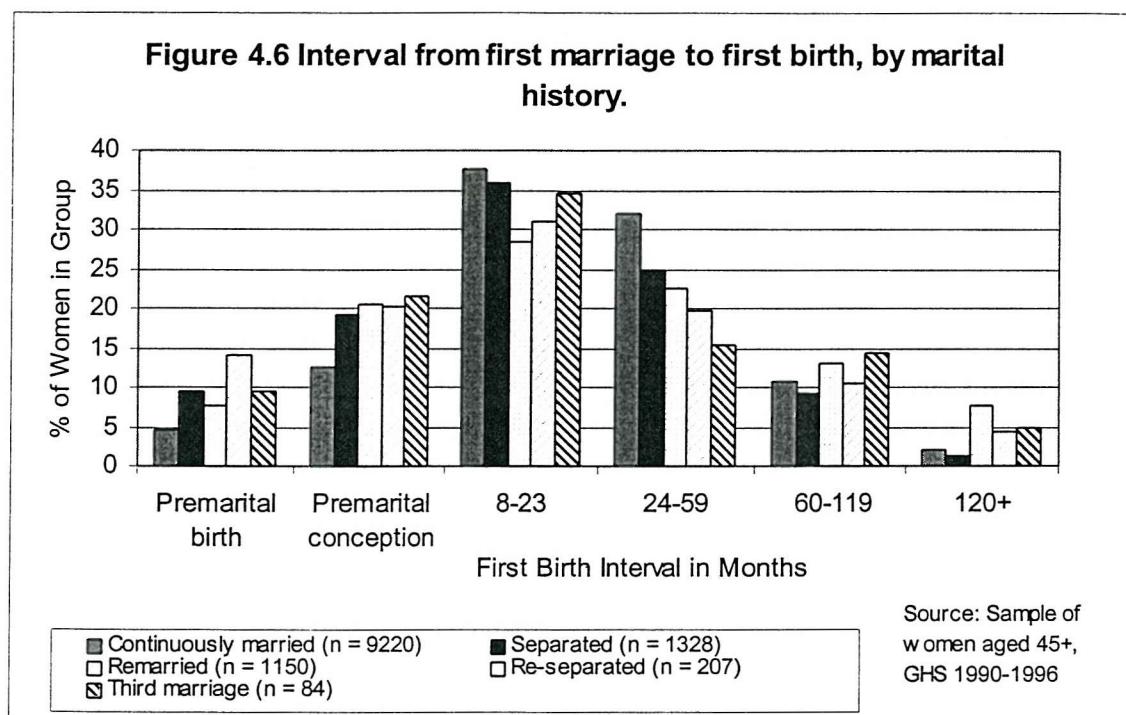
Apart from premarital births, first births occur predominantly during the first five years of marriage. The high proportion of births during the third to fifth years after first marriage among the continuously married may be explained by Murphy's (1985) finding that delaying the first birth may be associated with the lowest risk of dissolution. However, remarried and re-separated women and those married three times are much more likely than continuously married and separated women to have had their first birth over ten years after first marriage. This presumably reflects a small minority of such women starting their families during or after second marriages.

The distributions of second and third birth intervals by marital history group (figures 4.7 and 4.8) show a remarkably similar pattern. For both intervals, women that have experienced

marital dissolution are generally more likely to have a short birth interval (under two years) or a long birth interval (over five years) than continuously married women. The above average propensities for birth intervals over ten years among women who marry more than once are likely to be due to the resumption of childbearing following a remarriage.

Figure 4.7 Interval from first to second birth, by marital history.

Legend:
- Continuously married (n = 7915)
- Separated (n = 1087)
- Remarried (n = 945)
- Re-separated (n = 175)
- Third marriage (n = 74)

Source: Sample of women aged 45+, GHS 1990-1996
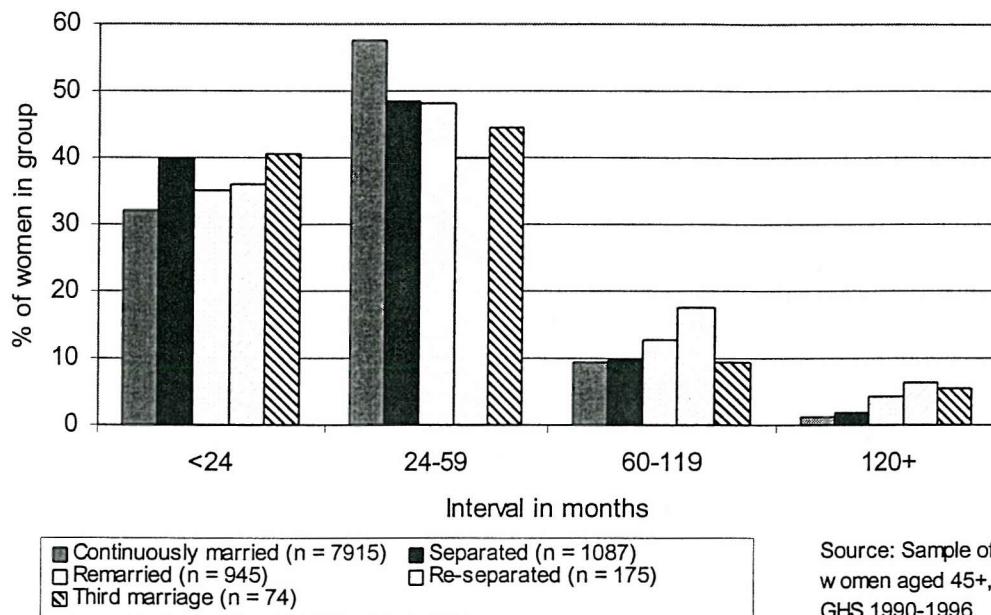
Figure 4.8 Interval from second to third birth, by marital history.

Legend:
- Continuously married (n = 3600)
- Separated (n = 558)
- Remarried (n = 547)
- Re-separated (n = 98)
- Third marriage (n = 49)

Source: Sample of women aged 45+, GHS 1990-1996
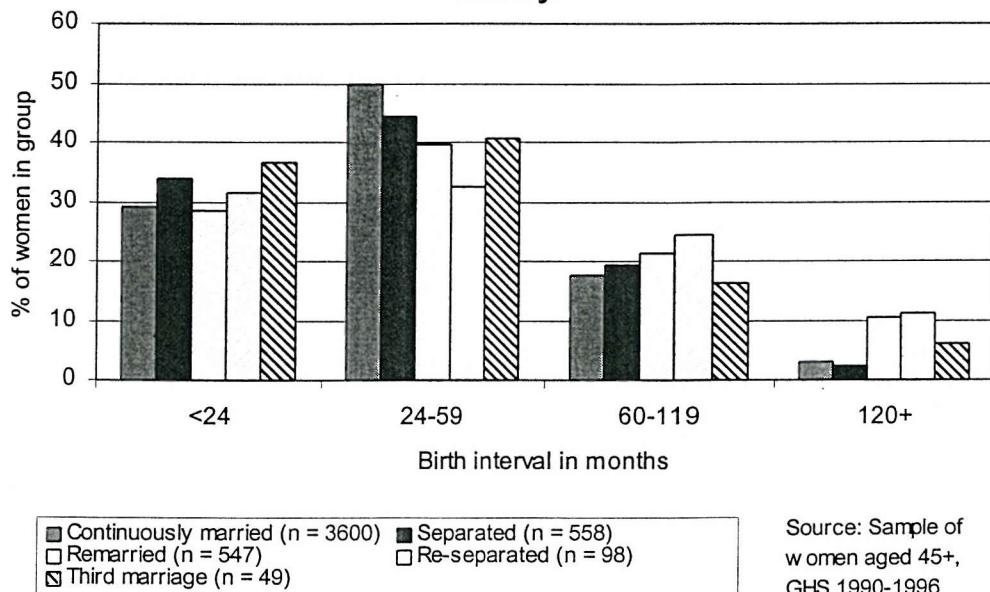
4.3.4 An Exploration of some Links between Fertility and Partnership Behaviour

The previous two sections have noted several differences between the fertility behaviour of women who remain married until age 45 and those with more complex marital histories. Clearly, multivariate analysis is needed to confirm whether these differences still exist after controlling other relevant factors. However, before doing this, some issues could benefit from a more thorough exploratory examination, in order to speculate further on the causal processes underlying the observed differences between marital history groups, as marital behaviour is not necessarily determining fertility behaviour. Two related questions of interest are investigated here.

a. Are Women who Remarry Different at Marital Dissolution to those who Remain Separated?

Section 4.3.3 showed that remarried women have a higher mean family size overall than separated women who do not remarry. Is this because remarried women are having additional births within remarriage or because they have more births before or within their first marriage? If the first option is the case, it could be that women are selected into remarriage, either by positive fertility intentions or by their characteristics at marital dissolution. Retrospective GHS data do not provide data on past fertility intentions, but, regarding characteristics at dissolution, the speculation made by Clarke and colleagues (1993, p136) that 'those women who eventually remarry will, as a group, be younger, have fewer children and be more likely to get divorced soon after marriage than their peers who do not remarry' can be assessed for its accuracy. Table 4.6 shows the mean duration of first marriage, mean age at separation and parity at separation for the four groups of women who have experienced a marital dissolution.

Table 4.6 Characteristics at first marital dissolution: separated, remarried and re-separated women and women married three times.

Marital history by age 45	Mean duration of first marriage (years)	Mean age at first separation	Parity at first separation		n
			Mean	Lower quartile, median, upper quartile	
Separated	14.2	36.3	2.2	1,2,3	1493
Remarried	5.7	29.9	1.6	0,2,2	1271
Re-separated	7.3	28.0	1.7	1,2,2	221
Third married	6.2	25.8	1.8	0,2,3	91

Source: Sample of women aged 45+, GHS 1990-1996.

It is clear that women who do not remarry (by age 45) tend to have stayed in their first marriage for around twice as many years as those who remarry and are much older on average at marital dissolution (one third are over 40, compared to only 4% of those who remarry). Although the median parity at marital dissolution is two for all groups, the mean and quartiles suggest that parities at dissolution are likely to be highest among those who do not remarry. In fact, 25% of women who remarry are childless at first separation, compared to only 13% of those who do not.

These patterns confirm that women who remarry as opposed to remaining separated or divorced are a select group who are relatively younger, at lower parities and have not been married for so long. This is consistent with Lampard and Peggs (1999) who found both age and number of children to be negatively associated with the probability of repartnering among British women. The results also support the theories that childless women are most likely to want to repartner to gain a significant other and that women at lower parities find it easier to search for a new partner and are more likely to be attractive to a prospective partner (Ermisch and Wright, 1991; Lampard and Peggs, 1999). It is also likely that some women will be selected into remarriage because of their desire for a(nother) child (Cohen and Sweet, 1974).

Two conclusions may be drawn from these findings. First, the higher overall fertility of remarried women compared to separated women is probably not due to higher fertility during first marriage, as these women have lower fertility at dissolution than their peers who do not remarry, perhaps because they were married for a shorter time. Second, the higher overall fertility of remarried women must be attributed to their characteristics at marital dissolution as well as the fact that they remarry per se. Given that women who do not remarry are older and have more children at dissolution, one cannot assume that they would also have higher fertility, had they remarried.

b. Why Might Women with More Complex Marital Histories have Larger Families?

Table 4.2 showed that re-separated women and those married three times have the highest mean completed family size. Clarke and colleagues (1993) found the same result and highlight the circular causation relating to the fertility and partnership behaviour of this group. They suggest two possible mechanisms, the first being that a high number of children in the first marriage places a strain on the second marriage and contributes to its dissolution. This mechanism may of course also apply to the first marital dissolution. The second possible mechanism is that childbearing is high in this group because of the children born into the second marriage and that this is independent from the reasons for a second marital dissolution.

A simple way of investigating which of these mechanisms is more important is to examine women with three or more children (as three can be taken as an above average number of children) and note when the third birth occurs relative to partnerships. The third birth occurring in (or before) the first marriage is consistent with the first mechanism, whereby re-separated women have high fertility that contributes to their marital dissolutions. Alternatively if the third birth occurs after first marital dissolution, the second mechanism may be in action, in other words, fertility is high because of the multiple partnerships. In order to examine this properly, separated and remarried women must be analysed too, because the second mechanism, for example, may also apply to the remarried group.

Table 4.7 Percentage of third births occurring within or before first marriage by completed family size among women with three or more children who have experienced a marital dissolution (numbers in brackets).

Marital history by age 45	Completed family size by age 45			
	3	4	5	6+
Separated	89 (308)	95 (154)	95 (55)	96 (46)
Remarried	43 (285)	59 (177)	72 (53)	83 (41)
Re-separated	29 (51)	61 (28)	60 (10)	90 (10)
Married three times	28 (18)	60 (20)	80 (5)	86 (7)

Source: Sample of women aged 45+, GHS 1990-1996.

Table 4.7 shows, as expected, that nearly all third births to women who do not remarry occur before marital dissolution. Among the three groups that do enter a second marriage, only a minority of those with three children in total has their third birth in the first marriage. This suggests that the majority of those with a completed family size of three have had a birth after their first marital dissolution and thus their second marriage may be seen as the reason for their above average family size (either directly or because a child conceived or born after first marriage led to the remarriage). However, around 60% of women with four children and a higher proportion of those with more than four children have their third birth during or before their first marriage. For these women, above average fertility occurred before marital dissolution and so repartnering cannot be seen as the sole cause of the high fertility. It is more likely that the high fertility has contributed to the first, and in some cases second, marital dissolution. This may also be the case with the separated women who do not remarry, but this group may be less successful at repartnering at a high parity, perhaps due to their age at dissolution.

Therefore Clarke and colleagues' first suggested mechanism, high fertility contributing to marital dissolution is likely to apply to women who do not remarry and those with four or more children, who would perhaps have high fertility irrespective of their partnership stability. The second suggested mechanism, high fertility being due to the existence of later unions may be more relevant to women with three children, who have perhaps had an additional child in their second marriage. This is a fairly simplistic way of analysing the problem, but has shed some light on the issue.

Finally, it should be noted that here we have considered direct causality between fertility and partnership behaviour. It is possible that some other confounding factor(s) is linked to both high fertility and divorce proneness. Cohen and Sweet (1974) suggest for example that low socio-economic status, young age at first marriage or premarital pregnancy might be associated with both high fertility and a high risk of divorce. Some of these factors will be controlled in sections 4.4 and 4.5.

4.4 Modelling the Effects of Marital Dissolution and Repartnering on Completed Family Size.

The aim of this section is to determine whether marital dissolution and repartnering are associated with completed family size, net of other factors. For example, those with two marital dissolutions were seen to have the largest completed family sizes (section 4.3.3) but is this directly associated with their marital dissolutions or simply a result of their tendency to marry at the youngest ages? Similarly, women who separate and do not remarry are the most likely to remain childless - is this likely to be due to their marriages ending prematurely or might there be another reason?

4.4.1 Method

A variable such as number of children can be treated as continuous, ordinal or nominal (Menard, 1995). Treating number of children as a continuous variable was not considered desirable here, given that the majority of women only have a very small number of children (earlier research (e.g. Cohen and Sweet, 1974) did however use this method). Treating number of children as an ordinal variable (and thus using a proportional odds model) would assume a trend upward or downward in completed family size at different values of the independent variables (Agresti, 1996); for example that the number of children would clearly either

increase or decrease if marital dissolution had been experienced. Agresti (1996, p215) notes that the proportional odds model is not suitable when 'response distributions differ in their dispersion rather than their average.' Exploratory analysis has suggested that marital dissolution may be associated with both smaller and larger than average family sizes, so the ordinal method is likely to be inappropriate here. For this reason, completed family size has been treated as a nominal variable with five categories: 0, 1, 2, 3 and 4+ children. The probabilities of having 0, 1, 3, or 4+ children against the probability of having the median number of children, two, are estimated using a multinomial regression model. This model has the form shown below, where j takes the values of 0, 1, 3 or 4+ (adapted from Agresti, 1996):

$$\log\left(\frac{\Pi_j}{\Pi_2}\right) = \alpha_j + \beta_j x$$

This method allows a more precise identification of any effect of marital dissolution or repartnering on having a particular family size, rather than simply concluding that marital dissolution is associated with increased or decreased fertility without any idea of the parity composition of this increase or decrease.

The number of relevant independent variables available to enter into the model is not large, due to the survey being retrospective. No problems were encountered with entering birth cohort or education into the model. Women were grouped into five-year birth cohorts and six groups according to highest education qualifications – higher education, A level or equivalent, O level or equivalent, CSE or equivalent, other (including foreign qualifications) or none. However the possible combinations of marital history, age at marriage and length of time spent in unions did raise some difficulties.

Marital dissolution and repartnering can be measured in various different ways, but marital history group as outlined in section 4.3.1 was used as an independent variable for this model. Alternative measures tested included number of marriages and number of marital dissolutions (as in Lightbourne and Singh, 1982), but the marital history categories used here encompass both these measures. Age at marriage was tested in the models as a four-category dummy variable. In order to find out whether marital history was associated with completed family size due to a possible reduction in the time spent in unions, an 'exposure' variable was also created. This was calculated as the number of months spent in marriages or recorded cohabitations up to age 45. The measurement of exposure is not ideal for several reasons. First, the concept of exposure assumes a month of exposure at age 24 to be equal in terms of fertility

potential to a month of exposure at age 44, not allowing for changes in fecundity over time. Second is the assumption that a month of exposure at the beginning of a marriage is equal to a month later in the marriage, when the frequency of intercourse may be lower. Third, cohabiting spells ending in dissolution are not recorded in the GHS, so the number of months of exposure may be underestimated for some women. This will make any relationship between exposure and fertility appear to be weaker than it really is. An alternative would be to only include months of exposure within marriage, but this would underestimate true exposure even more.

Ideally, marital history, age at first marriage and exposure would be included in one model, but potential multicollinearity (Lewis-Beck, 1980) between these three variables prevents this. For women that have experienced marital dissolution, months of exposure is an additional variable of interest, but for continuously married women who did not cohabit prior to marriage, months of exposure predicts age at first marriage. If premarital cohabitation is counted as exposure, the prediction is not exact. However, structural zeros would still be present in the model, as continuously married women who married below age 25 cannot by definition be exposed for fewer than 20 years by age 45.

Therefore two final models are presented, the first incorporating marital history and age at marriage (table 4.8) and the second including marital history and exposure (table 4.9). In the first model, exposure was tested as a set of four dummy variables: 0-9 years, 10-14 years, 15-19 years or 20+ years. Although it would be preferable to test the category 0-4 years separately from 5-9 years, hardly any women with two or more marriages were exposed for less than five years, and continuously married women could not be exposed for less than 5 years due to the restriction of first marriage by age 40 placed on the original sample. In fact, nearly three-quarters of the sample, including many of the women with non-intact marriages spent twenty years or more in unions by age 45. In the second model, women married three times are combined with re-separated women due to their small numbers. All possible two-way interactions were tested in both models.

4.4.2 Results

Table 4.8 shows the results from the model incorporating marital history and age at first marriage. The parameter estimates for the intercept show that two children is the most likely outcome for continuously married women born in 1930-34, while the negative parameter estimates for other family sizes for later-born cohorts suggest a stronger move towards the

Table 4.8 Multinomial model of completed family size, with 2 children as reference category (n = 13098): marital history and age at first marriage as main independent variables.

Significance: * p<0.05; ** p<0.01; *** p<0.001

Independent variables		Parameter estimates by completed family size			
		0	1	3	4+
Intercept		-1.739 ***	-1.082 ***	-0.656 ***	-1.186 ***
Marital history up to age 45	Continuously married	0.000	0.000	0.000	0.000
	Separated	0.779 ***	0.338 **	0.021	0.348 *
	Remarried	0.833 ***	0.634 ***	0.228 **	0.630 ***
	Re-separated	0.368	0.377	0.137	0.594 **
	Three marriages	0.601	0.176	0.102	0.820 *
Age at first marriage	<20	-0.548 ***	-0.281 **	0.323 ***	1.032 ***
	20-24	0.000	0.000	0.000	0.000
	25-29	0.538 ***	0.254 **	-0.205 *	-0.409 ***
	30+	1.884 ***	0.932 ***	-0.573 *	-1.225 **
Birth cohort	1930-34	0.000	0.000	0.000	0.000
	1935-39	-0.290 *	-0.375 ***	-0.100	-0.223 *
	1940-44	-0.337 **	-0.341 **	-0.106	-0.733 ***
	1945-49	-0.388 **	-0.397 **	-0.415 ***	-1.282 ***
	1950-54	-0.210	-0.090	-0.334 *	-1.485 ***
Educational qualifications	Higher education	-0.177	-0.098	0.178 *	0.165
	A level	0.280	0.328	0.220	0.449 *
	O level/ GCSE	0.000	0.000	0.000	0.000
	CSE	0.116	0.039	0.023	-0.211
	Other	-0.218	0.089	0.314 *	0.923 ***
	None	0.361 ***	0.285 **	0.260 ***	0.743 ***
Interactions					
Separated ×	First married aged 25-29	0.566 *	0.564 *	-0.520	0.283
Separated ×	First married aged 30+	-0.160	1.363 **	-0.585	1.295 *
Remarried ×	First married aged 25-29	0.626	0.841 *	0.386	0.241
Separated ×	No educational qualifications	-0.455 *	-0.106	0.219	0.114
Married 3 times ×	Born 1940-44	1.485	1.475	0.853	1.575 *
First married aged 25-29 ×	A level qualifications	-0.146	-0.654	0.272	0.895
First married aged 30+ ×	Born 1945-49	0.654 *	0.182	0.959 **	1.664 **
First married aged 30+ ×	Born 1950-54	-0.645	-1.772 *	-0.752	1.586
A level qualifications ×	Born 1940-44	-1.037 *	-0.315	-0.611 *	-0.859 *
No educational qualifications ×	Born 1945-49	-0.345 *	-0.059	0.102	-0.015
First married aged <20 ×	Born 1935-39	0.309	0.312	0.028	-0.279 *
First married aged 30+ ×	Born 1935-39	0.485	0.455	0.509	1.047 *

two-child family and in particular a move away from families of four or more children among continuously married women born after 1940. In contrast, it is noteworthy that all the parameter estimates for women with a marital dissolution are positive, indicating a more diverse distribution of completed family sizes among these women.

After controlling age at first marriage, birth cohort and education in the model, the results for marital history are very similar to those found in the earlier exploratory analysis (table 4.3) where, compared to continuously married women, separated and remarried women were more likely to have 0, 1, 4 or more children and less likely to have 2 or 3 children by age 45. Interactions also show that, compared to other separated women, those married in their late twenties were particularly likely to have fewer than two children and those married in their thirties were particularly likely to have an only child, but also more likely to have four or more children than their late marriage would suggest. Remarried women were significantly more likely to have any other family size than two children than their continuously married counterparts, but those who first married in their late twenties and then remarried were particularly likely to have one child only. Both these results suggest that marital dissolution and remarriage lead to diversity in completed family size, rather than a definite increase or decrease. However, re-separated women and those married three times (particularly those born 1940-44 in the latter case) were significantly more likely to end up with four or more children than continuously married women, as in the exploratory analysis. This suggests that multiple dissolutions may be associated with large family sizes in many cases and that this is not simply due to differences between groups in age at first marriage as the latter is controlled in the model.

Women married as teenagers were significantly more likely to have 3 or more children and significantly less likely to have fewer than two children than women married in their early twenties, while the opposite was true for those married at age 25 or above, confirming a link between early marriage and large family size among these cohorts. Compared to women with O level standard qualifications, those with a degree were more likely to have 3 children and those with A levels were more likely to have 4 or more children. Those with no qualifications were significantly more likely to have any family size but two, but the positive effect of having no qualifications on remaining childless was weaker among separated women. Various other interactions between birth cohort, age and marriage and education are present, but these are not the main focus of this thesis.

To summarise, the first model suggests that marital dissolution is associated with a greater diversity in completed family size for separated and remarried women and an increased likelihood of having a large completed family for re-separated women and those married three times. We might expect the higher probabilities of zero or one child among separated and remarried women seen in this model to be a result of their shorter time in unions relative to

Table 4.9 Multinomial model of completed family size, with 2 children as reference category (n = 13098): marital history and exposure as main independent variables.
Significance: * p<0.05; ** p<0.01; *** p<0.001

Independent variables		Parameter estimates			
		0	1	3	4+
Intercept		-1.697 ***	-1.074 ***	-0.568 ***	-0.912 ***
Marital history up to age 45	Continuously married	0.000	0.000	0.000	0.000
	Separated	-0.098	-0.014	0.352 ***	0.744 ***
	Remarried	0.516 ***	0.488 ***	0.394 ***	0.972 ***
	Re-separated/ 3 marriages	0.021	-0.275	0.309	1.266 ***
Exposure (time in unions)	0-9 years	2.757 ***	1.043 *	-1.556	-2.917 *
	10-14 years	0.840	0.544	-0.938 *	-2.438 ***
	15-19 years	0.514 ***	0.240 **	-0.420 ***	-0.707 ***
	20+ years	0.000	0.000	0.000	0.000
Birth cohort	1930-34	0.000	0.000	0.000	0.000
	1935-39	-0.278 *	-0.342 **	-0.108	-0.348 ***
	1940-44	-0.435 **	-0.392 ***	-0.131	-0.714 ***
	1945-49	-0.420 **	-0.423 ***	-0.419 ***	-1.289 ***
	1950-54	-0.230	-0.085	-0.375 *	-1.544 ***
Educational qualifications	Higher education	-0.147	-0.079	0.164 *	0.085
	A level	0.168	0.278	0.139	0.380
	O level/ GCSE	0.000	0.000	0.000	0.000
	CSE	0.017	-0.005	-0.045	-0.222
	Other	-0.236	0.073	0.355 **	1.034 ***
	None	0.253 *	0.245 **	0.319 ***	0.881 ***
Interactions					
Separated ×	Exposure 0-9 years	-1.223 ***	-0.042	-0.258	0.251
Separated ×	Exposure 10-14 years	-1.139 ***	-0.832 **	-0.178	0.395
Remarried ×	Exposure 0-9 years	-1.219 *	-0.297	0.347	0.250
Remarried ×	Exposure 10-14 years	-1.294 ***	-0.332	-0.012	0.659
Re-separated ×	Exposure 0-9 years	-2.552 **	-0.153	0.334	-0.574
Re-separated ×	Exposure 10-14 years	-1.472 *	0.113	0.347	0.819
Born 1935-39 ×	Exposure 0-9 years	0.299	0.574	0.773	2.262 *
Born 1940-44 ×	Exposure 0-9 years	0.381	0.565	1.181	2.703 *
Born 1945-49 ×	Exposure 0-9 years	0.658	0.618	1.125	2.788 *
Born 1950-54 ×	Exposure 0-9 years	-0.432	-1.206	0.857	3.332 **
Born 1935-39 ×	Exposure 10-14 years	1.202 *	0.584	0.715	1.512 *
Born 1940-44 ×	Exposure 10-14 years	1.416 **	0.733	0.826	1.742 **
Born 1945-49 ×	Exposure 10-14 years	1.362 **	0.432	0.750	1.642 *
Born 1950-54 ×	Exposure 10-14 years	1.304	0.443	1.126	2.538 **
Born 1940-44 ×	A level qualifications	-0.964 *	-0.235	-0.634 *	-0.975 **
Born 1945-49 ×	No educational qualifications	-0.425 **	-0.099	0.114	0.066
Exposure 15-19 years ×	A level qualifications	0.200	-0.553	0.543	1.002 **
Exposure 15-19 years ×	CSE qualifications	0.401	0.188	0.525 **	0.347

continuously married women and can check this expectation in the second model, where time spent in unions is controlled (table 4.9).

The results in table 4.9 confirm the expectation for separated women, as separation is no longer positively associated with small family sizes once exposure is controlled; in fact separation is associated only with a significantly higher probability of having three or more children in this model. However, remarried women are still more likely than those in intact marriages to have zero or one child and this cannot be explained by any reduction in exposure.

The main effects for exposure pertain only to the continuously married reference group and show an older age at first marriage to be associated with a smaller completed family size as would be expected. The effects of the interactions between marital history and exposure for women with a marital dissolution on completed family size are best seen in figures 4.9 to 4.13. On comparing women with over 20 years exposure in the five graphs, continuously married women stand out as being the most likely to have two children and least likely to have four, while re-separated women are most likely to have four children. Childlessness is at a very similar level in all four groups among women exposed for over 20 years. Among women in unions for less than ten years, re-separated women are least likely to remain childless and most likely to have two or three children, suggesting that this group have children fairly rapidly. Figure 4.9 clearly shows that women who marry late and do not experience dissolution are much more likely to remain childless than those whose exposure is reduced by separation, implying that age at first marriage may be a more important determinant of family size than exposure, because of its greater sensitivity to women's age (and perhaps therefore fecundity) when entering the first union.

The second model, like the first, suggests that cohorts born later were more likely to have exactly two children than women born in 1930-34. However the interactions in this model suggest this to be less the case at shorter exposures, where the reductions in women having zero or four or more children in later cohorts, for example, are much smaller. The diversity in family size remains then for later-born cohorts of women in unions for less than 15 years.

Figure 4.9 Predicted probability of remaining childless by age 45.

Probability (y-axis): 0 to 0.7

Years in recorded unions (x-axis): 0-9, 10-14, 15-19, 20+

Legend:
- Continuously married
- Separated
- Remarried
- Re-separated

Source: Model in table 4.9
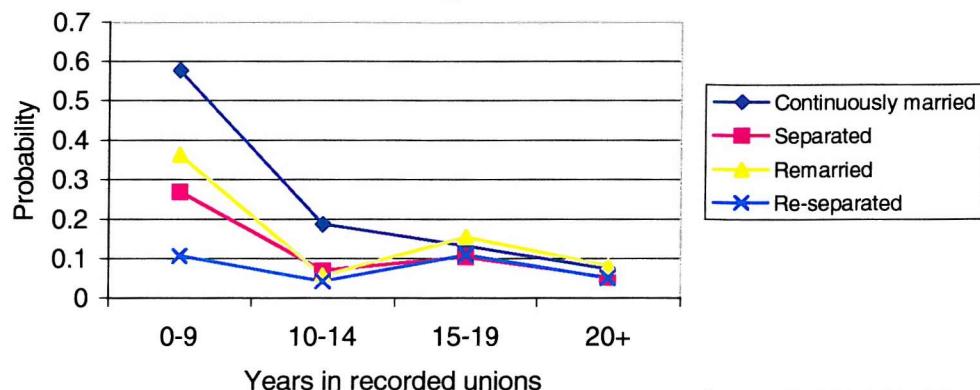
Figure 4.10 Predicted probability of having exactly one child by age 45.

Probability (y-axis): 0 to 0.4

Years in recorded unions (x-axis): 0-9, 10-14, 15-19, 20+

Legend:
- Continuously married
- Separated
- Remarried
- Re-separated

Source: Model in table 4.9
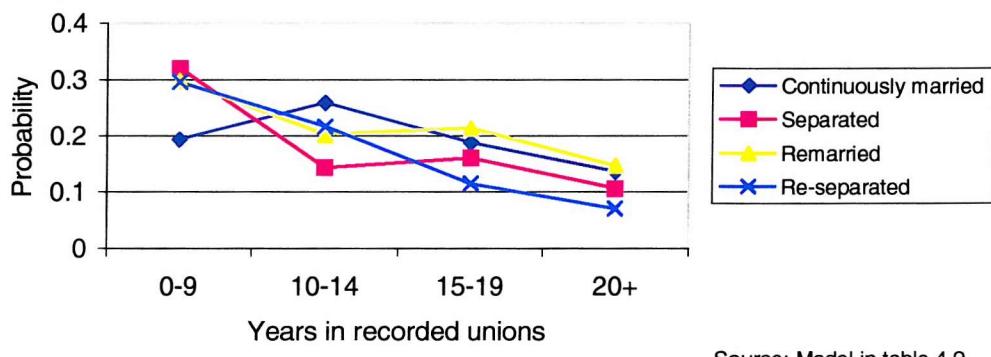
Figure 4.11 Predicted probability of having exactly two children by age 45.

Probability (y-axis): 0 to 0.7

Years in recorded unions (x-axis): 0-9, 10-14, 15-19, 20+

Legend:
- Continuously married
- Separated
- Remarried
- Re-separated

Source: Model in table 4.9
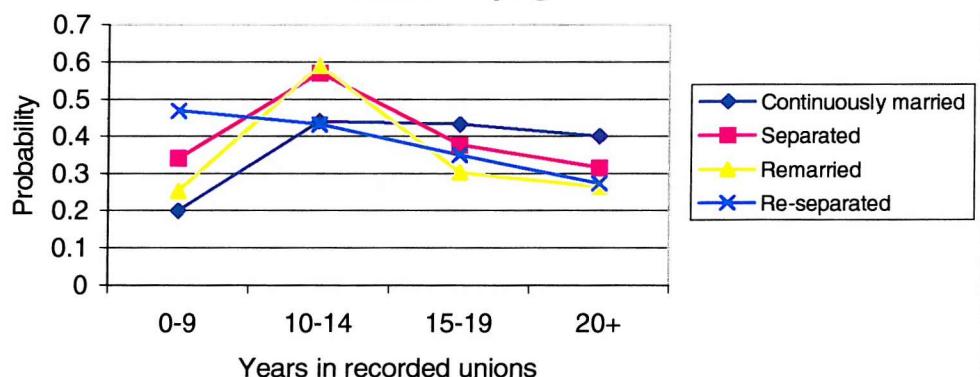
Figure 4.12 Predicted probability of having exactly three children by age 45.
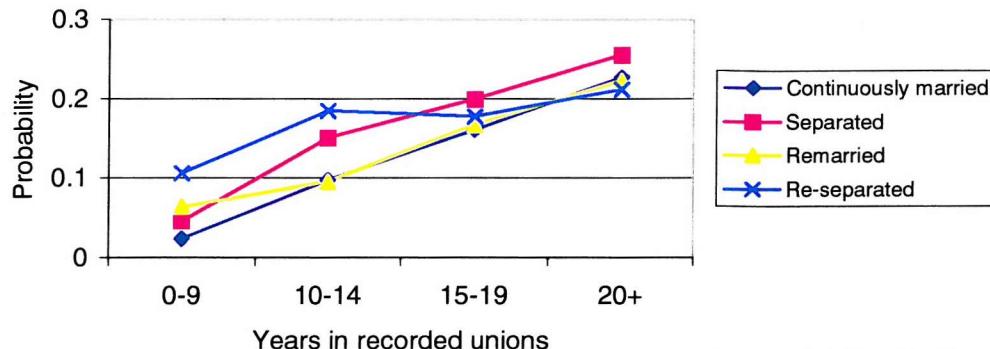
Source: Model in table 4.9

Figure 4.13 Predicted probability of having four or more children by age 45.
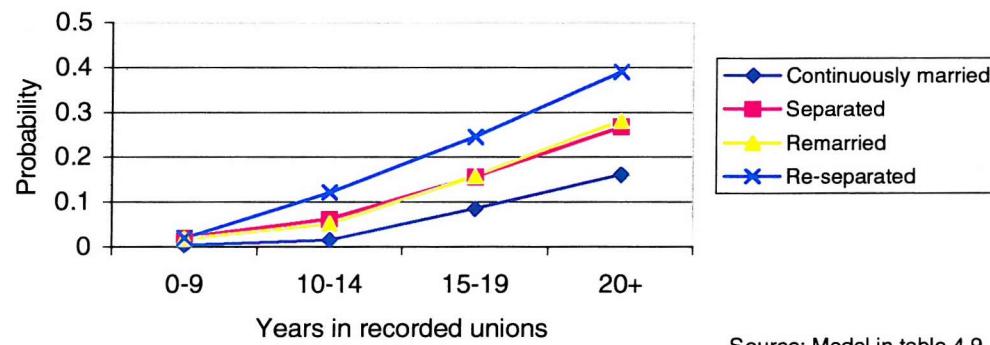
Source: Model in table 4.9

Notes

Figures 4.9 to 4.13 refer to women born 1930-34, with O level equivalent qualifications, who did not cohabit prior to first marriage.

The figures referring to remarried and reseparated women exposed for 5-9 years include <10 women who were exposed for fewer than 5 years. No married women were exposed for less than 5 years by age 45, as women marrying after age 40 were excluded from the original sample.

<u>4.4.3 Discussion</u>

The models in this section have shown that marital history is associated with completed family size and that this is still the case when age at first marriage or time spent in unions is controlled. For some women, separation without remarriage is associated with small family sizes due to having spent less time in a union. For other women, separation appears to be associated with large family sizes and this could be due to a link between high fertility and subsequent marital dissolution. Remarried and re-separated women also have above average probabilities of having four or more children, probably for similar reasons; marital dissolution and repartnering in themselves are unlikely to be the sole cause of high fertility, but in contrast, high fertility in or before the first marriage may be linked to marital dissolution.

Remarried women, however, were found to have high probabilities of remaining childless or having an only child, as well as having a large family. Perhaps the safest conclusion to draw from this result is that women who remarry and do not experience a second marital dissolution are the most heterogeneous group. Some may have large families in their first marriage, leading to an increased risk of dissolution and perhaps a greater desire to remarry. Others may have large families due to additional childbearing within their remarriage. The second model indicated that women who remarry and remain childless or have only one child do not do so because of a lack of time in unions. This group may also be heterogeneous, including intentionally childless women, those whose first marriage dissolved due to undesired infertility and those remarrying at an age when they felt too old or were less able to have a first or second child. Although the results for separated women do not initially appear to lend any support to the mechanism of instability prior to separation depressing marital fertility, it is possible that some of the three-quarters of remarried women with one child who had that child before or during their first marriage did not continue childbearing in that marriage due to marital discord and then did not resume childbearing in their second marriage due to age, infertility, lack of desire for children or fear of a second dissolution.

Some limited support has been found for both the 'union-commitment' and 'exposure' hypotheses outlined in section 4.1.1. In both models, women married twice were more likely to have three or more children than continuously married women and those married three times were particularly likely to have four or more children in total, results consistent with the 'union-commitment' hypothesis. However, the fact that women who separated but did not remarry also had a higher probability of having a large family than those who were also married once but did not experience a dissolution suggests that the 'union-commitment' effect is not the only process at work here. Time spent in unions was found to be associated with

completed family size and the above average probability of separated women having 0 or 1 children by age 45 was found to be a result of some women in this group being in a union for less time, consistent with the 'exposure' hypothesis. However, in a country such as Britain where contraception is widely available and sex and childbearing frequently occur outside of unions, we would not expect so much importance to be attached to exposure in the biological sense (although unintended conceptions may be more likely to occur and be carried to term within established unions than outside them). Other meanings may be attached to the length of exposure in unions than purely the biological risk of conception. As it is culturally more acceptable to have a child within a union (particularly among older cohorts), time spent in a union could be regarded as the time exposed to the chance of deciding to have a child in an appropriate setting. Alternatively, other explanations could be put forward for the apparent link between separated women and small family sizes among those exposed for short periods. It could be that childless women find it easier than parents to separate relatively soon after marriage, or that instability early on in a relationship depresses fertility as well as leading to early separation.

This section has investigated the links between marital dissolution and completed family size. Women with a marital dissolution were found to have a longer period between first and last birth (section 4.3.3), so the following section explores whether there is a relationship between marital dissolution and births to older women.

4.5 Marital Dissolution and Births to Older Women

In chapter three, 22.7% of British births occurring after marital dissolution were found to be occurring to women aged 35 or above, compared with only 8.3% of all births (table 3.10; data from retrospective sample referring to years 1977-1995). This finding suggests a possible link between marital dissolution and births at older ages. This chapter begins by investigating this link for women born between 1930 and 1954 and then explores in-depth the childbearing and marital histories of women who have births aged 40 and above. Age at last birth is then modelled to find out whether marital dissolution is associated with age at last birth and if so, via what mechanism.

4.5.1 Later Childbearing and Marital History: Exploring the Links

Although table 4.5 showed the median age at last birth to be quite similar for the five marital history groups, figure 4.5 showed that women married twice or more were more likely than

other women to have their last birth in their late thirties or early forties than continuously married or separated women. Here, table 4.10 shows a clear difference by marital history in the percentage of women with a birth of any order at age 35 or above and 40 or above. Women who separate and do not remarry are the least likely to have a birth at either 35+ or 40+, perhaps because most do not resume childbearing after the separation. In contrast, remarried women and those with more complex histories are more likely to have births aged 35+ or 40+ than women in stable marriages. Remarried women are the most likely to have older births (perhaps because their later fertility is not curtailed by another separation as it may be for the re-separated group). The number of women in the sample, the proportion of women having two or more births aged over forty is very small, with a quarter of these cases being attributed to multiple births, but the proportion with two late births is slightly higher among remarried and re-separated women, as is the proportion with a first birth at age forty or above.

Table 4.10 Percentage of women with a birth at older ages, by marital history group.

Marital history to age 45	% women with a birth at age 35+ (No. of women)	% women with a birth at age 40+ (No. of women)
Continuously married	11.64 (10022)	1.95 (10022)
Separated	8.71 (1493)	1.21 (1493)
Remarried	18.96 (1271)	3.70 (1271)
Re-separated	15.38 (221)	2.26 (221)
Third marriage	17.58 (91)	2.20 (91)

Source: Sample of women aged 45+, GHS 1990-1996.

If it is the case, as table 4.10 suggests, that marital dissolution followed by remarriage is associated with a higher incidence of childbearing at older ages, it is possible that there might be a link between the increase in divorce rates and the increasing fertility rates of women in their late thirties and (to a lesser extent) early forties witnessed in Britain since 1975. This would depend on rates of repartnering into cohabiting and marital unions and propensities to have children in each type of union. Interestingly, ONS data show that women aged 40 and above are the only group where non-marital fertility rates exceed marital fertility rates (ONS, 1997d); it is possible that this may partly reflect births to older women cohabiting following marital dissolution. In 1995, 65% of non-marital births to women aged 35+were jointly registered by two parents living at the same address, implying cohabitation (ONS, 1997d), but

we do not know whether these women are previously married. From vital registration (ONS, 1997d) it is also possible to calculate that the proportion of births to women aged 35+ occurring to remarried women has fallen, from 19.5% in 1985 to 14.6% in 1995, perhaps reflecting the move away from remarriage to cohabitation following marital dissolution. Data with full cohabitation histories would be needed for a thorough examination of this issue; the 1998 GHS could perhaps be used to explore this issue further.

4.5.2 An Investigation of Women with Births at Age 40-44

The possible fertility patterns associated with having a late birth were investigated by examining the ages at all births for the 267 women in the sample with a birth at ages 40 to 44 (the very few births at age 45 and above are excluded as some women are censored at age 45). Three possible 'reasons' for having a late birth are proposed here – a late start to childbearing, a large number of children leading to a late final birth, and a particularly long preceding birth interval that leads to a late birth. Compared to continuously married women, those who remarry might be expected to have above average fertility and also perhaps a long birth interval around the time of marital dissolution. Remarried women who were childless in their first marriage might also start their childbearing late. To see whether these assertions hold, the occurrence of the three proposed fertility patterns associated with a late birth was found for women with different marital histories (table 4.11). For this analysis, remarried and re-separated women and those with third marriages were combined due to small sample sizes. The small sample size for separated women reflects the low proportion with a birth at age 40+ in this group. Many women exhibited a combination of two patterns, usually a high number of children and a long birth interval, therefore the percentages in table 4.11 add up to more than one hundred.

Over one-quarter of remarried women with a late birth *started* childbearing at a relatively late age, all having their first child in their second marriage. However, a similar proportion of continuously married women with a late birth started their family after their 35th birthday, many not marrying until their late thirties, so late initiation of childbearing is not just found among the remarried. Similarly, large families are clearly associated with late childbearing among continuously married, separated and remarried women, with around two-thirds of the women in all three groups having three or more children.

We might expect long birth intervals to be a particular feature of the period between marital dissolution and remarriage and this was confirmed; 52% of remarried women had at least six

Table 4.11 Proposed fertility patterns associated with a late birth, for women with a birth at age 40-44, by marital history group.

% of women		Marital History to age 45		
Fertility pattern associated with late birth		Continuously married	Separated	Remarried, re-separated, third marriage.
Late start to childbearing	First child aged 35-39	15.4	0.0	11.1
	First child aged 40+	11.8	16.7	16.7
High completed fertility	3 children	21.0	16.7	22.2
	4 children	16.4	27.8	16.7
	5+ children	28.2	22.2	25.9
Long birth interval preceding birth at age 40+	6-9 year interval	23.1	11.1	9.3
	10+ year interval	25.1	61.1	42.6
No. of women with a birth at age 40-44		195	18	54

Source: Sample of women aged 45+, GHS 1990-1996.

years between their birth aged 40-44 and the preceding birth. Nearly all of the long birth intervals in this group occurred around the period of dissolution and repartnering, with a common pattern being a long period between preceding birth and separation or separation and repartnering, followed by a birth very quickly after the formation of a new relationship. The fact that a high proportion of separated women has birth intervals of over ten years (61%) implies that many of these women are having non-marital births; these could be planned births within cohabiting unions or unintended births, but care should be taken in drawing conclusions from this group due to the small sample size.

Although marital dissolution appears to be the cause of long birth intervals and thus late births for many separated and remarried women, nearly half of the continuously married women with a birth in their forties also had a birth interval of six years or more, with a quarter having an interval of ten years or longer. One might speculate that some of these long intervals are due to late unplanned pregnancies. Koo and Janowitz (1983) found that having a birth late in marriage (not at the 'normal' time) increased the likelihood of separation. However, there is no

evidence here of large numbers of women separating after a late birth (though some may do after age 45), as separated women were least likely to have had such a birth. In contrast, most of the late births to remarried women occur soon after remarriage and are likely to be intended.

To summarise, no large differences are found in the incidence of late childbearing initiation or high completed family size between continuously married and remarried women with a birth aged forty or above. However, consistent with the findings of Clarke and colleagues (1993) and Diamond, Clarke and Clarke (1995), remarried women are more likely to have a late birth due to a long preceding birth interval, usually around the time of marital dissolution. In spite of this, a large number of continuously married women also had a late birth preceded by a long interval, so long birth intervals should not be seen only as a feature of disrupted marital histories.

4.5.3 Modelling Age at Last Birth

Introduction

The aim of this section is to investigate the effects of marital dissolution and repartnering on age at last birth, controlling for other factors. We might hypothesise that women who separate and do not remarry will finish their childbearing at an early age (once age at marriage is controlled) because the dissolution may curtail their childbearing sooner than planned. On the other hand, women who remarry and have another birth might be expected to finish their childbearing later than originally intended. However, those who do not have a birth in their remarriage may be more similar in characteristics to separated women; remarried women are unlikely to be a homogenous group.

Method

In this analysis, multiple regression models of the form shown below are used to model age at last birth as a continuous variable:

$$Y = \alpha_j + \beta_j x$$

Childless women are excluded, giving a sample of 11 988 women with at least one child by age 45. Since age at last birth can be determined exactly from three variables, age at first birth, number of children born and length of birth intervals (Suchindran and Koo, 1992), these

variables are only partially included in the model by testing the timing of the first birth relative to first marriage, total number of children and the presence of a second or later birth interval of six years or longer. The only partial inclusion of the three determining variables allows the inclusion of other factors that influence these three. The main independent variable of interest is marital history group, with continuously married women as the reference category. Age at first marriage, birth cohort and highest educational qualification are also included as control variables. The model is built up gradually in order to uncover the separate effects of different factors on the parameter estimates. This should make it possible to ascertain whether marital dissolution is associated with age at last birth, and if so, whether this association is due to variations in family size, birth interval length or age at first birth.

Age at first birth is not included as an independent variable, because for women with one child, age at first birth equals age at last birth. In a similar model, Koo, Suchindran and Griffith (1987) include age at first birth as an independent variable and use women with one birth as the reference category, which is rather odd as they are then estimating the variation in age at last birth due to other factors, when in fact there can be no variation in the reference category. It is hoped that the combination of age at first marriage and timing of first birth relative to first marriage will be a suitable substitute for age at first birth.

Results

Model 1 in table 4.12 shows the predicted mean age at last birth to be 29.4 for continuously married women. Separated women finish significantly earlier, at 28.4 years, and remarried women slightly later, at 29.8, while re-separated women and those with three marriages finish childbearing at a similar age to continuously married women. Marital disruption and repartnering, however, explain less than 1% of the variation in age at last birth. The earlier exploratory analysis suggests that these apparent small differences, particularly for women with two dissolutions, may be due to such women marrying at younger ages but taking longer to complete their childbearing, thus finishing at a similar age to continuously married women. This is borne out by model 2, showing that when age at first marriage, education and birth cohort are controlled, all women with a dissolution become significantly different in their age at last birth from continuously married women, women with three marriages finishing childbearing over two years later and those remarried or re-separated finishing around one and a half years later. The parameter estimate for separated women, however, is halved indicating that part of the reason separated women finish childbearing earlier is that they marry earlier. Age at first marriage is positively associated with age at last birth, as expected, while having

Table 4.12 Multiple regression models for age at last birth.

Significance: * p<0.05; ** p<0.01; *** p<0.001

Independent variables		Parameter estimates					
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept		29.420 ***	16.492 ***	15.412 ***	12.224 ***	13.896 ***	7.837 ***
Marital history	Continuously married	0.000	0.000	0.000	0.000	0.000	0.000
	Separated	-1.042 ***	-0.574 ***	-0.298 *	-0.686 ***	-0.504 ***	-0.177 *
	Remarried	0.334 *	1.674 ***	1.742 ***	1.522 ***	1.036 ***	0.937 ***
	Re-separated	-0.000	1.403 ***	1.794 ***	1.118 ***	0.254	0.732 ***
	Third marriage	0.070	2.104 ***	2.405 ***	1.286 **	1.298 ***	0.989 ***
Age at first marriage			0.637 ***	0.653 ***	0.769 ***	0.723 ***	0.863 ***
Highest educational qualification	Degree/A level/O level equivalent		0.000	0.000	0.000	0.000	0.000
	CSE equivalent/ other/ none		-0.268 **	0.027	-0.450 ***	-0.400 ***	-0.050
Birth cohort	1930-34		0.000	0.000	0.000	0.000	0.000
	1935-39		-0.815 ***	-0.819 ***	-0.651 ***	-0.610 ***	-0.367 ***
	1940-44		-1.527 ***	-1.409 ***	-1.078 ***	-1.338 ***	-0.556 ***
	1945-49		-1.521 ***	-1.547 ***	-0.755 ***	-1.286 ***	-0.420 ***
	1950-54		-1.539 ***	-1.628 ***	-0.621 **	-1.149 ***	-0.288
Timing of first birth	Premarital birth			-1.911 ***			-4.300 ***
	Premarital conception (0-7 months after marriage)			-0.476 ***			-1.292 ***
	8-35 months after marriage			0.000			0.000
	36+ months after marriage			2.211 ***			3.888 ***
Number of children	1				-1.751 ***		
	2				0.000		
	3				2.218 ***		
	4				3.822 ***		
	5+				6.338 ***		
Presence of birth interval over six years (combined with number of children in final model)	1 child only					-2.100 ***	-1.872 ***
	2+ children, no long interval					0.000	
	2+ children, long interval					6.003 ***	
	2 children, no long interval						0.000
	2 children, long interval						5.433 ***
	3 children, no long interval						2.263 ***
	3 children, long interval						8.118 ***
	4 children, no long interval						4.123 ***
	4 children, long interval						9.882 ***
	5+ children, no long interval						7.035 ***
	5+ children, long interval						13.186 ***
Adjusted R^2		0.005	0.216	0.276	0.396	0.469	0.736

no or low educational qualifications is associated with a slightly earlier end to childbearing (women with higher education qualifications were not significantly different to those with medium qualifications, so are not shown separately). Women born after 1935 complete their families earlier than those born in the early 1930s when age at marriage and education are controlled. A model (not shown) including only marital history, education and birth cohort found the parameter estimate for no or low education to be much larger than in model 2

(-1.215), showing that much of the association between education and age at last birth is the result of the association between education and age at marriage.

The timing of a woman's first birth relative to her first marriage is significantly associated with age at last birth (model 3). Compared to women whose first birth occurs 8 to 35 months after marriage, those who delay their first birth for three years after marriage finish childbearing over two years later. Women whose first birth is premarital complete their childbearing nearly two years earlier on average, while those with a premarital conception finish nearly six months sooner. It is not clear, however, whether these results are reflecting premarital pregnancy itself or simply age at first birth (Koo and colleagues (1987) found premarital conception and birth to be insignificant with age at first birth in the model). Interestingly, education no longer remains significant once first birth timing is included, indicating that educational level is associated with first birth timing as well as age at first marriage. While including timing of first birth in the model increases the parameter estimates for women with two or more marriages, the parameter estimate for separated women is almost halved again, suggesting that some of the association between not repartnering and age at last birth is due to differences in earlier fertility rather than separation per se.

The number of children a woman has during her lifetime has a positive relationship with age at last birth, as expected (model 4). With number of children in the model, the parameter estimates for remarried and re-separated women and, in particular, women married three times become smaller than in model 2, indicating that the effects of multiple marriage on age at last birth are partly due to family size. The parameter estimates for women born from 1945 onwards are also smaller in this model, signifying that some of the previous association of more recent cohorts with an earlier completion of childbearing may have been due to lower completed family sizes; this is consistent with cohort data on completed fertility from vital registration (ONS, 1999a). Model 5 shows the results of including the presence of a long interval between births instead of completed family size, although women with one child had to be put in a separate category, not being at risk of a second or later birth interval. Not surprisingly, a birth interval of six years or more, increases the age at last birth by around six years on average. Including the birth intervals reduces considerably the parameter estimates for remarried and re-separated women and those married three times, suggesting that much of the positive effect of second and later marriage on age at last birth is due to a long birth interval. Indeed, the predicted age at last birth for re-separated women is no longer significantly different to that for continuously married women, once the presence of a long birth interval is controlled.

The final model (model 6) includes all variables and presents no surprises, in that large family size, long births intervals and delayed first birth are all associated with a later age at last birth, while premarital conceptions and births are associated with an earlier finish to childbearing. Education is not significant due to first birth timing being in the model, while the parameter estimates for post-1935 birth cohorts, while still significantly lower than those for 1930-34, are smaller than in any previous model. Women with a marital dissolution still have a significantly different age at last birth to continuously married women, with separated women finishing about two months sooner and those with at least two marriages finishing eight to twelve months later, even when age at marriage, number of children, timing of first birth and presence of a long birth interval are controlled. These differences could perhaps be explained by factors not completely accounted for in the model such as exact age at first birth, presence of particularly long birth intervals (e.g. over ten years) or particularly large family sizes. The model fit could be improved by incorporating these factors but the model already explains nearly three-quarters of the variance in age at last birth and given that the earlier models are of more interest in determining the effects of marital dissolution on age at last birth than the final model, this has not been pursued.

Discussion

To summarise, separated women in the sample tended to finish childbearing about one year earlier than continuously married women, but much of this difference can be explained by a younger age at first marriage and differences in the timing of the first birth (separated women being much more likely than continuously married women to have had a premarital conception or birth). Together these results suggest that separated women have their first birth earlier than those who do not separate. Little support is found here for the conventional explanation that separated women finish earlier because they have fewer children, their childbearing being terminated by the separation (Koo, Suchindran and Griffith, 1987). This is consistent with the exploratory findings that separated women actually have more children at dissolution on average than do women who remarry (section 4.3.4).

Remarried women tended to finish childbearing about four months later than continuously married women, while re-separated women and those marrying three times had their last birth at approximately the same age as continuously married women. These apparent similarities mask the fact that this group marry earlier and are more likely to have had a premarital conception or birth than continuously married women, so might be expected to finish childbearing earlier, like the separated group. However, controlling for age at first marriage and timing of first birth, their predicted age at last birth is between 1.7 and 2.4 years greater

than that of continuously married women. This can be explained by their greater numbers of children (particularly for women married three times) and long birth intervals (particularly for those with two marital dissolutions).

4.6 Conclusions

4.6.1 Effects of Marital Dissolution on Women's Childbearing Trajectories and Overall Fertility in Britain

This study of British women born between 1930 and 1954 has shed some light on the complex links between marital dissolution and fertility. Exploratory analysis showed that women who had experienced marital dissolution by age 45 had higher mean completed family sizes than those in intact marriages, consistent with much former research. However this statement hides the fact that in general those with a marital dissolution are a more diverse group in terms of their completed family sizes than continuously married women. Considerable differences in fertility patterns can also be found between those remarrying once or twice and those who do not remarry.

In modelling completed family size, some limited support was found for the 'exposure' and 'union-commitment' hypotheses outlined in section 4.1.1. These two hypotheses suggest that the processes of separation and remarriage have a direct effect on fertility. However, many of the observed differences in fertility behaviour between marital history groups were found to be a result of the characteristics of those selected into separation and remarriage. This means that some of the conventional explanations of the effects of separation and remarriage on fertility may not apply to many women who separate or remarry. For example, remarried and re-separated women are particularly likely to have four or more children and this is usually attributed to their additional fertility occurring in the remarriage. However, the fact that women who separate and do not remarry also have an above average probability of having four or more children points to a causal link between high fertility in the first marriage and marital dissolution, irrespective of subsequent partnership behaviour. For many (but not all) of these women high fertility occurs before marital dissolution, rather than as a result of it.

A second example is the observation that women who separate and do not repartner have the youngest mean age at last birth. The conventional explanation for this is that the fertility of separated women is suddenly terminated by marital dissolution, so that they do not finish their

planned childbearing (Koo, Suchindran and Griffith, 1987). While this may be true for some separated women, in particular those finishing with zero or one child, separated women on average have more children at the time of marital dissolution than those who remarry and tend to have been married for a long period after their last birth, observations that refute the suggestion that, for the majority, childbearing has been terminated early by dissolution. In fact, the evidence suggests that separated women in general marry earlier than continuously married women and are more likely to have a birth or conception before marriage; they start their childbearing earlier and therefore would be expected to finish earlier. Therefore the direct link between separation and an early cessation of childbearing may be spurious; it is more likely that a third variable, an early start to childbearing, is related to both a high risk of separation and an early finish to childbearing.

Separation   ⟶⟶   Young age at last birth

Early initiation of childbearing
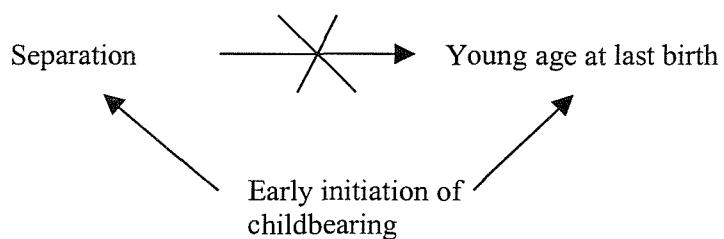
These examples also point to the heterogeneity within groups of women with similar marital histories. For example the separated group includes some women who separate early in marriage with one child and do not repartner, but also a large number who have several children in their first marriage and separate many years later when the children are older. Clearly these two groups are very different, though both are categorised as separated and not repartnered. Similarly, conventional theories tend to assume that remarried women have a higher mean family size due to fertility in the remarriage, but in fact only 36% of remarried women in the sample (who did not re-separate by age 45) had a birth after remarriage. Any discussion of the effects of separation or remarriage on fertility must take these differences into account rather than putting forward blanket theories covering all women who separate or remarry.

4.6.2 Further work needed and difficulties involved.

This chapter has found that the links between marital dissolution and fertility are complex and must be studied with due regard to selection effects and confounding variables. For future research, the central question of this chapter should be rephrased – posed not as 'how does marital dissolution affect fertility?', or vice versa, but as 'how do partnership and fertility behaviour interact over the lifecourse?'

One obstacle encountered in this research was the lack of full cohabitation histories in the GHS. This meant, for example, that women who cohabited after marital dissolution were categorised with those who did not repartner, which is not completely satisfactory. The 1998 GHS goes some way to rectifying this omission, so future research may be able to benefit from the use of more complete cohabitation data. Longitudinal data would provide more insights in to the processes at work here, enabling one to see, for example, how women's fertility intentions change over time, as their marital lifecourse evolves. The British Household Panel Study is an example of such a data set but unfortunately is constrained by rather a small sample of women who have experienced marital dissolution.

Some information is difficult to obtain from quantitative research and questions about the planning status of births, repartnering intentions or reasons for separation or, for example, would benefit from a qualitative approach. Some such work has already been carried out in Britain on related topics (e.g. Burgoyne and Clark, 1984; Rowlingson and McKay, 1998; Lampard and Peggs, 1999), but these papers consider particular groups of women, such as all types of lone parents or remarried couples only. Research focussing on the fertility and partnership experiences and intentions of all women who have experienced marital dissolution, whether alone, cohabiting or remarried might aid interpretation of the quantitative findings here. Qualitative research on women in intact marriages would also help to uncover the effects of marital stability on childbearing and the effects of childbearing on marital instability.

Chapter Five:
Childbearing following Marital
Dissolution.

5.1 Introduction

Chapter four investigated the relationship between marital dissolution and lifetime fertility. This chapter and the one following concentrate on fertility *following* a woman's first marital dissolution. In this chapter the aim is to determine the proportion of British women that have a birth after the dissolution of their first marriage and to investigate the characteristics associated with a high probability of having a post-dissolution birth. For example, do post-dissolution births tend to occur mainly within remarriage or cohabiting unions? Is the age of a woman or her parity at marital dissolution associated with her subsequent childbearing?

Given the increasing importance of fertility outside of marriage, and the rise in postmarital cohabitation as opposed to remarriage, it is important to study the fertility of all women who have experienced marital dissolution, irrespective of their subsequent partnering trajectories. The research presented here is the first time that the antecedents of childbearing among *all* women who have experienced marital dissolution have been examined. Previous research has tended to focus on women in a particular marital state, for example those who remarry (Griffith, Koo and Suchindran, 1985; Wineberg, 1990a), those who cohabit or remarry (Loomis and Landale, 1994) or those who cohabit or do not repartner (Brown, 2000). Such restrictions may obscure important causal processes such as a conception within a cohabiting union leading to a decision to remarry, or a pregnancy while not cohabiting leading to a couple moving in together. Indeed, biases may be introduced by focussing only on certain groups, for example, studying those who are currently cohabiting and not the remarried may be selective of those who had not yet had a pregnancy or birth (Bachrach, 1987). An additional feature of this research is that it uses British data rather than the American data prevalent in other literature.

The chapter begins with a discussion of previous research in this area and the expected influence of a number of lifecourse factors on fertility following marital dissolution. Life tables are then applied to the GHS data to provide a basic estimate of the proportion of women

having a birth following first dissolution. An exploration of the factors associated with birth probabilities is carried out using event history analysis. The chapter concludes with a discussion of the findings and their implications, along with areas for further research.

5.2 Literature Review: Childbearing following marital dissolution

5.2.1 Focuses of Previous Research

Little research has been done on the exact topic under consideration here; instead, insights can be drawn from several different areas of previous research. As noted above, most research has focused on specific groups of women (and men) that do not exactly match the population of interest here: women who have experienced the dissolution of their first marriage by separation, divorce or widowhood, irrespective of their subsequent partnership behaviour. Some of the fertility studies discussed later pertain to subsets of the population of interest here, for example remarried women (e.g. Wineberg, 1990a). Others studies include additional groups; for example, White and Kim (1987) investigate the fertility of married women, with remarried women as a subset of these. These studies are generally quantitative and the majority originate in the US. One of the exceptions is the British paper by Lampard and Peggs (1999), which includes qualitative research directed at men and women who were previously married or in a marriage-type relationship and not currently living with a partner, again a slightly different population to that of interest here.

Stepfamily research can also provide some very useful insights into fertility within the stepfamily context (e.g. Ganong and Coleman, 1988) and is currently becoming more prominent in many countries, but again the population of interest is not identical. Stepfamilies are defined by Haskey (1994) as 'married couples, or cohabiting couples, with dependent children living in their family, one or more of whom are not the natural children of both the man and the woman'. Under this definition, the population of women in stepfamilies excludes some women of interest here (those without children and those who do not repartner) and includes some women who have not experienced a marital dissolution (those forming a stepfamily following lone parenthood and childless never-married women forming unions with fathers). However, the overlap between stepfamilies and women with a marital dissolution is considerable. From the National Child Development Study cohort (Ferri and Smith, 1998), it can be calculated that 45.6% of the women living in stepfamilies were in

second marriages and 29.6% were previously married and cohabiting. Only one-quarter of the women in stepfamilies were not previously married.

The focus of the studies discussed here varies widely. Some papers refer specifically to childbearing following marital dissolution (e.g. Brown, 2000), while other focus on past or future childbearing intentions and the underlying reasons for fertility decisions (e.g. Burgoyne and Clark, 1984; Lampard and Peggs, 1999). A group of recent papers focus specifically on the impact of children from previous unions on subsequent childbearing (e.g. Thomson, 1997a; Vikat, Thomson and Hoem, 1999; Buber and Prskawetz, 2000). Less academic sources (e.g. De'Ath, 1993) can also provide further information on fertility decisions in stepfamilies.

5.2.2 The Proportion of Women having a Birth following Marital Dissolution

Hardly any research has attempted to estimate the proportion of women having a child following marital dissolution, but some researchers have produced similar estimates for slightly different events. For example, Brown (2000) has estimated the proportion of American women having a *non-marital* birth in the two years after separation or widowhood, using data from the 1987-88 National Survey of Families and Households and found that 13% of whites and 17% of blacks experienced a non-marital birth within two years of marital dissolution.

Some stepfamily research has attempted to estimate the proportion of new couples (where at least one partner had been in a previous union) that have a child together in their new union. There is, as yet, no widely accepted label for such children, so they are referred to in many different ways, for example 'own children' (Haskey, 1994), 'natural dependent children of both partners' (Haskey, 1994), 'joint' children (Batchelor, Dimmock and Smith, 1994), 'shared children' (Buber and Prskawetz, 2000), 'their children' as opposed to 'his' or 'her' children (Batchelor, Dimmock and Smith, 1994; Thomson, 1997a; Ferri and Smith, 1998), and 'children of the new marriage' or 'new couple' (Visher and Visher, 1979; Burgoyne and Clark, 1984). In Austria, Buber and Prskawetz (2000) found that around half of couples where the current union was the second union for at least one partner went on to have a shared child. Most of these couples had the child soon after union formation, with six out of ten conceiving within two years and three-tenths of these conceiving prior to cohabitation.

In Britain, the 1991 GHS report (OPCS, 1993a), Haskey (1994) and Ferri and Smith (1998) provide some more limited data on the extent of joint births to stepfamily couples. All three sources provide tables of stepfamily couples by whether they have had a joint birth or not but do not control for time since the formation of the stepfamily, so should not be considered in the same way as proper life table estimates.

The 1991 GHS report states that of 198 stepfamily couples with dependent children identified from that year's data, 53% had experienced at least one birth since the couple started living together (OPCS, 1993a). Haskey (1994) uses data from the OPCS Omnibus survey 1990-1992 to provide a cross-sectional view of family living arrangements. He found that 1.8% of dependent children in families were 'joint' children of married couple stepfamilies and 0.3% were 'joint' children of cohabiting couple stepfamilies. Among married couple stepfamilies, 31% of the dependent children were joint children of the couple, while in cohabiting couple families, this figure is only 16%. This might suggest that married couples are more likely to have a joint child than cohabiting couples, but when other factors such as duration of union or average number of joint children per family are taken into account this may not necessarily be the case. Married couple stepfamilies in the Omnibus survey contained on average 0.7 joint children per couple, while cohabiting couple stepfamilies contained 0.3 joint children. Unfortunately the data are not presented in a way that enables the *proportion* of stepfamilies that have produced joint children to be calculated.

Ferri and Smith (1998) analyse data from the National Child Development Study (NCDS), a longitudinal study of Britains born between March 3-9th 1958. The 1991 survey of participants at age 33, found that over half of co-resident stepfamilies (56%) contained a joint birth to the couple. However, this is not a cross-sectional sample of the population, so it cannot be assumed from this that just over half of stepfamily couples will produce a joint child; two caveats must be noted. On one hand, these women are all aged 33, still in the middle of their reproductive years, so the percentage that eventually have a joint birth could increase. On the other hand, this figure only refers to women who are in a stepfamily by age 33 (those who experienced marital dissolution and repartnering, where relevant, at a relatively young age). Women who join a stepfamily at a later age may be less likely to have a birth due to age-related social and biological factors. Thus 56% could be an over-estimate of the proportion of stepfamily couples having a joint child. Bearing these points in mind, Ferri and Smith (1998) also compare different types of stepfamily and find that compared to stepfather

families[1], the largest group, stepmother families[2] were most likely to have a joint birth and families where both partners have children from previous unions were least likely to have a joint child. Stepfather families were more likely to have produced a joint child if the father did not have non-residential children to support, but this was not true for stepmother families. A link was also found between marital status and whether the couple had their own child; married couples were more likely to have produced a child of their own than cohabiting couples (69% versus 34% in stepfather families) (Ferri and Smith, 1998 (additional tables from authors)). This is likely to reflect the fact that the married couples had been together for longer than the cohabiting couples.

None of these estimates of stepfamily fertility are very reliable due to the fact that they do not control for time since formation of the union or any other factors. As the estimates from Ferri and Smith (1998) and the 1991 GHS (OPCS, 1993a) are quite similar, a best guess from existing research might be that just over half of stepfamily couples will have a joint child. However, this is unlikely to be an accurate estimate of the proportion of women who have a birth following marital dissolution in Britain.

5.2.3 An Introduction to Factors associated with the Probability of Childbearing or Intended Childbearing following Marital Dissolution

A large literature exists regarding factors that may affect childbearing decisions; for example in Britain work has been done by De Cooman, Ermisch and Joshi (1987), Wright et al. (1988) and Ní Bhrolcháin (1986a, 1988) among others. In this section particular attention is paid to five factors that are considered to be particularly important in determining fertility intentions or behaviour or are particularly relevant to separated, divorced and widowed women. Other factors are then discussed more briefly, but it must be recognised that most of the suggested factors are inter-related and that the relationships between them are very complex. The majority of relevant research is quantitative, but some British qualitative research exists and both types are discussed here. Quantitative research by nature focuses on those factors that can be measured more easily such as age or highest educational qualification. Other factors are harder to measure quantitatively, for example attitudes towards childbearing or the effects of

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[1] Stepfather families are defined as those where the female partner has brought children from a previous union into the household (but the male partner has not).
[2] Stepmother families are defined as those where the male partner has brought children from a previous union into the household (but the female partner has not).

child support payments being made or received, so qualitative research can contribute to our understanding of these processes.

This chapter investigates the probability of a woman having a birth following marital dissolution, while chapter six focuses on fertility intentions. The subsequent discussion therefore encompasses factors associated with both actual fertility and intended fertility. Of the numerous factors involved in a couple's decision whether to have a child or not, some factors may be more important in determining fertility desires, while other more practical considerations may serve to determine whether the desires, if positive, can be realised. Clark (1982) describes it as a 'trade-off which might be made between the desire to have a child of one's own – as a symbol of the remarriage – and the pressures of age, accommodation, income and so forth.'

When discussing childbearing decisions, it is also important to note that while some couples may make a conscious decision to try to conceive and act accordingly, others may conceive unintentionally and have to make a decision about whether to continue with the pregnancy. A US study of remarried couples with a joint child found that 68% of respondents had wanted a child with their partner, 14% felt obliged to have a child and 14% had become pregnant unintentionally. The interviewers in this study felt that many participants were unclear as to their reasons for having had a joint child (Ganong and Coleman, 1988). Other qualitative research also suggests that many couples are unsure about their intentions or 'leave it to nature' (De'Ath, 1993). For example, Mrs Heathcote, quoted by Burgoyne and Clark (1984) says the following:

> 'If it happens, it happens…if it doesn't, it doesn't…if it happens it'll be super, but if it doesn't, you know we've already got two'.
> Interviewer: 'Are you trying to start a family?'
> 'Not *trying* no, but then again not trying *not* to…'   (p148)

Other couples may not agree about intentions. For example, a father says of his expected baby:

> 'I hasten to add, it was planned, discussed and decided upon….I lost (laughs)' Mr Gilmour, in Burgoyne and Clark (1984, p160).

5.2.4 Time since Marital Dissolution

Time since marital dissolution is likely to be associated with childbearing mainly through the influence of other variables such as repartnering and the woman's age. The only direct effect of time since dissolution may be the declining hazard of a birth over time caused by unobserved heterogeneity; women with a high risk of childbearing will have a birth in the first few years, leaving only low-risk women in the data set (Allison, 1984).

Considering repartnering behaviour, one hypothesis might be that the probability of having a birth would be low for a period after dissolution, due to women living without a partner, but then increase in subsequent years as women gradually repartner. However, as divorces can now be obtained more quickly than in the past and cohabitation can occur prior to divorce, childbearing with a new partner could begin relatively soon after marital dissolution. An alternative hypothesis therefore might be that the probability of a birth will be high for the first few years after marital dissolution and only decline at longer durations. This is consistent with Brown (2000) who finds odds of a non-marital birth in the US to be highest in the first nine months after separation (births conceived within the marriage), fairly high in the periods between 10 and 24 months following dissolution and lower at longer durations. Similar patterns were found by Rindfuss and Bumpass (1977) using American data from 1970 and by Lutz (1991) who found birth probabilities for Finnish women to be highest in the first three to four years following divorce.

Time since marital dissolution may also act indirectly on the probability of a birth via a woman's age and the age of her youngest child. First, a woman's age will increase as time since dissolution increases and the probability of having a birth is likely to decline with age (see next section). Second, the probability of having a birth might decline as the youngest child ages, if women try to avoid having very long birth intervals. Both these processes imply that the hazard of a birth will decrease with time since dissolution.

5.2.5 Age at Marital Dissolution

A woman's age at marital dissolution may be associated with the probability of subsequent childbearing, both directly via biological and social factors, and indirectly through its effect on repartnering. Biologically, older women are likely to be less fecund than younger women and are more likely to be naturally sterile or to have had an operation involving sterilisation. They

may have concerns about the increased risk among older mothers of bearing a handicapped child. If fecund, older women also have fewer reproductive years left in which to bear children. This is likely to depress the fertility of older women at longer durations following dissolution, but could also act to increase the tempo of childbearing among older women in the years immediately after dissolution, as the quote below illustrates:

'I'm thirty-six and I certainly wouldn't want to leave it,…., so in a way time's running out…' Mrs Ryan, in Clark (1982, p66).

Biologically, age may have less importance for male partners, but social norms regarding age may affect both sexes. From a social perspective, being 'too old' may refer to being above some socially constructed maximum age at which people 'normally' have children. Others may feel that at their age they no longer have the perceived amount of energy required for childrearing (Lampard and Peggs, 1996). There may be anxieties regarding the stress of looking after a new baby or the future health of the parents (De'Ath, 1993). There is also a concern that any children born would not want to have very old parents:

'If we had a baby now, I'd be sixty-five when he was twenty.' Stepfather in Maddox (1975, p119).

'We talked about having a child and we decided we were too old frankly…ehm…see if I had the actual child born next year or, y'know, at the end of the year, having started immediately…I mean I'm forty-six. I just don't think it would be fair on the child.' Mrs Reynolds, in Clark (1982, p65).

Conversely, older potential parents may be financially or emotionally more secure and settled and may therefore view themselves as better parents (De'Ath, 1993)

Quantitative research (e.g. Griffith, Koo and Suchindran, 1985; Wineberg, 1990a; Lutz, 1991) has found a consistent inverse relationship between women's ages at remarriage and the chance of their giving birth after remarriage. For example, Wineberg (1990a) found that white American women aged thirty-one or more at remarriage had 42% as great a chance of giving birth after remarriage as women aged between twenty-two and twenty-six at remarriage. Contrary to expectations, he also found that women aged under twenty-one at marital dissolution were significantly less likely to have a birth in remarriage than those aged between

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twenty-one and twenty-three at dissolution. Lampard and Peggs (1996) found that the proportion of formerly married British women expecting to have a further birth or births declined from over half of those aged below 25 at interview to three percent of those aged 35-39 and none of those aged 40-44 at interview.

Age may also affect childbearing indirectly, via repartnering probabilities. British vital registration data show that in the early nineties, remarriage rates among divorced and widowed women were highest for women in their twenties and lowest for women currently aged 45-54 (Haskey, 1995). This can be explained by the constraints to remarriage faced by older women, for example Ermisch and Wright (1991; p134) note that there is a 'poorer marriage market for older women because of the steep decline with age in the ratio of unmarried men to women'. Regarding postmarital cohabitation, a Canadian study (Wu and Balakrishnan, 1994) concluded that older women were less likely to form such unions than younger women and suggests that this is because ageing reduces ones eligibility for repartnering. In Britain, Lampard and Peggs (1996) found increasing age at marital dissolution to be associated with a decreasing probability of either cohabitation or remarriage among women. However, their qualitative research suggests an alternative explanation for the observed pattern, that it is not necessarily more difficult for older women to repartner, but instead that many older women do not want to repartner, as they are used to their freedom or feel that repartnering would be detrimental to their children.

Finally, there may be a group of women who must wait for a divorce to be granted as they wish to remarry before having a baby; in some cases this may interact with age so that the woman finds that or feels that she is too old to have a baby by the time she is able to remarry.

5.2.6 Parity at Marital Dissolution

Quantitative Literature

The number of children that a woman has borne before marital dissolution is likely to be associated with the probability of her having a child following dissolution. However, the concept of parity is more complex than this statement might indicate. Is it the number of pregnancies or births that a woman has experienced that is of importance in her later fertility decisions or the number of her children currently living in the household? In addition, a woman who repartners may have her partner's children living in the household or her partner

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may have children living elsewhere and these children will also influence the new couple's fertility decisions. Some quantitative studies consider only the woman's parity at marital dissolution (Brown, 2000), while others specifically set out to evaluate the different effects of both partners' previous childbearing on subsequent fertility (Thomson, 1997a; Vikat, Thomson and Hoem, 1999; Buber and Prskawetz, 2000).

A number of hypotheses have been put forward in the quantitative literature regarding parity at marital dissolution and subsequent fertility, the simplest being that the probability of having a birth declines linearly with increasing parity. There is some empirical support for this hypothesis (Clarke et al., 1993; Loomis and Landale, 1994;). Recent quantitative research has focussed more specifically on the different motivations for childbearing at different parities (not just following marital dissolution). The three hypotheses outlined below were first put forward by Griffith, Koo and Suchindran (1985) and elaborated on by Vikat, Thomson and Hoem (1999) and others.

Parenthood Effect

This hypothesis states that childless women are the most likely to desire or have a child, consistent with the linear hypothesis. This may be because childbearing is viewed as a route to adult status (Griffith, Koo and Suchindran, 1985) or because the childless woman wishes to reproduce something of herself to continue into the future (Burgoyne and Clark, 1984). The parenthood effect may apply equally to men: if so, a woman forming a union with a childless man might be expected to be more likely to have a further birth than a woman forming a union with a father.

This hypothesis is convincing where a previous union was childless due to an ex-partner being infecund or not wanting children, or previous union instability prevented childbearing. However, a further group of childless men and women may have a strong desire to remain childless or may be unable to conceive and are therefore unlikely to have a subsequent birth. In addition, childless women may have lower motivation to start childbearing in the years immediately following marital dissolution than women who have already entered the family-building stage. In these instances, those at parity zero would have a lower probability of having a birth than parents. These conflicting effects may cause difficulty in interpreting the results for childless individuals.

Thomson (1997a) provides empirical support for the parenthood effect in the US but concludes that there may be a weaker impetus for parenthood among men than among women. However, earlier American research on remarried women (Griffith, Koo and Suchindran, 1985) and more recent research in Sweden and Austria (Vikat, Thomson and Hoem, 1999; Buber and Prskawetz, 2000) did not find much support for the parenthood effect, perhaps due to the conflicting processes described above.

Sibling Effect

The sibling effect states that women with one child will have a high probability of having a second, because they want to provide a sibling for their first child to play with (Thomson, 1997a; Vikat, Thomson and Hoem, 1999;) and wish to avoid having an only child due to negative perceptions of only children (Griffith, Koo and Suchindran, 1985; Laybourn, 1994). Evidence for this hypothesis is mixed: Griffith, Koo and Suchindran (1985) do not find support for it, while Thomson's results are consistent with it (Thomson, 1997a) and Vikat, Thomson and Hoem (1999) discuss mixed results pertaining to whether half- and step-siblings count as siblings for this purpose.

Neither the parenthood effect or sibling effect would apply to women with two or more children, as such women have already achieved the two-child family deemed ideal in British society (Cooper and Shaw, 1993; Laybourn, 1994; Scott, Braun and Alwin, 1998). Therefore if both effects hold, we might expect women at parities zero and one to have a higher probability of childbearing than women at parity two or higher. This is consistent with some American research on childbearing following marital dissolution (Rindfuss and Bumpass, 1977; Wineberg, 1990a; Brown, 2000).

'Union-commitment' Effect

An alternative proposition is that a joint child (one that is the biological child of both partners) is important to confirm a new union. This has been termed as the 'marital meaning' effect (Thomson, 1997a) or 'union-commitment' effect (Vikat, Thomson and Hoem, 1999) and suggests that childbearing among women who repartner will be independent of the woman's or man's parity. A large number of recent studies lend empirical support to the 'union-commitment' effect (e.g. Griffith, Koo and Suchindran, 1985; White and Kim, 1987; Diamond, Clarke and Clarke, 1995; Thomson, 1997a; Thomson, Hoem and Godecker, 1999;

Vikat, Thomson and Hoem, 1999). In contrast, Buber and Prskawetz (2000), using Austrian data with more detail on both partners' children, do not find the 'union-commitment' effect to be present where either partner has two or more children prior to the union.

Clearly the three effects above do not necessarily act independently – two or three may be in operation at the same time. If either partner in a new union is childless or has one child, parenthood or sibling effects could be present, which may make it impossible to test whether the 'union-commitment' effect exists. For example, a couple where the woman has two children from a previous marriage and the man is childless may be influenced by both the parenthood and 'union-commitment' effects. Distinguishing the separate effects of each is difficult. In order to test the 'union-commitment' hypothesis independent of any parenthood or sibling effects, one would need to compare rates of having a fifth child among continuously married women with four children with rates of having a first joint child among couples with two children each from previous unions. It is likely that the numbers of couples fitting either of these two criteria would be too small to draw any reasonable conclusions.

Qualitative Literature

The qualitative literature provides considerable support for the parenthood effect. For example, the results from Batchelor's survey of callers to a stepfamily helpline suggest that the desire for a joint child will be lower if both partners have children living with them or are in regular contact with non-custodial children (Batchelor, Dimmock and Smith, 1994). They note that it seemed to be mainly women who wanted a birth child or were experiencing dilemmas about whether to have one, however it is unclear whether men are different in this respect or if they experience similar emotions but do not discuss such things with counsellors over the telephone.

The desire for a child may be voiced by the childless partner themselves:

> 'I'd like me own, naturally.' Mr Farmer (who has teenage stepchildren) (Burgoyne and Clark, 1984, p150).

Or by their partner:

> 'Somehow I feel there's something he's missing out on, by not ever having had a child
> of his own. I just think that in some ways it might broaden his whole outlook of
> children and families if we did have a child of our own.' Mrs Ryan (Clark, 1982, p66).

If the childless partner's desire for a child is acknowledged by the other partner, they may
have a child that they may not otherwise have borne.

Burgoyne and Clark (1984) found that those who had not been parents before attached
different meanings to the decision to have a baby in their new union. Among the reasons
identified for the desire for a biological child are the need to reproduce something of oneself
for the future (Burgoyne and Clark, 1984) or 'something to show for all the years of living'
(Maddox, 1975, p117.), while Burgoyne and Clark (1984, p157) believe that being a parent in
a 'normal' family is seen as a 'significant and valued aspect of social identity' and that
parenthood can confirm adult status. A similar theme is the desire among stepparents to
become biological parents, with Burgoyne and Clark (1982, p292) stating that 'the
satisfactions derived from having children, as opposed to merely parenting them, are invested
with over-riding importance.' Stepmothers may feel disadvantaged as they have not seen their
stepchildren develop from babyhood and, if childless themselves, may not have had any
practice with parenting. Burgoyne and Clark (1984, p147) suggest that stepmothers 'use their
subsequent experiences of having children of their own to confirm their authenticity as
mothers.' Therefore childless women with stepchildren may be particularly likely to want a
child of their own. De'Ath (1993) agrees that childlessness is particularly hard on
stepmothers. For example, a childless stepmother believes that:

> 'If I had my own, I'd feel more comfortable about my stepchildren.' (Maddox, 1975,
> p111.)

Maddox (1975) also suggest that stepparents may feel that others will think they are infertile if
they do not produce children of their own. This could equally apply to a couple without
stepchildren and be consistent with the 'union-commitment' effect. Finally, it has also been
suggested that some parents may want a child to 'replace' a non-custodial child that they have
lost contact with (Burgoyne and Clark, 1984; Batchelor, Dimmock and Smith, 1994); this is
similar to the parenthood effect but will occur to those with non-residential children. De'Ath

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(1993) also notes that a different type of parenthood effect may apply to fathers *with* children: some feel that they missed out on their first family because they were working too hard and welcome the chance to be more involved the second time round.

Surprisingly, no mention is made of any sibling-type effects in the qualitative literature. However the qualitative studies do lend considerable support to the 'union-commitment' effect. Three distinct aspects to the 'union-commitment' effect can be identified: cementing the partnership, uniting the family and appearing as a 'normal' family to outsiders.

Cementing the Partnership. There are several aspects to the suggestion that a new baby can produce a greater bond between parents. First, is the wish for a baby biologically related to both parents, as expressed by Mrs Reynolds:

> 'I would dearly have liked to have a baby that would be a part of both of us.' (Clark, 1982; p65).

Burgoyne and Clake (1984) note that mingling one's genetic inheritance with a particular partner creates a unique product of that union, while De'Ath (1993) highlights the desire for a child that is not related to a previous relationship or to someone else's family. She also reveals that there may be curiosity about what a baby of the couple would be like (perhaps in comparison to children with other partners) or curiosity about how the couple would parent a joint child.

Second, a new child may indicate the importance of the union to outsiders. Batchelor, Dimmock and Smith (1994; p101) notes that 'the role of joint child in establishing the permanence and status of the new relationship may be as important as it is for many first-time couples.' This may be particularly important for cohabiting couples whose unions may not be viewed in such a permanent light as those of remarried couples. Maddox (1975) sees a joint child as a sign to stepchildren that a marriage is intended to be permanent.

Third, a baby may set a seal on a specific partnership from the couple's point of view (Burgoyne and Clark, 1984). Having a child with the partner may be seen as the 'ultimate commitment to their relationship' (De'Ath, 1993), as the following quote shows:

'I think it will bind us together quite a lot…I think in a way they cement a marriage…providing that you've got a foundation to cement together in the first place…' Mr Gilmour (Burgoyne and Clark, 1984, p160.)

Maddox (1975) points to a desire to use a child as 'a kind of emotional cement to make the marriage divorce-proof, even though a child is no guarantee.'(p113). She also notes that second and third wives may feel the need to bear a child in order to emphasise their importance in their husbands' lives, particularly if the husband already has children.

Uniting the Family. As well as uniting the couple, qualitative sources suggest that a new baby is also expected to unite the stepfamily. This is particularly the case where stepsiblings exist, because a new child would be related by blood and be half-brother or half-sister to both sets of children. De'Ath (1993) describes this as a 'tangible link' between the couple and all the children. Burgoyne and Clark (1982) see the role of the baby as a focus of love and attention, which directs attention away from difficulties between stepsiblings. In some cases it is believed that a new baby would also improve the relationship between stepparent and stepchild, as the following quote suggests:

'I think if we were to have another child, it would cement the relationship, between the two [his step] children and Jane *more* than anything else.' Mr Heathcote (Burgoyne and Clark, 1984, p148)

The fact that the whole family can watch the baby grow up and be involved in its welfare is seen to be important by many families:

'Makes the family a bit more coherent somehow……from him growing inside me to being born so they…were all involved in that, all in exactly the same way, so I think it's probably a good pulling factor…tieing factor that.' Mrs Dunwell (Burgoyne and Clark, 1984, p178).

However, De'Ath (1993) also discusses the ways in which a new baby can disrupt the family by changing the relationships between stepparents and stepchildren, stepchildren, natural parents and ex-partners. Prospective parents' beliefs about the unifying or disrupting effects of a new baby may influence their fertility decisions.

Being identified as a 'Normal' Family. This theme concerns the social identity of the stepfamily, as perceived by the family members and by outsiders. A new couple may feel a need for their family to be viewed as a 'normal' or 'proper' family (Burgoyne and Clark, 1984) but there are no clear norms for stepfamilies, so the couple may try to conform to the norms of the nuclear family, one such norm being that a married couple needs to have children (Burgoyne and Clark, 1984). This suggestion is echoed by Batchelor, Dimmock and Smith (1994) who report that some stepfamily helpline callers were experiencing difficulty conceiving and were anxious to do so because the perceived their families to be incomplete without a joint child. Some couples find it difficult to appear publicly as a nuclear family rather than an obvious stepfamily if there are, for example, unusually large age gaps between children, or two or three children who are very close in age (Burgoyne and Clark, 1982). However some of the families in the Sheffield study already perceived themselves as complete families without having a new baby (Burgoyne and Clark, 1984).

Larger Families?

While the parenthood and sibling effects concern low-parity individuals and the 'union-commitment' effect refers to couples of all parities, quantitative research has tended to ignore the motivations for childbearing among high parity women and couples. The linear hypothesis suggests that high parity will be associated with a lower probability of subsequent childbearing. Qualitative sources confirm that this may be the case due to the financial pressures of large numbers of children or the desire to appear to be a 'normal' family without an unusually large number of children. Lillard and Waite (1993) in a quantitative study, found high parity in a first marriage to be associated with a lower risk of childbearing in a second marriage due to the children from the first marriage contributing to instability in the second. Similarly, if high fertility in the first marriage is perceived to have contributed to its dissolution, this may act as a disincentive to have any more in a new union.

However, Burgoyne and Clark (1984) suggest that, for some women, children in remarriage should be seen as part of a more general pattern of high fertility. For these women, a large existing family may not be related to a lower chance of having a baby in a new relationship. In Burgoyne and Clark's study, a slightly *larger* than average proportion of families with four or more children and stepchildren from previous unions had a child from their new marriage; such women tended to come from a working class background, to have married young and been affected by poverty at some stage.

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Indirect Effects

Parity will also affect the chance of childbearing indirectly, because parity affects the chance of repartnering. This has been discussed in section 4.1.2 so will not be elaborated on here, as the model in this chapter will control for repartnering.

To summarise, the effects of parity on subsequent childbearing are very complex and ideally both the woman's and any partner's parity must be taken into account, as well as where all children of the couple are living and how much contact there is with non-residential children. Unfortunately few data sets contain all of this information.

5.2.7 Age of the youngest child

The age of a woman's youngest child (or similarly, the time since her last birth) is likely to be related to her fertility desires and subsequent childbearing. One possible hypothesis is that women aim to avoid long birth intervals (perhaps of five years or longer), in which case the age of a woman's youngest child would be inversely related to her probability of having a birth. If birth intervals are long, parents' ability to progress to the enjoyment of a more adult-centred life, will be delayed (Griffith, Koo and Suchindran, 1985). Social circles may be important, in that women often make friends with mothers of children of the same age as their own and may feel unusual or isolated if they go back to the baby stage while others have left this behind. Women with teenage children may be more keen for their children to leave home so that they can focus on a new relationship without interruptions, than to start childbearing all over again (Burgoyne and Clark, 1984), particularly if they feel that the strains of bringing up children contributed to their first marital dissolution. According to White and Kim (1987), the longer it has been since the previous birth or since repartnering, the more likely it is that potential parents will ignore social norms, for example regarding the need for a child in a new union, and instead assess rationally whether adding an extra child to the family would be beneficial or not.

Empirically, Griffith, Koo and Suchindran (1985), Loomis and Landale (1994) and Thomson, Hoem and Godecker (1999) find some support for this hypothesis. The first two studies also suggest that the age of the youngest child and parity may interact. For example, if the avoidance of an only child is of overriding importance, having a relatively old youngest child

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will reduce the probability of having a birth more for women of parity two or more than for women with only one child (Griffith, Koo and Suchindran, 1985). Loomis and Landale (1994) support this view, concluding that women with two children or older children are less likely to continue childbearing than those still in the 'family-building stage' with one young child. Qualitative research also lends support to this view, for example De'Ath (1993) suggests that younger children may find it easier to adapt to a new baby than older children. Burgoyne and Clark (1984) note that it may be easier to appear as a 'normal' family if the children appear to be spaced out fairly evenly with no unusually large intervals and similarly Clark (1982) describes the concern of one family about the age gap between a new baby and their youngest child who was nine years old. They also confirm the reluctance among potential parents to 'go through the nappy stage again' (Burgoyne and Clark, 1982, p291). This is expressed by Mr Rowe:

'as time went on and we had four children growing up, I think we thought, well, it would be nice if we'd divorced in 1972 or '73... but I don't think either of us wanted another small child now.' Mr Rowe in Clark (1982, p61)

Another potential reason for avoiding long birth intervals is that it may enable the time spent out of the labour force to be minimised (Joshi, 1984). Once a child has reached school age, it may be easier for the mother to return to work, by which time she may be less inclined to have another birth than a mother who is staying at home with a pre-school child. This hypothesis assumes that women do not return to work in between births. In more recent years, however, lower security in the labour market and quicker returns to work after a birth may mean that short birth intervals have become less attractive to working women (Ní Bhrolcháin, 1986b). For women who have returned to work after a birth, there may be an inducement to delay the next birth (De Cooman, Ermisch and Joshi, 1987). The demands of employers, the attractiveness of the additional income and the costs of keeping two or more pre-school children in childcare may lead to relatively long intervals between births for such women. Since the relationship between employment and birth interval length will vary according to type of employment and cost and availability of childcare, it is very difficult to speculate on the effects of the age of a woman's youngest child on her post-dissolution fertility from an employment perspective.

The age of a woman's youngest child may also affect her chances of repartnering and so repartnering will be controlled in later analyses. Finally the qualitative sources suggest that the

ages of all children, not just the youngest, may influence fertility decisions. A large number of children may be harder to cope with if they are close in age, for example a family interviewed by Clark (1982) refer to the pressures of living with three teenage children. Similarly, De'Ath (1993) describes a family with five stepsiblings under seven years old – the sheer amount of work involved in bringing up such a family may reduce the desire to add to the numbers.

5.2.8 Repartnering

Quantitative research suggests that remarried women will be more likely to have further children than those who are simply living with a partner (Loomis and Landale, 1994; Diamond, Clarke and Clarke, 1995; Wu and Wang, 1998). Wu and Wang (1998) suggest that those who remarry are a select group who are particularly committed to the new partner and may therefore be more willing to invest in children as compared with those who simply live together. American research has found that cohabiting women are more likely to have a subsequent birth or intend to have a birth than women living alone (Bachrach, 1987; Brown, 2000). This may be due both to social factors and differential exposure to intercourse. Bachrach (1987) concludes that formerly married cohabitants are quite similar to married women in their reproductive behaviour. These statements assume that causation runs from partnership status to fertility behaviour, but the issue of circular causality cannot be ignored. Positive fertility intentions or actual pregnancies may lead to cohabitation or remarriage rather than repartnering preceding fertility decision-making, or the two decisions may be made jointly (Rindfuss and Parnell, 1989). For example, Suchindran, Koo and Griffith (1985) found that white US women were two to four times more likely to remarry during pregnancy than after a birth. This issue has been discussed in chapter four.

Qualitative research has identified different motivations for establishing a partnership, that may place different priorities on childbearing. For example, some couples may repartner in order to have a child, while other couples with older children may be looking forward to the departure of their children and the establishment of a new couple lifestyle (Burgoyne and Clark, 1982; Burgoyne and Clark, 1984; De'Ath, 1993; Batchelor, Dimmock and Smith, 1994). However, those who do not repartner have generally been ignored in the qualitative literature, with regards to any fertility expectations.

5.2.9 Other Factors associated with Fertility following Marital Dissolution

Socio-economic Factors

Socio-economic factors such as education or employment may influence fertility directly or indirectly in a number of ways. Previous quantitative research suggests that, in Britain, women who leave school at younger ages have higher completed fertility than those who stay in full-time education for longer, but that when age at marriage is controlled, the relationship between education and fertility becomes positive (Ní Bhrolcháin, 1993b). It is not immediately clear though how education will be related to childbearing following marital dissolution, but some American studies have shown that less educated women have a higher probability of childbearing after marital dissolution when age at first marriage is not directly controlled (Rindfuss and Bumpass, 1977; Wineberg, 1990a; Loomis and Landale, 1994). This may be because the opportunity costs of having children are lower for women with fewer qualifications and correspondingly less well paid jobs. In contrast, Griffith, Koo and Suchindran (1985) did not find that educational level significantly influenced fertility in remarriage once other factors were controlled, while Brown (2000) found educational level to have a negative impact on the likelihood of a non-marital birth following dissolution for white US women, whether or not age at first marriage was controlled.

Loomis and Landale (1994) found that among their sample the likelihood of a birth in a postmarital cohabiting union was greater among cohabitors who were 'relatively disadvantaged' (i.e. low education, not working) than among 'more advantaged' cohabitors. White and Kim (1987) found neither wife's employment or husband or wife's income to be significantly associated with the probability of a birth in a three-year period for married couples of all parities. The only significant result was for childless women who were more likely to have a first birth if the wife worked *and* found her job satisfying. Most other quantitative research does not examine economic activity or occupation at all (e.g. Brown, 2000). However, the qualitative literature points to perceived constraints on employment arising from a new baby having a negative impact on fertility, particularly among women who feel that they have found their independence since marital dissolution (Clark, 1982; Burgoyne and Clark, 1984; De'Ath, 1993).

Occupation may also affect the probability of a birth indirectly through the probability of repartnering, for example Ermisch and Wright (1991) and Haskey (1987) consider the effects

of earning potential and social class on remarriage. Overall, Ermisch and Wright (1991) believe that British lone mothers in poorer economic circumstances remarry at a slower rate than the better off. However they may simply be cohabiting instead, so it is hard to see how much this might affect fertility. If repartnering is controlled, it is still possible to hypothesise that a certain proportion of women with high-earning potential will prioritise their careers over childbearing and have a lower probability of a birth than women in more casual occupations who may place far less value on their employment as a means of fulfilment. If this is the case, women in more skilled occupations would be expected to be less likely to desire a child following marital dissolution than women in less skilled occupations.

Qualitative research suggests that, as with any family, financial considerations may play a part in fertility decision-making among the previously married, particularly in the case of a marginal or additional child. In a stepfamily, finances can be particularly stretched with income often divided between two or more households and possibly several children to support . If children are spread over a wide age range, parents may have to support older children through higher education at the same time as financing a new round of childbearing. If parents are older themselves, they may have elderly parents to support or may retire themselves while still supporting a new family (De'Ath, 1993). The high cost of children may be one explanation for Burgoyne and Clark's finding that a slightly larger proportion of middle class families in their study had a joint child than did working- or intermediate-class couples (Burgoyne and Clark, 1984). If one partner (usually the father) has non-custodial children, the cost of maintenance payments must also be taken into consideration. A previously married woman with children may also be receiving maintenance payments from her ex-partner. It may be difficult to plan ahead financially in such circumstances. While some changes are predictable, such as a child reaching the age where maintenance is no longer payable, others are less so, for example changes in the rules of the Child Support Agency which determines the amount payable, or changes in residence of children (De'Ath, 1993).

The Child Support Agency (CSA), formed in the early 1990s has compelled many fathers to pay more maintenance to children from previous relationships, although only two-thirds of payments are actually made and the agency has been criticised heavily for its bureaucracy (Clarke, Glendinning and Craig, 1994; DSS, 1999). Dimmock (1992) clearly describes the impact of the CSA on second families:

[Before the CSA, there was an] 'ad hoc acceptance that a man's first duty was to look after the children he currently lives with, and if his resources are inadequate to meet all his obligations it was held to be more sensible for him to devote what he has to those with whom he is living and let the state move in to support the first family. The Child Support Agency plans appear to reverse this order of priorities by making the duty to support the first family come first.' Dimmock (1992).

In the latest reforms, put forward in July 1999, non-resident parents will pay a single rate, as a percentage of their net income, dependent on how many non-resident children they have (DSS, 1999). Those with children in a second family will have part of their income deducted before the percentage for payment is calculated and this again will depend on how many children are in the household. If the parent is supporting stepchildren in the household, these will be included in the calculation, even if they are receiving maintenance, so that different types of children in a second family are not treated differently. The DSS states that the new proposals 'should show a slight preference to children in the first family, because non-resident parents should expect to meet these responsibilities first' (DSS, 1999). It might be expected then, that under the old or new rules, men with non-resident children might find it more difficult than other men to finance another birth. There may be tension and conflicting loyalties between a man's first and second families, as the new partner is likely to put pressure on the man to focus their efforts on the new family if a baby arrives (Batchelor, Dimmock and Smith, 1994).

Type of Marital Dissolution

The type of marital dissolution experienced may influence fertility indirectly via the higher repartnering rates of divorced women relative to widowed women at all ages (Coleman, 1989; Haskey, 1995; Lampard and Peggs, 1996). Widowed women also tend to be older on average than divorced women, so we might expect widowed women to be less likely on average to have further children due to their age. After controlling age and repartnering, it is not clear how type of marital dissolution might be associated with subsequent fertility. Wineberg (1990a) found that previously widowed women were 44% more likely to have a child in their second marriage than divorced women, while Brown (2000) found that odds of having a non-marital birth following dissolution to be higher among white widowed women than white separated and divorced women. It is possible that having experienced the death of a partner, widowed women may place greater value on having children to support them in old age or being a reminder of the new partner in case they are widowed a second time. The limited

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evidence therefore suggests that widowed women are less likely to repartner but perhaps more likely to have children than divorced women.

Period of Marital Dissolution

There are several mechanisms whereby the calendar period in which marital dissolution occurred may affect post-dissolution fertility. First, post-dissolution fertility could have been influenced by trends in the total period fertility rate, which peaked in the mid-1960s, was very low in the mid-to-late 1970s and remained fairly low during the 1980s and 1990s (Ruddock, Wood and Quinn, 1998). Second, the Child Support Agency formed in the early 1990s has ordered some fathers to pay more maintenance for children from previous relationships than before (Clarke et al., 1994), which could have a negative effect on fertility in second families. Third, period of marital dissolution may also influence fertility indirectly through repartnering due to temporal changes in remarriage rates, time to remarriage and the prevalence of cohabitation (see section 1.2). It is not clear what the cumulative effects of these various changes on post-dissolution fertility might be.

Sterilisation

It is common for couples where one or both have been previously married to be in a situation where one partner has been sterilised. Sterilisation will generally be an over-riding factor in fertility decision making, although successful reversals are occasionally possible. If the sterilisation has occurred since the formation of the current union, it is simply an outcome of the couple's decision to have no more children. For some couples, sterilisation from a previous union may be perceived as an advantage to the relationship if children are not desired (Clark, 1982). In other cases, prior sterilisation may prevent a couple's desire to have children in their new union from being realised. This may cause serious difficulties, particularly if the other partner has not experienced biological parenthood (Clark, 1982; Burgoyne and Clark, 1982). Clark (1982) notes that many of the couples seen by clinicians requesting reversals are remarried. Rather than seeking reversal, some couples in this situation may deny that they want a child or rationalise their situation (Maddox, 1975; Clark, 1982). For example, this woman may be rationalising the couple's fertility outcome:

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'I know that he would have liked a family of his own definitely, but he's not bothered now 'cos he's…he says that he thinks it's a bit late in life to start thinking about a family at our age anyway.' Mrs Moseley, sterilised, in Burgoyne and Clark (1984, p151).

Sterilisation is therefore a prime determinant of fertility intentions and behaviour, but it masks a wide range of underlying desires.

Welfare of Existing Children

When deciding whether to have another baby or not, most parents consider the effects that this will have on existing children and may to a limited extent take their opinions into account. Most of the views expressed in the qualitative literature are concerned with the negative effects on existing children, but some parents point to positive effects too. Many of the negative impacts mentioned could apply to any family considering an additional child, such as diluting the affection available for existing children (Maddox, 1975), but the fact that children may have experienced their parents' divorce or father's death may make a parent particularly concerned about their welfare:

'Divorce is very hard on children. I didn't want to inflict the possible competition of a new brother or sister on them too soon.' Mother in Maddox (1975, p120).

If the child or children had a very close relationship with one parent while living in a lone parent family, they may have already had to cope with the imposition of their parent's new partner and may see a new baby as an additional threat, in competition for their parent's time (De'Ath, 1993). Children may fear a loss of position in the family (for example, they might no longer be the youngest) or may believe that the new baby will be more valuable to the couple than them and feel pushed out (Visher and Visher, 1979; De'Ath, 1993). Older children may actually ask a parent not to have a baby, as illustrated in the amusing example below:

'They're all scared that we'll have a new baby. Last Christmas her oldest girl and my oldest son got together and gave us a small bottle of tiny candies. On the bottle it said 'Baby Control Pills. Take One Every Day'' In Maddox (1975, p120).

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In other cases, stepchildren may hint that they would like a baby brother or sister (Burgoyne and Clark, 1984). The extent to which the concerns and desires of existing children affect fertility decisions will depend upon how accurately the children's concerns are perceived by the parent and to what extent the couple choose to incorporate the children's views into the decision-making process. Many couples will respect children's views but make the decision as couple and try to make the situation work as well as possible.

General Childbearing Motivation

Underlying any fertility decision will be a factor relating to whether one or both partners like or dislike children and the activities associated with them. This will depend in part on the personality traits of the individuals (Miller, 1994) and partly on perceptions of previous experiences of pregnancy, childbirth and childrearing (Miller and Pasta, 1995a). Positive experiences with children or stepchildren may create desire, while the experience of miscarriage or post-natal depression, for example, may put a woman off trying for another baby (De'Ath, 1993). Burgoyne and Clark (1984) note that women who have enjoyed childrearing and perceive themselves to be good mothers often welcomed the opportunity to have a birth in a new relationship. Others were unsure, as they perceived that bringing up children had contributed to their first marital dissolution, for example, Mrs Thompson:

'I'd like some more, actually, I mean Barry knows I'd like another one but I think it would be too disruptive... you know I'm sort of frightened that the same sort of thing might happen again...'. (Burgoyne and Clark, 1984, p161.)

A non-custodial father of three, quoted by Maddox (1975) was very clear about his motivations:

'I can't stand babies. I don't want any more babies.' (p116.)

Although these factors are frequently glossed over by demographers because they are difficult to measure, they are a very important determinant of desires. Some individuals simply do not like children, while others love having children around.

Premarital Cohabitation

Cohabitation prior to first marriage may be associated with subsequent fertility due to selection effects: women who cohabited before their first marriage have less traditional attitudes to family formation than those who married directly, particularly among earlier cohorts where premarital cohabitation was less normative than it is today (Berrington and Diamond, 2000). Women with less traditional attitudes may be also more willing to have a non-marital birth following marital dissolution.

Premarital or Teenage Fertility

Several American studies have found premarital or teenage fertility to be associated with a greater likelihood of a non-marital birth following dissolution (Foster and Hoffman, 1996; Driscoll et al., 1999; Brown, 2000), suggesting that non-marital fertility following marital dissolution is a continuation of previously established behaviours.

Gender of Existing Children

For some couples, there may also be a desire to have a child of a particular gender if they have not already done so. For example, Teachman and Scholleart (1989) found that US women with two boys or two girls were more likely to have a third birth than women with one child of each sex. It is not clear whether a stepchild of the opposite sex might be sufficient to meet the need for a child of each sex, as most relevant studies do not take account of the sex of children.

Other Factors

Other factors that we would expect to be correlates of childbearing following marital dissolution have been discussed only sparsely in the available literature or are difficult to measure, for example fecundability and contraceptive use, the latter being recorded at interview in some rounds of the GHS but never retrospectively. The perceived stability of a union is difficult to measure but may affect fertility, as if one partner is unsure that the union will last, they may be reluctant to bear a child in it. This is supported by Clark's research, where two of the couples had 'considerable interpersonal difficulties' early in their marriage and had not considered having a joint child (Clark, 1982).

Despite a lack of research on the exact topic considered here, literature focussing on slightly different topics has provided many relevant insights, although it was found that no other research has attempted to estimate the proportion of British women having a birth following marital dissolution. Several important factors that might be expected to have an impact on childbearing following marital dissolution have been identified; time since dissolution, woman's age, parity, age of the youngest child and repartnering. These factors will all be included in the model of childbearing following marital dissolution in section 5.4. Some but not all of the factors discussed in section 5.2.9 are also included in the model but are not considered of prime importance. Many other relevant factors are either unmeasurable or not available in the data set used here.

5.3 Data and Methods

5.3.1 The Sample of Women with a Marital Dissolution

The aim here was to obtain a sample of women who had experienced a marital dissolution (separation, divorce or widowhood). Six rounds of the GHS, 1990 to 1995, were combined in order to obtain a large enough sample of women. The information from marital and fertility histories was then combined in order to identify women who had experienced marital dissolution and to construct variables such as parity at marital dissolution and age of youngest child at marital dissolution. The sample consists of 7739 British women who have experienced separation, divorce or widowhood while aged between 15 and 44 during the period 1952 to 1996. The characteristics of these women at the time of marital dissolution are shown in table 5.1. The sample clearly over-represents women who married at younger ages. This is mainly due to selection effects, such as the fact that women born more recently are more likely to have experienced marital dissolution by the date of interview if they married at a young age. Higher rates of divorce for teenage marriages (Haskey, 1996; Berrington and Diamond, 1999) also contribute. Most of the women in the sample have experienced marital dissolution through separation or divorce rather than widowhood. One quarter were childless at marital dissolution.

Table 5.1 Characteristics of women in the GHS sample who have experienced marital dissolution between ages 15 and 44 (n = 7739).

Characteristic	% Distribution
Type of Marital Dissolution	
Separation/Divorce	92.7
Widowhood	7.3
Age at First Marriage	
15-19	40.7
20-24	48.5
25-29	8.8
30-34	1.6
35-44	0.4
Age at Marital Dissolution	
15-19	4.5
20-24	22.7
25-29	27.9
30-34	20.4
35-39	14.6
40-44	9.9
Parity at Marital Dissolution	
0	25.8
1	22.1
2	31.6
3	13.4
4+	7.1
Age of Youngest Child at Marital Dissolution	
No child	25.8
0-1 years	18.9
2-4 years	22.2
5-9 years	18.4
10+ years	14.7

Source: Sample of women with a marital dissolution; 1990-1995 GHS.

5.3.2 The Life Table Method

The date of marital dissolution was defined as the month in which a couple separated or the spouse died. Life tables were used to estimate the annual probability of having a birth following marital dissolution, by time since dissolution, taking censoring into account. The cumulative proportion of women that had given birth by each year was then calculated, allowing an initial assessment of the proportion of women who have a birth following marital dissolution. Using a similar method, the cumulative proportions of women having second,

third and fourth post-dissolution births were calculated. For the latter, women with multiple births were treated as follows: a woman with twins born directly following marital dissolution would be included in the calculations for time to first post-dissolution birth and time to third post-dissolution birth but excluded from the sample of women at risk of a second post-dissolution birth (as Rodriguez and Hobcraft, 1980). The cumulative proportions of women having a first post-dissolution birth were then calculated for different subgroups of women, enabling some exploratory analysis into the separate effects of age and parity on the probability of childbearing following dissolution.

5.3.3 The Discrete-Time Hazards Model

In order to consider the effects of several independent variables simultaneously, a discrete-time hazards model (Allison, 1984) was used to estimate the probability of experiencing a conception during the twelve years following marital dissolution. The model can be specified as follows:

$$\ln\left(\frac{p}{1-p}\right) = \alpha + \beta' \underset{\sim}{X}_t + \gamma' \underset{\sim}{Z}_t + \varepsilon \tag{1}$$

where   p = probability of a conception in month t, t+2

α, β', γ' = estimated coefficients

$\underset{\sim}{X}_t$ = time since marital dissolution

$\underset{\sim}{Z}_t$ = covariate matrix: covariates are either fixed or time dependent

Individuals contribute three-month periods of exposure from the time of separation or widowhood until they experience a conception or are censored by the interview. The time to first conception (estimated as birth date minus nine months) after marital dissolution was modelled, rather than the time to first birth in order to avoid complications surrounding births conceived before, but born after marital dissolution. Some of these births may be fathered by the husband and may have different correlates to those conceived following marital

dissolution, while others may be conceived with a different partner and may contribute to the marital dissolution. It should be noted, therefore, that references to 'conceptions' in this chapter refer only to those conceptions leading to a live birth. Data for conceptions leading to a termination or miscarriage are not available in the GHS: this would clearly be an area of interest for research. This analysis is effectively concerned with predicting the characteristics of women who both have a conception and continue with the pregnancy. Having excluded women with a birth in the eight months immediately following marital dissolution, 7367 women were left in the model[3].

The parsimonious model was selected using both forward and backward selection and all relevant two-way interactions were tested for. The model estimates the log-odds of experiencing a conception within any three-month period. After exploratory analysis, the coefficients for consecutive four or eight three-month periods were constrained to be the same. The following fixed covariates were considered: age at first marriage, parity at marital dissolution, time period of marital dissolution, type of marital dissolution, cohabitation prior to first marriage and highest educational qualifications. The woman's age and the age of her youngest child were included as time-varying covariates, the latter because the effects on fertility of having a pre-school child may be different to those of having an older child at a particular time during the twelve-year period. Both age and age of the youngest child were treated as categorical variables, because it cannot be assumed that their effect is linear. Because women at parity zero do not have a youngest child, parity and age of youngest child were combined into a single categorical variable. Unfortunately this meant that the gender of existing children and marital status at first birth were not included in the model, as they also do not apply to childless women and a variable combining these two factors with parity and age of youngest child would be subject to small category sample sizes and too complex to interpret meaningfully. The final time-varying covariate used was whether the woman repartners or not. In the model, a woman can remain without a partner in the household, be cohabiting, be remarried or have experienced a second marital dissolution at any duration. This final category includes women who may have entered a third marriage or be cohabiting, but with the small number of women in this heterogeneous group, it was not disaggregated any

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[3] Conceptions occurring in the same month as the marital dissolution were included in the model. Such conceptions are unlikely to be marital conceptions that contributed to marital breakdown because most women would not know that they are pregnant in the first month. In addition, some women who cannot remember their date of separation may count back nine months from a birth with the new partner when responding to the questionnaire.

further. Women who are cohabiting or remarried were also categorised according to whether or not their partner had been married before[4], as a partner's previous marriage may be a crude indicator of prior childbearing (Bumpass, 1984, Griffith, Koo and Suchindran, 1985). Since the General Household Survey does not collect data on cohabitation spells that end in dissolution before the date of interview, some women who have not repartnered in the model may actually be cohabiting at some points in time. The model will therefore underestimate the impact of forming a cohabiting or marital partnership (relative to not repartnering) on the probability of having a conception.

Many other variables that, ideally, would have been included, were not available from the General Household Survey. These include data on partners' non-resident children, data on sterilisation (only available in some years of the GHS) and details of the ages and childbearing histories of previous partners. Information on employment, income and occupation is only recorded for the time of interview, not retrospectively, and as such may be a result of, rather than a factor influencing, childbearing behaviour.

From the final model, it is possible to simulate the annual or cumulative probabilities of having a post-dissolution conception over the twelve-year period for women with particular characteristics – some examples of these probabilities are presented graphically to illustrate the results.

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[4] Of the women with a second marriage, 75 (2.18%) were recorded as having missing data for whether the husband had been married before or not. The data for these women were examined and they did not appear to have other missing data and so were kept in the model. These 'unknowns' were categorised with those whose husbands had been married before, partly because this was the larger category of the two. Also, the hypothesis was that women whose partner had not been married before were more likely to have a birth, and so grouping the 'unknowns' with those whose partners had been married before meant that any difference between the two groups would be a conservative estimate. For current cohabiting spells, only three women (0.32%) had missing data for whether the partner was married before. These women were also kept in the dataset and categorised as above.

5.4 Results

5.4.1 The Extent of Childbearing following Marital Dissolution

Figure 5.1 shows that the annual life table probability of having a first post-dissolution birth is highest (around 0.06 annually) during the first five years following marital dissolution and then declines steadily thereafter. By fourteen years after marital dissolution, the probability is very low (below 0.01). Figure 5.2 shows that 27% of women in the sample had a first post-dissolution birth within five years of marital dissolution, 40% had a birth by ten years and 44% had a birth within sixteen years of dissolution. At longer durations very little childbearing occurred in the sample. Figure 5.2 also shows that by sixteen years after marital dissolution, 22% of women in the sample had experienced two post-dissolution births, 7% three post-dissolution births and 2% four such births. Further analyses, however, are concerned with the first post-dissolution birth only.

Figure 5.1 Independent annual probabilities of a post-dissolution birth by duration since marital dissolution.
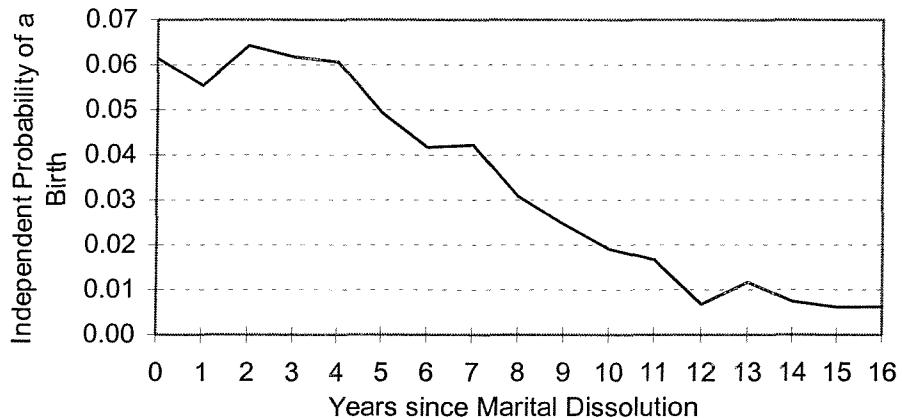
Source: Sample of women with a marital dissolution; 1990-1995 GHS

Figure 5.2 Percentage of women with a first, second, third and fourth post-dissolution birth by duration since marital dissolution.
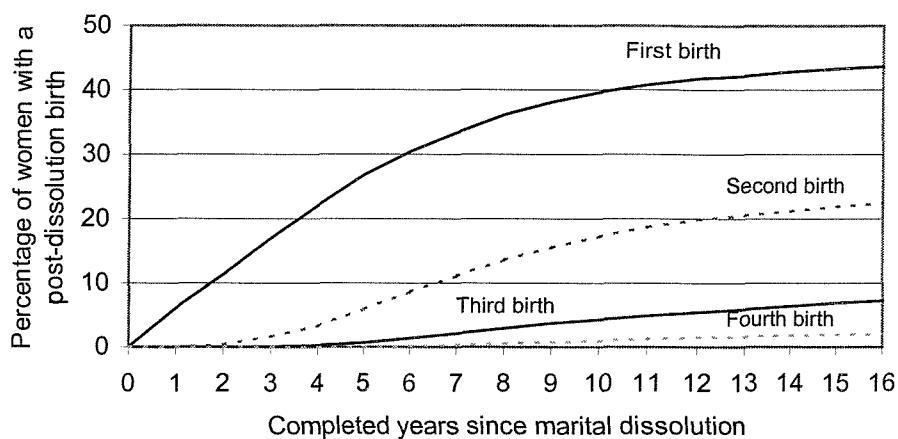
Source: Sample of women with a marital dissolution; 1990-1995 GHS

5.4.2 The Independent Effects of Age and Parity

Figure 5.2 suggests that around 44% of women experiencing marital dissolution would go on to have a birth. However, this estimate may be biased due to the age selectivity inherent in the sample, so cumulative percentages by age at marital dissolution are more meaningful. Table 5.2 shows that the cumulative percentage of women with a post-dissolution birth is higher after five and ten years for women who are younger at marital dissolution, indicating a clear inverse relationship between age at dissolution and subsequent childbearing. The percentage of younger women having a birth within ten years is particularly high, with four-fifths of teenagers and two-thirds of women in their early twenties at dissolution experiencing a birth.

Similarly, the percentage of women having had a post-dissolution birth decreases steadily with parity at marital dissolution, suggesting a linear effect. However, women of parity one actually have births at a faster rate than women of parity zero in the first four years, perhaps because the former wish to avoid a long birth interval, while the childless do not have this incentive. It is worth noting the large differences in progression between women at parity one and parity two, which implies that there is some additional significance in having fewer than two children at marital dissolution.

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Table 5.2 Life table percentage of women having a birth following marital dissolution by age and parity at marital dissolution (n = 7739).

Characteristic	Life Table % having had a birth within	
	5 years	10 years
Age at Marital Dissolution		
15-19	59.7	79.0
20-24	43.8	65.9
25-29	31.5	47.2
30-34	18.3	24.6
35-39	7.4	8.1
40-44	1.4	1.4
Parity at Marital Dissolution		
0	32.3	51.4
1	31.6	45.0
2	19.3	26.8
3	17.3	22.8
4+	10.9	13.1

Source: Sample of women with a marital dissolution; 1990-1995 GHS.

All these univariate results must be interpreted with caution, as there are many potential confounding factors. For example, women who are younger at marital dissolution are likely to be at a lower parity. These and other relationships are explored more thoroughly in the multivariate analysis.

5.4.3 Multivariate Results: Factors associated with Fertility following Marital Dissolution

Table 5.3 shows the parameter estimates and standard errors for the final model of time to conception following marital dissolution. Variables that were not found to be significant are not shown in the table. Results pertaining to time since dissolution, age, parity, the age of the youngest child and repartnering, the five factors considered to be particularly important in section 5.2, are discussed first, followed by the other covariates in the model.

Table 5.3 Parameter estimates from discrete-time logistic regression hazards model of time to conception leading to live birth for women who have experienced dissolution of their first marriage (n = 7367).

Significance * p<0.05; ** p<0.01

Variable	Levels	Parameter Estimate	Standard Error
Intercept		-5.463	0.108
Time since marital dissolution	Year one	0.000	------
	Year two	0.025	0.077
	Year three	0.022	0.082
	Year four	-0.117	0.089
	Year five	-0.160	0.097
	Year six	-0.349 **	0.109
	Years seven, eight	-0.281 **	0.100
	Years nine, ten	-0.546 **	0.124
	Years eleven, twelve	-0.806 **	0.162
Current Age	15-19	1.604 **	0.170
	20-24	0.904 **	0.077
	25-29	0.568 **	0.080
	30-34	0.000	------
	35-39	-0.569 **	0.080
	40-44	-2.366 **	0.193
	45+	-4.607 **	0.712
Parity at marital dissolution and current age of youngest child	Parity 0	0.171	0.089
	Parity 1, child 0-1	0.387 *	0.167
	Parity 1, child 2-4	0.422 **	0.105
	Parity 1, child 5-9	0.318 **	0.117
	Parity 1, child 10+	-0.259	0.134
	Parity 2, child 0-1	0.409	0.219
	Parity 2, child 2-4	0.313 **	0.107
	Parity 2, child 5-9	0.000	------
	Parity 2, child 10+	-0.361 **	0.130
	Parity 3+, child 0-1	0.423	0.226
	Parity 3+, child 2-4	0.334 *	0.134
	Parity 3+, child 5-9	-0.057	0.120
	Parity 3+, child 10+	-0.277	0.167
Current partnership status	Not repartnered	0.000	------
	Cohabiting, partner married before	1.688 **	0.090
	Cohabiting, partner not married before	1.712 **	0.098
	Remarried, partner married before	2.125 **	0.094
	Remarried, partner not married before	2.751 **	0.091
	After second marital dissolution	1.113 **	0.185
Type of marital dissolution	Separation/divorce	0.000	------
	Widowhood	-0.223	0.136
Time period of marital dissolution	Pre-1971	0.016	0.060
	1971-1974	-0.222 **	0.065
	1975 onwards	0.000	------
Cohabitation before first Marriage?	Yes	0.240 **	0.063
	No	0.000	------
Educational Qualifications	Some qualifications	0.000	------
	No qualifications	0.661 **	0.074
Interactions			
No educational qualifications ×	Cohabiting, partner married before	-0.410 **	0.136
No educational qualifications ×	Cohabiting, partner not married before	-0.442 **	0.150
No educational qualifications ×	Remarried, partner married before	-0.607 **	0.139
No educational qualifications ×	Remarried, partner not married before	-0.823 **	0.121
Age 15-19 ×	Cohabiting, partner not married before	-1.693 *	0.743
Age 20-24 ×	Remarried, partner not married before	-0.704 **	0.177
Age 25-29 ×	Parity 0	-0.340 **	0.102
Age 25-29 ×	Parity 1, child 5-9	-0.417 **	0.151
Age 25-29 ×	Parity 2, child 0-1	-1.522 *	0.617
Widowed ×	Remarried, partner not married before	0.596 **	0.222
Cohabited before first marriage ×	Remarried, partner not married before	-0.308 *	0.151

Time since marital dissolution

The model shows that the probability of having a conception leading to a birth is relatively high during the first five years following marital dissolution but then decreases significantly from the sixth year onwards. Thus the pattern observed from the basic life table (figure 5.1) still holds after controlling for other factors such as ageing, confirming the suggestion that women with a high risk of childbearing have a birth soon after dissolution, leaving only women at a lower risk of childbearing in the data set.

Woman's age

The probability of experiencing a conception is negatively associated with age, as expected from previous research (e.g. Bumpass, 1984; Griffith, Koo and Suchindran, 1985; Brown, 2000). Compared with the 30-34 age group, younger women have a significantly higher chance of conceiving, with odds ratios of 4.97 and 2.47 for women aged 15-19 and 20-24 respectively. Similarly, older women have a much lower chance of conception with odds ratios of 0.57 and 0.09 for those currently aged 35-39 and 40-44. From earlier models, it was found that the effects of age were not moderated by including repartnering in the analysis.

Parity and age of youngest child

A very complex relationship is found between a woman's parity and the age of her youngest child at marital dissolution. For women at parity two, those with the youngest child aged ten or above are significantly less likely to have a conception than those with the youngest child aged five to nine (the reference category), while those with a child under five are more likely to have a conception. Therefore, as expected, for women at parity two there is a simple inverse relationship between the age of the youngest child and the probability of having another child, as found by Griffith, Koo and Suchindran, (1985) and Loomis and Landale (1994). When looking at parity one or parity three and higher, a similar pattern emerges, whereby those with a child under five tend have a higher probability of conception than those with a school-aged child and those whose last child was born ten or more years ago are less likely to have another birth.

However, when different combinations of parity and age of youngest child are compared, the results become harder to interpret. For example, women at parity three or more with the youngest child aged two to four have a significantly higher probability of conception than the

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reference category (women with two children, the youngest aged five to nine), which suggests that the age of a woman's youngest child has a greater effect on the probability of conception than her parity at marital dissolution. This is supported by the fact that the parameter estimates for women whose oldest child is ten or more are all negative, whatever the parity and by the similar values of the parameter estimates for women at parities two and three or more with youngest children of a similar age. Some simulations from the model can illustrate these findings more clearly. Figure 5.3 clearly shows an inverse effect of the age of the youngest child on the probability of subsequent childbearing among women at parity two at dissolution, but the effects of parity are less clear (figure 5.4), as women with one child are seen to have a higher cumulative probability of a birth by all durations than childless women and women with two children and those with three or more have lower but very similar cumulative probabilities. It is also clear from the spacing of lines on these two graphs that age of the youngest child differentiates post-dissolution childbearing probabilities more than does parity. Figures 5.5 and 5.6 show the cumulative probabilities of conception for women of different age groups who have two children at dissolution, the younger aged two (figure 5.5) and those who are childless at dissolution (figure 5.6). The striking similarity between the two graphs illustrates the limited influence of parity on cumulative childbearing probabilities.

Regarding low parity women, those with one child aged under ten have a significantly higher probability of having a subsequent birth than women with two children whose youngest is five to nine. This suggests that the motive to avoid an only child is strong while the child is young, but that if a woman has not had a second child within ten years, she is unlikely to do so. In contrast, childless women do not have a significantly higher probability of a conception than women at parity two whose younger child is aged 5-9 and the parameter estimate for childless women is smaller than for women at any parity with a child aged below five. This contradicts the linear hypothesis, that the probability of a birth is higher at lower parities. The fact that the parameter estimate for childless women is not significantly different from that of the reference category is consistent with the proposition that there could be two groups of childless women – those with a high propensity to have a birth and those that are unable or unwilling to - and that the effects of these two groups cancel each other out.

In summary, the probability of having another child is generally higher for women with a child aged below five than for women with an older child. The theory of a linear association between parity and the probability of a birth can be rejected. The overall conclusion, however, must be that parity has a relatively small influence on the probability of having another child and that the age of the youngest child is more important in determining subsequent fertility.

Figure 5.3 Simulations of cumulative probabilities of conception for women of parity two at marital dissolution, by age of youngest child at marital dissolution.
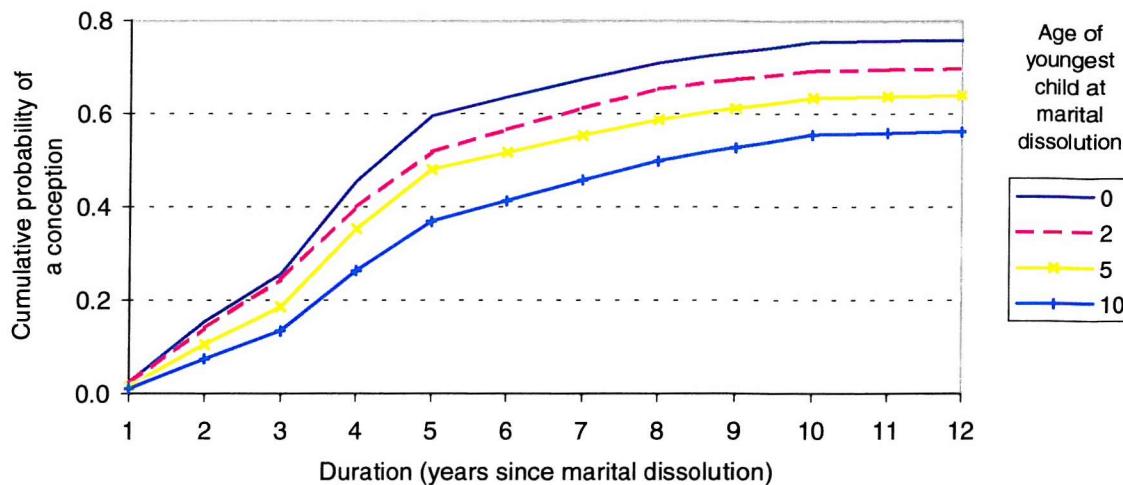
Source: Sample of women with a marital dissolution; 1990-1995 GHS.

The simulation estimates probabilities of conception for various ages of the youngest child, holding all other variables constant at the following values: woman aged 30 at separation post-1974; parity two at marital dissolution; cohabits in year two, then remarries in year four; partner not married previously; did not cohabit prior to first marriage; some educational qualifications.

Figure 5.4 Simulations of cumulative probabilities of conception by parity at marital dissolution (youngest child aged two at marital dissolution for women with children).
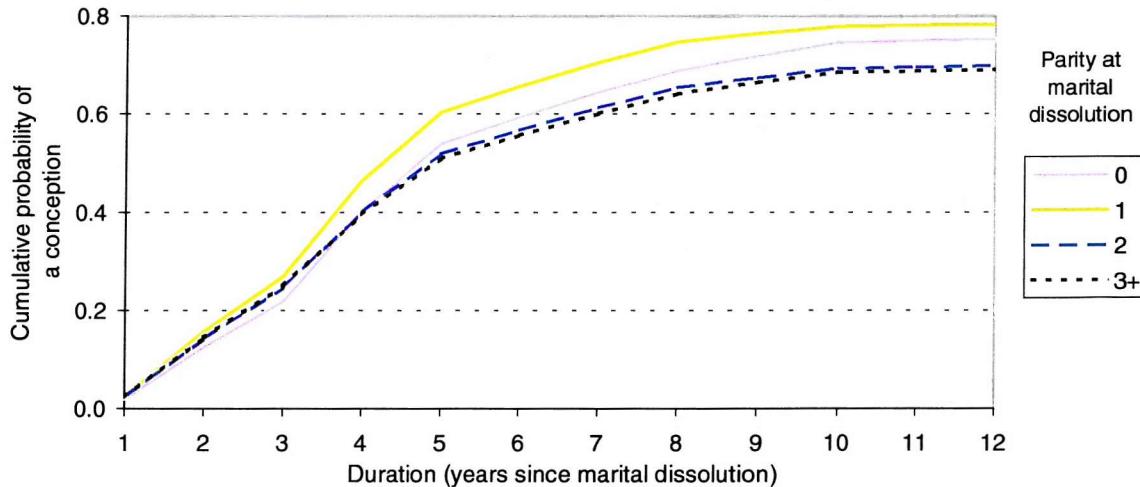
Source: Sample of women with a marital dissolution; 1990-1995 GHS.

The simulation estimates probabilities of conception for various parities at marital dissolution, holding all other variables constant at the following values: woman aged 30 at separation post-1974; youngest child aged two at marital dissolution (where applicable); cohabits in year two, then remarries in year four; partner not previously married; did not cohabit prior to first marriage; some educational qualifications.

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Figure 5.5 Simulations of cumulative probabilities of conception for women with two children, youngest aged two years at marital dissolution, by age at marital dissolution.
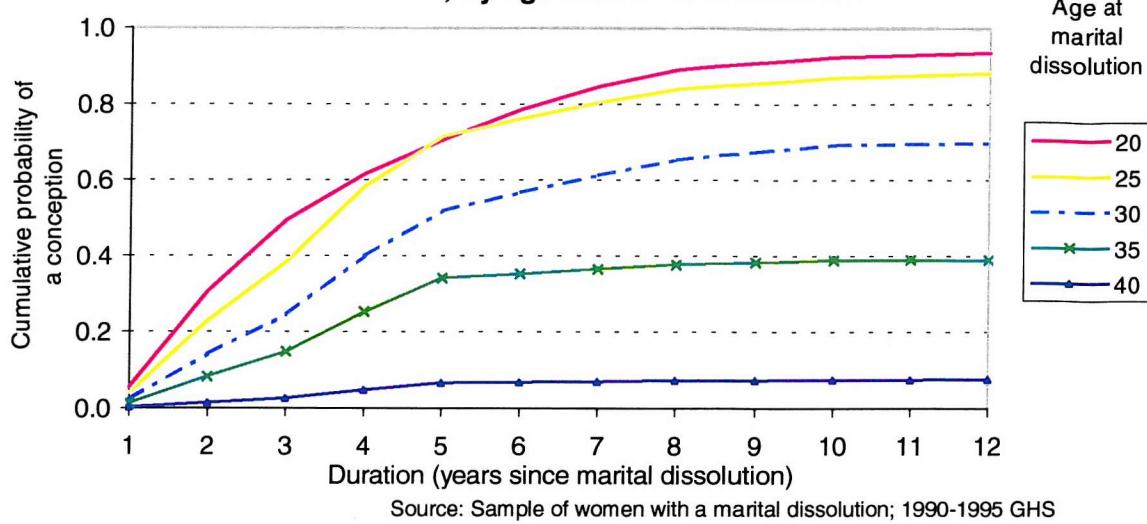
Source: Sample of women with a marital dissolution; 1990-1995 GHS

The simulation estimates probabilities of conception for various ages at dissolution, holding all other variables constant at the following values: woman separated post-1974; parity two with younger child aged two at marital dissolution; cohabits in year two, then remarries in year four; partner not previously married; did not cohabit prior to first marriage; some educational qualifications.

Figure 5.6 Simulations of cumulative probabilities of conception for women who were childless at marital dissolution, by age at marital dissolution.
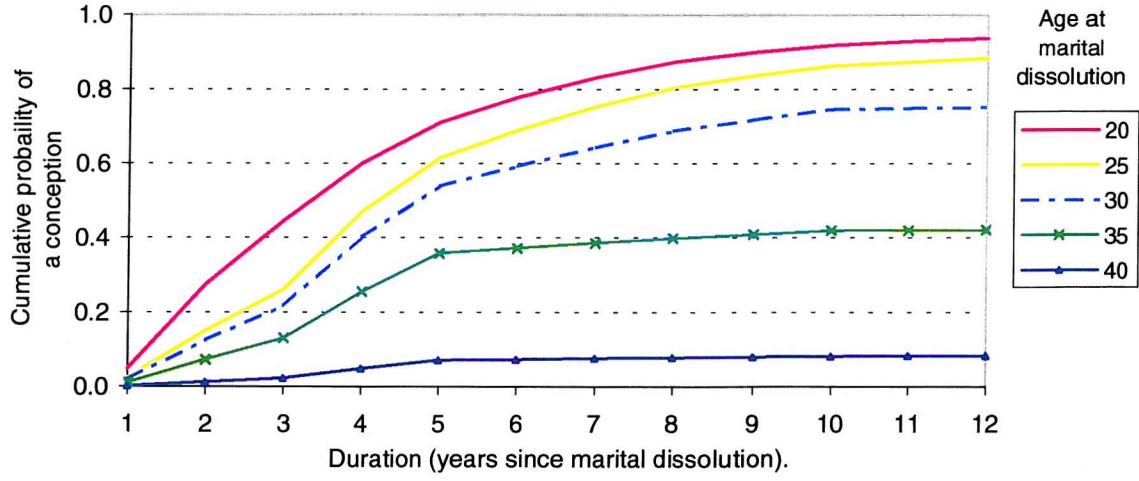
Source: Sample of women with a marital dissolution; 1990-1995 GHS

The simulation estimates probabilities of conception for various ages at dissolution, holding all other variables constant at the following values: woman separated post-1974; childless at separation; cohabits in year two, then remarries in year four; partner not previously married; did not cohabit prior to first marriage; some educational qualifications.

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Repartnering, whether marriage or cohabitation, is found to be very strongly associated with experiencing a conception, consistent with previous research (e.g. Wu and Wang, 1998; Brown, 2000). The parameter estimates for the remarried are higher than those for cohabiting women, but the results still suggest that cohabiting women are far more similar to remarried women in their childbearing behaviour than to women who do not repartner, consistent with Bachrach's US research (Bachrach, 1987). However, it is likely that some proportion of women remarry following a pregnancy within a cohabiting union. Modelling conceptions rather than births has made it possible to find out that conceptions often occur in informal unions, but this model cannot tell us the extent to which the high probability of conceptions within cohabiting unions is a function mainly of couples conceiving and then remarrying before the birth, or a genuine high probability of both conceptions and births within cohabiting unions. However, rerunning the same model using births rather than conceptions supports the latter, as cohabitation, as well as remarriage, is found to be strongly associated with the probability of a post-dissolution birth.

Table 5.3 shows that among cohabiting women, there is little difference in the parameter estimates for those living with a partner who has previously been married, as compared to those women living with a bachelor. However, for those who have remarried, the parameter estimate is larger for women marrying a bachelor than for those marrying a previously married man. This could reflect a greater desire to father a child among childless men than those who have already had children, if it assumed that never married men are more likely to be childless. However, male fertility data would be needed to confirm this suggestion.

The parameter estimates associated with remarriage are particularly high in comparison with those for women who do not repartner, but it must be remembered that in real life women do not remarry immediately after separation or widowhood and some experience a second marital dissolution, so no woman will experience these high probabilities throughout the twelve year period.

Other factors

The model shows that widowhood, as opposed to separation or divorce, is not significantly associated with the probability of a conception, but that widowed women who remarry a bachelor have a significantly higher probability of a conception than separated/divorced

women of the same status. This supports the findings of Wineberg (1990a), who found that widowed women had higher fertility within remarriage than divorced women and is consistent with Brown (2000) who found no significant relationship between type of marital dissolution and the likelihood of a subsequent non-marital birth.

Regarding the time period of marital dissolution, various calendar periods were tested in the model, but the only significantly different period was 1971-1974. Women experiencing marital dissolution during this period have a significantly lower probability of a conception than women experiencing marital dissolution before 1971 or after 1974. This may reflect the low period fertility rates in Britain during the mid- to late 1970s. However, there does not seem to be a corresponding high probability of conception among women experiencing marital dissolution just prior to the period of high fertility rates in the mid-1960s, as might have been expected. It is also important to note that the 1971-1974 period directly follows a 1971 change in the law that made it easier to obtain a divorce (Haskey, 1996). Many people divorcing in this period had been separated for some time, but it is not clear how this might have affected post-dissolution fertility once age and repartnering are controlled.

Women who cohabited immediately prior to their first marriage have a higher probability of conception in general than those who did not. However, this is only the case for women who have not repartnered or who are cohabiting. Cohabitation prior to first marriage interacts with remarriage so that for women who remarry, there is no difference in the proportion who have a conception within twelve years. Thus, cohabitation prior to first marriage seems to be associated with a higher propensity to have a birth outside marriage, which may reflect less traditional attitudes to family formation among this group.

Women with no educational qualifications have overall a significantly higher probability of conception following marital dissolution than women with some form of educational or commercial qualifications. Surprisingly, no significant differences were found between different levels of educational qualification. However, the interaction between education and repartnering shows that women with no educational qualifications are in particular more likely than those with some qualifications to have a non-marital birth outside a union. This is consistent with much American research (e.g. Rindfuss and Bumpass, 1977; Rindfuss and Parnell, 1989; Brown, 2000) and in particular with Wineberg's study of US births in the mid-1970s and mid-1980s that found an inverse relationship between education and non-marital childbearing among the previously married, but found that the proportion of births in second marriages varied little by education (Wineberg, 1990b). These findings also tally with British

research on lifecourse transitions among young women in the National Child Development Study cohort, where it was found that women with no educational qualifications were significantly more likely to have a pregnancy before cohabitation or marriage than women with post-16 qualifications (Berrington and Diamond, 2000). However, Wineberg's (1990a) finding that white women with fewer years of education had greater odds of childbearing within remarriage is not supported here.

5.5 Conclusions

5.5.1 Discussion

To summarise, life table analyses have shown that childbearing is a common occurrence among British women who have experienced marital dissolution, with around 45% of the sample having at least one birth following marital dissolution, and that many of these births occur fairly soon after marital dissolution (27% of the women had a birth within five years). Given that many of these parents will already have one or more children, this implies that a large number of British children will be growing up with half-siblings. Future research could perhaps estimate the incidence of half-siblingship among children and explore the different meanings of full-, half- and stepsiblingship to children, parents and others.

The hazards model showed that the factors most strongly associated with the likelihood of a post-dissolution conception are a woman's age and her repartnering behaviour. Younger women are far more likely to have a conception after marital dissolution than older women, reflecting both biological and social processes. In addition, women who repartner are more likely to have another child than those who do not, with cohabiting women appearing to be more like remarried women than non-repartnered women in their subsequent childbearing behaviour.

In section 5.2, parity, the age of the youngest child and the marital and fertility history of a new partner were suggested to be factors of particular interest when studying the fertility of women who have been separated, divorced or widowed. The most interesting finding here therefore must be that, among this group, parity at marital dissolution seems to have only a small impact on the decision whether or not to have another child. This result is similar to that found by Griffith, Koo and Suchindran (1985) and suggests that the childbearing decisions of women who have experienced marital dissolution are different to the decisions made in a first

marriage, where we might expect greater importance to be attached to parity. It is likely that women of post-dissolution status may revise their desired family size targets in response to their current repartnering status and the desire of their new partner and themselves as a new couple to produce offspring (Burgoyne and Clark, 1984). There is thus considerable support for the 'union-commitment' effect noted by Vikat, Thomson and Hoem (1999), whereby couples desire a joint child, irrespective of parity. The results here are also consistent with the 'sibling effect' provided the only child is below ten years of age. In contrast, no clear evidence is found to support the parenthood effect, perhaps because it operates among some childless women, while others may be intentionally or involuntarily childless so the two effects may cancel each other out.

In contrast to the marginal influence of parity, the age of a woman's youngest child seems to be more clearly related to her probability of further childbearing (as found by Thomson, Hoem and Godecker, 1999). In general, women with a child under five are more likely to have another baby, whatever their parity, while women whose youngest child is ten or older have a much lower probability of subsequent childbearing. This is consistent with the hypothesis that women try to avoid very long birth intervals for personal or employment reasons. It is also to be expected in particular among women who repartner, given the importance of the age of children in influencing the way a reconstituted family construct their identity and hence make decisions about future childbearing (Burgoyne and Clark, 1984).

Finally, women who repartner never-married men have higher probabilities of conception than do those with previously married partners. This may be because never-married men are less likely to have a first family and the caring or financial responsibilities that this may entail. Where one or both partners is previously married, the couple's decision-making context may be much more complex than that for childless couples in their first marriage. Issues surrounding stepchildren and financial support of non-custodial children are additional factors to be taken into account.

5.5.2 Further Work

Additional data would be needed in order to ascertain the full impact of couples' previous union and fertility histories on subsequent childbearing. In particular, full cohabitation histories would be useful, as would information on the characteristics of all previous male partners and data regarding sterilisation for all men and women. It would also be necessary to know about any previous children fathered by male partners and the level of involvement the

partners have with the children, as these factors may influence the man's desire to have further children (Thomson, 1997a). Qualitative research is necessary to assess the role of the Child Support Agency in influencing fertility decisions in men's second families and for an in-depth investigation of the attitudes and the motivations of women and their partners to have or not to have (further) children.

Although parity at marital dissolution was found to have little effect on the probability of a conception following marital dissolution, splitting the model by parity could be beneficial from a technical point of view. For example, a model for women with two or more children at marital dissolution could separately assess the effects of the age of the youngest child, the gender of existing children and the mother's marital status at first birth on the probability of a post-dissolution conception, without having to combine these variables because of childless women who do not have these attributes. This would allow an assessment of whether, for example, there is a link between premarital fertility and non-marital births following marital dissolution as found by Brown (2000) and other US researchers.

Although conventional event history analysis is an appropriate method for analysing fertility following marital dissolution, it would be possible to improve on the model used here using more sophisticated techniques. Two suggestions are discussed below.

Mixture models. Proportional hazards models of the type use here estimate the effects of covariates on the timing of an event and assume that the event of interest would occur to all individuals eventually. In this example, a large proportion of women never experiences a birth following marital dissolution; such women can be described as long-term survivors (Farewell, 1982). Ignoring the fact that some women will never experience a birth may lead to biased estimates. It would therefore be preferable to estimate the separate effects of covariates on the probability and timing of a birth simultaneously, using a mixture model (Farewell, 1982; Maller and Zhou, 1996; Li and Choe, 1997; McDonald and Rosina, 1998). This would, for example, enable the effects of parity at dissolution on the occurrence of a post-dissolution birth to be distinguished from the effects of parity on the speed at which women who have a birth do so. Yamaguchi (1998) has shown how some types of time-dependent covariates, for example repartnering, can be incorporated into such models. However, he notes that a woman's age and age of her youngest child would need to be treated as fixed at the time of marital dissolution because ages are constantly changing and women and their children do not remain at a particular age in the same way that one might remain in the remarried state until interview. The proportion eventually having a birth among those remaining in the remarried state can

therefore be estimated but it would not make sense to estimate the proportion eventually having a birth among those remaining at age 35. This means that the variables in a mixture model would have to be adapted slightly from those used in the analysis here.

Simultaneous equations for hazards. The analysis in this chapter found repartnering behaviour to be significantly associated with the probability of having a conception following marital dissolution. However, it has also been noted that childbearing behaviour both prior to and following marital dissolution is likely to affect the probability of repartnering (e.g. Suchindran, Koo and Griffith, 1985) and that there may be some circular causality inherent in the repartnering and fertility process. Exploratory analysis of women still in the sample five years after marital dissolution shows that those who remarry are more likely to have a conception than those who do not, but also that those who have a conception are more likely than others to remarry. However, of those who remarry and have a conception during the five years following marital dissolution, only 52% conceived *after* their remarriage.

It is therefore likely that the hazard of repartnering and the hazard of a conception are inter-related and perhaps jointly determined and so should be modelled simultaneously. Lillard (1993) has pioneered a method for doing so and later used it to simultaneously model marital childbearing and marital dissolution (Lillard and Waite, 1993) and premarital conception, entry into cohabitation and entry into marriage (Brien, Lillard and Waite, 1999). This method has recently been successfully applied to stepfamily fertility in the US, taking cohabitation, marriage and union dissolution into account (Thomson, Hoem and Godecker, 1999). It could equally be applied to the modelling of repartnering and post-dissolution fertility, by modelling the hazard of repartnering, including previous childbearing as a covariate and simultaneously modelling the hazard of conception, including the time-varying hazard of repartnering as a covariate.

To summarise, the analysis in this chapter could be improved in several ways with more sophisticated methodology and better data, were the latter available. The next chapter looks at fertility intentions rather than actual births following marital dissolution and therefore overcomes some of the difficulties inherent in the model presented in this chapter.

Chapter Six:
An Investigation of Fertility Intentions Following Marital Dissolution.

6.1 Introduction

This chapter examines the fertility intentions of women that have experienced marital dissolution and begins by explaining why it is appropriate here to study intentions rather than actual behaviour. A brief literature review of some issues surrounding fertility intentions follows. Data from the GHS are then used to explore the fertility intentions of women with a marital dissolution as compared to all women. Next, the focus narrows to include only those women who have repartnered following a dissolution and logistic regression models are used to identify the characteristics associated with positive or negative fertility intentions in this group. Finally, the fertility intentions of the repartnered women are compared to those with similar characteristics but still in first marriages, this time using multinomial models in order to see whether the factors associated with positive or negative fertility intentions are the same in the two groups or different.

6.1.1 Why Study Fertility Intentions?

There are two main reasons for using fertility intentions, rather than actual fertility for this part of the research, one practical and one theoretical.

The practical rationale concerns the data available in the General Household Survey. The analysis carried out in chapter five was constrained by the data in two particular ways. First, the GHS in the early 1990s did not collect complete cohabiting histories from women. Women were only asked about spells of premarital cohabitation and cohabiting unions current at the time of the interview. This meant that past births not occurring within marriage or premarital cohabitation could not be correctly categorised as having occurred within or outside of a cohabiting union and were assumed to have occurred outside of a union. As a result of this, the impact of repartnering relative to not repartnering on the probability of having a conception was underestimated. Second,

although the GHS collects a wealth of variables that are of potential interest in the study of fertility, many could not be used to model observed fertility. For example, the number of stepchildren currently resident in the household, current income and current economic activity are all collected in the GHS. However, although we know, for example, a woman's current income, we do not know what her income was at the time when she had a birth (unless she had a birth in the same month as the interview). Current status variables like these cannot be used to explain events that occurred in the past, as they may be a result of the event itself. In this example, although income may be related to the probability of childbearing, women's incomes often decrease as a result of changes in employment following childbearing (Joshi, 1990).

Using fertility intentions rather than observed births overcomes both of these difficulties, because fertility intentions are current, i.e. measured at the time of interview. Since the GHS collects current union type, we know exactly who is cohabiting or not at the time when intentions are stated. Furthermore, several variables measured at the time of the interview can be used as covariates in modelling fertility intentions.

The second rationale is more theoretical. Clearly the study of intentions is different to the study of observed fertility, as observed fertility is not always intended! Contraceptive failure and many other factors may affect observed fertility. If the aim is to determine which women believe that they are able to have *and* want to have another birth, intentions are likely to be a better measure of the motivation to avoid or not to avoid conception. When studying the factors associated with the likelihood of having an actual birth, one is exploring at the same time the determinants of fertility intentions and of unintended fertility. If we found, for example, that less educated women had more births, it would not be clear whether that was because less educated women had a preference for higher fertility or because less educated women had a relatively higher proportion of unintended births. The separation of these two issues by studying only fertility intentions gives the interpretation more clarity.

Little research has been done on the fertility intentions of British women. The fertility intentions data from the GHS are used in the formulation of fertility assumptions for national population projections (e.g. Cooper and Shaw, 1993; Shaw, 2000). Werner (1986) discusses the fertility intentions given by women interviewed in the 1979 to 1983 rounds of the GHS, but since 1990, even the GHS reports have not provided any commentary on fertility intentions, suggesting that they are not deemed of interest to readers (e.g. OPCS, 1993a; ONS, 1997b). These omissions should be rectified, as

fertility intentions provide a fascinating insight into an overlooked aspect of British fertility!

6.1.2 Definition of Fertility Intentions

In the simplest terms, fertility intentions can be broadly defined as the number of children that a person intends to have and when they intend to have them. Ryder and Westoff (1971) found from a US survey that the number of children *intended* and *expected* were very similar on an individual and aggregate basis, so fertility intentions could also be defined as the number and timing of children that a person is expecting to have. However, Ryder and Westoff suggest that the notion of intention is conceptually clearer, probably because the expected number of children could include an allowance for an unintended child, while the intended number would not.

Fertility intentions must be clearly distinguished from fertility ideals and fertility desires. Menniti (1999) suggests that if a person is asked about the ideal number of children to have, they are likely to state the number of children that is socially acceptable and seen as the 'norm' family size in their particular culture. On the other hand, fertility desires are more personal and reflect the value placed on childbearing by particular individuals. It is possible that some respondents take their own values into account when asked about an ideal number of children and might place the question into their own context, so the distinction between ideals and desires may not be as clear cut as Menniti (1999) suggests. The distinction between desires and intentions, however, is clear. Menniti (1999) notes the shift from the 'imaginary and ideal context' that desires stem from and the 'real and concrete' context where intentions are formed. Two examples can illustrate the difference. First, a woman who knows that she is unable to have children may wish to have two children. This woman's fertility desire is for two children, but her intention is to have none, because she knows that she is unable to achieve her desire. Alternatively a woman with one child may desire no more children herself, but intend to have another because her partner wants another or she feels social pressure to have two children.

Fertility intentions, therefore, encompass both fertility desires and a realistic assessment of the ability to achieve those desires in the light of external pressures and situational factors. These external pressures and situational factors are discussed further in section 6.2.

6.2 Fertility Intentions – a Brief Literature Review

Despite the lack of research on this topic in Britain, some work has been done on fertility intentions, predominantly in the US. Here, studies that aim to expand the theoretical background to fertility intentions are discussed briefly under a series of five question headings. Other studies that use fertility intentions as the dependent variable as in this research are discussed in later sections.

6.2.1 How are Fertility Intentions Formed?

Demographers have tended to be reluctant to consider the process of intention formation, mainly because of a lack of routine data on attitudes and preferences (Beckman et al., 1983). However, research from America, carried out mainly by psychologist Warren Miller, has made a major contribution to the understanding of fertility desires, intentions and behaviour. During the 1990s a specially designed survey was administered to 401 married couples (Miller and Pasta, 1993). This included highly detailed questions on fertility motivations, desires and intentions, providing variables not usually available from large-scale studies. Miller's basic framework representing the psychological and behavioural sequence leading to fertility outcomes is shown in figure 6.1. He suggests that desires are influenced by one's motivations, attitudes and beliefs, while these desires influence intentions. Fertility intentions then determine instrumental behaviour in relation to conception, such as contraceptive behaviour, or 'proceptive' behaviour that aims to increase the chances of conception (Miller, 1986a; Miller 1986b). These behaviours affect the final outcome i.e. whether a woman has a birth or not.

Figure 6.1 Psychological and behavioural sequence leading to fertility outcomes.

Motivations,
Attitudes, → **Desires** → **Intentions** → **Instrumental** → **Fertility**
Beliefs.   **Behaviours**   **outcomes**

(Adapted from Miller, 1986b; Miller and Pasta, 1993).

This theoretical framework covers the entire fertility process, but fertility intentions and their antecedents are of the main interest here. Figure 6.2 shows a more detailed theoretical framework showing how fertility intentions may be formulated. This is based on concepts from papers by Miller and colleagues, as well as others, but has been drawn

Figure 6.2 A framework for determinants of a woman's intention to have a(nother) child or not.

STAGE 1:
FORMATION
OF
DESIRES

Psycho-social factors:
E.g. Individual attitudes and traits.

Demographic/socio-economic factors:e.g. education, occupation, religion.

Previous childbearing experience:
E.g. parity, age youngest child, balance between enjoyment/strain of pregnancy, childbirth, childrearing.

Individual Desires e.g.
- To have no (more) children
- To become a parent
- To have a child with that partner
- To have a certain number of children
- To avoid having an only child
- To have a child of a particular sex

Level of certainty/ uncertainty

STAGE 2:
MODIFICATION
OF DESIRES

Perceived desires of partner.

Level of agreement with partner. If disagreement, importance of partner's desires relative to own desires; strength of desire to comply with partner.

Other External pressures on desires:
- Social norms re. e.g. family size, non-marital childbearing, appropriate age for childbearing, birth interval length.
- Desires/attitudes of significant others e.g. parents, existing children of both partners.

Strength of desire to comply with external pressures.

STAGE 3:
FORMATION
OF INTENTIONS

Possible Couple Constraints
Biological e.g. age, fecundity, sterilisation.
Socio-economic e.g. income, maintenance, housing, employment.
Perceived stability of union.
Future certainty/uncertainty re. these factors.

Woman's Intention to have a(nother) child or not

Level of certainty/ uncertainty.

up to reflect my own opinions on how the process may operate. I propose three stages: the formation of personal desires, the modification of those desires with regard to external factors and then the formation of intentions. In contrast, Miller (1994) categorises the process into the formation of traits, the activation of traits to form desires and the transformation of desires into intentions. The emphasis on traits is likely to reflect his psychological background and is perhaps of less importance here. My second stage - modification of desires, some might argue, is part of the process of intention formation, but I thought it important to distinguish between one's own internal desires and the shaping of one's own desires by social norms and other factors.

In the first stage of the diagram, three groups of inter-linked factors act to determine personal fertility desires concerning the number, timing and sex of children. Attitudes and traits range from more general traits that may be associated with positive or negative dispositions towards childbearing (such as nurturance, affiliation and autonomy) to more specific attitudes and opinions about the practical aspects of childcare (Miller, 1992; Miller and Pasta, 1993; Miller, 1994). These attitudes and traits may act to some extent subconsciously on desires (Miller 1986a) and may be developed partly through experiences in childhood, such as number of siblings and previous responsibility for younger siblings (Miller and Pasta, 1993). If childbearing decisions are made sequentially (e.g. Namboodiri, 1974), previous experience of pregnancy and childrearing may affect future desires (Miller and Pasta, 1993; Miller and Pasta, 1995a); for example, a bad experience in childbirth or difficulty in adjusting to motherhood may put some women off having another birth. Finally, education, occupation and religion may affect desires both directly and indirectly through their effect on personal value systems and on previous childbearing. It should be noted here that desires may exist with varying degrees of certainty and uncertainty – this will be discussed further in section 6.2.4.

In the second stage, a woman's own desires are modified by external factors. Her desires may be either reinforced or contradicted by her partner's desires and she may or may not amend her own desires in response to this, depending on how strongly she wishes to comply with her partner and the relative power of the partners (Beckman et al., 1983). The opinions of other significant people such as parents may also affect desires (Miller, 1994), as may social norms on the correct number of children to have and when to have them. As Bulatao (1981, p3) notes, 'individuals internalise social pressures which emerge expressed as personal motives.'

The third stage brings in situational constraints that may act to prevent desires from becoming intentions. The couple may be unable to have a child for biological reasons or may feel unhappy about having a baby if the relationship is perceived to be unstable (Miller and Pasta, 1993). Poor housing, unemployment or low income may also negate positive fertility desires if these are seen to be detrimental to successful childrearing (Miller, 1994). If future income or employment is uncertain, fertility intentions are likely to be similarly uncertain.

All these factors are likely to have some impact on fertility intentions, but in models of men's and women's individual intentions, Miller (1994) found that own childbearing desires were the most powerful predictor of intentions, followed by the positive desires of the spouse, parents and friends. Three motivational variables were also found to be very important – the 'satisfaction of childrearing' and 'giving first child a sibling' variables increased childbearing intentions, while the 'parental stress' variable decreased intentions.

6.2.2 Female Fertility Intentions or Couple Fertility Intentions?

Figure 6.2 is a framework for female fertility intentions that takes into account the desires of the male partner, as perceived by the woman. According to this line of reasoning, there is no need to collect data on male fertility intentions because women will take their partners' intentions into account when stating their own intentions. This argument is supported by Fried, Hofferth and Udry (1980), who found that including husbands' anticipated consequences of childbearing in models to predict fertility intentions did not improve the models enough to justify the additional cost of collecting data from men. Morgan (1985) reached the same conclusion, noting spouses' reports of their partners' wishes to be generally accurate.

However, it could be argued that the partner's intentions should be taken into account more explicitly and male intentions analysed alongside female intentions, as both are combined to produce a fertility outcome. The process by which couples interact to formulate fertility intentions is, however, complex (Beckman et al., 1983). Thomson, McDonald and Bumpass (1990) analysed data from both partners and found that husbands' desires did affect couple fertility outcomes in the US. However, the aforementioned paper does not distinguish between desires and intentions, so does not, in my view, provide adequate support for the inclusion of partners' intentions. However, later research by Thomson (1997b) in the US and Thomson and Hoem (1998) in Sweden

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concluded that husbands' desires and intentions were of equal importance to wives' desires and intentions in determining births to the couple. In both countries, actual fertility was generally reduced if couples disagreed about their fertility plans. Omitting partners' desires and intentions may therefore lead to an aggregate over-estimation of predicted births. Miller and Pasta (1996) analysed intentions of married partners and found that husbands' intentions were more responsive to their wives' intentions if their wives desired more children than them, but were less likely to revise their own intentions downwards if their wives desired fewer children than them. There is definite support for using male as well as female intentions when studying couples, but the concept of a 'couple intention' may not be the most appropriate, given the proportion of couples who disagree with each other (e.g. 19% of fecund couples in Thomson (1997b)).

Most work (including this research) uses female intentions only, due to the paucity of data on male intentions. Whether to analyse only female or both male and female intentions may depend on the nature of the study. Clearly, both male and female intentions may be preferable for measuring the intentions of a couple. However, if we want to investigate the fertility intentions of women at different stages of the lifecourse, female intentions alone may be more appropriate for those who do not remain in the same couple throughout their reproductive lives.

6.2.3 When are Fertility Intentions Formed?

It was noted earlier that a sequential model of family building is often assumed (e.g. Namboodiri, 1974; Miller and Pasta, 1995a); in other words, couples decide initially only whether or not to have a first birth, then after their first birth, they decide whether or not to have a second, and so on. According to this model, parity-dependent decisions are based on costs and benefits of the next birth at that particular time (Bulatao, 1981). The alternative assumption is that fertility intentions are independent of parity and changing circumstances: couples have a fixed number of children that they intend to have before they start childbearing, based on values and preferences, and do not modify this in response to intervening events such as births or changes in socio-economic circumstances (Udry, 1983). Udry (1983) calls these the 'sequential-decision model' and the 'one-decision model' respectively and his research provides modest support for the sequential model, as well as showing that initial plans do have some value in predicting fertility. Monnier (1989) concludes that most French couples are uncertain about their intended number of children, revising their intentions as parity and other conditions change. In practice, a theory combining both models may be useful (Morgan, 1982) – a

couple may have some idea of how many children they plan to have, but amend their decision in the light of unanticipated events. Ryder and Westoff (1977) support this theory, suggesting that intentions tend to be conditional on circumstances remaining the same, but are open to revision if circumstances change. This is consistent with Ruokolainen and Notkola (1999) who found that 37% of their Finnish respondents at parity two said that they might have a third child if circumstances changed. Either model assumes that a particular fertility strategy will lead to rational behaviour corresponding to that strategy, but Monnier (1989) found that among the women who had stated the intention not to have a child but subsequently had one, only one-quarter said that they had been doing something to avoid becoming pregnant, so the assumption of rationality is questionable. Bulatao (1981) discusses a two-stage hypothesis, where early childbearing is governed by social forces and constraints and only later childbearing is subject to rational consideration of the costs and benefits of an additional birth. Miller and Pasta's findings, however, suggest that individual motivations are more important below the two-child norm than at higher parities (Miller and Pasta, 1993). It can be seen therefore that there is no clear consensus on the process of fertility decision-making among couples.

Regarding marital dissolution, it seems likely that some women will reconsider their ideal family size if they experience separation or form a new union, provided they are still able to reproduce, so the one-decision model may be unrealistic for such women. Udry (1983) lists divorce as a possible intervening event when considering the sequential-decision model and notes that dissolution 'so profoundly changes the decision situation that few respondents would be expected to have clear fertility plans' (p120). He therefore excludes women whose marriages end from his study! The research in this chapter assumes that fertility intentions may be revised during the process of marital dissolution and repartnering and therefore implicitly supports the sequential model, while acknowledging that women may have had a target family size before their marriage dissolved.

6.2.4 How Certain are People about their Fertility Intentions?

One difficulty in studying intentions rather than actual births is the uncertainty inherent in intentions. This uncertainty may relate to having any children at all, how many children to have or when to have them. As Morgan (1981, p267) notes, unlike births, 'intentions are not inherently dichotomous' – women may be certain that they do or do not intend to have a birth at a certain time but may equally be somewhat or very

uncertain about their plans. Monnier (1989, p253) concluded from his French research that some of the women responding with positive childbearing intentions were 'not expressing a well thought-out strategy, but a simple possibility.' For this reason it is crucial to include 'Don't Know' type responses in any analysis, rather than excluding them as missing data (Morgan 1981, 1982).

Desires and intentions may also vary in precision. Bongaarts (1984) notes that some couples are aiming for a precise number of children, while others have a range within which they would be happy. Morgan (1981) states that some women may have a minimum and maximum desired number of children and that uncertainty arises in between the minimum and maximum. However this assumes that women have a minimum and maximum desired family size – many will not.

Among individuals, intentions may change over time. A response to a survey question about fertility intentions may be an accurate measure of a person's intentions at that time, but may not reflect their intentions over the rest of their reproductive lives. Cross-sectional data such as those from the GHS cannot show how individuals' intentions change over the lifecourse in response to changing circumstances, although the intentions of women at different lifecourse stages can be compared. Monnier (1989) draws attention to a group of women who revised their intentions downwards as an acknowledgement of their difficulty in becoming pregnant, while Westoff and Ryder (1977) note that positive intentions are revised downwards more often than negative intentions are revised upwards. Monnier (1989) also notes that the longer an individual had held a particular intention, the more robust the intention is and the more consistent with behavior it is. Period changes in intentions may also occur within the population in response to period changes in partnership behaviour or economic circumstances are of interest (Lee, 1980), but are not of great concern to this research.

Individual fluctuations in intentions that do not reflect changing circumstances may be more problematic for the type of research in this chapter. For example, positive or negative experiences with their own or other people's children or their partner's behaviour may cause desires and intentions to change over very short time periods (Morgan, 1985). A woman who is uncertain about her intentions may in one week respond that she probably intends to have another child and the next week respond that she probably does not. This means that obtaining a reliable measurement of intentions for such people may be difficult.

Morgan (1981) notes that uncertainty is related to age and parity in a particular way and can be predicted in a model. For example, we would expect a greater proportion of older women than younger women to be certain that they intended to have no more children. Monnier's longitudinal study (1989) found that the degree of uncertainty depended on whether the intention was positive or negative, how the intention had developed over time and the number of children already born. He found the level of uncertainty to be lowest among women with two children who stated that they did not intend to have any more.

6.2.5 Are Fertility Intentions Good Predictors of Fertility Behaviour?

This is a question of huge interest for those using fertility intentions in producing population projections. It would be a mistake, however, to believe that if intentions are poor predictors of fertility this necessarily means that fertility intentions are invalid or unreliable measures. A fertility intention that is not realised as actual behaviour due to changing circumstances is still a valid measure of the person's intentions at that point in time.

Work by Bongaarts (1984) suggests that couples' fertility intentions are unlikely to be realised due to various unplanned events. He describes a hypothetical couple with very specific fertility goals – two children, a boy and a girl, spaced at three-year intervals after marriage. If this couple uses contraception (but not sterilisation or abortion), he calculates that the chance of achieving their goal is only 6.2%. Obstacles to achieving the goal include contraceptive failure, involuntary childlessness, conception delay, intrauterine death, death of partner or child, divorce and an undesired sex combination of children. Although this work is now rather dated, the improvements in contraception since the 1970s that might lead to an improvement in the chances of success may be balanced out by an increased probability of separation.

Fertility intentions may not match fertility behaviour at the individual level due to either unintended births or unachieved intended births. At the aggregate level, it is possible that unintended and unachieved births might balance each other out. This is hard to confirm, as women are not usually asked about intended but unachieved births in surveys. Data on unintended births are more common, for example, Kost and Darroch Forrest (1995) provide estimates of the proportion of US births in 1998 that were unwanted or mistimed (as defined retrospectively by the mothers): 28.3% of births to married (including remarried) women were mistimed and 5.6% unwanted, compared to 51.5% mistimed

and 10.1% unwanted among formerly married women. Similarly, Hollander (1996) states that 69% of pregnancies to previously married women in the US in 1987 were unintended, compared to 40% of pregnancies to married women. These data suggest that formerly married women (including those cohabiting) are more likely to have both unintended pregnancies and unintended births than married women. However, births defined as 'unwanted' by the mother may not necessarily be defined so by the father (Thomson, McDonald and Bumpass, 1990).

Several studies have sought to follow women over time to determine whether fertility intentions stated at one point in time are accurate predictions of births by a later point in time. A study of white American married women in 1970 (Westoff and Ryder, 1977) found that intentions overestimated births a little at the aggregate level. However, their results pertain only to women in stable marriages – the intentions for the unmarried and those experiencing marital dissolution might be expected to be less accurate for estimating fertility. In this study, the majority of those who had intended to have a child but had not done so said that they had changed their mind; only 23% had not been able to conceive. Of those with a birth not intended originally, the majority of births were conceived unintentionally, as expected, while 26% of these women had changed their mind in favour of having a child. Both Westoff and Ryder (1977) and a similar study of French women in the 1970s (Monnier, 1989) found that negative intentions were more accurate predictors of fertility than positive intentions. In Monnier's study, actual behaviour corresponded to intentions for 77% of the women. However, this sample consisted of women with one or more children already, whose intentions might be expected to be more accurate than those for childless women, as the former have prior experience of motherhood. On aggregate, consistency between intentions and births was remarkably high, due to unachieved births virtually compensating for unintended births. Using British data from the General Household Survey, Shaw (1989) concluded that fertility expectations from the early 1970s provided a good indication *in aggregate* of completed family sizes of the same cohorts in the 1980s. These studies have all analysed women only: in Sweden, Thomson and Hoem (1998) found that 44% of couples who both planned to have another child did so within two years, but that the figure was much lower where one partner disagreed.

The most up-to-date research, on white American men and women, found a strong relationship between stated intentions and the percentage having a birth within five years (Schoen et al., 1999). As in the studies above, intentions not to have a birth were more likely to be realised than intentions to have a birth, but positive intentions were also

more likely to be realised by the married than the unmarried. From modelling the likelihood of having a birth, the authors found fertility intentions to be the strongest predictor, followed by marital status. They suggest that fertility intentions should always be used as an independent variable when modelling actual fertility as they provide additional information that is not provided by other sociodemographic variables, such as education and income. This suggests that fertility intentions provide some measure of the traits and motivations related to childbearing discussed by Miller (1992). While demographers cannot usually measure such characteristics directly, incorporating fertility intentions into models of fertility may compensate for this.

The answer to whether intentions are good predictors of subsequent fertility is inherently subjective. For example, is Monnier's (1989) result of 77% 'good' or not? This subjectiveness is illustrated by Schoen and colleagues who in their 1997 paper state that 'research has shown that the link between expressed fertility intentions and subsequent fertility is not a close one' (p339), but in 1999 note that it is 'well established that individual intentions about future fertility are significant predictors of future behaviour' (p790). Morgan (1981) suggests that inconsistency between dichotomous intentions and fertility behaviour is not surprising, but that when uncertainty is taken into account, predictions will be improved.

From a methodological point of view, Miller and Pasta (1995b) believe that pregnancy or birth is not the only measure to use in determining the outcome of fertility intentions and suggest that 'proceptive' behaviour (trying to become pregnant) is the appropriate measure, their results consistent with their argument that intentions will have greater explanatory power in predicting 'proceptive' behaviour than actual fertility. Morgan (1982) suggests that both fertility intentions and current period fertility should be used to predict future fertility, because the causal pathway may work in a different way to that envisaged by those assuming that intentions influence behaviour. Period-specific socio-economic factors (such as male unemployment or childcare availability) may cause women to stop childbearing at their minimum acceptable level and then revise their intentions downwards to correspond with their behaviour. O'Connell and Rogers (1983) conclude that birth expectations are suitable for predicting cohort fertility, providing adjustments are made for the proportion married within each birth cohort, as the married can predict their future fertility more successfully than the single.

6.3 An Exploratory Analysis of Fertility Intentions using the GHS

6.3.1 Survey Questions on Fertility Intentions

In the GHS, women (but not men) are asked about their fertility intentions. When the GHS began in 1971, only married women aged 16-44 were asked about their fertility intentions, because it was thought that response rates might plummet if non-married women were asked about potentially sensitive family information. However, the pioneering 1976 Family Formation Survey showed that most women were happy to respond to questions about their family lives, so from 1979 onwards, the GHS asked all women aged 16-44 (except single women aged 16 or 17) about their fertility intentions (OPCS, 1981). In 1986, women aged 45-49 were also asked about their intentions for the first time (OPCS, 1988). The analysis for this research uses the 1991 to 1996 surveys, where all women aged 16-49 are requested to answer the questions on fertility intentions. These questions form part of the 'Family Information' section and follow questions on actual childbearing history, step, foster and adopted children and current pregnancy. Respondents can choose whether to fill in the more confidential self-completion forms or be interviewed for this section.

The four questions asked in the 1991 to 1996 rounds of the GHS are shown in Figure 6.3 below. These questions have been developed over the years; for example, in the 1970s, women were only asked about their fertility expectations for their current marriage (e.g. OPCS, 1981). Prior to 1991, fewer response categories were available for question one (OPCS, 1992); this is why the 1990 data used in previous chapters are excluded for this analysis. For the questions shown below, the sections in brackets are used where appropriate, depending on responses to previous questions. All women are asked question one (my numbering) and their response determines whether they are asked further questions.

In this research, only the responses to question one are analysed, as the focus is on which women are intending to have a(nother) birth, rather how many births they intend to have or when they intend to have them (although these variables would also be of interest). It can be seen that there are five possible responses to question one, capturing the full range of certainty and uncertainty inherent in fertility expectations. Women who respond 'Don't Know' in question one are asked question two, in an attempt to categorise them into 'Probably Yes' or 'Probably Not'. For this question, a 'Don't

Figure 6.3 Questions on fertility intentions in the General Household Survey, 1991-1996.

The questions and instructions below are based on those in the self-completion form for women, but those asked by interviewers are the same, with a show card of possible responses for question 1. Questions differ slightly for different groups of women: these parts are shown in brackets. Question numbers have been simplified here for ease, but bold type is as on the self-completion form.

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1. Do you **think** that you will have any (more) children (after the one you are expecting)?

Yes	→ go to Q3.
Probably Yes	→ go to Q3.
Probably No	→ go to next topic.
No	→ go to next topic.
Don't Know	→ go to Q2.

2. On the whole do you think (after the child you are expecting) that you will probably or probably not have any (more) children?

Probably Yes	→ go to Q3.
Probably Not	→ go to next topic.

3. How many children do you think you will have born to you in all **(including** those you have already who are still alive) **(including** the one you are expecting)?

Enter total number of children.	→ go to Q4.

4. How old do you **think** you will be when you have your next baby (after the one you are expecting)?

Enter age you think you will be.	→ go to next topic.

Know' option is not provided on the questionnaire, to encourage women to decide one way or the other. It is unclear how reliable the results of this question are, given that the women responded Don't Know to the first question. They may feel pressurised into giving a response, in spite of genuinely not knowing. Therefore the responses to question two are not analysed here.

The questions asked in the GHS probably provide the best available British data on fertility intentions. Three other British surveys provide some data, but only the Family and Working Lives Survey 1994 has a similar five-response intentions question to the GHS (CASS, 1999). The earlier Women and Employment Survey 1984 has a three-response intentions question and only asks specific categories of women, for example those who are working and have children under sixteen (CASS, 1999). Both these surveys focus on the links between employment and fertility at an individual level rather than trying to provide a good estimate of fertility intentions in the population. In contrast, the British Household Panel Study is a general social survey that asked both men and women about their fertility intentions in Waves 2 and 8 (in 1992 and 1998 respectively) (ISER, 2000). These data would be very interesting to examine, as it would be useful to know whether men and women in couples had similar intentions or not. However, the available responses to the question 'How many (more) children do you think you will have?' are less comprehensive than those of the GHS. Respondents can choose to answer 'Yes', 'Currently Pregnant (self or partner)', 'No' or 'Don't Know' (CASS, 1999). This means that those who are pregnant (or whose partner is pregnant) are not asked about their intentions at all. In addition, the lack of a 'Probably Yes' or 'Probably No' option means that there is less scope for stating an uncertain intention, and a basic tabulation of responses to this question (ISER, 2000) suggests that even 'Don't Know' is not considered to be a valid result, being included with the missing responses along with those who were too old to be asked the question! In contrast, using the GHS enables detailed responses about fertility intentions to be obtained from a large sample of women, including pregnant women.

This does not mean, however, that caution is not appropriate when analysing fertility intentions data from the GHS. From analysing GHS data from 1979 to 1983, Werner (1986) found that 20% of women born after 1950 did not state any fertility intentions, as no provision was made for uncertainty. Furthermore non-responders had smaller family sizes at interview than those who responded, suggesting that they were likely to have lower completed family sizes, so estimates from the responders only would tend to over-estimate future fertility. However, the revised questions used in the more recent rounds

of the GHS have eliminated this non-response, as a wider range of uncertainty is allowed (Cooper and Shaw, 1993); no difficulties with non-response were experienced in the analysis here. A more pertinent problem identified by Werner (1986), Shaw (1989) and Cooper and Shaw (1993) was the unexpectedly low proportion of younger women stating an intention to remain childless or have only one child and the high proportion expecting to have exactly two. They suggest that many young childless women state an intention to have two children purely to conform to social expectations, when in reality they are uncertain about their future plans. For this research, it does not matter whether childless women state an intention to have one or two children, as the focus is on the intention to have the next child rather than the total number expected. However, it is possible that some women below parity two who are uncertain about their intentions give the socially acceptable response 'Probably Yes' when asked whether they will have another child, rather than admitting to complete uncertainty, and this should be borne in mind.

6.3.2 The GHS Sample

The data used here are drawn from the 1991 to 1996 rounds of the GHS, which provide a sample of 27 014 women aged 16-44 at interview. Women aged 45-49 at interview are excluded, as very few women in this age group would be intending to have a birth. Sterilised women are not excluded from the data set, as it is not possible to identify them all and it is assumed that they will respond 'No' to the first question. As Thomson (1997a) notes, sterilisation represents a decision to have no more children and even if it occurred prior to the current union, the decision to form the union incorporated that decision not to have children. Were sterilised women to be excluded, the proportion of repartnered women intending to have another child or uncertain about their intentions would be overestimated (Morgan, 1981). Currently pregnant women are included in the analysis, as their intentions are considered to be as valid as those of other women. Any current pregnancy was included in a woman's parity for the purposes of analysing fertility intentions. Some characteristics of the GHS sample are shown in Table 6.1.

Table 6.1 Characteristics of all women aged 16-44.

Characteristic	% of Women
Age	
16-19	10.05
20-24	14.88
25-29	19.10
30-34	20.62
35-39	18.15
40-44	17.19
Parity (including current pregnancy)	
0	37.76
1	16.97
2	28.22
3	11.71
4	3.74
5+	1.61
Marital status at interview	
Never married, not living with a partner	28.4
Never married, cohabiting	7.6
In first marriage	46.8
Post-dissolution, not cohabiting	9.0
Post-dissolution, cohabiting	2.7
Remarried	5.5
Total	27 014

Source: Sample of all women aged 16-44; 1991-1996 GHS.

6.3.3 Fertility Intentions of all Women

This section explores the fertility intentions of all women, in order to provide a baseline with which to compare the intentions of women who have experienced marital dissolution. The responses to question one for the whole sample are shown in Table 6.2. The largest group is clearly the women who state that they definitely do not intend to have another child (46.6%), while 22.2% state that they definitely do intend to have another child. Therefore over two-thirds of women express a 'certain' intention, either positive or negative. The remainder can be described as 'uncertain', although the percentage actually stating 'Don't Know' is low at 3.7%.

Table 6.2 Responses to the question 'Do you think that you will have any (more) children (after the one you are expecting)?': all women aged 16-44.

Response	Number of Women	%
Yes	6007	22.24
Probably Yes	4451	16.48
Don't Know	994	3.68
Probably No	2986	11.05
No	12576	46.55
Total	27014	100.00

Source: Sample of all women aged 16-44; 1991-1996 GHS.

Of the 994 women in the full sample who responded Don't Know to the first question, 40% declined to modify their answer when asked the second question, 39% chose Probably Yes and 21% chose Probably No. This suggests that when asked a second time, women who are not sure are more likely to swing to Probably Yes than Probably No. This could lead to an overestimation of positive fertility intentions among women who are very uncertain.

The coding of Don't Know responses to questions one and two changed during the six-year period. In 1991 to 1993, Don't Know responses to both questions were coded with a code number, while in 1994-1996, Don't Know responses were coded as missing, so that they could not be distinguished from true missing data. However, as the 1991 to 1993 data contained no missing responses, this was assumed to be the case for 1994 to 1996 also. Therefore missing values for 1994-1996 were re-coded to Don't Know. For some reason, a higher percentage of women responded Don't Know to the first question in 1991 to 1993 (5.7%) than in 1994 to 1996 (1.5%), despite the question wording and response ordering being identical. This is not due to the assumption, as were the assumption false, the result would be the opposite of what is seen. In the models produced later, the proportions responding Don't Know in the two year groups were not found to be significantly different. During the six-year period, there was also a slight fall in the proportion of women responding Yes and a slight increase in the proportions responding Probably Yes and Probably No.

Figure 6.4 Do you think you will have any (more) children? Responses from all women by age group.

Age at Interview:
- 16-19 (n = 2716)
- 20-24 (n = 4019)
- 25-29 (n = 5161)
- 30-34 (n = 5571)
- 35-39 (n = 4902)
- 40-44 (n = 4645)
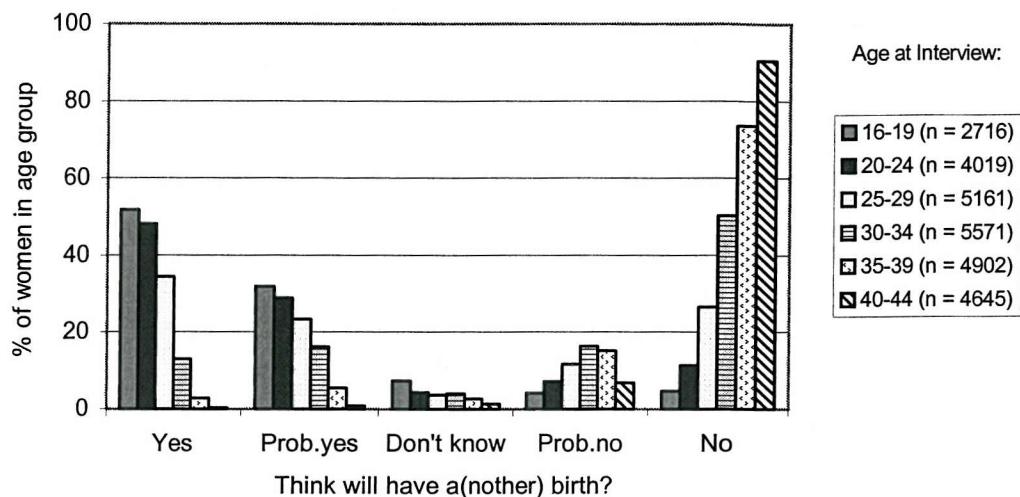
Source: Sample of all women aged 16-44; 1991-1996 GHS.

Figure 6.5 Do you think you will have any (more) children? Responses from all women by current parity.

Parity (including current pregnancy):
- 0 (n = 10200)
- 1 (n = 4583)
- 2 (n = 7623)
- 3 (n = 3162)
- 4+ (n = 1446)
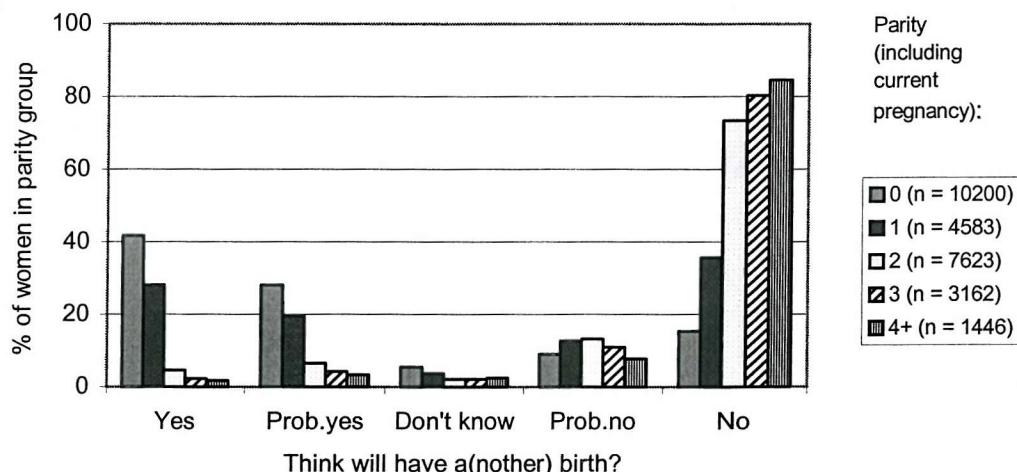
Source: Sample of all women aged 16-44; 1991-1996 GHS.

Figures 6.4 and 6.5 show that women's fertility intentions vary by age and parity as would be expected. As age increases, there is a clear decrease in the proportion of women responding Yes and Probably Yes and a sharp increase in the proportion responding with a definite No. The small proportion responding Don't Know also decreases with age, implying that women become more certain about their intentions as they get older (in many cases because they are sure that they have completed their families). Figure 6.5 shows that women with no children or one child are much more

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likely to respond Yes or Probably Yes than women with two or more children. Similarly, women with no children or one child are much less likely to respond No than those with more children. The marked difference in firm positive and firm negative intentions between those at parities zero or one and those at higher parities suggests that the two-child norm (Cooper and Shaw, 1993; Laybourn, 1994; Scott, Braun and Alwin, 1998) still exists in women's intentions. Among women who are not certain about their intentions, those at parity zero or one are more likely to respond 'Probably Yes' than 'Probably No', while those at parity two or higher are more likely to respond 'Probably No' than 'Probably Yes', indicating responses that are biased towards the normative two-child family. This is consistent with Werner's suggestion that such women are simply giving the socially acceptable response (Werner, 1986).

Clearly, age and parity are highly inter-related, as in general older women are more likely to be at higher parities than younger women, so multivariate analysis is needed to determine the independent effects of age and parity on fertility intentions.

6.3.4 The Role of Marital Status in Fertility Intentions

Figure 6.6 Do you think you will have any (more) children? Responses from all women by partnership status at interview.

Source: Sample of all women aged 16-44; 1991-1996 GHS.
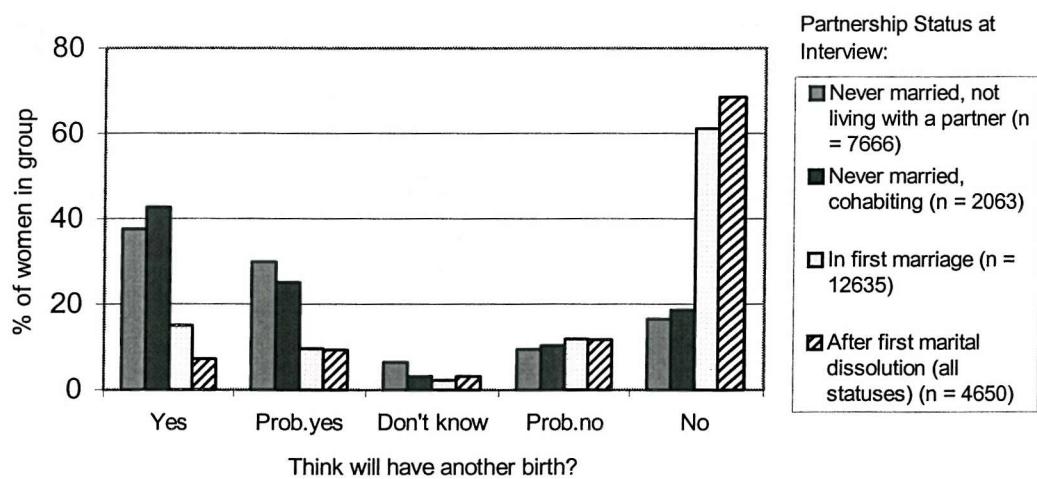
Fertility intentions also vary by marital and partnership status. Figure 6.6 shows that never married women are much more likely to be intending to have a child in the future than married and previously married women, while the latter are far more likely to state that they definitely do not intend to have a child in the future. However, much of this result is likely to be due to age and parity differences between the marital status groups. Using the age group 25-29 as an example, figures 6.7 to 6.9 show that there are differences between women of different partnership status, even when age and parity are controlled. For example, at parity one, women in this age group who are never married and not living with a partner and those who have experienced marital dissolution are twice as likely to state a definite intention to have no more children than those who are never married cohabitants or in their first marriage. Conversely, the latter group are more than twice as likely to state a firm positive intention than the former group.

While it would be interesting to investigate differences between partnership groups more thoroughly, the emphasis here is on the intentions of women who have experienced marital dissolution. When considering only those women who have experienced the dissolution of their first marriage, the data set is reduced to 4650 women. Of these, 52% were not living in a couple at the time of interview, 16% were cohabiting and 32% were remarried.

Table 6.3 Responses to the question 'Do you think that you will have any (more) children (after the one you are expecting)?': women who have experienced marital dissolution.

Response	Number of Women	%
Yes	337	7.25
Probably Yes	430	9.25
Don't Know	148	3.18
Probably No	544	11.70
No	3191	68.62
Total	4650	100.00

Source: Sample of all women aged 16-44; 1991-1996 GHS.

Table 6.3 shows responses to the first question from women who have experienced first marital dissolution. The proportion responding 'No' was greater (69%) for those having experienced first marital dissolution than for all women (47%), while the proportion responding 'Yes' or 'Probably Yes' was over twice as high for all women (39%) as for those who had experienced marital dissolution (17%). This result is not surprising, as the sample who have experienced first marital dissolution are older on average and of higher

Figure 6.7 Do you think you will have any children? Responses from childless women aged 25-29 at interview (n = 2188), by marital status.

Marital status:

- Never married, not living with a partner
- Never married, cohabiting
- In first marriage
- After first marital dissolution (all statuses)

Source: Sample of all women aged 16-44; 1991-1996 GHS.
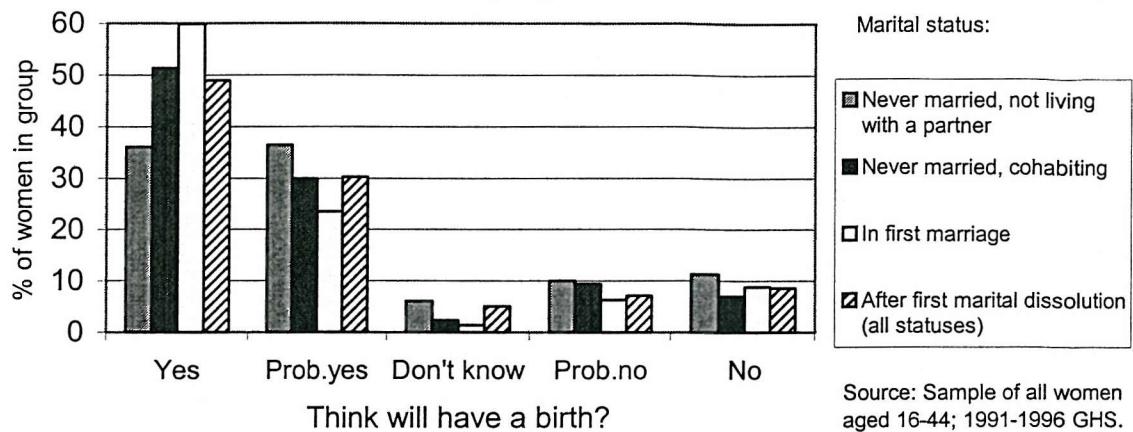
Figure 6.8 Do you think you will have any more children? Responses from women aged 25-29 with one child at interview (n = 1217), by marital status.

Marital status:

- Never married, not living with a partner
- Never married, cohabiting
- In first marriage
- After first marital dissolution (all statuses)

Source: Sample of all women aged 16-44; 1991-1996 GHS.
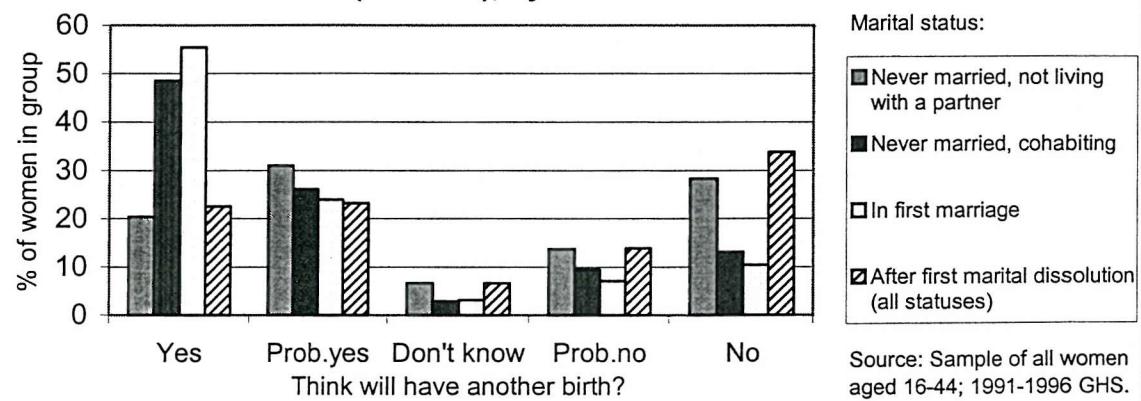
Figure 6.9 Do you think you will have any more children? Responses from women aged 25-29 with two or more children at interview (n = 1187), by marital status.

Marital status:

- Never married, not living with a partner
- Never married, cohabiting
- In first marriage
- After first marital dissolution (all statuses)

Source: Sample of all women aged 16-44; 1991-1996 GHS.

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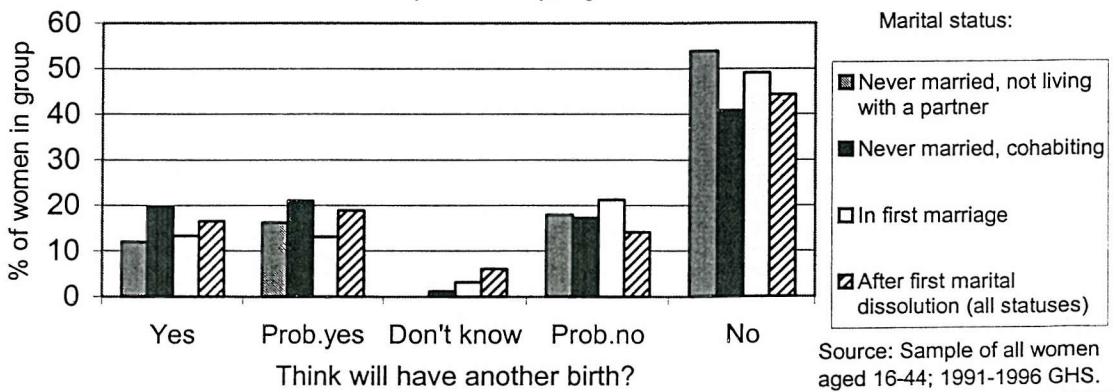
parity than the general population of women (59% are aged 35 or over and 66% already have two or more children (including current pregnancies)).

Of the 148 women who responded 'Don't Know' in the first question, 26% responded 'Probably Yes' to the second question, 25% chose 'Probably No' and 49% gave no answer. Thus we do not see the swing to positive intentions that was evident when looking at all women. This may simply reflect the fact that the women who have experienced marital dissolution are more likely to respond negatively as a group than other women.

Figures 6.10 and 6.11 show fertility intentions for women who have experienced marital dissolution by current age and parity and show a similar pattern to the graphs for all women. As expected, the proportion of women who definitely think they will have another child is highest at younger ages and lower parities, while the proportion responding 'No' is highest for older women and those at higher parities. The distribution of uncertain responses is less clear, but it can be seen that women at parities zero and one are less sure of their plans than those at higher parities. Clearly, multivariate analysis is needed in order to assess the combined influence of age and parity on the fertility intentions of women following first marital dissolution.

Figure 6.10 Do you think you will have any (more) children? Responses from women aged 16-44 who have experienced marital dissolution, by age group.

Age at interview:
16-19 (n=10)
20-24 (n=132)
25-29 (n=638)
30-34 (n=1149)
35-39 (n=1282)
40-44 (n=1439)

Source: Sample of all women aged 16-44; 1991-1996 GHS.
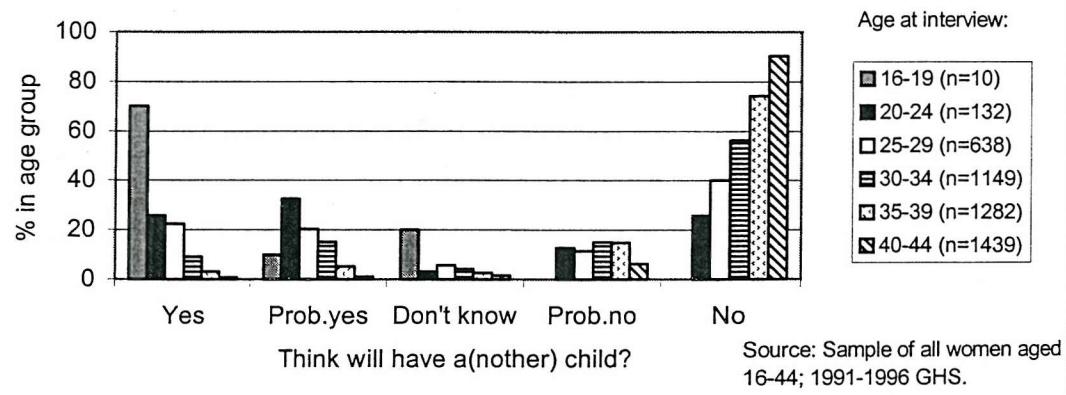
Figure 6.11 Do you think you will have any (more) children? Responses of women aged 16-44 who have experienced marital dissolution, by parity.

Parity (including current pregnancy):
- 0 (n=678)
- 1 (n=893)
- 2 (n=1648)
- 3 (n=903)
- 4+ (n=528)

Source: Sample of all women aged 16-44; 1991-1996 GHS.
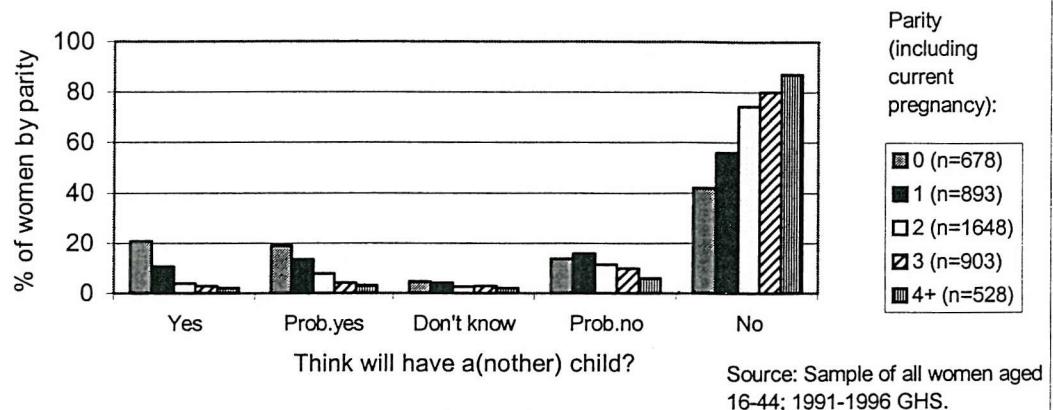
Figure 6.12 Do you think you will have any (more) children? Responses from women aged 16-44 who have experienced marital dissolution, by current partnership status.

Current partnership status:
- Not living with a partner (n=2433)
- Cohabiting (n=730)
- Remarried (n=1487)

Source: Sample of all women aged 16-44; 1991-1996 GHS.
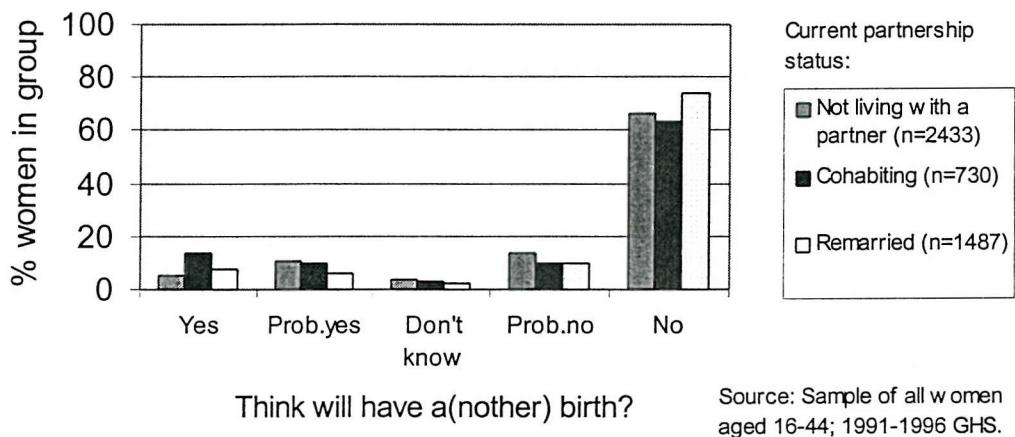
Among those who have experienced marital dissolution, current marital status has only a small impact on responses (figure 6.12). Cohabiting women are the most likely to respond 'Yes', while remarried women are slightly more likely than other groups to respond 'No'. These univariate results are influenced by the age and parity distributions of the three groups; for example, remarried women in the sample tend to be slightly older than cohabiting or non-cohabiting women. Figure 6.12 does not show whether remarried or cohabiting women have already had a birth in that partnership, a factor that may significantly affect fertility intentions. If remarriage and fertility plans are inter-linked, it may be that the women who are remarried are those who have had a birth in that partnership and so may not be planning another birth for that reason.

We might expect women who are not in a partnership to be less certain about their fertility intentions. For many women, birth plans may depend on whether a stable union is formed or not, and intentions must be stated without knowing about a future partner's preferences (Schoen et al., 1999). The data are consistent with this view. While the proportion responding 'Don't Know' is very low for all three groups, the proportion giving an uncertain response ('Probably Yes', 'Don't Know', or 'Probably No') is 18.4% for remarried women, 23.3% for cohabiting women and 27.9% for those not in a cohabiting union. Thus remarried women are most likely to be certain of their fertility intentions, followed by cohabiting women.

6.4 Fertility Intentions of Women who have Repartnered Following Marital Dissolution

6.4.1 Introduction

This section aims to explore the fertility intentions of women who have repartnered following marital dissolution. Two main research questions are addressed:

- How do women who have repartnered following marital dissolution respond when asked whether they think they will have a(nother) child?

- What are the characteristics associated with positive (or negative) fertility intentions among this group of women?

While chapter five explored the subsequent fertility of all women who had experienced marital dissolution, in this section, the analysis is restricted to women who are either cohabiting or remarried at the time of interview. There are both practical and theoretical reasons for this restriction. From a practical viewpoint, excluding non-repartnered women from the models means that partner characteristics, such as age or socio-economic group can easily be tested in models. Were women without partners to be included, complex independent variables combining both repartnering status and partner's characteristics would have to be created, making the effects of different partner characteristics difficult to interpret.

Theoretically, women who have repartnered are of particular interest, since the formation of a new partnership may constitute the opportunity to begin or resume childbearing in a socially acceptable setting. Indeed, the desire to have children is often an important incentive for

forming a cohabiting union or remarriage (Lampard and Peggs, 1996). This is borne out by chapter five, which showed repartnered women to be more likely to have a birth than those not in a resident union. However, this in itself is not sufficient reason to exclude women who are not in a resident union. Focussing more specifically on fertility intentions, one might hypothesise that women who are not currently in a partnership would be less likely to have a firm intention. Any positive fertility intention that they have may be conditional on them forming a partnership. Without having any knowledge of a future partner's preferences and ability to have children, such women's intentions may be unreliable. It is possible, of course, that some women have a current non-cohabiting partner that they intend to live with in the future and have some knowledge of that partner's characteristics, but there is still an element of uncertainty involved in such a situation. Figure 6.12 supported this hypothesis; in the sample of women who have experienced marital dissolution, those who are not living with a partner are more likely to respond with uncertainty (Probably Yes, Don't Know and Probably No) than those who have repartnered, although the difference is not huge. This result is consistent with research into the intentions of US men and women carried out by Schoen and colleagues (1999), which concluded that fertility intentions are less predictive of actual fertility for unmarried as compared to married people.

6.4.2 Factors Affecting the Fertility Intentions of Repartnered Women

Many possible factors associated with intended childbearing after marital dissolution, such as woman's age, parity, age of youngest child and educational qualifications, are discussed in the previous chapter (section 5.2). However, as only women in partnerships are considered for this part of the analysis, it should be possible to ascertain the influence of partner characteristics such as parity and economic activity on fertility intentions in more depth, where the data allows. Similarly, any associations between couple characteristics such as household income or tenure and fertility intentions can be investigated.

The three possible motivations for childbearing within a new union, highlighted in section 5.2.6, pertain only to those in partnerships, so these motivations are considered of particular interest here and are worth re-emphasising. The 'union-commitment' effect (Vikat, Thomson and Hoem, 1999) suggests that all new couples will desire a joint birth to cement their partnership. The sibling effect hypothesises that women with one child will wish to have a second to provide a sibling for the first, while the parenthood effect describes the motivation for biological parenthood among the childless. These three motivations are fairly straightforward to interpret when applied to women's parity only. The 'union-commitment' effect could apply to women at any parity who have not yet had a joint birth with their current

partner, the sibling effect would apply only to women at parity one, while the parenthood effect would apply only at parity zero. Therefore childless women, women with one child and women with two or more children are modeled separately in the following analysis, as theoretically the three groups might be expected to have different motivations for childbearing.

However, when considering women in partnerships, the partner's parity must also be considered. A woman with one child, for example, may be married to a childless man, for whom the parenthood effect may be pertinent. Or her partner may have a resident child in the household to provide a half sibling for the woman's only child, so the sibling effect may be weaker. Unfortunately, data restrictions have prevented such issues being explored in depth in Britain (Rendall et al., 1999), although some research has been done elsewhere (e.g. Thomson, 1997a; Buber and Prskawetz, 2000).

6.4.3 Fertility Intentions of Repartnered Women: Univariate Analysis

From the original data set, 2215 women can be identified as remarried or cohabiting following marital dissolution. As only one woman in this group is aged below 20, she was excluded as no representative conclusions could be drawn for that age group. Pregnant women are also excluded (as in Morgan, 1981; Thomson, 1997b), purely because it is difficult to assign them to a parity group for modelling. Clearly, a woman who is pregnant with her first child would usually be considered to be parity zero, but given that she is already expecting one child, one would not expect her intentions to be comparable to those of a childless women who is not pregnant, as the question specifically asks about further births expected *after* the current pregnancy. However, including a childless pregnant women in the group of women at parity one would pose practical problems in modelling where the age, sex and residence of the child are used as independent variables, as these characteristics are unknown for an unborn child.

After these exclusions, the data set consists of 2131 women aged 20-44, who have experienced marital dissolution and are currently in a union. Some characteristics of these women are shown in table 6.4. The majority of repartnered women are aged thirty or above, with nearly two-thirds in second marriages. Half have had a birth since they began living with their current partner. In addition, nearly all had first married by age 25, many as teenagers (not shown in table), mainly due to the selection effect of having to have married, experienced dissolution and repartnered by the date interview in order to be included in the sample.

Table 6.4 Characteristics of women who have experienced marital dissolution and are currently in a union (n = 2131).

Characteristic	% Distribution
Age at Interview	
20-24	1.3
25-29	9.4
30-34	24.7
35-39	29.4
40-44	35.2
Union Status at Interview	
Cohabiting after first marital dissolution	29.6
In second marriage	63.0
In union following second/later marital dissolution	7.4
Time in Current Union	
0-2 years	25.7
3-5 years	23.2
6-9 years	23.3
10+ years	27.8
Parity	
0	15.7
1	17.6
2	35.6
3	19.9
4	7.2
5+	3.9
Birth in current union by interview?	
Yes	48.4
No	51.6

Source: Sample of all women aged 16-44; 1991-1996 GHS.

Table 6.5 shows the fertility intentions of these women in response to the question 'Do you think that you will have any (more) children (after the one you are expecting)?' It is clear that the majority (72%) of repartnered women are sure that they do not intend to have a birth. The focus therefore should be on those who do intend to have a birth or are not certain of their intentions – what differentiates them from the women who definitely do not intend to have a birth?

There are, however, clear parity differences in intentions. Only 51% of childless women state a firm negative intention, in comparison to nearly 80% of women with two or more children. In contrast, one-quarter of childless women respond with a definite positive intention, compared

to less than 5% of women at parity two or higher. The positive and negative responses from women with one child fall in between those with no children and two or more children. At parities three, four and five (not shown), positive responses decrease and negative responses increase with parity, but the differences are smaller than between the lower parity groups.

Table 6.5 Repartnered women's responses to question on whether the respondent intends to have (more) children, by parity group.

Response %	All repartnered women	Parity zero	Parity one	Parity two and higher
Yes	9.2	24.9	14.1	4.2
Probably Yes	6.4	12.3	7.7	4.7
Don't know	2.9	5.4	2.4	2.4
Probably No	9.6	6.9	12.8	9.4
No	72.0	50.6	63.0	79.4
n	2131	334	376	1421

Source: Sample of all women aged 16-44; 1991-1996 GHS.

6.4.4 Modelling the Fertility Intentions of Repartnered Women: Methods

Model Type

The dependent variable used in this analysis is women's fertility intentions, measured using the responses to the question 'Do you think that you will have a(nother) child?'. Three options were considered for modelling a dependent variable with five response categories:

♦ a proportional odds model that treats the dependent variable as ordinal.

♦ a multinomial model that treats the dependent variable as nominal.

♦ a logistic regression model that collapses the dependent variable into two categories.

The proportional odds model assumes that there is an order in the response categories, an assumption that is reasonable for the fertility intentions variable. This is known as the parallel slopes assumption and would mean that the effects of an independent variable are similar when one moves from 'Yes' to 'Probably Yes' as to when one moves from 'Don't Know' to 'Probably No' or any other pair of neighbouring responses (Menard, 1995). Using a very simple model with one independent variable, age, this assumption was rejected on the score test, so a proportional odds model was deemed to be inappropriate. This was not entirely

unexpected, as common sense might dictate that there is no clear reason for age to have an effect of similar magnitude between 'Yes' and 'Probably Yes' as between 'Probably No' and 'No'.

In a multinomial model, the likelihood of four different responses is estimated against the fifth reference response. In this case, the likelihood of responding 'Yes', 'Probably Yes', 'Don't Know' and 'Probably No' are estimated separately against 'No'. The equation for the multinomial model is shown below (e.g. Agresti, 1996):

$$\ln\left(\frac{p_{ri}}{p_R}\right) = \alpha_{ri} + \beta_{ri} X_{ri}$$

where p_{ri} = probability of responding 'Yes'/'Probably Yes'/'Don't Know'/'Probably No'.

   p_R = probability of responding 'No'.

   α_{ri} = intercepts for 'Yes'/'Probably Yes'/'Don't Know'/'Probably No'.

   β_{ri} = slopes for 'Yes'/'Probably Yes'/'Don't Know'/'Probably No'.

   X_{ri} = independent variables

This model is preferable to the logistic regression model, as it uses all five response categories, enabling the full range of certainty and uncertainty to be examined (Morgan, 1981). Multinomial models were used initially, but it was found that the sample sizes in some response categories, particularly 'Don't Know', were too small to enable model fitting and many variables would not converge and could not be tested for this reason.

In comparison, a logistic regression model uses only two response categories. In this case, the logistic models estimate the probability of stating a positive intention ('Yes' or 'Probably Yes') as opposed to a very uncertain or negative intention ('Don't Know', 'Probably No' or 'No'). The equation is as follows (e.g. Allison, 1984):

$$\ln\left(\frac{p}{1-p}\right) = \alpha + \beta_i X_i$$

where p = probability of responding 'Yes' or 'Probably Yes'

   α = intercept

   β_i = slopes

   X_i = independent variables

The logistic models lose some of the information from the original five response categories, but do not suffer from the same sample size problems as the multinomial models do with these data. Therefore the logistic regression models are presented here, as they enable a much wider selection of explanatory variables to be included.

Three Models – Why?

Three separate models were produced, for childless women (n = 334), women with one child at interview (n = 376) and women with two or more children at interview (n = 1421). The theoretical reasons for this are outlined in section 6.4.2, but practical reasons were also important in choosing this approach. Many covariates are specific to women at particular parities, for example those pertaining to ages and sexes of children only apply to women with at least one child. If all women were modelled together, parity, the age of the youngest child, the sex of any children and whether the couple had a joint birth yet would need to be combined, making an extremely complex variable with many categories (e.g. parity 1, boy 0-4, born in current union) against which childless woman would be compared. Modeling women of parities two and higher together does not cause any practical difficulties and as parity is included as an explanatory variable for this group, there is less support for splitting the higher parities, particularly as their responses to the fertility intentions question do not differ as much as the responses from women at parities 0, 1 and 2+. The strategy of splitting the models by parity is similar to that used by Schoen and colleagues (1997, p349) who found that 'meaningful and interpretable models of intentions could not be found when persons of all parities were considered together.' Percentage distributions for the main independent variables are shown in table 6.6 and indicate some clear differences in characteristics between the parity groups. For example, compared to those with children, childless women tend to be younger at interview, to have been living with their partner for a shorter time and to be better off according to the socio-economic indicators. Those with two children tend to have been living with their current partner for longer and are more likely to have had a joint child with them than those with only one child, as well as being less well off economically.

Table 6.6 Percentage distributions of women's characteristics by parity group.

Variable	Categories	Parity group		
		0 (n = 334)	**1** (n = 376)	**2+** (n = 1421)
Woman's age at interview	20-29	20.7	13.6	7.5
	30-34	28.1	25.3	23.8
	35-39	24.9	25.5	31.5
	40-44	26.3	35.6	37.2
Woman's age at first marriage	Under 25	88.9	91.2	95.8
	25 or over	11.1	8.8	4.2
Duration of current union	Short: 0-1 years	29.3	19.1	13.8
	Medium: 2-9 years	51.2	58.0	55.1
	Long: 10+ years	19.5	22.9	31.0
Birth/pregnancy in current union?	Yes	0.0	44.4	60.8
	No	100.0	55.6	39.2
Age of woman's youngest child	0-4 years	n/a	33.5	36.4
	5-9 years	n/a	22.6	26.5
	10+ years	n/a	43.9	37.2
Partner's history	Partner's child(ren) in household	3.0	3.7	3.4
	Partner married before but no child(ren)[1] in household	47.0	50.3	48.8
	Partner not married before, no child(ren)[1] in household	50.0	46.0	47.8
Woman's parity (including current pregnancy)	2	n/a	n/a	53.4
	3	n/a	n/a	29.9
	4+	n/a	n/a	16.7
Sex of woman's children	All boys/ all girls	n/a	n/a	37.2
	Other	n/a	n/a	62.8
Woman's educational qualifications	Some qualifications	86.2	78.6	66.9
	No qualifications	13.8	22.9	33.1
Woman's current economic activity	Working full time	71.0	41.8	26.0
	Working part time	16.5	31.9	36.9
	Unemployed	4.8	5.3	4.7
	Keeping house	5.7	17.8	28.9
	Inactive	2.1	3.2	3.4
Gross annual income of family unit	Below £15 000	5.4	8.2	11.5
	£15 000 to £29 999	12.3	13.6	20.3
	£30 000 to £44999	16.5	20.5	22.0
	£45 000 to £59 999	20.1	20.2	17.7
	£60 000 or higher	34.7	26.9	18.6
	Missing	11.1	10.6	9.9
Tenure of household	Owner-occupied	80.8	79.0	65.7
	Local authority/housing association.	12.3	12.0	24.3
	Renting privately/other	6.9	9.0	10.0

Note 1: This refers to 'his' children - those that belong to the partner but not the woman; there may be other children ('hers' or 'theirs') in the household.
Source: Sample of all women aged 16-44; 1991-1996 GHS.

Variables Used

All variables tested in the models are shown in figure 6.13. Variables such as age are categorised, as their effects may not be linear. Education was originally included with six categories, but only those with no qualifications were significantly different in any model, so only two categories were used. Given the lack of complete data on male fertility histories, whether there were stepchildren in household and whether the partner had been married before were merged into a three-category variable as both may be related to the partner's previous childbearing. A couple was assumed to have had a birth with their current partner if the woman's last birth occurred after the couple began living together. This assumes that pregnancies occurring less than 9 months before union formation are fathered by the current partner as data on fatherhood are not collected. Both social class and female socio-economic group were tested in the models and socio-economic group found to be preferable as it is more comprehensive. However, the 22 categories were collapsed into seven more manageable groups that seemed appropriate for the purpose of the model: employers and managers, professionals, intermediate and junior non-manual (e.g. teachers, secretaries), personal service (e.g. waitresses, hairdressers), skilled or semi-skilled manual, unskilled manual and 'other', the final category including agricultural workers, students and members of the armed forces. Partner's socio-economic group was categorised into seven slightly different categories due to the different proportions in each socio-economic group by gender. Regarding female economic activity, five groups were used (as in table 6.6) but less information was available for partners – they were classified as working, unemployed or otherwise inactive. A combination of male and female economic activity was also tested in the models, incorporating categories such as 'both working', 'man working, woman keeping house' and 'both unemployed/inactive.'

Using the framework in figure 6.13, variables were added to each model in three groups, individual demographic characteristics, couple demographic characteristic and socio-economic characteristics. All possible two-way interactions were also tested. Non-significant variables were discarded in order to obtain the best and simplest model for each parity group (as Wineberg, 1992). This means that the baseline probabilities for the three models are not directly comparable, although the reference categories have been kept similar wherever possible.

Figure 6.13 Variables tested in the models for repartnered women.

```
┌─────────────────────────────────────────────────────┐
│  Do you think you will have a(nother) child?         │
│                                                      │
│  Yes / Probably Yes / Don't Know / Probably No / No  │
└─────────────────────────────────────────────────────┘
```

Individual demographic characteristics

Woman's age (012)
Partner's age (012)
Woman's parity (2)
Age of woman's youngest child (12)
Sex of women's child(ren) (12)
Residence/mortality of women's
child(ren) (12)
Marital status at first birth (12)
Stepchildren in household? (012)
Partner married before? (012)
Age at first marriage (012)
Type of first marital dissolution (012)
Time from marital dissolution to
repartnering (012)
Premarital cohabitation prior to first
marriage (012)

Couple demographic characteristics

Type of union (012)
Duration of union (012)
Joint birth yet? (12)

Socio-economic characteristics

Woman's educational qualifications (012)
Woman's social class /SEG (012)
Partner's SEG (012)
Woman's / partner's / couple's
current economic activity (012)
Income of family unit (012)
Housing tenure (012)

Note: Numbers in brackets refer to the parity model that the variable was tested in: for example, (2) indicates that the variable was tested only in the model for women at parity 2+, while (012) indicates testing in the models for women at parity 0, 1 and 2+.

In building the models, care had to be exercised with the many explanatory variables that were inter-related. For example, current age and age at first marriage are correlated to a certain extent. Although women who are currently relatively older could have first married at a variety of ages, women who are currently relatively young must have first married at a relatively young age. In this respect, current age determines the possible range of ages at first marriage.

The correlation that caused particular difficulties in these models was with the three variables 'age of youngest child', 'duration of union' and 'birth in current union yet?' among women with at least one child. While 'age of youngest child' and 'duration of union' are not directly related, the other two pairs of variables are clearly related. The longer the duration of the current union, the more likely it is that the couple will already have had a birth in that union. The younger the (youngest) child, the more likely it is to have been born within the current union. The obvious solution to this problem is to use only the two variables that are not directly related – 'age of youngest child' and 'duration of union'. However, 'birth in current union yet?' is the variable of most substantive interest, which enables an investigation of the 'union-commitment' effect. This variable could therefore be included in the modeling process alongside either 'age of youngest child' or 'duration of union', but not both. The complex process of deciding which to include can be illustrated by a case study of the model for women with one child at interview. At the initial model-building stage, it was found that 'age of child' was significant alongside current age in the model, with women with whose child was five or older being less likely to be intending another birth than women with a younger child. When 'birth in current union yet?' was added to the model, it was not found to be significant at all. This is because the two variables were highly correlated, as table 6.7 shows – most children born in the current union were young and most born prior to the current union were older.

As 'birth in current union yet?' was thought to be the substantively more interesting variable of the two, this was added to the basic model instead of 'age of child'. 'Birth in current union yet?' was now significant, but in the opposite direction to what was expected – women with a birth in the current union were *more* likely to be intending to have another birth than those whose birth was from a previous union; this contradicts the hypothesized 'union-commitment' effect. However, because the age of the child was no longer controlled, this result was due almost entirely to the fact that women with a birth in the current union were far more likely to have a younger child and were probably more likely to intend to have another birth due to age effects rather than the fact that they already had joint birth with that partner.

Table 6.7 The relationship between the age of children and whether they were born in the current union or prior to the current union (for women with one child at interview).

Age of Child	% born in current union	% born prior to current union	n
0-1 years	98	2	86
2-4 years	82	18	65
5-9 years	48	52	85
10+ years	8	92	165

Source: Sample of all women aged 16-44; 1991-1996 GHS.

On closer examination of women's intentions by age of child and whether the child was from the current or a previous union, it was noted that within each age group, the proportion expressing a definite positive intention was larger among women whose child was from a previous relationship, supporting the 'union-commitment' effect. However not all of the response categories supported this effect clearly, so it was not altogether surprising that 'birth in union yet?' was not significant when combined with 'age of child'.

The results in the final one-child model would have been misleading, had 'birth in union yet?' rather than 'age of child' been included for substantive reasons,. The conclusion would have been that women who already have a joint child with their partner were more likely to be intending to have another than women who did not have a child with their current partner. Possible reasons could have been put forward for this; perhaps already having a joint child signifies that the couple is willing and able to have children. However, this conclusion would have been mistaken. This example highlights the dangers of omitting important variables from any analysis.

As will be seen later, 'age of child' is included in the final model for women with one child, while 'birth in union yet?' is excluded due to insignificance. Substantively, the conclusion has to be that when the age of the child is taken into account, whether the child was born in the current union or a previous union does not have a significant effect on fertility intentions.

6.4.5 Model for Repartnered Women who are Childless at Interview

We might expect the majority of childless women to be intending to have a birth in the future if the parenthood effect exists. However, table 6.5 showed that half of the childless women interviewed stated a firm intention to have no children. This initially surprising figure can be explained by the fact that these are a very select group of women who are still childless despite

having been married. Many will be infecund or will have made a conscious decision to have no children. We might also expect all women who have experienced marital dissolution to be more cautious about childbearing in subsequent unions as they may be concerned about the stability of their unions (Lillard and Waite, 1993).

The model in table 6.8 sheds some light on the factors associated with fertility intentions among this group. The age of childless women is a key factor, with the odds of responding 'Yes' or 'Probably Yes' being nearly seven times higher for women aged 20-29 than for women in their early thirties. The duration of the couple's union is also associated with fertility intentions. Not surprisingly, women who had been living with the same partner for ten years or more were unlikely to be intending to have a birth if they had not already had one.

Table 6.8 Parameter estimates from logistic regression model for women who are remarried or cohabiting following marital dissolution and are childless at interview: who responds 'yes' or 'probably yes' when asked whether they intend to have a child? (n = 334).

Significance: * p<0.05; ** p<0.01

Variable	Levels	Parameter Estimate	
Intercept		-1.983 **	0.749
Woman's current age	20-29	1.931 **	0.510
	30-34	0.000	------
	35-39	-0.893 *	0.427
	40-44	-3.306 **	0.770
Duration of current union	<2 years	0.195	0.508
	2-9 years	0.000	------
	10 years or longer	-2.924 *	1.154
Partner's history	Partner's child(ren) in household	-0.963	1.275
	Partner married before but no child(ren) in h/h	-1.714 **	0.472
	Partner not married before, no child(ren) in h/h	0.000	------
Socio-economic group	Woman or partner professional	1.282 *	0.601
	Neither professional	0.000	------
Woman's current economic activity	Working full-time	1.582 **	0.580
	Working part-time	0.000	------
	Unemployed	2.277 *	1.102
	Keeping house / inactive	-0.320	1.129
Couple's annual income	Under £15 000	1.035	0.936
	£15 000 to £29 999	0.957	0.710
	£30 000 to £44 999	0.000	------
	£45 000 to £59 999	0.254	0.548
	£60 000 or higher	1.275 *	0.536
	Missing	1.824 *	0.740
Current tenure	Owner-occupied	0.000	------
	Local authority	-0.816	0.957
	Renting privately / other	2.744 **	0.906
Interactions			
Woman aged 35-39 *	Renting privately / other	-4.259 **	1.623
Duration current union <2 years *	Partner married before but no child(ren) in h/h	1.527 *	0.777

Having a previously married partner is associated with a lower probability of responding with positive intentions, as expected. However, for couples who had lived together for less than two years, the man being previously married was associated with a *higher* probability of intending

to have a birth. Having a stepchild in the household appears to be associated with more negative fertility intentions, but this is not significant due to the small number of women with a stepchild in the household.

Those working full-time are significantly more likely to be intending to have a child than those working part-time at interview, as are the unemployed, but the group of childless women keeping house was too small to achieve any significance in this model. Women in professional occupations and those who were living with a partner in a professional occupation stand out from those in other socio-economic groups as being significantly more likely to respond with a positive intention, as do women in couples in the highest income group. Compared to women in owner-occupied housing, those renting private accommodation have a greatly increased probability of expressing a positive intention, except for those aged 35-39 who have a very low probability.

To summarise, many previously married childless women are not intending to have a child with their current partner, particularly if they are older or have been with their partner for some years. Those who are intending to have a child tend to be relatively young and have been living with their partner, who has not been married before, for less than two years. Living in rented accommodation, working full-time, being financially well-off and being in a professional occupation are also associated with higher probabilities of positive fertility intentions among childless women.

6.4.6 Model for Repartnered Women who have One Child at Interview

In general, women with only one child at interview have the highest probabilities of intending to have another child (table 6.5). This is not surprising, given that they have started their childbearing (implying a high likelihood of being *able* to have another), but have not reached the norm family size of two children (Laybourn, 1994; Scott, Braun and Alwin, 1998). For this group, we would expect the sibling effect to be important, as well as the 'union-commitment' effect for those who have not yet had a child with the current partner.

Only the woman's demographic characteristics were found to be significant in the model for women with one child (table 6.9). As before, the woman's age has a strong negative association with fertility intentions. For example, the odds of responding 'Yes' or 'Probably Yes are 4.5 times higher for women aged 30-34 as compared to those aged 35-39. Women whose child was aged five or above are also significantly less likely to respond 'Yes' or 'Probably Yes' than those with a preschool child. The only other variable to achieve

significance was the woman's age at first marriage. Women who married for the first time at age 25 or above are significantly more likely to intend to have another birth.

Table 6.9 Parameter estimates from logistic regression model for women who are remarried or cohabiting following marital dissolution and have one child at interview: who responds 'yes' or 'probably yes' when asked whether they intend to have another child? (n = 376).

Significance: * $p<0.05$; ** $p<0.01$

Variable	Levels	Parameter Estimate	Standard Error
Intercept		0.156	0.257
Woman's current age	20-29	0.740	0.395
	30-34	0.000	------
	35-39	-1.507 **	0.446
	40-44	-4.006 **	1.077
Age of child	0-4	0.000	------
	5-9	-1.545 **	0.406
	10 or higher	-2.084 **	0.528
Woman's age at first marriage	< 25	0.000	------
	25 or higher	2.001 **	0.599

Initially, it was found that having a birth within the current union *increased* the probability of intending to have another one (the opposite of the 'union-commitment' effect). However this was reflecting the fact that children born with in the current union tended to be younger than those born in previous unions. Once the child's age was included in the model, whether the woman had had a birth in the current union became insignificant.

Overall, this analysis suggests that women who have repartnered following marital dissolution and have one child have relatively high probabilities of intending to have a second child (for example, the probability for women aged 30-34 with a preschool child who first married below age 25 is 0.54). For women with one child, the probability is increased if she is relatively young, her child is relatively young and she married for the first time at an older age.

6.4.7 Model for Repartnered Women who have Two or More Children at Interview

Table 6.5 indicated that women who already have two or more children are the least likely to state a positive intention. The model in table 6.10 shows that after age and other factors are controlled, women with three, four or more children at interview are even less likely to be intending to have another child than those with only two.

Table 6.10 Parameter estimates from logistic regression model for women who are remarried or cohabiting following marital dissolution and have two or more children at interview: who responds 'yes' or 'probably yes' when asked whether they intend to have another child? (n = 1421).

Significance: * p<0.05; ** p<0.01

Variable	Levels	Parameter Estimate	
Intercept		-1.877 **	0.336
Woman's current age	20-29	0.609 *	0.286
	30-34	0.000	------
	35-39	-0.747 **	0.272
	40-44	-4.454 **	1.328
Woman's parity at interview	2	0.000	------
	3	-0.658 *	0.295
	4+	-0.701 *	0.386
At least one birth with current partner?	Yes	0.000	------
	No	1.302 **	0.286
Age of youngest child	0-4	0.000	------
	5-9	-0.337	0.291
	10 or higher	-1.394 **	0.446
Sex of children	All boys/all girls	0.204	0.229
	At least one boy and one girl	0.000	------
Time between marital dissolution and repartnering	< 1 year	0.596	0.315
	1-2 years	0.000	------
	3-4 years	-0.081	0.324
	5+ years	0.589	0.315
Partner's history	Partner's child(ren) in household	-1.135	0.792
	Partner married before but no child(ren) in h/h	-0.197 **	0.269
	Partner not married before, no child(ren) in h/h	0.000	------
Woman's educational qualifications	Some qualifications	0.000	------
	No qualifications	-1.525 **	0.404
Woman's current economic activity	Working full-time	0.497	0.289
	Working part-time	0.000	------
	Unemployed	0.421	0.541
	Keeping house	0.567 *	0.267
	Other inactive	-0.113	0.808
Interactions			
Woman aged 40-44 *	No birth with current partner yet	2.296 *	1.145
Woman aged 40-44 *	All boys/ all girls	2.946 *	1.195
Woman aged 40-44 *	Youngest child aged 10 or higher	-2.629 *	1.102
Parity 3	No educational qualifications	1.485 *	0.593
Parity 4	Youngest child aged 10 or higher	2.302 *	0.937
Time to repartnering < 1 year	Partner married before, no children in h/h	-0.998 *	0.454

As in the previous models, the fertility intentions of women with two or more children are highly dependent upon their age. The odds of expressing a positive intention are twice as high for women aged 30-34 than for women aged 35-39 at interview. Women whose youngest child is aged ten or above are also significantly less likely to respond 'Yes' or 'Probably Yes' than those with a younger child. The exception to this rule are women of parity four or higher, but this interaction, though significant, refers to only a very small number of women. For women in their forties, having a youngest child aged ten or more greatly reduces the probability of intending to have another birth, but having children all of the same sex significantly increases the probability of a positive intention in this particular age group.

Whether the couple has had a joint birth (or the woman was currently pregnant) is found to be strongly associated with fertility intentions. The odds of responding 'Yes' or 'Probably Yes' are 3.7 times higher for women who have not yet had a joint birth with their current partner. For women aged 40-44, not having had a joint birth acts to offset the negative effect of their age on their intention to have an additional child. The initial multinomial model (not presented) showed that in addition to being more likely to respond 'Yes' or 'Probably Yes', women without a birth in the current union were more likely to respond 'Don't Know' than those with a joint birth.

Table 6.10 suggests that women who have a stepchild or stepchildren living in the household will be less likely to be intending to have another birth, but due to small number of men who had brought their children into the household, the parameter estimate for this was not significant. However, among those with no stepchildren in the household, women whose husbands had been married before are significantly less likely to respond with a positive intention than those living with a man who had not been married previously, particularly if the woman repartnered very soon after marital dissolution.

The majority of socio-economic variables were found to be unrelated to the fertility intentions of repartnered women. However, women with no educational qualifications have a significantly lower risk of intending to have another birth then women with some qualifications, although the reduction is smaller for women with three children at interview. Compared to women working part-time (the largest group among these higher parity women), those keeping house are significantly more likely to state a definite intention to have another birth.

Overall, table 6.10 suggests that those most likely to respond with positive fertility intentions are women in their twenties with two reasonably young children, neither of which were born within the current union. Having no stepchildren in the household, some educational qualifications and keeping house all act to increase the likelihood of a woman intending to have another child.

6.4.8 Discussion

Exploratory analysis has shown that over 80% of previously married women who have repartnered were certain or fairly certain that they did not intend to have another birth in the future. Modelling the fertility intentions of this group has shed some light on the factors associated with the intention to have a subsequent birth.

A woman's current age is strongly associated with her fertility intentions at all parities. The biological constraints and social norms surrounding the age at which to have children are likely to continue to play a large role for this group. Among women in their early forties with two or more children, factors such as the sex of existing children and whether the couple had had a joint birth assumed a greater importance than they did for other age groups. Among women with at least one child, those whose most recent child was older were less likely to intend having another child, as expected. This suggests a reluctance to return to the 'baby stage' among those whose last experience of childbirth and baby care was some years previously.

Women with two or more children, who had not had a child with their current partner, were much more likely to be intending another than those who had already had a joint birth. This supports the 'union-commitment' effect, that importance is placed on having a birth with a particular partner, irrespective of parity, as found among women with two children in Finland by Ruokolainen and Notkola (1999). In contrast to the findings of Vikat, Thomson and Hoem (1999), no difference in intentions was found between those with one joint birth and those with two or more joint births (models not shown). This suggests that in terms of the sibling effect, a half-sibling from a previous union may be adequate to meet the sibling needs of the joint child.

Little support was found for the 'union-commitment' effect among women with one child. Women with a child from a previous union may want a joint child in the current union, while those with only one child from the current union may desire a second for sibling reasons. This suggests that, although the 'union-commitment' effect may exist, the normative pressures to have two children and to provide a sibling for the only child (the sibling effect) may counteract the 'union-commitment' effect for women with one child.

Having a previously married partner reduced the probability of stating a positive intention for women with no children or two or more children, which may reflect for some families the financial and time constraints relating to non-resident children. For women with one child, marrying for the first time at age 25 or above was associated with a higher probability of stating a positive fertility intention. Lampard and Peggs (1999) suggest that because those first marrying at older ages may be less strongly orientated towards marriage and therefore perhaps have a lower motivation to repartner than those marrying at a younger age, maybe those who do successfully repartner are those who are particularly keen to form a union because of their positive fertility intentions.

Variables pertaining to the male partner appear to have a very limited influence on fertility intentions when other variables are controlled: none of the final models included the partner's age or current economic activity. Only the model for childless women contains a reference to the partner's occupational group. These results are similar to those of Sorenson (1989) who found husbands' characteristics to be insignificant in predicting marital fertility and Schoen and colleagues (1997) who found little change in models predicting either male or female intentions when partner attitudes were included.

Most socio-economic variables were not found to be strongly associated with fertility intentions of previously married women in partnerships. This is consistent with findings from the US (Lee and Khan, 1978). No support was found for Namboodiri's conclusion that socio-economic variables discriminate those who are intending to have more children from those who are not only at moderately high parities (Namboodiri, 1974). In fact the model for childless women contained the greatest number of significant socio-economic variables, consistent with the expectation that the opportunity costs of childbearing would be highest for the first child if the mother stopped working (Joshi, Davies and Land, 1996). However, it was not the case that full-time workers in high- income households were less likely to be intending a birth, as might be expected. For example, being in full-time work was found to be positively associated with fertility intentions for childless women and those with two or more children. Perhaps women working full-time feel more able to afford another birth or are working full-time to save up for a period of lower income when their intended child arrives. In general, the influence of socio-economic variables on fertility intentions appears to be limited, but this may be due to conflicting effects; for example a well-paid job indicates the ability to afford children more easily but at the same time suggests a higher opportunity cost of childbearing.

Among women with two children, having some educational qualifications was found to be associated with more positive fertility intentions than having no qualifications. This is in contrast with Schoen and colleagues (1997) who found this result only among women with zero or one child. The findings here may reflect the higher parity distribution of the woman with no qualifications within the group with four or more children, but could also reflect the difference between intentions and actual fertility. It may be that more educated women at parity two or above have higher intended fertility, but that this is masked in studies of actual fertility where the less educated often have higher actual fertility, due perhaps to poor contraceptive practice. This suggests that different insights can be gained from analysing intentions rather than achieved fertility.

Finally, the fact that the type of relationship was not significant in any of the models confirms American research that found the birth expectations of previously married cohabitants to be similar to those of the remarried, after controlling age and parity (Bachrach, 1987). However, this does not necessarily imply that childbearing among the repartnered occurs equally among the cohabiting and the remarried as some of the cohabiting may be intending to marry as well as have a child.

6.5 A Comparison of the Fertility Intentions of Repartnered Women with those of Women in First Marriages

6.5.1 Introduction

The previous section investigated the fertility intentions of women who had repartnered following marital dissolution and the characteristics of those women likely to be intending to have a birth. Here, the aim is to compare the fertility intentions of this group with those of a similar group of women who have not experienced marital dissolution, in order to see whether the fertility intentions of repartnered women and the factors associated with positive intentions for this select group are particularly unusual. This will provide a context for the findings in section 6.4. If differences in fertility intentions are found between the two groups, this might indicate that the framework in which fertility decisions are made changes after marital dissolution.

In this analysis, the comparison group consists of women in first marriages. The issue of who to include in this group was not clear-cut. Never-married cohabiting women could also have been included, so that both groups included cohabitants as well as the married. However never-married cohabiting women are a very heterogeneous group – some members of this group could be in their first short-term cohabiting union, while others could be in a later union following the dissolution of a long-term cohabiting relationship and be similar in characteristics to those who have repartnered following marital dissolution. Therefore cohabiting women were excluded from the comparison group. An alternative strategy would have been to exclude women who are cohabiting following marital dissolution from the repartnered group in order to concentrate on fertility intentions within marriage and remarriage. However, given the complex inter-relationships between fertility intentions and remarriage decisions and the increasing importance of cohabitation relative to remarriage following marital dissolution, this would not be realistic. Due to these complexities, the focus

here is on comparing women who are *ever married* and *currently in a union*. The two groups will frequently be referred to as 'repartnered women' and 'married women' for ease.

The initial exploratory analysis focuses on the responses from the two groups to the question 'Do you think that you will have a(nother) child?'. The rest of the section investigates why any differences may exist between the two groups, putting forward hypotheses and using cross-tabulations and logistic regression models to answer the following research questions:

- If there is a difference in fertility intentions between the two groups, might this be due to differences in other characteristics (such as age, parity) of the two groups?

- When all possible factors are controlled, do women who have repartnered following marital dissolution have similar or different fertility intentions to women in first marriages?

- Are there differences between repartnered women and those in first marriages in the characteristics associated with positive (or negative) fertility intentions?

6.5.2 The Fertility Intentions and General Characteristics of Repartnered Women Compared to Women in First Marriages: Exploratory Analysis

The sample is drawn, as in section 6.4, from the 1991 to 1996 rounds of the General Household Survey and includes women aged 20-44 only. The sample of repartnered women consists of the 2131 women used in section 6.4, while the sample of those currently in first marriages numbers 11916 women. Like the sample of repartnered women, the sample of married women also over-represents those who marry at younger ages, though to a lesser extent, because those who marry young are more likely to be married by the date of interview and thus to be included in this sample.

Table 6.11 shows that repartnered women are more likely to respond with a definite 'No' (72%) than the married women (63%) when asked if they are intending to have a child in the future. Correspondingly, the repartnered women are also somewhat less likely to answer 'Yes' or 'Probably Yes' than their married counterparts. Therefore repartnered women tend to respond more negatively overall to the question, although this observation must be kept in the context of the majority of women in both groups not intending to have a birth.

Table 6.11 Responses to the question 'do you think that you will have a(nother) child? A comparison of repartnered women and women in first marriages.

Response to fertility intentions question	% of women in first marriages	% of repartnered women
Yes	14.57	9.15
Probably Yes	8.94	6.43
Don't Know	2.22	2.86
Probably No	11.62	9.57
No	62.65	71.98
Number of women	11916	2131

Source: Sample of all women aged 16-44; 1991-1996 GHS.

When fertility intentions are examined by current parity, a more interesting difference between married and repartnered women emerges. Figures 6.14 and 6.15 show that at parities zero and one, repartnered women are *less* likely to respond 'Yes' or 'Probably Yes' and more likely to respond 'No' than married women when asked whether they intend to have a child in the future, as noted above. However for women at parity two or higher, this is not the case (figure 6.16); at these parities, repartnered women are slightly *more* likely to respond 'Yes' or 'Probably Yes' than their married counterparts and equally likely to respond 'No'. No large differences were found between parities of two, three, or higher.

It is possible that some or all of the difference in the distribution of fertility intentions between married and repartnered women is due to differences in the characteristics of the women in each group. Table 6.12 reveals some large differences in certain characteristics of the two groups, even among those at similar parities. As would be expected, the repartnered women tend to be older than those in first marriages; this is particularly the case among the childless and those with one child, suggesting that repartnered women at lower parties may have less positive fertility intentions than the married in part due to their ages. Repartnered women are also more likely to be living with a partner two or more years younger or six or more years older than themselves as compared to the married women who are more likely to have a partner of a similar age or slightly older, but it is not clear how this might affect fertility intentions.

Again as expected, repartnered women, particularly those with at least one child, tend to have been in their current union for a shorter time than the continuously married and are correspondingly less likely to have had a birth with their current partner. The latter observation implies that repartnered women as a group would be expected to express a larger proportion of

Figure 6.14 Fertility intentions of repartnered women and those in first marriages who are childless at interview.

% of women in group

Do you intend to have a birth?

☐ Married
■ Repartnered

Source: Sample of all women aged 16-44; 1991-1996 GHS.
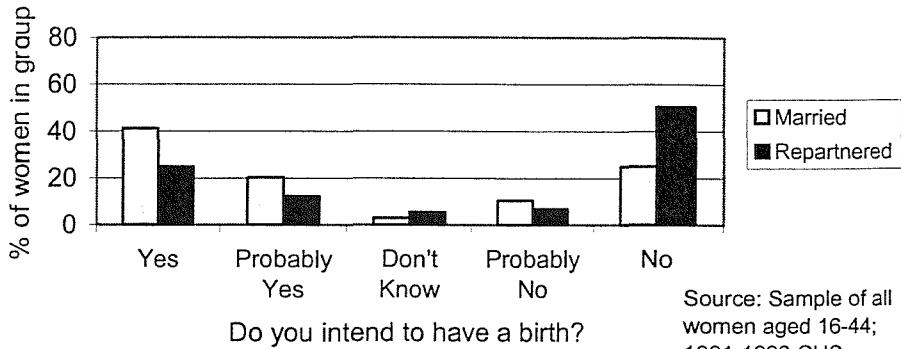
Figure 6.15 Fertility intentions of repartnered women and those in first marriages who have one child at interview.

% of women in group

Do you intend to have another birth?

☐ Married
■ Repartnered

Source: Sample of all women aged 16-44; 1991-1996 GHS.
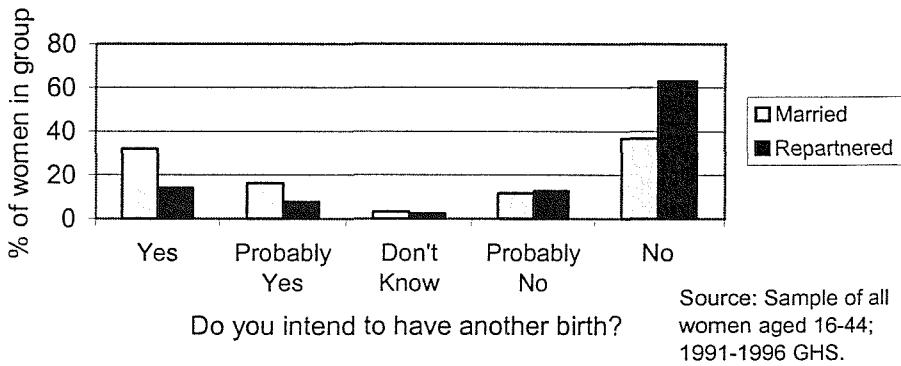
Figure 6.16 Fertility intentions of repartnered women and those in first marriages who have two or more children at interview.

% of women in group

Do you intend to have another birth?

☐ Married
■ Repartnered

Source: Sample of all women aged 16-44; 1991-1996 GHS.
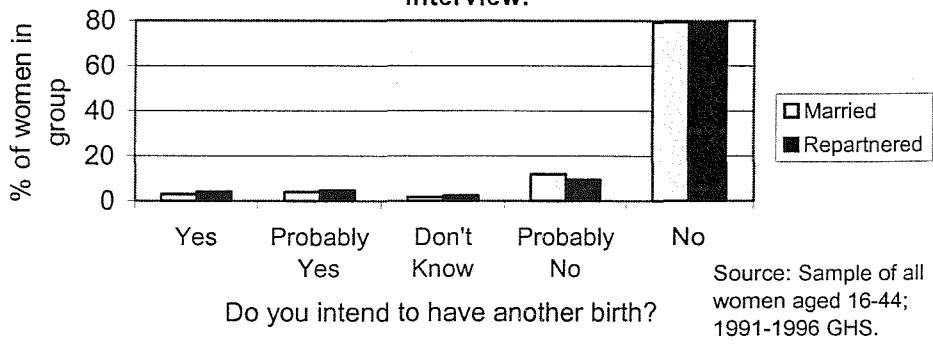
positive fertility intentions, if the 'union-commitment' effect (see section 6.4.2) applied, as only a very small proportion of married women have only had premarital births and none in their current union.

Table 6.12 Characteristics of the sample of women aged 20-44 in first marriages and those who have repartnered following marital dissolution, by parity group at interview: percentage distributions.

Characteristic	Parity zero		Parity one		Parity two or higher	
	Married	Repartnered	Married	Repartnered	Married	Repartnered
Age						
20-24	14.4	2.7	10.0	1.0	2.0	1.0
25-29	36.1	18.0	27.9	12.5	12.2	6.5
30-34	22.9	28.1	26.7	25.3	26.4	23.8
35-39	14.9	24.9	18.6	25.5	29.9	31.5
40-44	11.8	26.4	16.8	35.6	29.6	37.2
Partner's age (relative to own)						
6+ years younger	1.6	9.9	1.3	10.6	0.5	11.4
2-5 years younger	7.4	19.8	7.8	17.0	5.4	18.5
Same age ± 1 year	35.6	18.3	32.9	18.9	33.9	21.1
2-5 years older	35.4	23.1	38.4	24.2	43.6	24.6
6+ years older	20.1	29.0	19.7	29.3	16.5	24.4
Duration of current union						
0-4 years	48.8	56.9	26.8	50.3	3.8	36.0
5-9 years	25.5	23.7	33.8	26.9	20.5	32.9
10-19 years	21.5	18.6	30.5	21.5	53.9	29.7
20+ years	4.2	0.9	8.9	1.3	21.7	1.3
Birth in current union?						
Yes	n/a	n/a	94.7	44.4	99.5	60.8
No	100.0	100.0	5.3	55.6	0.5	39.2
Age of youngest child						
No children	100.00	100.00	n/a	n/a	n/a	n/a
Youngest aged 0-1	n/a	n/a	34.3	16.2	17.3	16.2
Youngest aged 2-4	n/a	n/a	24.6	17.3	22.5	20.2
Youngest aged 5-9	n/a	n/a	18.3	22.6	28.0	26.5
Youngest aged 10+	n/a	n/a	22.8	43.9	32.3	37.2
Partner married before?						
Yes	13.7	27.5	12.4	35.6	8.0	32.9
No	86.3	72.5	87.6	64.4	92.0	67.1
Partner's child(ren) living in household?						
Yes	2.9	3.0	1.7	3.7	0.8	3.4
No	97.1	97.0	98.3	96.3	99.2	96.6
Total number of women	2005	334	2132	376	7779	1421

Notes: n/a indicates a characteristic not applicable to that parity group. 'Married' refers to women in first marriages; 'repartnered' refers to those in remarriages or cohabiting unions following marital dissolution. Source: Sample of all women aged 16-44; 1991-1996 GHS.

Overall, repartnered women are just as likely as married women to be childless or to have an only child. However, within the group at parity two or higher, repartnered women are more likely to have three, four or more children than married women. Among those with one child, married women are more likely to have a preschool child at interview than the repartnered, while a much larger proportion of the latter have a child aged ten or higher; this supports the finding that repartnered women at parity one are less likely to be intending another child than their married counterparts, if those with younger children are more likely to continue childbearing than those whose last birth was longer ago (as found in chapter five). A similar pattern exists at parity two and above, but is much weaker.

Around one-third of repartnered women in the sample are living with a partner who has been married before, while the figure is much lower among married women. If those with a previously married partner are hypothesised to be less likely to be intending a further birth (consistent with results from chapter five), this could explain the more negative fertility intentions of the repartnered compared to the married at parities zero and one. However it does not explain the opposite pattern found at parities two and above, despite the difference in the percentage with a previously married partner being greatest between the two groups at these parities. Repartnered women with at least one child are more likely than those in first marriages to be sharing their household with any stepchildren, but the proportion with stepchildren in either group is low (below 4%).

There are also some small socio-economic differences between the two groups of women (not shown). For example, the repartnered women are less likely to have a higher education qualification and more likely to have no qualifications than the married women in all parity groups – this may reflect the slightly earlier birth cohorts and younger ages at marriage of the repartnered group. The repartnered women are less likely to be living in owner-occupied accommodation and more likely to be living in rented accommodation of any type than the married women at interview, perhaps reflecting the greater instability of their housing careers due to their marital dissolution and repartnering.

The differences in characteristics of the married and repartnered women described here are likely to influence the fertility intentions of the two groups in many different ways. Multivariate analysis is clearly needed to find out whether marital status is independently associated with fertility intentions, net of these characteristics. The following section puts forwards some hypotheses for this subsequent multivariate analysis.

6.5.3 Hypotheses for Multivariate Analysis

The previous section has shown there to be quite large differences in the characteristics of repartnered women and those still in first marriages at interview. It is therefore possible that these differences can explain the observed differences in fertility intentions seen in table 6.11. As these characteristics will be controlled in the multivariate analysis, the null hypothesis below can be set out, that no difference is expected in the underlying fertility intentions of married and repartnered women, as measured here by the proportion responding 'Yes' or 'Probably Yes' when asked whether they intend to have a child in the future. This hypothesis would suggest that the decision-making context for married and repartnered women is similar.

Hypothesis 1: After controlling for the characteristics of 'married' and 'repartnered' women, there will be no difference between the two groups in the proportion responding with a positive fertility intention.

Hypothesis one is consistent with strong parenthood, sibling and 'union-commitment' effects (Vikat, Thomson and Hoem, 1999; discussed in section 6.4.2). The parenthood effect at parity zero and the sibling effect at parity one might be expected to apply equally to women in first marriages and those in later unions. Therefore we would expect a high probability of expressing a positive intention for both groups at parity zero and one, if these effects hold. At parities two and above, repartnered women were less likely to have had a birth with their current partner than women in first marriages (table 6.12), so if the 'union-commitment' effect holds, the repartnered group might be expected to be more likely to be intending to have another birth. However, if the models control for whether the couple has had a joint birth by the time of the interview, no difference would be expected in the fertility intentions of married and repartnered women at these parities due to the 'union-commitment' effect.

The alternative to the first hypothesis is that there will be a difference in the underlying fertility intentions of repartnered women and those in first marriages, implying that the decision making process is different for women who have experienced marital dissolution:

Hypothesis 2: After controlling for the characteristics of 'married' and 'repartnered' women, there will be still be a difference between the two groups in the proportion responding with a positive fertility intention.

Although the models will control for various factors available from the GHS data, some characteristics are only partially controlled. For example, previously married women may have

to take account of constraints relating to their ex-husband, ex-in-laws and any existing children, as well the accompanying visiting, residential and financial arrangements for those children, in making fertility decisions. Repartnered women are more likely to have a partner who has been married before, who will also have an ex-wife, ex-in laws and possibly children (White and Booth, 1985). Some women may fear the disapproval of these ex-family members or feel that there would be little support available in bringing up children. Such factors can be partly controlled by including the previous marital history of the partner and whether they have brought their own children into the household. However for the reasons outlined above, repartnered women with a never-married childless partner are still likely to have a more complex decision-making context than women in first marriages.

Another factor not controlled for in these analyses is male or female sterilisation (as the GHS only collects data on sterilisation in certain years, not annually). Sterilisation is assumed to lead to a definite negative fertility intention being stated, unless either partner is hoping to obtain a reversal. Differences in the proportions responding 'No' in the two groups of women could partly reflect different levels of sterilisation between married and repartnered women, but any differences are unknown and likely to affect mainly higher parity women.

The experience of marital dissolution itself may also affect the fertility decision-making process in ways that cannot easily be measured. First, there may be short or longer term emotional effects on women of having experienced marital dissolution. Mastekaasa (1994) discusses the subjective well-being of previously married Norwegians and discusses both the 'stress hypothesis', whereby marital dissolution has a serious but temporary negative effect on well-being, and the 'life strain hypothesis' where the separated/divorced/widowed role is a associated with more permanent strain and hardship. Any emotional effects of marital dissolution, however, are likely to vary greatly between different women, with some viewing the dissolution more positively or negatively than others, depending partly upon whose decision it was to end the marriage and why. Second, it is also possible that women who have already experienced the dissolution of a marriage may be more anxious that their new union will dissolve and not want to commit to childbearing for that reason. Lillard and Waite (1993) discuss the marital contexts in which childbearing decisions are made and find that married women at parity one or higher were less likely to have further births if their union was perceived to be unstable than were childless women. In contrast, Heaton, Jacobson and Holland (1999) also note that childless women expressing concern about the stability of their union tended to remain childless, so this concern may influence childbearing at any parity. Hobcraft and Kiernan (1995) also note that the British tend to place more importance on union stability in childbearing decisions than many of their neighbours in other European countries.

None of these papers refer explicitly to those with a previous dissolution, but as cohabitations and remarriages tend to have a higher risk of dissolution than first marriages, it could be inferred that potential union instability is likely to influence the fertility decisions of repartnered women more than those of women in first marriages. Finally, Griffith, Koo and Suchindran (1985, p86) provide some tentative results in their notes to suggest that 'the experience of a previous marriage may reduce women's inclinations to have children.' However they do not give any possible explanations for this finding, and the suggestions above are tentative rather than evidence-based.

The validity of the two hypotheses above will be assessed separately for the three parity groups. In addition to assessing whether underlying intentions differ between repartnered and married women, the models will also indicate any differences between the two groups in the characteristics associated with positive or negative intentions. For example, were the 'union-commitment' effect to be strong among repartnered women with two or more children (as supported by table 6.10), other factors such as the age of the youngest child might be of lesser importance than to comparable married women who already have a birth with their current partner. Such differences will be noted in the discussion accompanying each model.

6.5.4 Modelling Strategies and Methods

Directly comparable models containing exactly the same variables were obtained for married women and repartnered women. For the theoretical and practical reasons outlined in section 6.4.2 and 6.4.4, separate models were obtained for women with no children, one child or two or more children at interview, thus giving six final models. Within each parity group, variables were tested to see whether there was any significant difference in their effect on the fertility intentions of married women and repartnered women.

The process of obtaining these models fell into three stages. The first stage was to obtain the best models for married women in each of the three parity groups. Because the sample of married women is considerably larger than that of the repartnered women, multinomial models (see section 6.4) could be used without experiencing difficulties in model fitting. The dependent variable therefore used all five responses to the question 'Do you think you will have a(nother) child?'. The probabilities of responding 'Yes', 'Probably Yes', 'Don't Know' and 'Probably No' were predicted against the reference response 'No'. The conceptual framework used for modelling, shown in Figure 6.17, is very similar to that used for the repartnered women (see Figure 6.13). However, three variables used for the repartnered women – type of marital dissolution, time from marital dissolution to repartnering and type of

Figure 6.17 Variables Tested in the Models for Married Women.

Do you think you will have a(nother) child?

Yes / Probably Yes / Don't Know / Probably No / No

Individual demographic characteristics

Woman's age (012)
Partner's age (012)
Woman's parity (2)
Age of woman's youngest child (12)
Sex of women's child(ren) (12)
Residence/mortality of women's child(ren) (12)
Marital status at first birth (12)
Stepchildren in household? (012)
Partner married before? (012)
Age at first marriage (012)
Premarital cohabitation prior to first marriage (012)

Couple demographic characteristics

Duration of union (012)
Joint birth yet? (12)

Socio-economic characteristics

Woman's educational qualifications (012)
Woman's social class /SEG (012)
Partner's SEG (012)
Woman's / partner's / couple's current economic activity (012)
Income of family unit (012)
Housing tenure (012)

Note: Numbers in brackets refer to the parity model that the variable was tested in: for example, (2) indicates that the variable was tested only in the model for women at parity 2+, while (012) indicates testing in the models for women at parity 0, 1 and 2+.

current union – are clearly not applicable to women in first marriages and were not tested for this group.

As the parsimonious models for married and repartnered women were not directly comparable due to different sets of significant independent variables, the second stage involved running models that contained all variables and interactions that were significant for either group of women at that parity. Logistic rather than multinomial models were used for the comparison models due to the smaller samples of repartnered women at each parity. In running these models, several adjustments had to be made. Some interactions that were significant for either repartnered or married women would not converge in the model for the other group, so were omitted from the comparison models. Where the married and repartnered models differed in whether they used female, male or couple economic activity, the comparison models were standardised to use the same variables, choosing the group of the variables that appeared to be most significant for both groups.

The third stage involved testing which variables acted differently on the fertility intentions of married and repartnered women. Three models combining both married and repartnered women were run, using exactly the same variables plus marital status ('married' or 'repartnered') as a covariate, interacted with all other covariates. Where these interactions were significant, it was concluded that the variables had a significantly different effect on the fertility intentions of repartnered women as opposed to those still in first marriages. These models are not presented, because the parameter estimates tend to reflect the responses of the larger group, the married women, but results that are significantly different for married and repartnered women are indicated next to the comparison models.

6.5.5 Models of the Fertility Intentions of Married and Repartnered Women who are Childless at Interview

At first sight, the models for childless women who are continuously married and those who are repartnered (table 6.13) look fairly similar, with many parameter estimates similar in direction, if not entirely in magnitude. The woman's age is strongly associated with fertility intentions in both groups, while having a partner six or more years older has a negative impact on fertility intentions for married women, but is not significant for repartnered women. Conversely, having a younger partner seems to have a more positive effect on the intentions of repartnered women than those of married women. In both groups, longer union durations are associated with more negative fertility intentions, suggesting that childbearing predominantly occurs soon after union formation.

Table 6.13 Parameter estimates from logistic regression models for married women and repartnered women who are childless at interview: who responds 'yes' or 'probably yes' when asked whether they intend to have a child?

Significance for individual models: * p<0.05; ** p<0.01

Significant difference between married and repartnered women: # p<0.05; ## p<0.01

Variable	Levels	Married Women n = 2005		Repartnered Women n = 334	
		Parameter estimate	Standard error	Parameter estimate	Standard error
Intercept		1.240 **	0.284	-1.779 * #	0.894
Woman's current age	20-29	0.759 **	0.164	2.507 **	0.581
	30-34	0.000	------	0.000	-----
	35-39	-1.091 **	0.194	-0.990 *	0.446
	40-44	-3.469 **	0.441	-3.373 **	0.775
Partner's relative age	2+ years younger	-0.237	0.230	0.969 #	0.545
	Same age ± 1 year	0.000	------	0.000	------
	2-5 years older	0.079	0.155	-0.343	0.570
	6+ years older	-0.418 *	0.191	-0.635	0.565
Duration of current union (including cohabitation)	0-4 years	0.000	------	0.000	------
	5-9 years	-1.464 **	0.215	-1.470	0.914
	10+ years	-1.845 **	0.202	-2.391 *	1.094
Cohabited prior to first marriage?	Yes	0.375 **	0.131	-0.479	0.377
	No	0.000	------	0.000	------
Partner's history	Partner's child(ren) in household	-1.345 *	0.531	-0.167	1.412
	Partner married before but no child(ren) in h/h	-0.459 *	0.211	-1.681 ** ##	0.564
	Partner not married before, no child(ren) in h/h	0.000	------	0.000	------
Couple's annual income	Less than £15 000	0.535	0.360	1.348	1.001
	£15 000 to £29 999	0.364	0.247	1.069	0.759
	£30 000 to £44 999	0.000	------	0.000	------
	£45 000 to £59 999	-0.117	0.217	0.035	0.608
	£60 000 or higher	0.326	0.214	1.541 *	0.627
	Missing	0.160	0.240	2.628 ** ##	0.850
Housing tenure	Owner-occupied	0.000	------	0.000	------
	Local authority	-0.763 *	0.335	-1.326	1.109
	Privately rented	-0.370	0.257	2.399 ** #	0.851
Woman's current economic activity	Working full-time	0.043	0.190	1.346 *	0.612
	Working part-time	0.000	------	0.000	------
	Unemployed	0.679	0.451	2.257	1.197
	Keeping house/ Inactive	-0.684 *	0.303	-1.435	1.276
Interactions					
Union duration 5-9 years	Couple income £45 000 to £59 999	0.870 **	0.336	1.804	1.318
Union duration 5-9 years	Couple income £60 000 or higher	0.812 **	0.308	0.771	1.097
Union duration 5-9 years	Privately rented accommodation	1.310 *	0.514	4.916	2.632
Age 35-39	Privately rented accommodation	0.164	0.577	-3.983 *	1.620

Having stepchildren in the household or living with a previously married partner are associated with negative fertility intentions in both models, but the negative effect of stepchildren appears to be stronger for continuously married women, while the negative effect of a previously married partner is significantly greater among repartnered women. Among married women, those who cohabited with their partner prior to marriage were significantly more likely to be intending to have a child than those who did not.

The effects of socio-economic variables differ more between the two groups. A very high joint income is associated with positive fertility intentions among the repartnered women, but high joint incomes are significantly associated with positive intentions among married women only if they have been living with their partner for five to nine years. Perhaps high income married couples delay starting a family for longer than those on lower incomes due to the higher opportunity costs of childbearing. If the woman has a successful career, she may want to wait until it is more established before having a break to start a family. However we might expect this to apply to repartnered women as well as married women; although these interactions are not significant for repartnered women, the parameter estimates do point in a similar direction.

Among married women, living in local authority or housing association accommodation is associated with more negative fertility intentions than other accommodation types. A similar, though not significant, result is found for repartnered women, with repartnered women living in privately rented accommodation also being much more likely to be intending to have another child than owner-occupiers. Among repartnered women, full-time workers are more likely to be intending another birth than those working part-time, while keeping house or other economic inactivity seems to be associated with more negative intentions in both groups, particularly the married; this could partly reflect ill health.

There are clearly differences in the factors associated with positive fertility intentions among married and repartnered women, although age and union duration are important determinants of fertility intentions in both groups. Table 6.12 also shows that the intercept for the two models is significantly different. The most striking feature of the comparison between childless married and repartnered women becomes apparent when the probability of responding 'Yes' or 'Probably Yes' is calculated for the reference category. This refers to a woman aged 30-34 with a partner of a similar age. The partner has not been previously married and not brought any children into the household. The woman has lived with her current partner for less than five years and did not cohabit prior to first marriage. She is currently working part-time and together with her partner is earning a joint income of £30 000 to £44 999. The couple lives in owner-occupied housing. For a married woman with these characteristics, the predicted

probability of responding 'Yes' or 'Probably Yes' is 0.78. However, for repartnered women, the predicted probability is only 0.14! In other words, over-three-quarters of childless married women with the above-mentioned characteristics are intending to have a birth, while less than 15% or childless repartnered women state the same intention. (It must be noted that the difference in predicted probabilities between married and repartnered women will depend on the reference categories chosen).

Under hypothesis 1, both married and repartnered childless women would be expected to have high probabilities of intending to have a birth, perhaps due to the parenthood effect, but this is clearly not the case. The results above are more consistent with hypothesis 2, that repartnered women will have different (in this case more negative) fertility intentions than comparable married women. Possible reasons for this difference are put forward later in section 6.5.9.

6.5.6 Models of the Fertility Intentions of Married and Repartnered Women with One Child at Interview

The models comparing married and repartnered women who have one child at interview are shown in table 6.14. Among both groups of women, the likelihood of stating a positive fertility intention decreases as the woman's age increases and as her child becomes older. However having a slightly older or younger partner had a more positive effect on fertility intentions among the repartnered than the married women.

None of the other variables are significant for the repartnered women and it should be noted that having a birth within the current union or not was not significant for either group. However, table 6.14 shows that married women are less likely to express an intention for a second child if their partner has been married before (and they perhaps therefore have responsibilities towards non-residential children) than if they married a bachelor. They are also less likely to be intending a second birth if their first child was a girl than a boy (unless the girl is aged 5-9), possibly indicating either a preference for girls among women who are happier to stop at one if they have had a girl, or female pre-school children putting mothers off having further children more than male pre-school children for some reason, such as the lower father involvement with daughters than sons found by Morgan, Lye and Condran (1988). Married women are more likely to express intent for a second child if they have a high household income, their partner has a professional job or their partner is unemployed. These seemingly contradicting factors reflect something of the conflicting effects of socio-economic status in terms of being able to afford a child versus high opportunity costs of childbearing.

Table 6.14 Parameter estimates from logistic regression models for married women and repartnered women who have one child at interview: who responds 'yes' or 'probably yes' when asked whether they intend to have another child?

Significance for individual models: * p<0.05; ** p<0.01

Significant difference between married and repartnered women: # p<0.05; ## p<0.01

Variable	Levels	Married Women n = 2132		Repartnered Women n = 376	
		Parameter estimate	Standard error	Parameter estimate	Standard error
Intercept		1.121 **	0.206	-0.478 ##	0.669
Woman's current age	20-29	0.684 **	0.140	1.058 *	0.471
	30-34	0.000	------	0.000	------
	35-39	-1.292 **	0.188	-1.399 **	0.459
	40-44	-2.779 **	0.382	-3.720 **	1.068
Partner's relative age	2+ years younger	-0.115	0.221	0.969 #	0.524
	Same age ± 1 year	0.000	------	0.000	------
	2-5 years older	-0.412 **	0.145	0.866 #	0.510
	6+ years older	-0.223	0.191	-0.245	0.540
Age of child	0-4	0.000	------	0.000	------
	5-9	-2.100 **	0.221	-1.083	0.621
	10 or higher	-3.077 **	0.313	-2.474 **	0.572
Sex of child	Boy	0.000	------	0.000	------
	Girl	-0.436 **	0.136	0.407	0.434
Partner's history	Partner's child(ren) in household	-0.591	0.493	-0.311	1.354
	Partner married before but no child(ren) in h/h	-0.468 *	0.213	-0.163	0.459
	Partner not married before, no child(ren) in h/h	0.000	------	0.000	------
Couple's annual income	Less than £15 000	-0.033	0.277	-0.398	0.791
	£15 000 to £29 999	-0.167	0.185	0.426	0.620
	£30 000 to £44 999	0.000	------	0.000	------
	£45 000 to £59 999	-0.030	0.182	0.079	0.527
	£60 000 or higher	0.553 **	0.197	0.590	0.532
	Missing	-0.117	0.240	-1.367 * #	0.683
Partner's occupational group	Employer/ manager	0.164	0.180	-0.532	0.591
	Professional	0.654 **	0.248	-0.206	0.850
	Other non-manual / personal service	0.149	0.191	0.207	0.536
	Skilled manual	0.000	------	0.000	------
	Semi- / unskilled manual	0.285	0.217	0.534	0.566
	Own account/ other	0.113	0.201	0.694	0.608
Partner's economic activity	Working	0.000	------	0.000	------
	Unemployed	0.753 *	0.323	0.697	0.756
	Inactive	-0.178	0.347	-0.412	0.928
Interactions					
Child aged 5-9	Girl	0.769 **	0.298	-1.275	0.905

As for the childless women, a large and significant difference between married and repartnered women in the baseline probability of having a second child is apparent when the predicted probability of responding 'Yes' or 'Probably Yes' is calculated for the reference category. Here, this refers to a woman aged 30-34 with a partner of a similar age. The partner has not

been previously married and not brought any children into the household. The woman has one boy aged under five. Her partner is currently employed in a skilled manual occupation and between them, the couple earns a joint income of £30 000 to £44 999. For married women with these characteristics, the predicted probability of responding 'Yes' or 'Probably Yes' is 0.75, but for repartnered women, the predicted probability is only 0.38. Therefore, around three-quarters of married women with the above-mentioned characteristics and one child are intending to have a second, while just over one-third of the repartnered women are intending to have a second child. The difference between the two groups is smaller than found in the model for childless women, but nonetheless still considerable. Again, this result is consistent with hypothesis 2, that repartnered women will have a different (in this case lower) probability of intending to have a birth than married women, due to unmeasured factors. This result suggests that the sibling effect may be of less importance to repartnered women than to married women.

6.5.7 Model of the Fertility Intentions of Married and Repartnered Women with Two or More Children at Interview

The models shown in table 6.15 show several similarities between the factors associated with fertility intentions among married and repartnered women. As for women at lower parities, the probability of responding with a positive fertility intention decreases as the woman's age increases. As would be expected, women with more children and those with older children are less likely to be intending another, but these results are only significant for the married women, and for married women in their late thirties, having four children does not reduce the probability of stating a positive intention. Among both groups of women, keeping house is associated with a larger probability of intending to have another child, suggesting the existence of a group of women that have either decided to stay at home and have a large family or perhaps do not have any other alternative. The exception to this is married women at parity three, where keeping house is not associated with more positive fertility intentions.

Not having had a birth with the current partner yet is strongly associated with more positive fertility intentions for repartnered women, but this is not significant for the small number of married women with premarital births except where their youngest child is ten or older. Perhaps the result for married women would have been significant if the model had distinguished between premarital births prior to premarital cohabitation and those taking place within premarital unions and presumably therefore with the future spouse.

Table 6.15 - Parameter estimates from logistic regression models for married women and repartnered women who have two or more children at interview: who responds 'yes' or 'probably yes' when asked whether they intend to have another child?

Significance for individual models: * p<0.05; ** p<0.01

Significant difference between married and repartnered women: # p<0.05; ## p<0.01

Variable	Levels	Married Women n =7779		Repartnered Women n = 1421	
		Parameter estimate	Standard error	Parameter estimate	Standard error
Intercept		-2.616 **	0.174	-1.854 ** #	0.352
Woman's current age	20-29	0.798 **	0.110	0.584 *	0.284
	30-34	0.000	------	0.000	------
	35-39	-1.166 **	0.178	-0.646 *	0.278
	40-44	-2.579 **	0.478	-2.033 **	0.431
Woman's parity at interview	2	0.000	------	0.000	------
	3	-0.170	0.188	-0.397	0.333
	4+	-0.952 **	0.240	-0.363	0.418
At least one birth in current union	Yes	0.000	------	0.000	------
	No	0.801	0.647	1.155 **	0.281
Age of youngest child	0-4 years	0.000	------	0.000	------
	5-9 years	-1.414 **	0.167	-0.299 ##	0.288
	10+ years	-3.334 **	0.602	-1.857	1.037
Sex of children	All boys	0.566 **	0.121	0.484	0.258
	All girls	0.478 **	0.124	0.167	0.279
	At least one boy, one girl	0.000	------	0.000	------
Child mortality	All children living	0.000	------	0.000	------
	At least one child deceased	1.286 **	0.235	-0.487 #	0.759
Woman's highest educational qualification	Higher education qualification	0.446 **	0.148	-0.123	0.359
	A level or equivalent	-0.082	0.180	-0.114	0.358
	O level or equivalent	0.000	------	0.000	------
	CSE or equivalent	-0.173	0.169	-0.250	0.297
	Foreign/other qualifications	0.789 **	0.261	0.350	0.669
	No qualifications	0.251	0.158	-1.487 ** ##	0.412
Partner's occupational group	Employer/ manager	0.275	0.157	-0.299	0.326
	Professional	0.532 *	0.212	0.094	0.518
	Other non-manual / personal service	0.402 *	0.161	0.115	0.313
	Skilled manual	0.000	------	0.000	------
	Semi- / unskilled manual	0.290	0.174	0.150	0.348
	Own account / other	0.473 **	0.160	0.111	0.313
Woman's current economic activity	Working full-time	0.206	0.166	0.437	0.287
	Working part-time	0.000	------	0.000	------
	Keeping house	0.496 **	0.124	0.595 *	0.299
	Unemployed	0.283	0.252	0.536	0.516
	Inactive	-0.601	0.615	-0.058	0.800
Interactions					
Parity 3	No educational qualifications	0.160	0.284	1.378 *	0.583
Parity 3	Keeping house	-0.662 **	0.253	-0.465	0.492
Parity 4	Age 35-39	0.956 *	0.429	-0.251	0.744
No birth in current union yet	Youngest child aged 10+	4.514 **	1.069	0.518	1.087

Among the married women, those with all boys or all girls are more likely to be intending to have another child, consistent with Yamaguchi and Ferguson (1995) and Teachman and Scholleart (1989). Child mortality has a positive effect on fertility intentions for married women but not for repartnered women. Among married women, those with higher education or foreign qualifications are more likely to be intending to have another birth than those with 'O' level or equivalent qualifications. This is not the case for repartnered women, where those with no educational qualifications are the least likely to be intending to expand their families, except at parity three. Having a partner in a professional, non-manual or own-account/other occupation is associated with more positive fertility intentions among married women, but no significant differences are found in partner's occupational group for the repartnered women.

As for the previous models there is a significant difference between married and repartnered women in the baseline probabilities of intending a further birth. Here, the reference category refers to a woman aged 30-34 with two live children, a boy and a girl. The younger child is aged under five and at least one was born within the current union. The woman is currently working part-time and her highest educational qualifications are 'O' levels or equivalent. Her partner works in a skilled manual occupation. For women with these characteristics, the predicated probability of responding 'Yes' or 'Probably Yes' when asked whether she intends to have another birth is 0.07 for married women and 0.14 for repartnered women. In contrast to the models for childless women and those with one child, repartnered women with two children are *more* likely to be intending another than married women with two children, even after controlling for whether the couple has had a joint birth or not. If we examine women who have not yet had a birth with their current partner, the difference is larger, with around 14% of married women predicted to be intending another birth, compared to 33% of repartnered women with the reference characteristics. This suggests that the 'union-commitment' effect is stronger for repartnered women than it is for married women with pre-union births only.

The models for women with two or more children therefore support hypothesis 2, that there is a difference between the fertility intentions of repartnered women and those in first marriages, but in this case the repartnered women are found to have more the positive fertility intentions after controlling other factors.

6.5.9 Discussion

Of all the factors found to be associated with fertility intentions, only the woman's age appears to be consistently related to fertility intentions in both marital status groups and all parity groups, with younger women more likely than older women to be intending a birth. Apart from

age, duration of the union was associated with fertility intentions of childless women, whether married or repartnered, while age of the youngest child was important for those with at least one child, particularly among the married. Other factors were either insignificant or applied to only to certain parity or marital status groups, indicating probable differences in the determinants of fertility intentions among married and repartnered women at similar parities. None of the results in sections 6.5.6 to 6.5.8 are consistent with the first hypothesis (see 6.5.3), that there would be no difference in the underlying fertility intentions of women in first marriages and repartnered women once age, presence of a joint birth and other characteristics were controlled. Instead the results for all three parity groups favour the alternative second hypothesis, that there is still a difference in fertility intentions according to marital status even after controlling various factors. However, the unexpected finding from these models was that repartnered women at parities zero and one were less likely to be intending to have a birth than their married counterparts, while repartnered women at higher parities were more likely to state a positive fertility intention than similar parity married women.

In many ways the results for the low parity women are easier to explain than those for higher parity women. Among the childless, a possible explanation for the more negative intentions of the repartnered group is that childless repartnered women are a select group, very different to their childless counterparts still in their first marriages who may simply be postponing childbearing for a while but intending to start in the future. Childless repartnered women have reached the end of their first marriage without having a birth for a variety of reasons. Some reasons for not having children in a first marriage may be of little relevance in a later partnership, for example separation very soon after marriage, partner's infertility or partner's lack of desire for children. However, other reasons for non-childbearing may extend into later partnerships, for example inability to have children or a preference for a career and adult-centred lifestyle over the parental lifestyle. The low probability of intending to have another birth found among repartnered women suggests that the second set of reasons dominates. It is possible that repartnered women are more likely to be infecund than their still married counterparts, if the inability to have children is a contributory factor to marital dissolution. However, voluntary childlessness is likely to be the more important factor, whether due to an early decision not to have children or due to the continual postponement of childbearing until it is considered too late or a commitment to remaining childless becomes evident (Griffith, Koo and Suchindran, 1984; Hobcraft and Kiernan, 1995; Heaton, Jacobson and Holland, 1999). One common reason for the postponement of childbearing is to achieve career aspirations, but this is not entirely consistent with the model for repartnered women that suggests high incomes and full-time employment to be associated with positive fertility intentions. However, it is

possible that the marital dissolution process contributes to the postponement of childbearing in this group. By the time some women have experienced marital dissolution, found a new partner and settled down in their new union, they may decide it is too late to have a baby or that they enjoy their child-free existence too much to disrupt their lives by childbearing.

Thus it is not necessarily the case that the parenthood effect is less important to repartnered women than to married women, but more likely to be the case that repartnered women are a select group of women in that they remained childless during a first marriage. However, the lower probabilities of intending to have a second birth among repartnered women at parity one compared to similar married women suggests that the sibling effect may be of less importance to repartnered women than to married women. It is possible that repartnered women with one child do not feel as subject to the two-child norm if their child was born in their first marriage as do continuously married women, as their marital dissolution can be seen publicly as a clear reason for their not adhering to the norm.

Of the repartnered women at parity one, 44% of the women had a birth with their current partner, while the remainder had a birth before their current union. Although the latter group might be expected to want a birth with their new partner (under the 'union-commitment' hypothesis), only those who did not have a desired second birth because their marital dissolution curtailed their fertility might fit in this category. Other women with one birth from a previous marriage may not be intending to have a second child for other reasons, for example inability to have a second child (that may have contributed to first marital dissolution), or a deliberate decision to have one child. Callan (1983) researched a group of Australian women who had only one child by choice and were not intending another. He found that, compared to women planning a second child, this group found childbearing less beneficial to their marital relationship and were less likely to support a partner's desire for more children or consider remarrying a partner wanting children. While some women in first marriages may also have one child by choice, the model suggests that the majority is intending another. Given that the repartnered group has all experienced only one birth in their first marriage, the proportion that have chosen one child deliberately may be higher in this group. Women who are unsure about having a second child may also be put off doing so if they are particularly concerned about union stability; another possible explanation for the more negative intentions of the repartnered women at parity one compared to similar married women.

It is harder to explain why repartnered women with two or more children might be *more* likely to intend a further birth than similar married women. The usual explanation, that such women may be having a joint birth with their new partner, cannot be the only reason, as the model

controls for whether the couple has had a joint birth. One possibility is that women with two or more children could be considered as 'child friendly' or to have no particular 'anti-children' characteristics. Perhaps such women are less likely to view additional complications arising from marital dissolution and repartnering as problematic. Another suggestion is that women are selected into repartnering following marital dissolution *because* of a desire for more children. Or perhaps some women with a marital dissolution place a higher value on children than continuously married women, as they feel the parent-child relationship to be more permanent than the husband-wife relationship, and therefore are more likely want more children. Whatever the explanation, it appears that the relatively high probability of third and higher order births among the repartnered compared to those in first marriages is not only due to the 'union-commitment' effect as previously thought, because whether the couple had already had a child together or not was controlled in the models. The results from all the models are not inconsistent with the parenthood, sibling and 'union-commitment' effects but suggest that they may not be of similar strength in all marital status groups.

Put together the results indicate that repartnered women are less likely to conform to the two-child norm than continuously married women, being both more likely to stop at zero or one child and also more likely to intend further children if they already have two or more. It is possible that women who experience marital dissolution feel under less pressure to conform to the societal expectations for married women in the childbearing arena, having ended their marriage.

6.6 Summary

This chapter has broken new ground in two ways. First it has investigated the fertility intentions of British women in depth, while previous work with British data had been purely descriptive. Second, although much more research has been carried out on the fertility intentions of American married women then their British counterparts, none has specifically compared the intentions of those in later unions with those in first marriages.

The chapter began by discussing a framework (figure 6.2) describing the formation of fertility desires and their modification into fertility intentions. In the later analysis, many of the factors identified as influencing the formation of desires and intentions are used as explanatory variables, for example, parity, age of the youngest child, education, income and housing. However, data were not available for other factors identified in figure 6.2, such as individual

attitudes, level of agreement with partner, the perceived stability of the union or certainty regarding future socio-economic status.

Exploratory analysis showed that marital status has a clear influence on fertility intentions, even after controlling age and parity (section 6.3.4). Among repartnered women, nearly three-quarters stated a firm intention to have no more children. Demographic factors such as a woman's age, parity and the age of her youngest child were found to be more strongly related to fertility intentions in general than were socio-economic factors (section 6.4). The models for women with two or more children were found to be consistent with the 'union-commitment' effect, but this was not apparent for women with an only child.

Comparing the models of fertility intentions for repartnered women with similar models for married women put the former results into context. It became apparent that repartnered women at parities zero and one were much less likely to be intending another birth than low parity married women, while repartnered women at higher parities had more positive fertility intentions than similar married women after controlling all possible factors. To explain these results, the unmeasured factors identified in figure 6.2 were considered. It is possible that many of the repartnered women at parities zero and one have this number of children from choice (individual attitudes) rather than as a direct result of their marital dissolution, or that many repartnered women were unwilling to have another child due to percieved union instability. Conversely, the more positive fertility intentions of the repartnered women with two or more children could be partly explained by more positive individual attitudes to childbearing in this group. These results partly explain the findings from earlier chapters that women with a marital dissolution are more likely to end up with either fewer than two or more than two children than continuously married women.

Regarding further work, as no difficulties were incurred in using the fertility intentions data from the General Household Survey, it is recommended that more use is made of these data by researchers wishing to understand more about British fertility among women of any marital status. The models here could have been improved, were a wider range of data available for the survey, for example sterilisation data in all rounds of the survey and complete data on partners' fertility histories. For women that have experienced marital dissolution, more up-to-date qualitative research into the factors affecting the fertility decisions of repartnered women and their partners might provide insights into the fertility decision making process in this group and help to explain some of the differences found between married and repartnered women.

Chapter Seven:
Conclusions.

7.1 Summary and Key Findings

The overall aim of this thesis has been to explore the links between marital dissolution, repartnering and childbearing in Britain. This is achieved by investigating different aspects of childbearing behaviour at the aggregate and individual level.

Chapter three shows that around 12-13% of British births during the early 1990s occurred after first marital dissolution (including those to repartnered women) and that this percentage has increased over the preceding fifteen years, probably due to a rise in the proportion of women over 30 that has experienced a marital dissolution. Thus the contribution of post-dissolution births to British fertility is not inconsiderable. During the 1980s and early 1990s, the proportion of post-dissolution births in second marriages declined, accompanied by an increase in the proportion of these births occurring outside marriage, many within cohabiting unions. In spite of this, the evidence suggests that the large increase in the non-marital fertility ratio witnessed in the 1980s was driven by the fertility behaviour of single women rather than the previously married. In contrast to a common assumption, the data reveal that post-dissolution births are not just high order births to older women; just over half are first and second births and just under half occur to women in their twenties. Finally, an examination of post-dissolution childbearing among different birth cohorts of women shows that this type of childbearing increased steadily between women born in the early 1930s and those born in the late 1950s. However, women born in the 1960s had fewer post-dissolution births on average by ages 25 and 30 than those born in the previous decade, reflecting the overall postponement of births to these cohorts.

Chapter four assesses the impact of marital dissolution and repartnering on the lifetime fertility of a group of British women born between 1930 and 1954. From a theoretical perspective, the causal links between partnership and childbearing behaviour are found to be numerous and multi-directional, indicating that it would not be possible to provide a straightforward answer as to the impact of marital dissolution on fertility. The data indicate that women who have experienced marital dissolution are a more diverse group in terms of completed family size than their continuously married counterparts. Although women with a marital dissolution have a higher mean number of children, consistent with former research, only those married three

times have a higher median completed family size than the median of two children in all other groups. Women with a marital dissolution, even those who do not remarry, are more likely than the continuously married to have four or more children. In addition, women who remain separated and those who remarry are more likely to remain childless or have one child than the continuously married. The most striking observation is that all groups of women with a marital dissolution are less likely to have exactly two children than the continuously married. Those with a marital dissolution also tend to start childbearing at younger ages, while those who repartner are also more likely to experience a birth while aged over 35 than the continuously married. However, the models of completed family size and age at last birth suggest that some of the conventional causal hypotheses concerning the effects of marital dissolution and repartnering on fertility may need to be reconsidered. For example, high fertility among some remarried women may have occurred during the first marriage and perhaps contributed to the first marital dissolution, rather than being a result of additional fertility within remarriage. Another common misconception is that women who separate and do not repartner finish childbearing early because their fertility is curtailed by marital dissolution; however for many women, commencing childbearing at a young age may be associated with both a higher risk of marital dissolution and an early finish to childbearing, explaining the apparent link between separation and stopping childbearing at a young age. In many cases like these, observed differences in fertility are found to be associated with the characteristics of those selected into marital dissolution or repartnering, rather than being direct effects of the marital dissolution or repartnering itself.

In chapter five the focus shifts to the childbearing behaviour of British women *following* marital dissolution rather than over the entire lifecourse. It is estimated that approximately 45% of women who experience marital dissolution will subsequently experience a birth. The hazards model of time to conception shows that younger women are more likely to have a birth than older women and those who cohabit or remarry are more likely to have a birth following marital dissolution than those who do not repartner. However, the number of children that a woman has prior to dissolution is found to be of minor importance, consistent with the suggestion that many women wish to have a joint birth with a new partner, irrespective of parity. Women with a younger child are more likely to continue childbearing after dissolution than those with a less recent birth, as are those with a partner that had not been previously married, suggesting that previously married men may have other financial, emotional and time constraints that may put them off having further children.

Chapter six examines the current fertility intentions of women who have repartnered following a marital dissolution and finds that over 80% are certain or fairly certain that they do not intend

to have any (more) children. As found in the previous chapter, younger women and those whose previous birth (if any) is more recent are among those more likely to be intending to have a child in the future. Women with two or more children who have not yet had a joint birth with their current partner are more likely to be intending to have another birth than those who already have such a birth, consistent with the 'union-commitment' effect highlighted by Vikat, Thomson and Hoem (1999). However, no support is found for the 'union-commitment' effect among women with only one child. Finally, the legal status of the union (remarriage or cohabiting union) is not significantly associated with fertility intentions, while variables pertaining to the male partner and socio-economic indicators do not appear to be strongly associated with fertility intentions of repartnered women in any consistent way among women at different parities.

On comparing repartnered women with those in first marriages, repartnered women with no children or one child are much less likely to be intending to have a birth in the future than women in first marriages. In contrast, repartnered women with two or more children at interview are more likely to be intending another birth than their married counterparts. These results support the findings from chapter four that women who experience marital dissolution are less likely to conform to the two-child norm than those in stable marriages. Various suggestions are put forward for these observations, in particular considering the unmeasured variables outlined in the framework for women's fertility intentions (figure 6.2). It is suggested that many repartnered women at parities zero and one may be so from choice, or may have concerns about union stability that deter them from planning any births. On the other hand, some repartnered women with two or more children may place more value on their relationships with their children than women in first marriages, as such relationships may be seen as more enduring than adult ones among those whose marriage has ended. The results for women with two or more children are consistent with the 'union-commitment' effect, but show that the high fertility of some repartnered women is not simply a result of wanting a joint birth with the current partner, as women who already have a joint birth also have more positive fertility intentions than similar women in first marriages.

7.2 Implications and Further Work

Overall, this research contributes to the understanding of the links between marital dissolution and childbearing among British women. However, the relationship between these two demographic processes is complex and it may be more appropriate in future research to focus on interactions between partnership and fertility behaviour rather than on the impact of one specific process on another. For example, the relationship between fertility intentions and

repartnering intentions could be examined to see whether intentions to live together or remarry and intentions to have a baby are jointly determined. People will still want answers to questions such as 'How does marital dissolution or repartnering affect fertility?' or 'How does childbearing affect the probability of marital dissolution or repartnering?', but such questions cannot be answered in a straightforward way.

If marital dissolution and repartnering are associated with an increased likelihood of births at older ages and greater diversity in completed family size (chapter four), it is reasonable to expect that any further increases in marital dissolution and repartnering might lead to increased childbearing among women aged over 35 and a decline in adherence to the 'two-child' norm. Certainly, the high divorce rates experienced in Britain since the mid-1970s (figure 1.1) may have contributed to increases in the age-specific fertility rates of women aged 35-39 and 40-44 during the same period (OPCS, 1988; ONS, 1999a). This increased childbearing among older women has implications in varied areas, for example antenatal care of older mothers. However, any effects of high divorce rates on the completed fertility of the current generation of women in the reproductive ages remain to be seen when these women have reached age 45. Recent data have shown that the British still hold to the 'two-child' norm as the ideal (Scott, Braun and Alwin, 1998), but future research could examine whether adherence to the two-child norm is declining in practice and investigate the characteristics and lifecourse experiences of those who reach age 45 with more or fewer than two children. If it were found that fewer women are in fact having two children than in the past, this would support the suggestion by Morgan (1998) that a growing gap exists between ideals and outcomes in the family arena.

Although British divorce rates have not been increasing during the 1990s, it is likely that the incidence of dissolution of cohabiting unions has increased, given the increasing incidence of cohabitation itself among more recent cohorts. For example, Haskey (1999b) found, using a specifically designed module for the ONS Omnibus Survey, that 8% of people born in 1970-74 had experienced one cohabiting union that ended in dissolution by 1994/95, compared to 4% of those born ten years earlier (despite the latter having had more time to experience the event). He also found both first and second cohabiting unions to be much less stable than first and second marriages, implying that increases in cohabitation will be accompanied by increases in dissolution of such unions. If sequential cohabitation and dissolution of cohabiting unions are becoming more common, this could also lead to an increase in late childbearing and greater diversity in completed family size, as suggested above. Future work on the interactions between partnership and fertility behaviour will therefore need to include women who have experienced the dissolution of a cohabiting union as well as the previously married in order to

investigate these possibilities. However, the survey used by Haskey (1999b) collected only data on a very limited number of topics and the research suggested could not be carried out with currently available GHS data.

Other findings of this research have policy implications, for example, the fact that many women with a marital dissolution have large families and that some marry partners who bring children into the household (chapters four, five, and six) has implications for housing; for example, Fox Harding (1996) notes that large households that cannot afford to buy large properties may have difficulties in obtaining large enough accommodation from local authorities and housing associations. Second, the evidence in chapters five and six, though limited by the lack of male fertility histories in the data, suggests that women living with partners who may have children from previous relationships are less likely to bear children in later unions. This cannot be attributed entirely to the effects of the Child Support Agency (CSA), formed in the early 1990s, that forces men to pay maintenance for children from previous relationships, as some of the data used here predate the CSA. However, there may be other reasons for men with children from prior unions being less likely to want further births, whether they involve time constraints, adherence to norms about the correct number of children to have or disappointment in the lack of involvement with their existing children. Much more research needs to be carried out, both on these issues and, from a policy perspective, on the implications of child support payments both paid and received by second families on fertility decisions.

The main limitation on the quantitative research here is the inadequacy of British data sources. The collection of mother's legal and de facto marital status, marital history and true parity as part of the process of birth registration would make it far easier for researchers to assess the extent of and composition of post-dissolution and other types of fertility in terms of mother's parity and marital status. Regarding the General Household Survey, first, the collection of complete cohabitation histories would enable an assessment of the proportion of post-dissolution births occurring in cohabiting unions and allow the impact of cohabitation on fertility both over the lifecourse and following marital dissolution to be measured more accurately. The most recent round of the General Household Survey (2000/2001) will provide much improved data in this respect, as start and end dates for respondents' first three cohabiting spells ending in dissolution are being collected, in addition to data on current and premarital cohabiting spells. For the majority of women, this will provide a complete cohabiting history and therefore estimates of the proportion of births within cohabiting unions will be greatly improved; however cohabitation will still be under-estimated to some extent, as some women may experience more than three dissolutions of cohabiting unions. Second,

complete data on the fertility histories of women's partners would provide a much more comprehensive set of independent variables for the models in chapters five and six and enabled a much better assessment of the influence of the partner's non-residential children, if any, on fertility decisions. However, the collection of accurate male fertility histories is not without its difficulties (Rendall et al., 1999). Third, were data on sterilisation available for each round of the GHS (rather than 1991 and 1993 only), sterilised women could have been excluded from the analysis in chapter six, so that only the fertility intentions of those able to have children were analysed, avoiding any misleading results. However, it would also be interesting to examine the characteristics and partnership experiences of those women who are sterilised or living with a sterilised partner, in order to better understand the relationships between partnership formation and dissolution, fertility decisions and the decision to be sterilised or form a new union with a sterilised partner.

Thus small additions to the data collected in the General Household Survey could vastly improve the ability of researchers to understand various partnership and fertility processes. In contrast, future research could make much more use of existing parts of the GHS data set. In particular, the under-utilised fertility intentions data provide the material for a thorough analysis of the fertility intentions of different groups of women. Also, the GHS provides full data on current stepchildren in households and thus Haskey's (1994) work on stepfamily households could easily be updated and expanded. The exact composition of such families (at the time of interview) in terms of different types of parental and sibling relationships could be noted. Other characteristics of stepfamily households, such as housing, income or employment, or adults' previous marital history before entering the stepfamily could also be examined, adding to the more comprehensive data on stepfamilies provided by the National Child Development Study (Ferri and Smith, 1998) that are limited by their applicability only to the 1958 birth cohort.

Clearly much more insight could be gained from quantitative research in this area, given a wider range of data. Other aspects lacking from British data are information on attitudes and information on male fertility intentions. The British Household Panel Study provides some of this information, but as noted in chapter two, has rather a small sample size when considering the repartnered population. A study similar to that carried out by Miller and Pasta in the USA (e.g. Miller and Pasta, 1993), but including repartnered women, would provide vital information on attitudes to pregnancy and childrearing, male/female roles and other personality factors that are not collected in routine surveys but are likely to have a big impact on fertility decisions. However, it is not clear in Britain who would fund such a survey. It is possible that other new British data sources, such as the 1999/2000 follow-up to the National

Child Development Study, might provide new data with which to study the links between fertility and marital dissolution. In particular, the participants of this study will have reached age 41/42 and so the majority will have completed their fertility, allowing similar work as that in chapter four of this thesis to be undertaken for the 1958 birth cohort. This data set also has the advantage of containing full cohabitation histories, so the contribution of cohabiting women to non-marital post-dissolution fertility could be assessed fully, though only for women born in March 1958.

There are also many questions raised in this thesis that could be addressed using more qualitative methods. For example, an updated study similar to that carried out by Burgoyne and Clark (1984), but including cohabiting as well as remarried couples, would enable researchers to understand the influence of factors such as child maintenance payments or union instability on the fertility decisions of the previously married and help to the explain the differences found between the fertility intentions of the repartnered and the continuously married. Such research could also aid the understanding of the extent to which individuals are making personal choices about whether or not to have a child and the extent to which they are constrained by social norms, attitudes of others and personal circumstances when making fertility decisions. Another neglected area is the influence of existing children on parents' fertility decisions; again, qualitative research could ask parents whether they took the children's opinions into account when making the decision whether to have another child. Existing children could be asked about their feelings regarding the decision, both before any birth and afterwards. For example, children might be asked whether they looked forward to the birth of the new sibling or whether he or she was seen as a threat. Given the apparent lack of research on half-siblingship as compared to step-siblingship and stepfamilies in general, it would also be worthwhile asking children with half-siblings how they perceive their relationship with their half-sibling over time, whether it is different to other sibling relationships and how they feel that the birth has impacted on their family life. Such research might be quite demanding, as previous researchers (e.g. Burgoyne and Clark, 1984) have found it difficult to recruit suitable participants in such studies.

To summarise, many questions still exist concerning the relationships between fertility and marital dissolution and regarding related topics such as stepfamilies. To answer some questions, survey data not currently available in Britain would be required and it is hoped that a wider range of family data will be available in the future. However, there are many areas in which this work could be carried forward using existing quantitative data or by employing qualitative methods.

Appendix 1:
Example of SIR Job to Obtain GHS Data.

Below is an example of a SIR file written to obtain data from (in this case) the 1996 round of the General Household Survey. The complex compute and integer procedures were necessary because each woman had up to four marriage files, up to twelve child files and up to four stepchild files; all these separate files had to be integrated into one line of data for each woman.

```
retrieval
integer hn,reg,pn,age1,marst,numchil,orig,soclass,seg,occup
integer edlevel partage
integer array   pmarr(9)
integer array   monm(9)
integer array   yrm(9)
integer array   precohb(9)
integer array   precom(9)
integer array   precoyr(9)
integer array   howend(9)
integer array   diem(9)
integer array   dieyr(9)
integer array   sepm(9)
integer array   sepyr(9)
integer array   divm(9)
integer array   divyr(9)
integer array   partmbf(9)
integer cohabm, cohabyr, partmar1, evmar, sepcoh, sepcom, sepcoyr,
partmar2, nummars
integer steppres,pregnow,morekids,expectno,agenext
integer array   child(19)
integer array   birm(19)
integer array   biryr(19)
integer array   birsex(19)
integer array   livewt(19)
integer array   steppn(19)
integer array   steptyp(19)
integer array   agestep(19)
integer array   sexstep(19)
integer array   stlivm(19)
integer array   stlivy(19)

integer pmarr1 to pmarr4,monm1 to monm4,yrm1 to yrm4,precohb1 to
precohb4, precom1 to precom4,precoyr1 to precoyr4,howend1 to
howend4,diem1 to diem4, dieyr1 to dieyr4,sepm1 to sepm4,sepyr1 to
sepyr4,divm1 to divm4,divyr1 to divyr4,partmbf1 to partmbf4, child1
to child12,birm1 to birm12,biryr1 to biryr12,birsex1 to birsex12,
livewt1 to livewt12,steppn1 to steppn4,steptyp1 to steptyp4,agestep1
to agestep4,sexstep1 to sexstep4,stlivm1 to stlivm4,stlivy1 to
stlivy4

. process cases
. process rec househld
. if (region gt 22) next record
.   get var hn=hserno
.   get var intdate
```

```
.   get var reg=region
.   process recs person
.   if (sex ne 2) next record
.   if ((age gt 59) or (age lt 16)) next record
.      get var pn=persno
.      get var dob
.      get var age1=age
.      get var marst=marstat
.      get var numchil=chnbrnt
.      get var orig=origin
.      get var soclass=soclas96
.      get var seg=segead
.      get var occup=kose96
.      get var edlevel=edlev2
.      get var partage=agepart

.        process rec faminf via (pn)
.        get var persno
.        get var cohabm=clmon
.        get var cohabyr=clyr
.        get var partmar1=clprtmar
.        get var evmar=clmar
.        get var sepcoh=tgthr1
.        get var sepcom=strtmon
.        get var sepcoyr=strtyr
.        get var partmar2=cpartmar
.        get var nummars=nummar
.        get var steppres=children
.        get var pregnow=pregnant
.        get var morekids=morechld
.        get var expectno=totchld
.        get var agenext=nextage


compute i=0
.        process recs marriage via (pn)
compute i=i+1
compute pmarr(i)=pmarrno
compute monm(i)=monmar
compute yrm(i)=yrmar
compute precohb(i)=lvtgthr
compute precom(i)=monlvtg
compute precoyr(i)=yrlvtg
compute howend(i)=curorex
compute diem(i)=mondie
compute dieyr(i)=yrdie
compute sepm(i)=monsep
compute sepyr(i)=yrsep
compute divm(i)=mondiv
compute divyr(i)=yrdiv
compute partmbf(i)=partmar
.        end process recs

compute j=0
.        process rec 28 via (pn)
compute j=j+1
compute child(j)=childno
compute birm(j)=birthmon
compute biryr(j)=birthyr
compute birsex(j)=birthsex
compute livewt(j)=chldlive
```

```
.       end process rec


compute k=0
.       process rec stepchld via (pn)
compute k=k+1
compute steppn(k)=stpersno
compute steptyp(k)=steptype
compute agestep(k)=stepage
compute sexstep(k)=stepsex
compute stlivm(k)=stlivmon
compute stlivy(k)=stlivyr
.       end process rec

do repeat x=1 to 4
compute pmarr!x=pmarr(x)
compute monm!x=monm(x)
compute yrm!x=yrm(x)
compute precohb!x=precohb(x)
compute precom!x=precom(x)
compute precoyr!x=precoyr(x)
compute howend!x=howend(x)
compute diem!x=diem(x)
compute dieyr!x=dieyr(x)
compute sepm!x=sepm(x)
compute sepyr!x=sepyr(x)
compute divm!x=divm(x)
compute divyr!x=divyr(x)
compute partmbf!x=partmbf(x)
end repeat

do repeat x=1 to 12
compute child!x=child(x)
compute birm!x=birm(x)
compute biryr!x=biryr(x)
compute birsex!x=birsex(x)
compute livewt!x=livewt(x)
end repeat

do repeat x=1 to 4
compute steppn!x=steppn(x)
compute steptyp!x=steptyp(x)
compute agestep!x=agestep(x)
compute sexstep!x=sexstep(x)
compute stlivm!x=stlivm(x)
compute stlivy!x=stlivy(x)
end repeat

perform procs
set
pmarr,monm,yrm,precohb,precom,precoyr,howend,diem,dieyr,sepm,sepyr,
divm,divyr,partmbf,child,birm,biryr,birsex,livewt,steppn,steptyp,ages
tep,sexstep,stlivm,stlivy * (missing)
.   end process recs
.   end process recs
. end process recs
. end process cases
sas save file export=women96,women96.dat
```

Appendix 2:
GHS Variables.

Table A2.1 shows the GHS variables used in this thesis and the record types that they were derived from. A few additional variables were obtained and used for checking purposes, for example AGEFUH (age of family unit head) was checked against PARTAGE (partner's age) for women living with a partner. Other variables were tabulated and often tested in models but subsequently not used, for example REGION or SEGEFUH3 (social class of family unit head). The variable ORIGIN, respondent's ethnic origin was not used as only 4% of the 1990-95 sample were non-white. The low proportion of non-whites in Britain, combined with the under-representation of ethnic minorities in the GHS (see 2.3.1) meant that the sample of non-whites was too small to consider separately, particularly as the union and fertility behaviour of women of Asian origin, for example, may be very different from that of women of Caribbean origin and so it would not be appropriate to consider 'non-whites' as a homogenous group. In addition, the format of responses to the ORIGIN variable changed several times between 1990 and 1996.

In the household section, respondents are asked to state their marital status at interview from a choice of married, cohabiting, single, separated, divorced, widowed or (from 1993 onwards) same sex cohabiting. However, this variable, MARSTAT, was not used, because an examination of the later reported dates of cohabitation, marriage and marital dissolution found some of these 'self-defined' responses to be inaccurate; for example some women described themselves as married when they were in fact cohabiting, while others described themselves as single despite being previously married.

Table A2.1 GHS records and variables used in the research.

Data file name	Variable name	Meaning	Data rounds used
HOUSEHOLD	HSERNO	Household number	1990-96
	HYEAR, HMONTH	Year/month household interviewed	1990-95
	INTDATE	Date of interview	1996
	TENURE	Housing tenure	1991-95
	TENURE96	Housing tenure	1996
PERSON	PERSNO	Person number	1990-96
	DOBIRTHY, DOBIRTHM	Date of birth	1990-95
	DOB	Date of birth	1996
	AGE	Age at interview	1990-96

Data file name	Variable name	Meaning	Data rounds used
PERSON (continued)	CHNBRNT	Number of children	1990-96
	SOCLASE	Social class (I-V)	1990-96
	SEGEAD	Socio-economic group (1-22)	1990-96
	ECSTAA	Economic status in previous week	1991-96
	WKSTATE	If works full or part time	1991-96
	KOSE	Occupational group	1991-95
	KOSE96	Occupational group	1996
	EDLEV2	Highest educational qualification	1990-96
	AGEPART	Current partner's age at interview	1991-96
	FAMUNIT	Variable linking person with their family unit	1991-96
MARSTTUS 1990-93 FAMINF 1994-96	CLMON, CLYR	Month, year began current cohabitation (if never married)	1990-96
	CLPARTMAR	Whether current cohabiting partner previously married (if never married)	1990-96
	STRTMON, STRTYR	Month, year began current cohabitation (if previously married)	1990-96
	CPARTMAR	Whether current cohabiting partner previously married (if previously married)	1990-96
MARRIAGE	PMARRNO	Marriage number[1]	1990-96
	MONMAR, YRMAR	Month, year of marriage	1990-96
	LVTGTHR	Whether cohabited directly before marriage	1990-96
	MONLVTG, YRLVTG	Month, year began premarital cohabitation	1990-96
	MONDIE, YRDIE	Month, year husband died	1990-96
	MONSEP, YRSEP	Month, year of separation	1990-96
	MONDIV, YRDIV	Month, year of divorce	1990-96
	PARTMAR	Whether husband previously married	1990-96
CHILD	CHILDNO	Child number[1]	1990-96
	BIRTHMON, BIRTHYR	Month, year of child's birth	1990-96
	BIRTHSEX	Sex of child	1990-96
	CHLDLIVE	Where child currently living	
FERTMAST 1990-93 FAMINF 1994-96	STEPCHLD	Whether step/adopted/foster children in household	1991-93

Data file name	Variable name	Meaning	Data rounds used
FERTMAST 1990-93 FAMINF 1994-96 (continued)	CHILDREN	Whether step/adopted/foster children in household	1994-96
	PREGNANT	Whether currently pregnant	1991-96
	MORECHLD	Whether intend more children	1991-96
	PROBMORE	Whether intend more children (if unsure response to previous question)	1991-96
STEPCHLD	STCHLDNO	Stepchild number[1]	1990-91
	STPERSNO	Stepchild number[1]	1992-96
	STEPTYPE	Step, foster or adopted	1990-96
FAMILYNT (via famunit)	ECSTAAF	Partner's economic status in previous week	1991-96
	SEGEFUH	Socio-economic group of family unit head	1991-96
	TOTFUUGI	Usual gross weekly income of family unit	1991
	GINCFAM	Usual gross weekly income of family unit	1992-96

Note 1: These variables simply indicate which marriage, child or stepchild the records following them refer to.

Appendix 3:
Comparability of the Retrospective Sample of Births in Chapter 3 with Vital Registration Data.

In order to check the representativeness of the sample of births drawn from the GHS (section 3.3), some characteristics of births in the sample were examined and compared to similar data from vital registration. It is assumed that vital registration data are complete and accurate, as British law requires all births to be registered and wilful supply of false information can lead to prosecution (ONS, 1997d). Small differences between the two data sources might be expected given that birth dates from the GHS are reported retrospectively and are therefore liable to recall error.

Percentage of Births Outside Marriage

Figure A3.1 shows the percentage of births occurring outside marriage[1] between 1977 to 1993-5 from the two sources. Both lines show the same trend, a large increase in the non-marital fertility ratio from less than 10% in 1977 to over 30% by 1993-95. However, the GHS data show a consistently lower percentage of non-marital births than the vital registration data (1.8% lower on average). Cooper (1991) and Cooper and Jones (1992) have also noted this under-estimation of non-marital fertility by the GHS when compared to vital registration data. The vital registration data used here refer only to England and Wales, while the GHS also covers Scotland. Since the mid-1980s the percentage of births outside marriage has been 1-2% lower in Scotland than in England or Wales (e.g. OPCS 1989; ONS 1998c), so this could partly explain the discrepancy in more recent years. Cooper and Jones (1992) suggest that the GHS under-estimates non-marital fertility due to under-reporting of non-marital births or to non-marital births being reported as marital births in order to report the socially more desirable outcome. However, Jones and colleagues (1985) hypothesised that non-marital births would be under-reported in the US Current Population Survey (CPS) for this reason, but in fact found the CPS to slightly over-estimate non-marital fertility.

A more compelling explanation for the under-estimation of non-marital births by the GHS in more recent years concerns the sample of women who were selected for and responded to the GHS. First, unlike vital registration, the GHS covers only women living in private households

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[1] Defined as a birth prior to marriage or following widowhood or divorce. The only small difference between the two sources is that births conceived within marriage but born following widowhood or divorce are classified as marital under vital registration but non-marital in the GHS analysis. This would lead to a small over-estimation of non-marital fertility using GHS data.

Figure A3.1 Percentage of births outside marriage, 1977-1995: A comparison of GHS retrospective data with vital registration data.
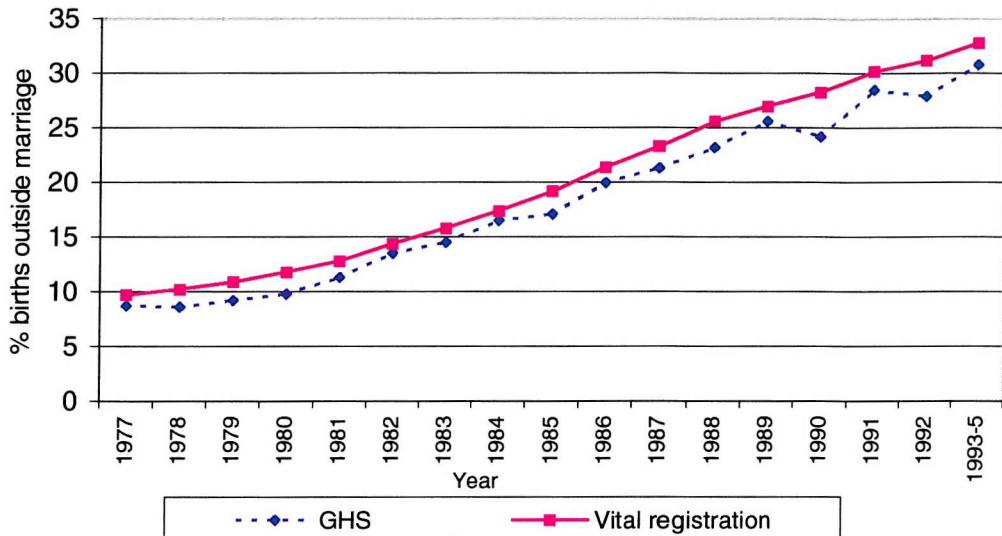
Figure A3.2 Percentage of births by age of mother, 1977-1995: A comparison of GHS retrospective data with vital registration data.
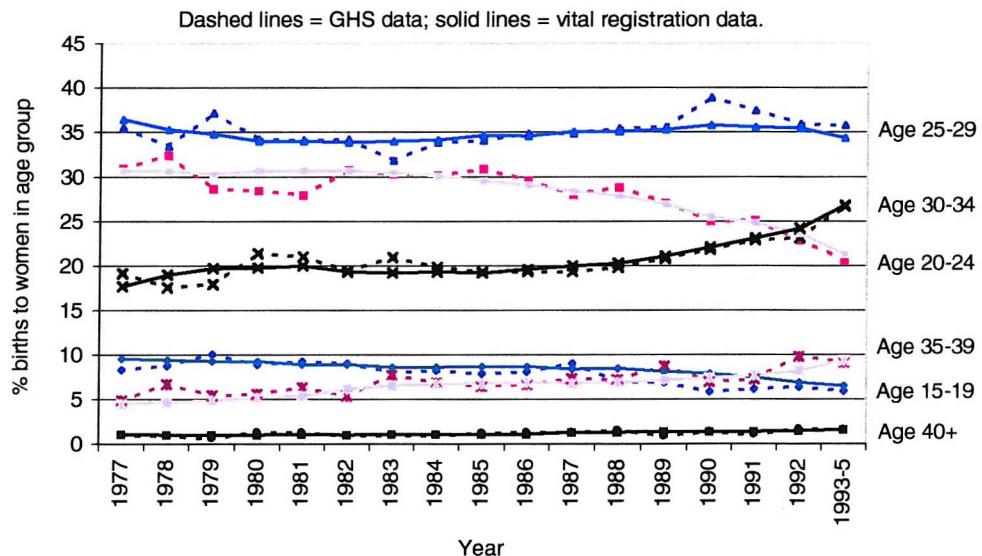
Notes to both figures:
Vital registration data refer to England and Wales and were obtained from OPCS (1984) and ONS (1997b). Data for 1993-1995 have been combined for comparability with the GHS data. GHS data come from the retrospective sample of British births, obtained from the 1990-1994 GHS.

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and not those in institutions (1.5% of the population were found to live in communal establishments in the 1991 Census (OPCS and GROS, 1993b)). Therefore the GHS may exclude certain groups at high risk of having a non-marital birth, for example teenagers in care (e.g. Biehal et al., 1992). Second, differential non-contact and non-response rates for different sub- groups surveyed in the GHS may lead to under-representation of certain groups of women at an above average risk of having a non-marital birth in the years directly prior to the survey. For example, women aged 20-24, who have the largest numbers of non-marital births (ONS, 1997d) are under-represented in the GHS when compared with mid-year population estimates or the 1991 Census (OPCS 1992, 1993, 1994, 1995, 1996). Linked to the under-representation of younger women is a significant under-representation of single women and over-representation of married women in the 1991 GHS (OPCS, 1993) when compared to 1991 Census estimates. If the GHS is slightly biased in favour of currently married women, the proportion of past births to all women interviewed that occurred outside marriage might be under-estimated. Households in London also had particularly high non-response and refusal rates in 1991 (OPCS, 1995). Vital registration data show non-marital fertility ratios during the 1980s and early 1990s to be higher in Greater London than in England and Wales as a whole (OPCS, 1985; ONS, 1997d), therefore the under-representation of Londoners in the GHS is another factor contributing to the low percentage of births found to be non-marital.

To summarise, the under-representation in the GHS of certain groups at higher risk of having a non-marital birth may contribute to the under-estimation of non-marital fertility by the GHS in the years immediately prior to the survey. The inclusion of Scottish women, with lower non-marital fertility ratios may also reduce the GHS estimates in comparison with vital registration figures in more recent years. In earlier years, the discrepancy could be explained by the non-reporting of non-marital births by older women due to recall difficulties or non-reporting of (then) socially undesirable behaviour.

Age Distribution of Mothers at Births

Figure A3.2 compares the proportion of births to mothers in each five-year age group between 1977 and 1993-5 over time, from the retrospective GHS sample and from vital registration. Apart from some year-on-year fluctuations seen in the GHS trend, due to smaller sample sizes, the results from the two sources are reasonably consistent, with no persistent under- or over-representation of any particular age group found in the GHS sample.

In conclusion, the sample of births obtained retrospectively from the GHS data appears to be fairly representative in terms of mother's age and marital status. The fact that some groups are

slightly under-represented at the time of interview should, however, be borne in mind during analysis and interpretation.

Appendix 4:
Decomposition of the Post-dissolution Fertility Ratio for 1982 and 1992.

In section 3.4, it was hoped that the decomposition of the post-dissolution fertility ratio for various years could help to identify the demographic causes of the increase in this ratio between the late 1970s and early 1990s. It was possible to use the data from the retrospective GHS sample to decompose the ratio, but the relatively small samples of women in each age group and births to each age group in particular years meant that this was not as successful as first hoped. As this was suspected at the outset, two years (1982 and 1992) were chosen to try out the analysis. Teenagers were excluded from the calculations as so few had either experienced marital dissolution or since had a birth.

The calculation of the post-dissolution fertility ratio from its constituent data produced a fairly accurate result for 1992 (ratio = 139) but a slight over-estimate for 1982 (ratio = 104) compared to the overall percentage of births following marital dissolution in 1982 (8.9%). In order to identify the reason for the increase in the ratio, the ratio for 1992 was then calculated four more times, holding age structure, marital status, pre-dissolution fertility and post-dissolution fertility rates in turn at their 1982 levels. This shows what the 1992 value of the ratio would have been, had the factor in question remained constant. The results show that the 1992 post-dissolution fertility ratio would have been marginally lower, had the age structure or marital status of the female population not changed since 1982 and marginally higher had the fertility rates of single and married women remained at 1982 levels. The noticeable difference, however, is between the actual 1992 ratio (139) and the much lower ratio had the fertility rates of women with a marital dissolution not changed between 1982 and 1992 (102). This suggests that changes in post-dissolution fertility rates are the primary cause of the increase in the post-dissolution ratio between 1982 and 1992. Unfortunately this conclusion contradicts that drawn from the other evidence in section 3.4. It is likely that year-on-year fluctuations in the age-specific fertility rates have produced this result, as there is no clear increase in post-dissolution fertility rates over time evident in figure 3.16.

Table A4.1 Decomposition of the post-dissolution fertility ratio for 1982 and 1992.

1982

Age P_{jt}	Proportion women in age group P_{jt}	Proportion with no marital dissolution C_{jt}	Proportion post-dissolution $1-C_{jt}$	Post-dissolution fertility rate f_{jt}	Pre-dissolution fertility rate a_{jt}	$P_{jt}*$ $1-C_{jt}*$ f_{jt}	$P_{jt}*$ $C_{jt}*$ a_{jt}	RATIO = 0.104003 **104.003**
20-24	21.68	962	38	123.8	104	101991.1	2169034	
25-29	19.57	852	148	93.7	135.9	271438.8	2266364	
30-34	21.53	810	190	54.8	76.9	224126.8	1340822	
35-39	20.81	775	225	21.6	20	101120	322501.9	
40-44	16.41	790	210	4.6	4.4	15856	57055.33	
	100					714532.6	6155777	

1992

Age P_{jt}	Proportion women in age group P_{jt}	Proportion with no marital dissolution C_{jt}	Proportion post-dissolution $1-C_{jt}$	Post-dissolution fertility rate f_{jt}	Pre-dissolution fertility rate a_{jt}	$P_{jt}*$ $1-C_{jt}*$ f_{jt}	$P_{jt}*$ $C_{jt}*$ a_{jt}	RATIO = 0.138951 **138.9512**
20-24	18.43	965	35	103.9	97.4	67005.06	1731850	
25-29	22.08	877	123	114.9	129.8	312105.5	2513915	
30-34	21.01	783	217	68.4	91.5	311809.9	1505071	
35-39	19.35	740	260	53.5	35.2	269169.2	504048.8	
40-44	19.13	696	304	10.1	4.4	58743.25	58590.19	
	100					1018833	6313475	

1992 holding age structure at 1982 levels:

Age	$P_{jt}*$ $1-C_{jt}*$ f_{jt}	$P_{jt}*$ $C_{jt}*$ a_{jt}
20-24	78839.1	2037719
25-29	276627.7	2228152
30-34	319503.4	1542206
35-39	289419.5	541969.7
40-44	50397.78	50266.47
	1014787	6400314
Ratio	0.136854	**136.8542**

1992 holding marital status at 1982 levels:

Age	$P_{jt}*$ $1-C_{jt}*$ f_{jt}	$P_{jt}*$ $C_{jt}*$ a_{jt}
20-24	72748.35	1726466
25-29	375541.6	2442253
30-34	273013.3	1556970
35-39	232934.9	527889
40-44	40579.22	66503.24
	994817.4	6320081
Ratio	0.135999	**135.9988**

1992 holding pre-dissolution fertility rates at 1982 levels:

Age	$P_{jt}*$ $1-C_{jt}*$ f_{ij}	$P_{jt}*$ $C_{jt}*$ a_{jt}
20-24	67005.06	1849203
25-29	312105.5	2632058
30-34	311809.9	1264917
35-39	269169.2	286391.4
40-44	58743.25	58590.19
	1018833	6091160
Ratio	0.143296	**143.2959**

1992 holding post-dissolution rates at 1982 levels:

Age	$P_{jt}*$ $1-C_{jt}*$ f_{jt}	$P_{jt}*$ $C_{jt}*$ a_{jt}
20-24	79838.56	1731850
25-29	254519.5	2513915
30-34	249812.6	1505071
35-39	108673.9	504048.8
40-44	26754.35	58590.19
	719598.9	6313475
Ratio	0.102316	**102.3164**

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